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A Study on Maize Marketing Performance of Damot Multipurpose Farmers' Cooperatives Union and its Affiliates, Amhara Region, Ethiopia

By

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A Thesis

Submitted in Partial Fulfillment of the Requirements for the Master of Science Degree in Cooperative Marketing

Major Adviser: Dr.G.Veerakumaran (Asso. Prof.)

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DEDICATION

Cooperatives are the key players of the development arena. Therefore, this manuscript is dedicated to the development actors called **"Cooperatives".**

DECLARATION

This is to certify that this thesis entitled **"A Study on Maize Marketing Performance of Damot Multipurpose Farmers' Cooperatives Union and its Affiliates, Amhara Region, Ethiopia"** submitted in partial fulfillment of the requirements for the award of the degree of M.Sc. in Cooperative Marketing to the School of Graduate Studies, Mekelle University, through the Department of Cooperatives, done by Ato Belete Alem Fentie, Id.No. FDA/PR0015/99 is an authentic work carried out by him under my guidance. The matter embodied in this project work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief.

Name of the student **Belete Alem Fentie** Signature and date_____

Name of the Advisor _____ Signature and date_____

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BIOGRAPHY OF THE AUTHOR

The author, Belete Alem was born on March 22, 1972 at a small rural village called Guashita Mariam, Bure worada, west Gojjam zone of Amhara region. He attended his elementary school education at Shaqua primary rural school. He also attended his junior and secondary school education at Bure Shikudad Junior and Secondary High School.

After passing the Ethiopian School Leaving Certificate Examination (E.S.L.C.E), he joined Alemaya University of Agriculture in September 1991 and completed his B.Sc degree studies in Agricultural Economics in July 1994.

After his graduation, he was employed in Awi zone, Guangua woreda office of Agriculture as a Junior Farm Management Expert on May 1995.

Due to the establishment of the Amhara Region Cooperatives Promotion Office from regional to woreda level, he transferred to the newly established office in 1996 and worked as Office Head and Planning and Programming Expert at woreda and zone level, respectively until June 2001.

In July 2001, He joined Amhara Region Cooperatives Promotion Bureau and served as Cooperatives Credit and Marketing Expert until he joined Mekelle University to continue his Post Graduate Studies in Cooperative Marketing Program, Department of Cooperatives, in 2006/07 academic year.

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ACRONYMS AND ABBREVATIONS

BoFED	Bureau of Finance and Economic Development
Br	Birr (Ethiopian Local Currency)
C.C	Contingency Coefficient
Coop(s)	Cooperative(s)
CPA	Cooperatives Promotion Agency
CSA	Central Statistics Authority
DA(s)	Development Agent(s)
DMFCU	Damot Multipurpose Farmers' Cooperatives Union
FCA	Federal Cooperatives Agency
Ha(s)	Hectare(s)
HH	Household
ICA	International Cooperatives Alliance
Kebele	Village
Km(s)	Kilometer(s)
λ	*LAMBDA (*inverse *Mill's ratio)*
No(s)	Number(s)
^{o}c	Degree Celsius
OLS	Ordinary Least Square
PPS	Probability proportional to Size
Qt(s)	Quintal(s) (100 kilogram)
TLU	Tropical Livestock Unit
VIF	Variance Inflation Factor
Woreda	District

A STUDY ON MAIZE MARKETING PERFORMANCE OF DAMOT MULTIPURPOSE FARMERS' COOPERATIVES UNION AND ITS AFFILIATES, AMHARA REGION, ETHIOPIA

ABSTRACT

Cooperatives are organizations whose primary functions are to market commodities for members. They are responsible for getting the preeminent prices paid to the members for their commodities by negotiating with wholesalers and processors for best prices. However, farmers in developing countries were not getting the right share of prices because of excessive marketing costs and margins and the cooperatives were not in a position to deliver the services expected from them by increasing the members' participation and volume of sales.

The study, therefore, aims at to analyze the maize marketing performance of DMFCU and its affiliates. The study was conducted by collecting data from primary and secondary sources. From the members of DMFCU, six primary cooperatives and 120 individuals were randomly selected in proportion to the number of membership on the basis of woreda and primary cooperatives level respectively.

In this study, both descriptive statistics and econometric analysis were employed for analytical purpose. Of the total individual respondents, 57.5% were participants and 42.5% were non-participants in cooperatives maize marketing in 2006/07.

The descriptive statistics indicated that the marketing share of cooperatives out of the total marketable surplus was only 5%.The total gross marketing margin of maize was 39.22%. From the total gross marketing margin, the primary cooperatives and the union share was 4.20% and 10.01% respectively. The share of the producers' of the amount spent by the consumers was about 60.78%. The results of statistical tests between the participant and non-participant farmers in the cooperatives maize marketing indicated that family size, production of maize, household's annual income, use of fertilizer, patronage refund, cooperatives leadership, availability of other services and misappropriations of cooperatives property were significantly affected the participation.

In the process of econometric analysis Heckman's two-step procedure was applied. In the first-stage, to explain the participation decision, a probit equation was estimated. In the second-stage, the OLS estimation equation (Volume of sale) was performed by using selection bias control factor inverse Mill's ratio (LAMBDA).

At the first stage of the Heckman two-step approach, the probit model, the variables, participation in cooperatives leadership, patronage refund and cooperatives purchasing price were affected the probability of the members participation decision in cooperatives maize marketing. Similarly, at the second stage, the OLS result indicated the variables, production of maize, training on cooperatives, patronage refund, availability of other services and inverse Mill's ratio (λ) have significant effect on the magnitude/volume of maize sold to the cooperatives.

The major problems that affect the maize marketing performance of cooperatives were lack of capital, poor marketing management, lack of storage and transportation facilities, lack of reliable market information, lack of value addition through processing and lack of standardization and grading.

Finally, the study concluded that cooperatives are important tools for increasing producers' price, reducing marketing costs and providing supplies and equipments at lowest cost. Therefore, responsible organizations should pay attention to strengthen them.

CHAPTER I: INTRODUCTION

1.1. Background

Ethiopia, one of the least developing countries in the world, has a population of about 77.13 million with annual growth rate of 2.9%. The number of females account for 50.10% of the total population. Agriculture contributes 46.7% of the national Gross Domestic Product (GDP) and more than 85% of the population is engaged in agricultural production as a major means of livelihood (CSA, 2006). Agricultural productivity is low due to use of low level of improved agricultural technologies, risks associated with weather conditions, diseases and pests. Moreover, the land holding per household is declining due to the ever increasing population growth, leading to low per capita production to meet the consumption requirements of the households.

The Ethiopian Rural Development Policy and Strategy document (2002) has given emphasis to market-led agricultural development that will be achieved by establishing and implementing grades and standards, improving the provision of market information, expanding and strengthening cooperatives and private sector participation in the agricultural sector. Towards this end, the government is providing a growing support for growth of cooperatives in terms of market integration and agro-enterprise development. Providing such policy support is an opportunity for creating conducive environment in improving the marketing system of cooperatives.

Marketing cooperatives are intended to protect farmers from market uncertainties and imperfections, strengthening the bargaining power and fetch better prices and lower transaction costs and ensure the supply of inputs and avoid input risk. They also provide marketing logistics

to gain advantage of space, time, possession and cost to the farmers. Of the advantages that cooperatives offer, the economic gain to producers in terms of better price and lower marketing costs is the foremost. Since it is not possible for the individual farmer to influence the market behavior, the creation of countervailing power by means of a firm which can act as an interface between the highly sophisticated global markets on the one hand, and the primary farmers on seeking sustainable methods of production with the rural setting on the other is imperative (Kulandaiswamy, 1996).

The agricultural marketing system consists of a long, complex distribution channel and a variety of firms distributing products to multiple time, form and places. Marketing process is shaped by geographical specialization of production, product perishability, bulkiness, seasonality, large price and quality variations. Marketing orders and agreements, cooperatives and grower bargaining associations all influence grain marketing. Both price and non price forms of competition are evident at product, regional, brand, and international levels. Hence, farmers can gain influential power against imperfectly competitive buyers by selling to their own organizations called cooperatives.

The cooperatives in Amhara region are at flourishing stage and showing encouraging results from year-to-year. However, their contribution in improving the marketing of the farmers' produces is very low (CPA, 2007).

Cereals are major food crops in Ethiopia both in terms of the area they are planted and volume of production obtained. They are produced in large volume compared with other crops because they are the principal staple crops. Cereals are grown in all the regions with varying quantity, for instance in 2006 production year, out of the total grain area 79.46% (8.1 million hectares) was under cereals. Teff, maize, sorghum and wheat took up respectively 22.08% (2.2 million

hectares), 15% (1.5 million hectares), 14.43% (nearly 1.5 million hectares) and 14.43% (nearly 1.5 million hectares) of crop lands (CSA, 2006).

Farmers of the Amhara region produce a combination of cereals, pulses, and oil seeds. Cereals account for about 76.78% of the total cultivated area (the largest percentage) and 85% of the total crop production of the country. Among cereals, maize is one of the important crops grown in the region. In the 2005/06 production year, it accounted 22.35% (0.34 million hectares) and 21.75% (7.26 million quintals) of the total cultivated land area and cereal production, respectively. The average maize yield produced in the region is 21.28 quintals per hectare. The average amount of maize produced with and without extension service provided by the government were 27.38 and 17.61 quintals per hectare, respectively (CSA, 2006).

Maize is one of the dominant crops in the study area, and is highly marketed by cooperatives including Damot Multipurpose Farmers Cooperatives Union (DMFCU). Therefore, this research makes an attempt to analyze the maize marketing performance of DMFCU and its affiliates[1].

[1]Affiliates are primary cooperatives which are the members of Damot Cooperatives Union

1.2. Statement of the Problem

Farmers in Ethiopia are affected by low producers price, on one hand, and high consumer price, on the other hand. One of the reasons for this dilemma is, according to Wolday and Eleni (2003), lack of proper transport facilities and other infrastructure services. Ethiopia has a low road density as compared to the other African countries. The average road density in Ethiopia is estimated to be 21 km per 1,000 square km of land or 0.43 Km per 1,000 population .Transport costs alone account for about 66 % of the marketing cost of grain; transportation cost of maize from surplus to a deficit area within Ethiopia can be about 200% of the value of grain. Moreover, communication infrastructure is poorly developed for disseminating market information to market participants affecting the efficiency of agricultural commodity markets. This has contributed its own share for the existing inefficient agricultural markets.

In addition, most farmers are not in a position to take advantage of seasonal price differences. This is because of limited income to cover their financial commitments, which in most cases have to be settled soon after harvest, and possibly because of returns to storage are not high under prevailing smallholder condition (Asfaw and Jayne 1998).

Farmers in developing countries were not getting the right share of consumer price because of excessive marketing costs and margins as well as poor participation of marketing organizations formed by the farmers themselves (Colman and Young 1995). Majority of agricultural producers are small holders, and are not producing and selling their produce in an organized manner so that some of their benefit may transfer to the middlemen. Moreover, the agriculture-industry interface is found at weak position that farmers are not confident enough about future market.

Further, the poor performance of the agricultural commodity marketing system in the region and/ or in the country strongly influences the profitability of agricultural input use (Mulat and et al,

1998). Consequently, producers were not in a position to improve the level of production and productivity to the required level.

According to Wolday (1994), in Ethiopia the performance of agricultural marketing system is constrained by many factors. Poor quality of agricultural produce, lack of market facilities, weak extension services, poor linkage of research and extension, absence of market information and intelligent service are the core problems of the existing marketing system. In addition to this, excessive price and supply fluctuations, limited access to credit, inefficient handling, including grading, storage, packaging, transport and management are some of the major problems of the agricultural marketing system. Further, weak legal system to enforce contracts, lack of institution like cooperatives, inadequate government interventions and absence of market regulations and legislation, lack of vertical and horizontal coordination; lack of integration of farmers to the marketing system and others are also elements of the existing market problems which have contributed the farmers' participation and sales volume negatively.

DMFCU been established to solve the marketing problems of the affiliated primary cooperatives by collecting the farmers' produces for transportation and processing which can help to negotiate acceptable price on behalf of the farmers. It also expected to play significant role in bringing agricultural transformation through the supply of modern inputs, technologies and marketing skills to assure food security through improving the income position of members. But it could not yet provide the expected services by increasing the members' participation and volume of sales due to lack of coordination between the union and primary cooperatives, shortage of capital, lack of market information and lack of storage and transportation facilities (DMFCU, 2007).

Though marketing research is vital to investigate the situation and recommend the way that can improve the performance of grain marketing by cooperatives in the study area, no empirical study has been conducted in this respect. Therefore, this study can be considered as one step forward towards analyzing the maize marketing performance of DMFCU and its affiliates.

1.3. Research Questions

This study attempts to answer the following research questions:

1. Who is getting the highest share of the marketing margins?
    - The farmers?
    - The primary cooperatives?
    - The union?
2. What are the major socio-economic factors affecting members' participation and volume of sales in cooperatives maize marketing?
3. Have the member farmers' been selling their entire marketed surplus[2] of maize to the cooperatives?
4. What are the problems affecting maize marketing performance of the cooperatives?
5. What will be the possible strategies to improve maize marketing performance of the cooperatives?

[2] Marketed surplus is the quantity of the produce which the farmer actually sells in the market, irrespective of his requirement

1.4. Objectives of the study

The general objective of the study is to analyze the maize marketing performance of DMFCU and its affiliates.

The Specific objectives are:

1. To examine the share of marketing margins among the farmers /members/, the affiliated cooperatives and the union.
2. To analyze the socio-economic factors affecting the participation and the sales volume of the members to the primary cooperatives maize marketing.
3. To identify the marketing problems and suggest possible strategies to improve the maize marketing performance of cooperatives.

1.5. Hypotheses

- There is no significant marketing margin difference among the members, the primary cooperatives and the union.
- There is no relationship between the socio-economic factors and members' participation as well as the sales volume of maize.

1.6. Scope and Limitation of the study

The research was conducted to analyze the maize marketing performance of the cooperatives union and its affiliates. The findings of the study could be more fruitful and dependable if it was conducted widely. However, due to time and financial constraints, it would be out of the reach of the researcher to include all cooperatives unions in the region. Therefore, the study was limited to DMFCU and its affiliates that have high maize marketing potential and involvement in the region.

1.7. Significance of the study

The outcome of this research will be useful to DMFCU and affiliated cooperatives as well as the farmers at the operational area. It is also believed that the results of the research have important implication for the cooperatives in the Amhara region at large and cooperatives promoters who have the responsibility of promoting and strengthening cooperatives in grain marketing. More over, the findings of the study will pave the way for other researchers who want to conduct a detailed research on the issue.

1.8. Chapter Scheme

This thesis research constitutes five major chapters. In the introduction chapter, the subchapters that are discussed includes background, statement of the problem, research questions, objectives of the study, hypotheses, scope and limitations of the study and significance of the study. The second chapter elaborates a review of some theoretical concepts and empirical studies with respect to the cooperatives. A brief description of the study area and a thorough explanation of the methodologies used for the study are presented in chapter three. In the fourth chapter, the results obtained from the analysis of descriptive statistics and econometrics model was interpreted and discussed. Finally, chapter five presents conclusion and recommendation based on the results of the study.

CHAPTER II: LITERATURE REVIEW

The objective of this chapter is to review different literatures in the area of cooperatives marketing. Therefore, this thesis focus on theoretical concepts and empirical studies on marketing margins as well as the socio-economic factors affecting participation of members in cooperatives' maize marketing. The review of literatures covers different materials relevant to the research which are available in books, internet, reports of different organizations and research works.

2.1. Theoretical Concepts

2.1.1. Definitions and Concepts of Cooperatives

A cooperative is defined as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" (ICA, 1995).

Barton (1989) defined a cooperative as "a private business organized and joined by members to fulfill their mutual economic needs as patrons of the business, with the key control, ownership, and income distribution decisions based on patronage proportions".

A contractual arrangement between the cooperative and the member patrons requires that all margins above the cost of production be returned to the member patrons in proportion to their business with the cooperatives (Roy, 1964).

Agricultural cooperatives represent an attempt by farmers, each of who has a different set of resources and perhaps goals, to integrate vertically in to the food and fiber system. The cooperatives involve farmers, elected board of directors; hired management, organized labor;

government officials, bankers and others may be involved in decision by cooperatives (Staath, 1965).

Wikipedia (2007) defined agricultural marketing cooperative, also known as farmer's cooperative, is a cooperative business owned by farmers, to produce or (usually) store and market agricultural products.

2.1.2. Cooperative Values and principles

The basic principles of the cooperative societies are self-help and mutual help, open membership and religious or political neutrality. The affairs of the society is controlled in a democratic manner on the basis of one man one vote not in proportion to capital and members benefit from the activity of the society in proportion to the business they do with it (Belshaw, 1959).

The general assembly of International Cooperatives Alliance (ICA) held in Geneva in February 2006, approved the statement on cooperative identity as follows (ICA, 2006):

Values

Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility, and caring for others.

Principles

1. Voluntary and Open Membership: Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities to membership, without gender, social and political or religious discrimination.

2. Democratic Member Control: Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and

women serving as elected representatives are accountable to the membership. In primary cooperatives members have equal voting rights (one member, one vote), and cooperatives at other levels are also organized in a democratic manner.

3. Member Economic Participation: Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of the assets is usually the common property of the cooperative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the cooperative, possibly by setting up reserves part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.

4. Autonomy and Independence: Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

5. Education, Training and Information: Cooperatives provide education and training for their members, elected representatives, mangers and employees so they can contribute effectively to the development of their cooperatives. They inform the general public-particularly young people and opinion leaders-about the nature and benefits of cooperation.

6. Cooperation among Cooperatives: Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

7. Concern for Community: Cooperatives work for the sustainable development of their communities through policies approved by their members.

2.1.3. The Nature of Cooperatives

Cooperatives are special type of associations that are owned and controlled by those who use their services. To further enhance their mutual benefits, members finance and operate the business. By working together, cooperative members may be able to meet objectives that would not be feasible for them to do as individuals. Hence, the financial returns to individual operations may be increased. In many respects, cooperatives feel like any other businesses. The physical facilities, functions, and business practices may be identical. Like any associations cooperatives have articles of incorporations, bylaws, and an elected board of directors; and should be managed on a day-to- day basis by professionals who function under policy set by the board of directors. But in other significant ways cooperatives are quite different. The differences stem from the nature of the cooperatives purpose, ownership, control, and distribution of benefits. The cooperatives intent is to provide services to members at lowest possible cost not to generate the highest possible return to investors. At the same time, they must generate sufficient revenue to meet continued needs for funds (Astrup, 1998).

Benefits are typically tied to the amount of use (patronage), not the amount of invested (equity). The amount remaining after the cooperatives deduct their costs from their income is known as net returns (savings). They usually are distributed to members as patronage dividends based on the amount of each member patronizes (uses) the cooperative.

Cooperatives can be established as single purpose or multipurpose. Therefore, a single purpose cooperative is a cooperative which has only one field of activity (one purpose e.g. marketing)

while the one which has more than one field of activity is classified as multi purpose /e.g. credit, agricultural input provision, and marketing of agricultural produce for members/.

2.1.4. Ethiopian Experience in Cooperative Movement and Development

Cooperation has a long history in Ethiopia. Cooperative societies exist both in rural and urban areas. In rural areas debbo /wonfel/ is the major form of traditional cooperatives operating with a purpose of optimally utilizing the scarce resources such as labor among the cooperators within a short period of time .For example, timely ploughing, weeding, harvesting or building houses, fences, streets and bridges etc were considered as the production unit. There are also other forms of traditional cooperatives, which provide social security and other services. These are Equib and Iddir. Equib is the traditional saving society and Iddir is the traditional funeral society.

Since time immemorial, all these forms of traditional cooperatives have been established on the free will of the people. No government and what so ever external power has given directives, rules and regulations for their establishment and development. But it is the members of these traditional societies who are the prime movers of the idea for cooperation, promoters, and developers and administrators.

According to Zemen (2005), modern cooperatives movement had started at the time of emperor Haileselesse at the beginning of 1960s by putting emphasis on the establishment of multipurpose agricultural cooperatives. The first cooperative legal action was made and it is known by Decree number 44/1961.The main reasons for this decree was to decrease unemployment, decrease migration from rural area to urban, decrease the number of students who drop out of their education, and finally to disarmament of military with out proper compensation and pension.

The second legal cooperative was enacted 1964, and the time was the end of first five-year development plan. Based on the evaluation of this plan, the need for cooperative form of

organization for the development of the nation was considered to be inevitable. Therefore, the first cooperatives organization legal proclamation known as proclamation to provide for the formation of cooperative societies (Proclamation No. 241/1966) was proclaimed. The main objective of this law was to decrease the amount of interest paid for credit, to minimize the risk of individual in case of bankruptcy, and to increase the implementation of innovation in practical life. Based on this proclamation 158 cooperatives were established with 33,400 members and 9,970 Birr total capital. Nevertheless, the focus was only on those areas that can cultivate economically important crops and it demanded the land ownership as a criteria. So it was unable to meet the demand of all Ethiopian poor farmers (Zemen, 2005).

In 1974, Emperor Haileselassie government fell and a military regime took place. This period in Ethiopia was a transition from feudal land lord system to the socialist ideology. The land, productive forces, buildings and others which were owned privately came under the control of government. All cooperatives established under Proclamation No.241/1966 were dissolved except saving and credit cooperatives.

To strengthen and expand the new socialist system, the Derg government drafted and implemented different strategies .Expansion of cooperative societies was one of the leading strategies. For the execution of this program different cooperative's proclamations were proclaimed. Among these, a proclamation to provide for the establishment of cooperative societies (Proclamation No.138/1978) with the aim of bringing socialist agriculture transformation was proclaimed. The cooperatives to be established under this proclamation were producers, service, saving and credit and housing cooperatives. Hence, according to data taken from ministry of agriculture, up to 1990 there were 10,524 different types of cooperatives with 4,529,259 members and combined capital of Birr 465,467,428 through out the country. From

these cooperatives, 80% were rural cooperatives (Ibid.). At that time, the then government gave due attention for the cooperative societies such as supplying agricultural inputs, consumer goods and the like at fair price. Cooperatives in this period suffered because they were forced to serve other political purposes than the purpose for which they were established. As the result of their bad reputation in the past and due to other factors such as lack of proper training and capital, the cooperatives credibility was undermined and it made them vulnerable to mismanagement. The lack of trust of the farmers in the cooperatives system was due to exposures of embezzlement, corruption and immorality. During the 1991 change, the government view towards cooperatives was manifested in the actions of the farmers looting and destroying farmers' multipurpose service cooperatives property and records. The farmers' multipurpose service cooperatives themselves became notorious for waste and mismanagement. According to Dessalegn (1994), more than 24 million Birr was misappropriated by those farmers' multipurpose service cooperatives, which the ministry of agriculture had audited.

After the down fall of the Derg regime in the year 1991, the transitional government of Ethiopia declared the free market economy. According to Wolday (1994), the present government, which was not very sympathetic to cooperatives initiated by the former government, issued a proclamation in 1994 to reactivate the cooperatives movement in the country. Member-led cooperatives are thought to be necessary to reduce transaction costs and enhance the bargaining position of small farmers. However, in 1994 there was an attempt to strengthen the rural cooperatives. Among the basic actions the government took in this time was the proclamation of agricultural cooperatives, Proclamation number 85/1994.This proclamation tried to incorporate the international cooperative principles. However, its focus was only to solve the rural cooperatives problems. In addition, there was no separate entity to support those cooperatives

both at federal and region level. Therefore, it didn't solve the problem of cooperatives in Ethiopia.

A new proclamation to provide for the establishment of cooperative societies, Proclamation No.147/1998, was issued to provide a better policy framework to set up cooperatives based on an individual membership and voluntary basis. Members buy shares to become member and receive dividends at the end of the year depending on their contributions (value of their shares) and profit earned. The Cooperatives Promotion Agency (CPA) has been established from national to woreda level to provide a wide range of technical services to the cooperatives. Accordingly, 19,147 primary cooperatives with 4.16 million individual members and 1.47 billion Birr capital and 124 secondary cooperatives with 992.6 million Birr capital were established at national level until 2007 (CPA, 2007).

2.1. 5. Structures and Activities of Farmers' Cooperative Societies in Ethiopia

The cooperative movement in Ethiopia can be established into a four-tier system. At the grass-root level we have the primary cooperative societies. The primary cooperative societies have joined-up to form farmers cooperative unions ensure economies of scale in all business activities. At regional level we will have cooperative federations, which offer specialized services. Ethiopian cooperative league is also expected to be the apex body for the cooperative movement (FCA, 2006).

Primary Cooperative Societies: Individual farmers are organizing primary cooperative societies on voluntary basis. Farmers who live and work in the same working area with the same occupation can form a primary cooperative society.

The primary cooperative societies are managed primarily by the general assembly, which is a meeting of all members normally held at least once in a year. The general assembly is a supreme

organ. It delegates its power to democratically elected management committee, control committee and other committee as needed.

Most of the existing farmers' primary cooperative societies were established during the reign of the military government. Farmers were forced by government officials to be a member. Peasant associations made the farmers to be member without asking them.

Currently these cooperatives are being reorganized as per the newly adopted act of number 147/1998 and amended act number 241/2004.The major activities which should be undertaken by the primary cooperative societies are marketing of agricultural products of their members for better price, supply of agricultural inputs, provision of financial credit service, and supply of different consumer goods to their members.

Unions: Farmer's cooperative unions are formed by two or more primary societies who have similar activities to undertake those activities, which are beyond the capacity of primary societies. The owners of these organizations are the individual farmers who have formed the member primary societies. They have geographical boundary and economic viability. Farmer's cooperative unions are managed by general assembly whose members came from the member primary cooperative societies.

The general assembly delegates its power for democratically elected management committee, control committee and others. The manager and other staff are employed by the management committee to undertake the recurrent activities. The major activities of the cooperative unions are marketing of members' produce in the local and international market, providing market information, supplying agricultural inputs in bulk and provision of transportation, storage and credit services for the member primary cooperative societies.

Federations: Two or more unions of similar activities form farmers' cooperative federations. The primary cooperative societies can also be members, if they are engaged with similar and interrelated activities. It is formed at regional as well as at national level to undertake specific activities, which might not be cost effective at union and primary level like import and export activities.

The supreme body here is also the general assembly whose members are elected from member unions and primary societies, as the case may be. Managers and other staff undertake the day-to-day activities of the federation with frequent follow-up of the board of directors and general assembly. Federations at national level have not yet formed in Ethiopia (FCA, 2006).

Cooperative League: The highest organizational body of cooperatives is known as cooperative league. It does not directly involve in production and service giving activities. It will serve as a mouthpiece of cooperatives in the country. It facilitates the horizontal and vertical relationship of cooperatives at national level. It represents the cooperative movement in the country at the international forum.

The members of the cooperative league can be primary co-operatives, unions and federations. It has not yet been formed in our country. There is a plan to form cooperative league in Ethiopia in the future. It is clearly indicated on the vision of cooperative movement in Ethiopia. Some activities have been started which might have substantial effect for cooperative league formation.

2.1.6. Marketing Performance

The marketing Performance is reflection of the impact of structure and conduct on product price, costs and the volume and quality of output (Cramers and Jensen, 1982). If the market structure in an industry resembles monopoly rather than pure competition, then one expects poor marketing performance.

According to Abbott and Makeham (1981) marketing performance is how successfully the firm's aims are accomplished, which shows the assessment of how well the process of marketing is carried out. Is produce assembled and delivered on time and without wastage? Is it well packed and presented attractively? Is its quality reliable and are terms of contract observed? Is the consumption of the products increasing and sales in competitive market expanding? There are such practical indicators of how well a certain marketing system is operating.

As a method for analysis the Structure-conduct-performance paradigm postulates that the relationship exists between the three levels distinguished. One can imagine a causal relations starting from the structure, which determine the conduct, which together determine the performance (technological progressiveness, growth orientation of marketing firms, efficiency of resource use, and product improvement and maximum market services at the least possible cost) of agricultural marketing system in developing countries (Meijer, 1994).

2.1.6.1. Methods of Evaluating Marketing Performance

Marketing performance can be evaluated by analysis of costs and margins of marketing agents in different channels, gross sales, market share and market integration. A commonly used measure of system performance is the marketing margin or price spread. Margin or spreads can be useful descriptive statistics if used to show how the consumer's food price is divided among participants at different levels of the marketing system (Getachew, 2002).

Marketing Costs and Margins

Marketing costs: Marketing costs refers to those costs, which are incurred to perform various marketing activities in the shipment of goods from producers to consumers. Marketing cost includes: Handling cost (packing and unpacking, loading and unloading putting inshore and taken out again), transport cost, product loss (particularly for perishable fruits and vegetable),

storage costs, processing cost, and capital cost (interest on loan), market fees, commission and unofficial payments (Heltberg and Tarp, 2001).

Marketing margin: A marketing margin is the percentage of the final weighted average selling price taken by each stage of the marketing chain. The total marketing margin is the difference between what the consumer pays and what the producer/farmer receives for his product. In other words it is the difference between retail price and farm price (Cramers and Jensen, 1982). A wide margin means usually high prices to consumers and low prices to producers. The total marketing margin may be subdivided into different components: all the costs of marketing services and the profit margins or net returns.The marketing margin in an imperfect market is likely to be higher than that in a competitive market because of the expected abnormal profit. But marketing margins can also be high, even in competitive market due to high real market cost (Wolday, 1994).

There are three methods used in estimating marketing margin (Abbot, 1958): (a) following specific lots of consignments through the marketing system and assessing the cost involved at each of the different stages (time lag); (b) submission of average gross purchase by the number of units transacted for each type of marketing agency; and (c) comparison of prices at different levels of marketing over the same period of time (concurrent method). Since the first two methods are time consuming, the third method has been used for this study.

2.2. Empirical Studies

2.2.1. Studies on Cooperatives in Ethiopia

In his study of cooperative movement in Ethiopia, at early days Kebebew (1978) emphasized that the state commitment for collective agriculture to flourish. This commitment manifested by

the material and technical investment accompanied by educational programs designed to raise the social and political consciousness of the peasants. State investment in agriculture designed to modernize the methods of agricultural production is likely to attract those peasants who are dubious about the success of collective production.

A study conducted by Alemayehu (1984) in Kembata and Hadiya on service cooperatives revealed that most of the service cooperatives safeguarded the peasants against price exploitation by private traders. However, he noted that cooperatives' attempt to serve their members have been hampered by the cooperative poor spatial organization which necessitated the re-organization of some of the cooperatives based on physical geographic factors and on the size of the peasant association membership.

Wegenie (1989) evaluated the performance of cooperatives both at micro and macro level and the problems of development of cooperatives. Macro level study indicated that the performance of cooperatives was poor when compared to the individual and state farms in terms of yield. The performance evaluation of the cooperatives at the micro level was specifically directed at looking their allocative efficiency using the linear programming model. Comparison of the actual with the optimal pattern indicated sub optimality in their cropping pattern. In all cases his result suggested a reallocation of land away from the two basic products of the region i.e. wheat and barely to other crops. Land, in his optimal solution was found to be the limiting factor in all the cooperatives and he suggested that for an appropriate land holding and land allocation policy for each of the cooperatives which take resource availability of the cooperative into account. His study also indicated input-output pricing system, declining income of members, forced membership and absence of democracy in decision-making process as problems for development of cooperatives.

A study conducted by Fassil (1990) showed that in spite of the several tasks bestowed upon peasant service cooperative, they were mainly engaged in the supply of consumer goods to members followed by grain purchase and sale activities. Even in the activities they engaged, they have lower share compared to those of state and other bodies. The problems of the cooperatives were manifested in the sphere of marketing and management, which includes the problems in the supply of both consumer goods and agricultural inputs, participation in purchase and sale of products especially grain, shortage of skilled manpower and financial management.

Tesfaye (1995) in his study of producers' cooperatives found that these organizations failed in the past not because of failure inherent in collective management but because of forced membership without the interest of the farmers and formation of the cooperatives in hurry without any sufficient preparation and feasibility study. The problem of intervention of the Derg regime in the affairs of these organizations i.e. using them for its political ends and the largeness and complexity of the organizations for the managerial capacity of the farmers were also a reason for the failures of the cooperatives.

Rehima (2006) was used a Heckman two step procedure econometrics model to analyze the factors affecting the pepper marketing participation decision and the quantity supply of pepper in Alaba and Silitie. Her result indicated that out of the hypothesized 15 explanatory variables, 12 variables were selected and entered in to the probit model in the first stage. Out of 12 variables only 2 variables, namely production of pepper and crop yield, were significantly affected the participation decision. In the second step the quantity of pepper supplied were analyzed by using selection model which included inverse Mill's ratio (LAMBDA). Out of 14 potential explanatory variables, five variables namely production of pepper, on-farm income, extension contact, livestock (TLU) and inverse Mill's ratio (λ) had a significant effect on quantity of pepper.

Degu (2007) was used a Heckman two step procedure econometrics model to analyze the determinants of the participation decision and the magnitude of annual saving of rural saving and credit cooperatives members. Hence, his result indicated that in the first stage (probit regression analysis), the ratio of non-farm income to farm income, participation in training program, livestock resource ownership, accessibility of credit and level of respondents were significantly affected the participation decision in joining rural saving and credit cooperatives. In the second stage (OLS regression analysis), his result also indicated that the ratio of non-farm income to farm income, livestock resource ownership and education level were significantly related with the magnitude of household's annual savings in rural saving and credit cooperatives.

2.2.2. International Studies on the Performance of Agricultural Cooperatives

Hind (1994) studied the Performance of 31 agricultural cooperatives and 82 non-cooperatives in agribusinesses in United Kingdom. He determined first, the mean, standard deviations and t-test of differences in means for the two businesses of the selected performance indicators such as sales turnover, return on asset, sales/working capital, debt ratio, etc. Then, he applied a multiple linear regression model to determine if there were significant relationships between the performance indicators and business form using dummy variables for the business form.

The findings of his research revealed that cooperatives do not perform differently to non-cooperatives; despite being required to balance members' needs with the attainment of their goals.

Mauget and Decklerck (1996) examined a sample of European community agricultural cooperatives annual reports including financial results such as value-added/turnover, operating activities/turnover, (net income and depreciation) /turnover, labor cost/turnover etc. in order to find key factors of success. Their data years were 1990 and 1991. The result showed that in

general specialized cooperatives didn't perform better than multi-purpose cooperatives. Specialized cooperatives were most successful in Denmark while multipurpose cooperatives did better in Ireland.

A logit regression analysis was used by Tretcher (1999) to analyze the factors associated with diversification on agricultural cooperatives in Wisconsin. He found that the impact of diversification upon measures of cooperative performance (profitability, patronage refund and equity redemption) was relatively minor i.e. diversification on agricultural cooperatives was not statistically associated with profitability; increases in patronage dividends or increases in equity evolvement. The result also showed that diversification on agricultural cooperatives was an important factor in determining membership size i.e. diversified cooperatives enjoyed larger membership.

Finally, though some studies have been conducted on performance of marketing through cooperatives, there has no any study mentioned in the study area. Therefore, this study tried to fill the existing research gap by analyzing the maize marketing performance of DMFCU and its affiliates based on the commonly used performance indicators such as marketing margins, marketing participation and the volume of sales.

As it has been mentioned in this review, among different studies conducted by different researchers at national and international level, the appropriate model for this study is a Heckman two step procedure econometrics model which was used by Rehima (2006) to analyze the factors affecting pepper marketing participation decision and quantity supply of pepper and by Degu (2007) to analyze the main determinants of participation decision and annual savings of rural savings and credit cooperatives.

CHAPTER III: METHODS AND MATERIALS

3.1. Description of the Study Area

3.1.1. An Overview of Amhara National Regional State

The Amhara National Regional State is one of the regional states in the Federal Democratic Republic of Ethiopia which is found in the northwestern part of the country. It is located approximately between 13^0 45' North latitude and 35^0 20' to 40^0 25' East longitude. The boundaries of the region are Tigray region in the north, Oromia region in the south, Afar region in the east, Benishangul Gumuz region in the southwest, and Sudan in the northwest. The state is divided into 10 administrative zones. The administrative zones are East Gojam, West Gojam, Awi, North Gonder, South Gonder, Wag Himra, North Wollo, South Wollo, Semien Shewa, and Oromia (BoFED, 2006) (Figure 1). It is also organized into 133 woredas (119 rural and 14 urban) and 2917 peasant associations.

The total area of the region is 170,752 square kilometers, which is 15% of the country. Out of the total area, 27.3% is under cultivation, 30% is under grazing, 14.7% is covered by forest, bush and herbs, and 18.9% is currently not used for productive purposes. The remaining 9.1% represents settlement sites, swampy areas, and lakes.

Based on the traditional agro-ecological zones, the region has four climatic zones, namely, wurch or very cold (4 %), Dega or cold (25%), Woina-Dega or moderate (44%) and Kolla or warm (27 %) The region has an average annual rainfall of 200 to 1600 millimeter and has a mean annual temperature of 10 to 25°c (BoFED, 2006).

In 2006, the population of the region was estimated to be 19.62 million (9.83 million male and 9.79 million female). 89.7% of the population lives in rural areas (CSA 2006). A large proportion of its population depends upon crop and livestock farming.

The region has 10.08 million cattle, 7.53 million sheep, 4.86 million goats, 1.91 million equines, 13.43 million poultry, and 0.92 million beehives in 2007. The cropping systems of the region are predominantly rain fed. It has fertile farmland and water resources suitable for crop production and livestock husbandry.

In the region, there are 3,861 primary and 33 secondary level cooperatives of different types with a combined capital of birr 162.07 million & 37.47 million respectively in 2007. The total number of members for the primary and secondary level cooperatives is respectively 1.88 million individuals and 691 cooperatives (Amhara Region CPA 2007). The total share of the family head members in the region, which are organized under different types of cooperatives, taking the average family size as five, is around 47.91%. The majority of cooperatives are multi-purpose agricultural cooperatives. Table 1 & 2 shows the type of cooperatives, number of members and the amount of capital of primary and secondary cooperatives.

Table 1: Types, number, membership, and capital of primary Coops in Amhara region as of December 2007

No	Type of Cooperatives	No. of coops	Number of Members			Capital[3]
			Male	Female	Total	
1	Multipurpose	1,707	1,574,730	204,230	1,778,960	122,498,204
2	Dairy	82	2,564	134	2,698	953,640
3	Incense & Gum	12	1,671	86	1,757	2,843,002
4	Irrigation	166	12,087	1,410	13,497	9,498,320
5	Fishery	7	644	20	664	1,489,436
6	Bee Products dev't & Marketing	24	5,169	229	5,398	801,501
7	Animal Fattening	32	1,042	360	1,402	686,705
8	Natural Resource Dev't & Tourism	2	88	54	142	17,075
Agricultural Cooperatives Total		2,032	1,597,995	206,523	1,804,518	138,787,883
9	Saving & Credit					
9.1	Rural	254	15,229	4,491	19,720	1,197,510
9.2	Urban	222	10,626	6,740	17,366	1,980,786
10	Housing	857	16,282	7,116	23,398	15,583,804
11	Electricity Users	5	1,555	725	2,280	105,504
12	Electricity Technicians	4	78	26	104	3,465
13	Consumers	10	1,036	563	1,599	226,856
14	Mining	52	852	224	1,076	133,796
15	Handicrafts	421	5,805	3,458	9,263	3,307,418
16	Cereals & Forest Seed Marketing	4	3,910	102	4,012	742,923
Non-Agricultural Cooperatives Total		1,829	55,373	23,445	78,818	23,282,062
Grand Total		**3,861**	**1,653,368**	**229,968**	**1,883,336**	**162,069,945**

Source: Amhara Region Cooperatives Promotion Agency Base Line Data, 2007

[3] Capital is the residual asset after paying the liability

Table 2: Type, Number, Membership, and Capital of Coop Unions in Amhara Region as of December 2007

No	Type of Unions	No. Unions	No. Member Coop	Number of Members			Capital
				Male	Female	Total	
1	Multipurpose	24	532	620,681	115,893	736,574	35,269,387
2	Saving & Credit	6	141	87,368	11,280	98,649	1,873,204
3	Dairy	2	10	490	93	583	192,500
4	Bee Products Marketing	1	8	2,219	91	2,310	139,689
Total		**33**	**691**	**710,758**	**127,357**	**838,116**	**37,474,780**

Source: Amhara Region Cooperatives Promotion Agency Base Line Data, 2007

3.1.2. An Overview of West-Gojjam Zone

West Gojjam zone is one of the 10 administrative zones established under the Amhara national regional state. It covers a total area of about 13,760 square km, which accounts for 8.2% of the area of the region.

The administrative zone is bounded in the North by the North and South Gonder zones, in the East by East Gojjam zone, in the South by Oromia region and in the West by Benshangul Gumuz region. Its geographical location falls between $10^0$15'N and 12^0N latitude and between $36^0$15'E and 38^0E longitude. The administrative zone was divided in to 13 rural and 2 town administration woredas. The zone has 386 kebeles, out of which 34 are urban and the rest are rural.

The water source of the zone is mainly encompassed by the Blue Nile basin and the zone is known to have a number of perennial and seasonal rivers. Besides, one fourth of Lake Tana, which is approximately 648 square kilometers, is located in the zone.

Based on the traditional agro-climatic classification, West-Gojam zone has three climatic divisions, namely, Dega or cold including Wurch or very cold (11.3%), Woina-Dega or moderate (72%) and Kola or warm (16.7%).

Average daily temperature is between 14^0c-30^0c. In most parts of the zone, the annual rainfall amount varies between 1200 to 1400mm, which is in most cases sufficient for a variety of crops to grow.

According to the socio-economic survey made by the West-Gojam Zone Finance and Economic Development Office (2007), out of the total area, (13,760 square km) of the zone, 47.7% accounts for cultivated land, 10.8% for grazing, 11.3% for forest, bushes and shrubs, 3.7% for settlement, 14.8% unproductive, 4.7% water bodies and 7% is marshy and swampy area. The major types of soil in the zone are Luvisols, Nitosols and Vertisols that cover more than 80% of the total area of the zone. Due to irrational utilization of forest and wild life resources, natural vegetation and wild lives in the zone are on the verge of extinction.

The total population of the zone in 2007 was estimated to be about 2.5 million, of which 93% is estimated to live in the rural areas and 89% is engaged in agriculture. The common style of production is a mixed system of crop production and livestock. The major crops grown in the zone are teff, wheat, maize, millet, barely, beans, pea, chickpea, etc (CSA 2006).

Though productivity is low, the zone has a good potential in livestock husbandry, fishery and beekeeping. There were about 1.4 million cattle, 0.6 million sheep and goats and 2.02 million poultry and 0.18 million equines in 2007. The livestock feed is mainly obtained from communal grazing lands, fallow land areas and crop residues.

The zone's industrial sector is yet at its infant stage. The types of industries that are operational in the area today are small-scale industries, which mainly include grinding mills, oil mills,

household and office furniture manufacturing, bakery, hollow-block manufacturing, etc. But in most cases, over 85% of these small-scale industries are grinding mills. In the zone, there are 270 primary (144 multipurpose and 126 others) and 5 secondary (2 multipurpose and 3 saving and credit) cooperatives having a combined capital of about 60.18 million Birr and 174,668 members in 2007. The cooperatives were mainly participated in grain marketing, agricultural input and consumer goods supplies and credit services for their members.

Among cereals, maize is one of the important crops grown in the zone too. In the 2005/06-production year, it accounted 39.22% (0.13 million hectares) and 44.58% (3.24 million quintals) in cultivated land area and yield of the regional share, respectively. The average maize yield produced per hectare in the zone was 24.18 quintals. The amount of yield produced per hectare with and without extension services was 27.40 and 21.34 quintals per hectare, respectively, which is better than the regional production (CSA, 2006).

3.1.3. An Overview of DMFCU and its Affiliates

3.1.3.1. Geography and Location

There are two multipurpose farmers' cooperatives unions in west Gojjam zone. Of which the study was conducted in DMFCU and its affiliates. DMFCU and its affiliates are found in Amhara region of West Gojjam administrative zone at Bure woreda, which is 411 kilometers away from Addis Ababa along the main highway to Bahir Dar and 150 kilometers from the regional capital city Bahir Dar. The operational area of DMFCU covers seven woredas from 13 woredas in the zone. There are 218 kebeles in the area of operation .The total number of primary multipurpose farmers' cooperatives are 78. DMFCU was established by the name of "Bure Multipurpose Farmers' Cooperatives Union" on November 30/2000 and registered on may

29/2001 by the Amhara Regional State Cooperatives Promotion Agency (CPA) as per the cooperatives Proclamation number 147/1998.The total number of members during establishment was six primary cooperative societies with a startup capital of 188,600.00 Birr (a paid up share capital of 185,000.00 Birr and registration fee of 3,600.00 Birr). As per the decision of the general assembly of the union, the value of one share is Birr 1500.00 and the registration fee is 600.00 Birr. Hence, to be a member of the union, a primary cooperative should have to pay a registration fee of 600.00 Birr and purchase a minimum share of six with a total value of 9000.00 Birr (DMFCU, 2007).

When the union was established the area of operation of the union was only two wordas. By 2003 it amended its bylaw and changed its name into "Damot Multipurpose Farmers' Cooperatives Union" and extended its operational area in to seven woredas. The purpose of extending its operational area is to increase its competitive power by increasing the number of affiliated cooperatives which helps to strengthen its capital as well as volume of purchases and sales. Due to this fact, in 2007 the total number of affiliated cooperatives has reached to 40 from five woredas. The cooperatives in the rest of two woredas have not yet become members due to their low financial capacity. But, they have been participating in purchasing of fertilizer from the union, which has been purchased in bulk through tender from the input supplying institutions. As per 2007 audit report of DMFCU, the total assets, liabilities and capital of the union has reached 7,594,838.95 Birr, 2,876,872.23 Birr and 4, 717,966.72 Birr respectively (Ibid).

The major business activities performed by the union are marketing of grain, supply of agricultural inputs, and supply of consumer goods, as well as credit, transportation, storage and tractor services. The types of grain marketed by the union are cereals (maize, wheat and teff) and

oil seeds (rape seed and Niger seed).The geographical maps of the region and zone are depicted in figure 1.

3.1.3.2. Population Characteristics

Based on 2007 Amhara Region Finance and Economic Development Bureau annual statistical bulletin, about 1, 296,125 people are expected to live in the operational area of DMFCU in 2007. Among those, 648,753 were estimated to be male and 647,372 to be female. In addition, the prediction result indicated that more than 85% people are expected to live in rural areas. An economically active population (15-64) year of age accounts 47% of the total population. The population density of the district is about 226 people per square kilometer.

3.1.3.3. Climate

Based on the traditional agro-climatic classification, the DMFCU operational area has also three climatic divisions, namely, Dega or cold including Wurch or very cold (11.3%), Woina-Dega or moderate (72%) and Kola or warm (16.7%). Average daily temperature is from 14 to 30 ^{o}c. In most parts of the woredas, the average annual rainfall amount varies from 1200 to 1400 millimeter, which is in most cases sufficient for a variety of crops to grow (West Gojjam zone Agricultural and Rural Development Department, 2006)

3.1.3.4. Topography and Soil

The altitude of the study area varies from about 700 to 3200 meters above sea level. The major types of soil in the study area are red, gray and black that cover more than 80% of the total area. Due to irrational utilization of forest and wild life resources, natural vegetation and wild lives in the zone are on the verge of destruction (ibid.).

3.1.3.5. The Farming System

According to the socio-economic survey made by the West-Gojjam Zone Finance and Planning Department (2005) out of the total area of the study area, 47.7% accounts for cultivated land, 10.8% for grazing, 11.3% for forest, bushes and shrubs, 3.7% for settlement, 14.8% barren land, 4.7% water bodies and 7% is marshy and swampy area .The farming system of the study area is characterized by mixed farming. The agro-climatic condition of the study is favorable for growing diversified types of crops and rear different species of animals. Maize, teff, wheat and oil seeds are the dominant crops commonly grown in the study area. Production is mainly rain fed that is once per year *(ibid.).* The size of land holding varies from one woreda to another due to the differences in the available land resource and the population size among the woredas. Farmers in the study area use their land mainly to produce cereal crops and to some extent to graze their animals.

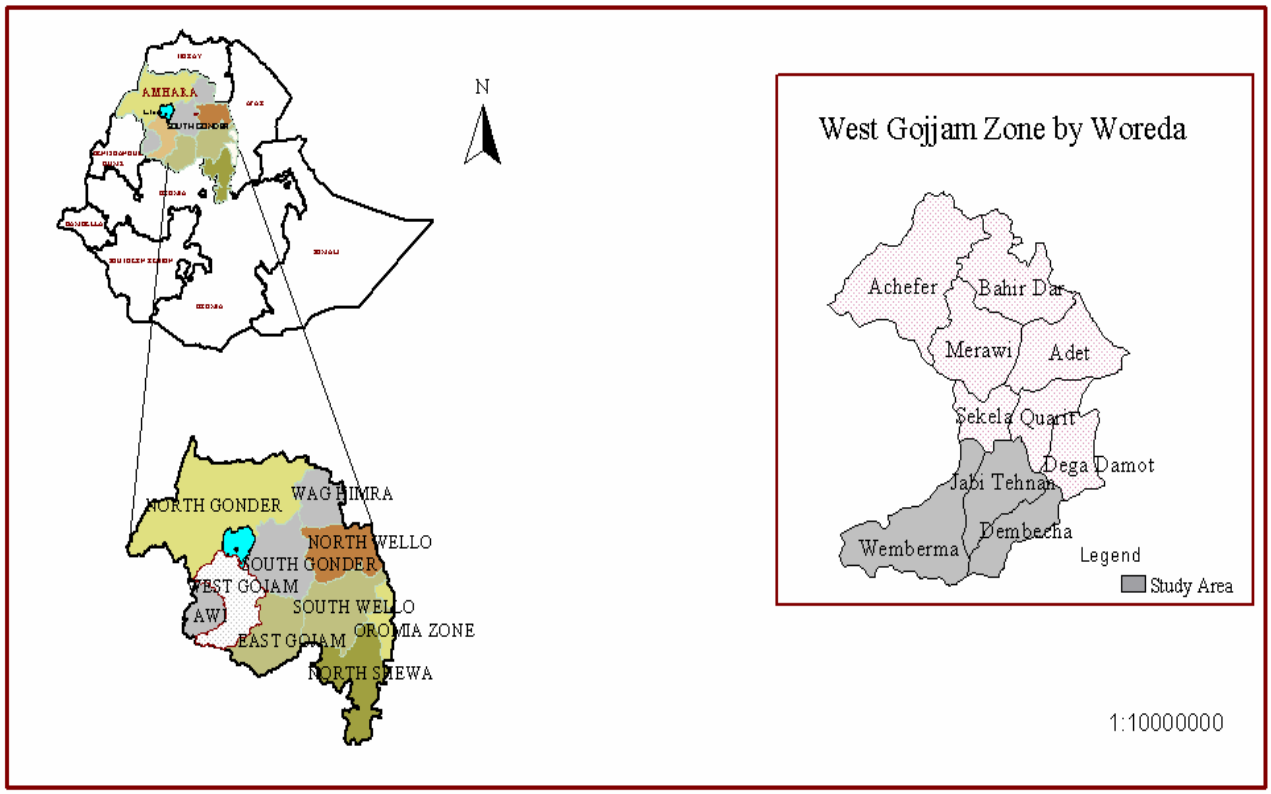

Figure 1: Location Map of Amhara Region,West Gojjam Zone and Study Area

3.2. Sampling Techniques

3.2.1. Sample Frame

DMFCU has 40 member primary cooperatives at 5 woredas. Among these cooperatives 28 cooperatives at 4 woredas which have membership experience of two and more than two years and participating in maize marketing were selected as a sample frame. The rest 12 cooperatives were not considered because of their membership experience is either not more than two years or they didn't participate in maize marketing. Hence, records that consist of the lists of affiliated primary multipurpose cooperatives and member farmers were obtained from DMFCU and sample primary cooperatives respectively. The lists of member cooperatives are shown in table 3.

Table 3: Member primary cooperatives of DMFCU involving in maize marketing as of June 2007

S/No	Name of Woreda / Primary Coops.	Year of Establishment	Year of Membership	Number of Individual Members		
				Male	Female	Total
1	**Bure Worda**					
1.1	Alefa	1997	2001	1,012	150	1,162
1.2	Baguna	2000	2003	1,414	304	1,718
1.3	Denbun	1997	2003	723	75	798
1.4	Bure Woynma	1978	2001	1,530	120	1,650
1.5	Yegedamat	1998	2003	625	46	671
1.6	Wundigi	1997	2003	580	18	598
1.7	Kuch	1978	2001	2,083	152	2,235
1.8	Zalma	1999	2003	653	52	705
1.9	Gulm	2000	2003	714	61	775
1.10	Arbisi	1999	2003	865	39	904
	Sub Total			10,199	1,0171	11,216
2	**Womberma**					
2.1	Shindi	1979	2001	2,480	342	2,822
2.2	Bur Afer	1982	2001	1,842	199	2,041
2.3	Wonberma Woinma	1978	2001	1,504	79	1,583
2.4	Zobint	1982	2002	1,671	143	1,814
2.5	Wogedad	1978	2001	2,423	210	2,633

S/No	Name of Woreda / Primary Coops.	Year of Establishment	Year of Membership	Number of Individual Members		
				Male	Female	Total
	Sub Total		2001	**9,920**	**923**	**10,893**
3	**Jabi Tehinan**					
3.1	Lematn Mesk	2001	2004	872	70	942
3.2	Birr Sheleko	1978	2004	759	52	811
3.3	Yelm Dar	1982	2004	600	350	950
3.4	Addis Ambo	2002	2004	1,008	137	1,145
3.5	Woynima Workima	1998	2004	700	24	724
3.6	Mankusa	2002	2004	840	50	890
3.7	Kolla Akilat	1978	2004	871	67	938
3.8	Geray Wonz	1978	2004	533	58	591
	Sub Total			6,183	808	6,991
4	**Dembecha**					
4.1	AnjeniEna Asakshign	1978	2004	1,955	385	2,340
4.2	Yecherrka	1978	2004	2,564	624	3,188
4.3	Wad Eyesus	1978	2004	2,998	442	3,440
4.4	Yezeleka Furti	1978	2004	1,886	114	2,000
4.5	Gula Wonz	1978	2004	2,427	363	2,790
	Sub Total			**11,830**	**1,928**	**13,758**
Gross Total (28)				**38,132**	**4,726**	**42,858**

Source: DMFCU Database, 2007

3.2.2. Sample Selection

In order to take the appropriate sample for the study, a two stage random sampling technique was employed, as there are two levels of sample units (primary multipurpose cooperatives and member farm households). Therefore, in the first stage a total of six (21.43%) primary cooperatives were selected randomly in proportion to the number of affiliated cooperatives at each woreda from the list of DMFCU (Table 4).

In the second stage, by taking into account the financial capacity, time availability and other logistics of the researcher as well as homogeneity nature of the population , a total of 120 respondent member farmers were taken from six sampled primary cooperatives using

probability proportional to size (PPS) based on the number of membership at each primary cooperatives. Each respondent's was selected from the list of sample primary cooperatives using systematic random sampling method (Table 5).

Table 4: Name of woreda, number of affiliated coops of DMFCU and size of sample coops.

S/No	Name of Woreda	Total No. of Affiliated cooperatives at each woreda	Size of Sample Coops
1	Bure	10	2
2	Womberma	5	1
3	Jabitehinan	8	2
4	Dembecha	5	1
Total		**28**	**6**

Source: DMFCU Database, 2007

Table 5: Name of woreda, name of sampled affiliated coops and the size of sample households

S/No	Name of Woreda	Name of Sampled Cooperatives'	No. of Individual Members	Size of Sample Households
1	Bure	Alefa	1,162	15
		Denbun	798	10
2	Womberma	Shindi	2,822	36
3	Jabitehinan	Geray Wonz	591	7
		Kolla Akilat	938	12
4	Dembecha	Yecherka	3,188	40
Total	**3**	**6**	**9,499**	**120**

Source: DMFCU Database and each Affiliated Coops List, 2007

3.2. 3. Data Sources and Techniques of Data collection

Both primary and secondary sources of data were used for this study. The primary data were collected using personal interviews through structured interview schedule (SIS) from the sample farmers. A comprehensive structured interview schedule was administered among the farmers was prepared, pre-tested and finalized. To make the communication easier during collection of data from the farmers, the interview schedule was translated into the language of the respondents (Amhargna). Structured interview schedule consists of a wide range of information from the sample farmers starting from demographic indicators such as sex, age, and family size to socio-economic conditions such as education, farm size, yield, price etc. Thirty percent of primary data was collected by the researcher and the rest seventy percent was collected by using six enumerators at each sample cooperative level. The enumerators were trained and closely supervised by the researcher.

The researcher was also tried to triangulate the information collected using structured interview schedule by conducting focus group discussion with key informants (cooperatives management bodies and employees at primary and secondary level) using checklist guide.

Secondary data were collected from the annual reports, database and audit reports of the sample primary and secondary cooperatives using checklist to achieve the objectives set forth.

Secondary data were also taken from pertinent sources such as documents available on Internet, Woreda Agricultural and Rural Development Office, Woreda Cooperatives Promotion Team, Cooperatives Promotion Agency, Agricultural and Rural Development Bureau, Finance and Economic Development Bureau, CSA, as well as other published and unpublished documents in order to supplement the primary data collected.

3.3. Operational Definition

The commonly used measures of marketing performance are the marketing margins, gross sales and market share. Marketing margins was analyzed based on the selling and buying differences at different levels of marketing participants in order to achieve the first objective of the study. The second objective was analyzed in order to determine the socio-economic factors affecting the participation and the sales volume of the individual members' through the cooperatives maize marketing.

Marketing performance, in this study, is operationally defined as the marketing margins and shares and volume of maize sold to the cooperatives by the members / the volume of maize purchased by cooperatives/ and sold to the union and/or to other marketing agents for the purpose of keeping the individual member's interest by finding better price.

3.4. Definition of Variables and Hypothesis Development

In this study different variables were expected to affect the participation of farmers and the volume of maize sold to the cooperatives. Accordingly, the major variables expected to have influence on both the farmers' participation and the volume of maize sold is explained as follows:

Dependent Variables:

Member's Participation in Cooperatives Marketing (MM.PART): It represents a dummy dependent variable which takes a value of 1 if a member farmer participated in the cooperatives maize marketing in 2006/2007, and 0 otherwise.

Volume of Sales (VOL.SAL): It is a dependent continuous variable that represents the amount of maize sold to the cooperative by the member household, which is measured in quintals.

The Independent Variables:

1. Age (AGE): is defined as the number of completed years of the household head from the time of birth till the time of the survey to be conducted. It is a continuous variable represented by positive integer values. The assumption in this study is that as age of the farmer's increase; he acquires knowledge and experience to adopt different techniques that can help for maximizing production, which is expected to enable the farmer to participate and sell more amount of maize to the cooperative.

2. Family Size (FAM.SZ): Family size or number of persons in the family is a continuous variable represented by positive integer values. The larger the family numbers, the more the labor force available for production purpose, the higher to produce maize which can be supplied to cooperatives. On the contrary to this fact, large family size may imply self insufficiency because large households consume more than the small households. Therefore, the coefficient of this variable may appear a negative or a positive sign on participation and volume of sale.

3. Educational Status (ED.STA): This represents the grade level of formal schooling a member completed during the survey period and is a continuous variable. It is hypothesized to affect the participation and the sales volume of maize positively. This is due to the fact that a farmer with a good knowledge can adopt a good practice to maximize the amount of yield to participate in maize marketing and increase the volume of sales.

4. Production of Maize (PRO.MAZ): It is a continuous variable that can affect the household participation and the volume of maize sold to the cooperatives and measured in quintals. The amount of output the farmer gets is assumed to affect the participation and the volume of maize sold positively. This is because a farmer who has got high amount of output could participate and sell more to the market (cooperative) than a farmer who has got less amount output.

5. Area of Maize under Cultivation (AR.MAZ): This variable is a continuous variable measured in terms of the number of hectares allocated to maize production and expected to affect the volume of maize sold by the household positively. This is because a producer who own large area can produce more than a producer who own less area and thus can participate and sell more maize to the cooperatives.

6. Ox Ownership (OX): This is the continuous variable that has been measured with the number of oxen owned by the head of the household and will be expected to affect the volume of maize sold positively. This is due to the fact that a farmer who owned oxen is more likely to properly prepare the land and sow timely than a farmer who owns no oxen. Thus, he can produce more that can be reflected on extra production to be sold to the cooperatives.

7. Use of Improved Seed (SEED): This is a dummy variable taking a value of 1 if a farmer used improved seed during 2006/07 production year and 0 otherwise. This variable is expected to affect the household's participation and supply of maize positively due to the fact that if a farmer uses improved seed, he will increase production and productivity and hence can increase the volume of maize sold to the cooperative.

8. Use of Fertilizer (FERTI): This is a dummy variable taking a value of 1 if a farmer used fertilizer and 0 otherwise. This variable is expected to affect the household's participation and supply of maize positively due to the fact that if a farmer uses fertilizer, he will increase production and productivity and hence can increase the volume of maize sold to the cooperatives.

9. Exposure to Extension Services (EXT.SER): The variable extension service is measured as a dummy variable taking value of 1 if the household head have exposure to extension service and 0 otherwise. Extension service is expected to have positive effect for market participation

through its stimulation of production and productivity. If a farmer has extension exposure, he will get better access to information and could adopt better technology that would increase the production of maize sold to cooperatives.

10. Distance of the Cooperative from the Household Head (DIS.COOP): Distance of the cooperative from the household head is the continuous variable that has been measured in walking hours from the household residence to the cooperatives. The closer the residence of the household to the cooperatives, the more is the participation and the volume of maize sold to the cooperatives.

11. Training on Cooperatives (TR.COOP): It is a dummy variable taking the value of 1 if the farmer has been taking training about cooperatives and 0 otherwise. It is hypothesized to affect the participation and volume of maize sold to the cooperative positively. A member who has got training could create awareness about cooperatives there by he can participate in maize marketing and sell more of his produce.

12. Participations in Cooperatives Leadership (COOP.LEAD): This is a dummy variable that would take the value of 1 if the farmer has been participating in cooperatives leadership 0 other wise. This variable is expected to affect the household's participation positively. Because, a farmers who have been participating in cooperatives leadership can have better awareness about the importance of cooperatives and hence can sell more maize to the cooperatives than ordinary members.

13. Patronage Refund[4] (PAR.REF): It is a dummy variable, which takes the value of 1 if a farmer has got patronage refund from the cooperative and 0 otherwise .It is expected to influence the marketing of maize through the cooperatives positively. If a farmer has got a patronage of maize, he will increase the volume of maize to be sold to the cooperative.

14. Access to Market Information (ACC.MI): This is measured as a dummy variable taking a value of 1 if the farmer has access to market information and 0 otherwise. It is hypothesized to affect the participation and the volume of maize sold positively because if a farmer got market information he could participate in cooperatives marketing.

15. Access to Credit (ACC.CR): Access to credit is measured as a dummy variable taking a value of 1 if the farmer had access to credit and 0 otherwise. This variable is expected to influence the member's participation positively on the assumption that access to credit improves the financial capacity of farmers to purchase modern inputs thereby increasing production, which is reflected in the participation and volume of sale.

16. Cooperative's Purchase Price of Maize (COOP.PRICE): It is a dummy variable taking a value of 1 if the cooperative's purchase price of the maize is similar or better than other marketing agents in the area and 0 otherwise. This variable is expected to affect the participation and the volume of maize supply positively. The assumption in this study is that if a cooperative pays competitive price for maize in the area, the farmer will market their maize through the cooperative.

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[4]patronage refund is the net profit of cooperatives that are distributed to the member patrons (business participants) based on their participation.

17. Distance of District Market (Main Market) from the Farmer House (DIS.WOR): It is a continuous variable measured in walking hours and refers to distance of the farmer's house from the district (main) market. The distance of the main market is expected to affect the household participation positively. The assumption in this study is that, the farther the main market, the higher the farmer can sell to the cooperatives and the vice versa.

18. Availability of other Marketing Agents (MKT.AGENT): This is a dummy variable taking a value 1 if there are other marketing agents who purchase maize in the area of the farmers at a distance less than and/or the same as the cooperatives and 0 otherwise. The availability of other marketing agents is expected to influence the marketing of maize through the cooperatives negatively. The assumption in this study is that if there are other marketing agents in the area which perform similar activity, the cooperatives will face market competition since the farmers will get alternative market outlet to sell their maize.

19. Availability of Other Services (OTH.SER): This is a dummy variable taking a value 1 if the farmer gets other services from the cooperative besides supplying inputs, purchasing farm products and extending credit, 0 otherwise. If a farmer is a beneficiary of different services, his usage and connection with the cooperative will increase. Therefore, this variable is expected to influence the marketing of maize through the cooperative positively.

20. Weather Condition (WEATH): This is a dummy variable taking the value 1 if the weather condition is favorable and 0 otherwise. If the weather condition was favorable for maize production in the production year 2006/07, the farmer's yield could be increased. Hence, they can decide to participate the cooperatives maize marketing. Therefore, the variable weather condition is expected to influence the marketing of maize through the cooperatives positively.

21. Misappropriation/Corruption of Cooperative's Property (MISAPP): This is a dummy variable taking the value 1 if there is misappropriation of cooperative's property and 0 otherwise. The assumption in this study is that if there is misappropriation/corruption of cooperative's property, the farmer's participation decision and volume of maize sold to the cooperative's will be decreased. Therefore, this variable is expected to affect the farmer's participation and the volume of maize sold negatively.

Table 6: Description of Dependent and Independent Variables

No	Variables	Code of Variables	Types	Description of Variables
1	**Dependent**			
1	Member's Participation	MM.PAR	Dummy	Dummy with 1 if the farmer participates in cooperatives maize marketing and 0 otherwise.
2	Volume of Sales	VOL.SAL	Continuous	The amount of maize sold to coops by members measured in Qt.
2	**Independent**			
1	Age	AGE	Continuous	Age of the household head measured in years
2	Family Size	FAM_SZ	Continuous	Family size measured in number
3	Educational Status	ED_STA	continuous	The level of formal schooling a member completed measured in grades
4	Production of Maize	PRO_MAZ	Continuous	The amount of maize produced measured in Qt.
5	Area of Maize under Cultivation	AR_MAZ	Continuous	Area of Maize measured in hectares
6	Ox Ownership	OX	Continuous	The household head's ox holdings measured in number
7	Use of Improved Seed	SEED	Dummy	Dummy with value of 1 if a farmer is used improved seed and 0 otherwise
8	Use of Fertilizer	FERTI	Dummy	Dummy with value of 1 if a farmer is used fertilizer and 0 0therwise
9	Exposure to	EXT_SER	Dummy	Dummy value with value of 1 if a farmer

No	Variables	Code of Variables	Types	Description of Variables
	Extension services			contacted with DA 0 otherwise
10	Distance of the Cooperative	DIS_COOP	Continuous	Distance from farmers home to the coops measured in walking hours
11	Training on Cooperatives	TR_COOP	Dummy	Dummy with value of 1 if a farmer has got training and 0 otherwise.
12	Participations in Coops Leadership	COOP_LEAD	Dummy	Dummy with value of 1 if a farmer has been participating in coops leadership and 0 otherwise
13	Patronage Refund	PAR_REF	Dummy	Dummy with value of 1 if a farmer has got patronage refund and 0 otherwise
14	Access to Market Information	ACC_MI	Dummy	Dummy with value of 1 if a farmer is access to market information and 0 otherwise
15	Access to Credit	ACC_CR	Dummy	Dummy with value of 1 if a farmer had access to credit and 0 otherwise
16	Cooperative's Purchase Price of Maize	COOP_PRICE	Dummy	Dummy with value of 1 if a coop pays competitive price to the farmers and 0 otherwise
17	Distance of the Woreda Market	DIS_WOR	Continuous	Distance from farmer's home to the woreda (main) market measured in walking hours
18	Availability of other Marketing Agents	MKT_AGENT	Dummy	Dummy with value of 1 if there are other marketing agents in the area of the farmer at a distance less than coop and 0 otherwise
19	Availability of Other Services	OTH_SER	Dummy	Dummy with value of 1 if a farmer gets services other than grain marketing, input and credit and 0 otherwise
20	Weather Condition	WEATH	Dummy	Dummy with value of 1 if the weather condition is favorable and 0 otherwise
21	Misappropriation/Corruption	MISAPP	Dummy	Dummy with value of 1 if there is misappropriation and 0 otherwise

3.5. Methods of Data Analysis

Generally the data collected for the study was analyzed using descriptive statistics like mean, standard deviation, percentiles, etc to examine and describe the marketing margins and the factors affecting the members' participation and the volume of maize sold in addition to econometric models. Different tests like T-value and chi-square have also been employed to testify the significance of results obtained from the models specified with the help of SPSS and LIMDEP computer software program.

3.5.1. Analysis of Marketing Margins

The relative share of different market participants was estimated using the marketing margin analysis. The marketing margins was calculated by finding price variations at producer (member farmer), primary cooperative and union levels. The following simple arithmetic model was used.

- **Total Gross Marketing Margin (TGMM) -** is always related to the final price paid by the end consumer and expressed as percentage (Mendoza, 1995).

$$TGMM = \frac{\text{Consumers' price - Farmers' price}}{\text{Consumers' price}} \times 100$$

- **Farmers' Gross Marketing Margin (GMMf)** is the portion of the price paid by the consumer that belongs to the farmer as a producer. The producers' gross marketing margin can be calculated as:

$$GMMf = \frac{\text{Price paid by the consumer - Marketing Gross Margin}}{\text{Price paid by the consumer}} \times 100$$

- **Primary Cooperatives' Gross Marketing Margin (GMMpc)** is the portion of the price paid by the union that belongs to the primary cooperatives for the service it rendered.

GMMpc= price paid by the union – purchase price of primary cooperative X100
Price paid by the consumer

- **Union's Gross Marketing Margin (GMMu)** is the portion of the price paid by the wholesaler/consumer that belongs to the cooperatives union for the service it rendered.

GMMu= price sold by the union – purchase price of the union X100
Price paid by the consumer

3.2.2. Analysis of Factors Affecting Members' Participation & Volume of Sales

In order to analyze the major socio-economic factors that affect the participation decision and the volume of maize sold by farmers to the cooperatives, Heckman two-step procedure was implemented.

3.2.2.1. The Heckman two-step procedure

Different studies employed different models in order to identify the factors that determine market supply (Vella, 1998; Minot, 1999; Sigelman, 1999; Matshe 2004 cited in Rehima 2005). The commonly used ones are the well known Tobit and Heckman's sample selection model. The disadvantage of the Tobit model is the assumption that both the decision to participate and the amount of product marketed given participation are determined by the same variables, and a variable that increases the probability of participation also increases the amount of product marketed. This problem can be overcome using the Heckman's sample selection model where a Probit model for the participation or 'selection' equation is estimated and a regression model which is specified to account for the level of the amount marketed.

Statistical bias may arise when individuals having special characteristics make choice to one group or another (i.e., by individual self selection) and researcher wind up analyzing non-random

choice sample (Maddala, 1983). The problem of sample selection bias arises if an individual's participation status reflects self-selection due to a hidden undetermined or exogenous factor, thus producing a non- random sample (Heckman, 1979).This problem can arise in the case of members' decision to participate in cooperatives maize marketing and the magnitude/amount of maize sold by the members. Therefore, this study uses the Heckman's two-step procedure to estimate both the decision of the member's participation in maize marketing and the magnitude of maize sold.

The first step of Heckman's procedure involves estimation of the probit equation (member's participation decision) to explain the participation decision, with the dependent variable equal to "1" if the household decides to supply/sell maize to the cooperative and "0" otherwise. The probit estimation ,which includes information that affects participation equation, is then used to obtain the inverse Mill's ratio (Lambda).Inverse Mill's ratio is a summarizing measure which reflects the effects of all unmeasured characteristics.

In the second step of Heckman's procedure the analysis of ordinary Least Square(OLS) estimation equation (magnitude/volume of maize sold equation) is performed by using selection bias control factor (Lambda) predicted inverse Mill's ratio as additional independent variable which produces consistent ordinary least square (OLS) estimates of the sales magnitude. Because this factor (lambda) reflects the effect of all immeasurable characteristics which are related to participation decision, the coefficient of this factor in the substantial analysis catches the part of the effect of these characteristics which is related to the magnitude of maize supply.

Probit Model and Ordinary Least Square (OLS)

In some applications the explanation of the behavior of a dichotomous dependent variable, the probit model has been found useful (Gujarati, 2003).

Using the binary decision model, a random variable Y1 (dependant variable) takes the value of "1" if the member decides to supply/sell maize to the cooperative and '0" otherwise. The probability of a member to participate in maize marketing depends on a vector of independent variables Xi and a vector of unknown parameter β. The vector Xi represents member's socio economic factors. The Probit model is specified as:

$$Y_i = X_i \beta_i + \varepsilon_i, \qquad i = 1 \ldots N \qquad (1)$$

Where: Y_i is a dummy variable indicating the marketing participation that is related to it as Y_i =

1 if $Y_i > 0$, otherwise $Y_i = 0$

Xi represents member's demographic and socio economic factors

β_i are the variables determining participation in the Probit model,

To analyze the factors influencing the decision of the member's to sell maize to the cooperative the multivariate probit can be defined in terms of the level of the unobserved index.

$$I_j = \beta_0 + \beta_1 X_{1j} + \beta 2 X_{2j} \ldots + \beta_i Xij + \varepsilon_i, \qquad (2)$$

Where: Ij = the unobserved index for the j^{th} observation

j = 1, 2… j observation

Xij = the value of the i^{th} explanatory variable for the j^{th} observation

i= 1, 2…, n

β_i = unknown parameter to be estimated

The participation probit model (participation decision function) is used to develop an index (Z) of factors affecting the member's decision to supply maize to the cooperatives. From Z, LAMBDA, which is related to the conditional probability that a household would participate (given a set of independent variables) is determined.

$$\lambda_{i=} \quad \frac{\phi\ (Zi)}{1-\Phi(Zi} = = \frac{\phi\ (Zi)}{\Phi(-Zi)} \qquad (3)$$

$$Zi = \frac{Xi\beta}{(\sigma e)^{1/2}}$$

Where, λi=Inverse Mill ratio

ϕ= the probability density function,

Φ= the cumulative distribution function,

β = the vector regression parameters for variable X, and

σe = the standard deviation of the error term

Then the parameters that determine the amount/magnitude of maize sold can consistently be estimated by Ordinary least square (OLS) over "n" observations reporting values for Y_i including an estimate of the inverse Mill's ratio, denoting λ_i, as an additional regressor. More precisely the model is specified as:

$$Y_i = x_i'\beta_i + \mu\lambda_i + \eta_i \qquad (4)$$

Where Y_i is the volume of maize sold,

β_i is unknown parameter to be estimated in the volume sold,

Xi' is the explanatory variables determining the volume of maize sold,

μ is a parameter that shows the impact of participation on the volume of maize sold, and

η_i is the error term

3.2.2.2. Statistical Tests of Multicollinearity Problem

Before executing the econometric model, all the hypothesized explanatory variables were checked for the existence of multicollinearity problem. The problem of multicollinearity may

arise due to a linear relationship among explanatory variables. Multicollinearity problem might cause the estimated regression coefficients to have wrong signs, smaller t-ratio for many of the variables in the regression and high R^2 value. Besides, it causes large variance and standard error with a wide confidence interval. Hence, it is quite difficult to estimate accurately the effect of each variable (Gujarati, 1995, 2003 cited in Degu, 2007).

Different methods are often suggested to detect the existence of multicollinearity problem.

Among them, Variance Inflation Factor (VIF) technique was employed in the present study to detect the existence of multicollinearity in continuous explanatory variables (Gujarati, 1995) and contingency coefficient (CC) for dummy variables (Healy, 1984 cited in Degu, 2007).

According Gujarati (1995), VIF (Xi) can be defined as:

$$VIF\ (Xi) = \frac{1}{(1-R_i^2)}$$

Where:

R_i^2 is the multiple correlation coefficients between X_i and other explanatory variables.

Selected continuous explanatory variables, (X_i) were regressed on all other continuous explanatory variables, and the coefficient of determination (R_i^2) was constructed for each case. The largest the value of Ri^2 results in higher value of VIF (X_i) which causing higher collinearity between variables. For continuous variables as a rule of thumb, values of VIF greater than **10**, are often taken as a signal for the existence of multicollinearity problem in the model (if the value of R_i^2 is 1, it would result higher VIF(∞)and case perfect multicollinearity between the variables (Gujarati,1995).

In the same line, the Contingency Coefficients (C.C) was computed for dummy variables from chi-square (χ^2) value to detect the problem of multicollinearity (the degree of association

between dummy variable). According to Healy (1984), the dummy variables are said to be collinear if the value of contingency coefficient is greater than **0.75** (cited in Degu, 2007).

$$CC = \sqrt{\frac{\chi^2}{N + \chi^2}}$$

Where:

C.C = contingency coefficient,

N=sample size,

χ^2 =chi-square values

3.2.3. Identification of Marketing Problems to suggest Possible Strategies

Marketing problems was identified and possible strategies suggested based on the primary sources of data from individual members through interview schedule, cooperatives management bodies and employees through focus group discussion and secondary sources from cooperatives and cooperatives promotion Agency reports from woreda to regional level.

CHAPTER IV: RESULT AND DISCUSSION

4.1. Marketing of Maize

Maize is a major cereal crop mainly produced for consumption and marketing purpose in the study area. According to each woreda post harvest report (2007); the total amount of maize produced in 2006/07 was about 2.25 million quintals. From the total amount produced 0.67 million quintals was expected to be a marketable surplus. Hence, out of the marketable surplus, only 33,671 quintals was purchased by 27 primary cooperatives. The share of cooperatives in maize marketing was only 5% which is very low (Table 7).

Table 7: Share of Primary cooperatives in maize marketing in 2006/07

Name of Woreda's	Total production (Qt)	Marketable surplus (Qt)	Volume of Maize purchased by Primary Coops (Qt)	No. of coops Participated	Share of Coops (%)
Bure	615,496	184, 649	15,477.95	7	8.38
Womberama	503,898	151,169	11,195	6	7.41
Jabi Tehinan	671,906	201,572	5,318	7	2.64
Dembecha	453,995	136,198	1,680.46	7	1.23
Total	**2,245,295**	**673,588**	**33,671.41**	**27**	**5**

Source: Each Woreda post harvest report, 2007

It is also computed that, out of the total maize purchased by the primary cooperatives 31, 021.05 quintals (92.13%) was sold to DMFCU. The maize purchasing trend of DMFCU have increased from year-to-year except in 2004/05 because the union has focused on wheat marketing to supply to the government food aid program (Figure 2)

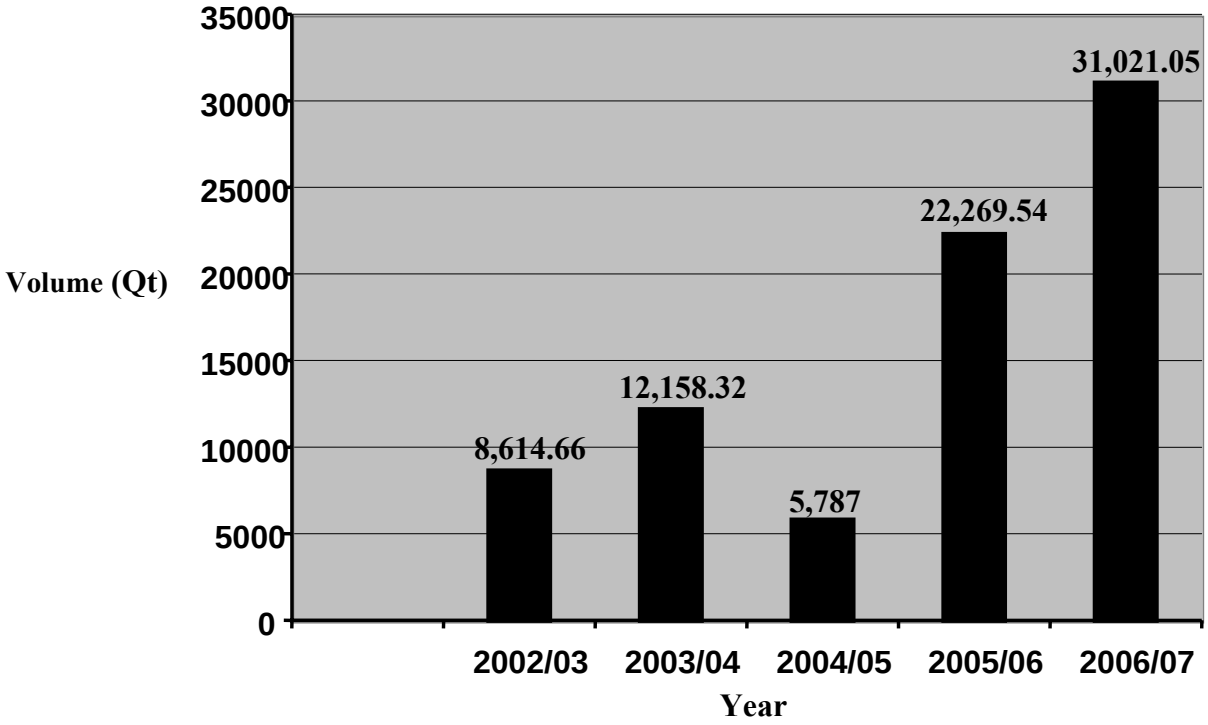

Figure 2: Maize Purchasing Trend of DMFCU from 2002/03 t0 2006/07

4.2. Marketing Margins

A common means of measuring market efficiency is to examine marketing margin. This is an attempt to evaluate economic or price efficiency. The overall marketing margin is simply the difference between the farm gate price and the price received by at retail sale or consumer's price. It is important to sort-out the producers' share in the consumers price and also to know the shares of different actors. Market prices reflect two elements; marketing and transaction costs on one hand and normal profit on the other. Normally, at successive stage, the price per unit is higher because adding value by all or some of the marketing functions such as transportation, storage and processing. In marketing margin analysis the purchasing and selling price of maize at different level was considered.

According to Gizachew (2005) in an efficient operating market, the competitive environment should keep the marketing margin to the minimum. Efficiency in performance of marketing is not in all cases equated with small marketing margins. Small marketing margins, however, is not always equated with efficient performance in marketing functions. Similarly, large marketing margins are not necessarily a firm indication of efficient or excess profit. Marketing margins and costs can be meaningfully discussed in relation to the services and functions provided. Some times widening margins overtime may reflect an increase demand by consumers for additional services.

The farmers have been commonly selling maize to their respective primary cooperatives from January 15 to March 30. The primary cooperatives have also sold to the union as per the purchase agreement held between them. The union collected from the primary cooperatives and sold to the wholesalers through an official tender. Hence, the total amount of maize purchased by the DMFCU from the affiliated cooperatives in 2006/07 was 31,021.05 quintals. Out of this, 12,905.08 quintals (41.60%) were supplied by the sample cooperatives. The total amount of net margins at primary and union level was 50,219.67 Birr and 313, 002.39 Birr respectively (Table 8).

Table 8: The Maize Purchasing & Selling Performance of Sample Coops & Damot union as of 2006/07

Name of coops	Purchased		Sold		Gross Margin (Birr)	Marketing costs (Birr)	Net Margin (Birr)
	Volume (Qt)	Value(Birr)	Volume (Qt)	Value(Birr)			
Alefa	3,501.70	445,099.55	3,501.70	465,726.10	20,626.55	14,224.49	6,402.06
Denbune	2141.09	268,313.60	2141.09	280,361.29	12,047.69	8,992.55	3,055.14
Shindi	6024.35	738,766.04	6024.35	804,431.46	65,665.42	31,145.89	34,519.53
Geraywonz	344.26	42,034.15	344.26	44,419.87	2,385.72	1,032.78	1,352.94
Kolla Akilat	137.68	15,188.80	137.68	17,623.04	2,434.24	757.24	1,677.00
Yechera	756	90720.00	756	98,280.00	7560.00	4,347.00	3,213.00
Total	**12,905.08**	**1,600,122.14**	**12,905.08**	**1,710,841.76**	**110,719.62**	**60,499.95**	**50,219.67**
Damot Union	31,021.05	4,112,460.60	31,021.05	4,746,220.65	633,760.05	320,757.66	313,002.39

Source: Each Cooperatives Annual Report June, 2007

The marketing costs and margins at primary and secondary cooperatives level are analyzed and discussed below.

1. Marketing costs and margins of maize at sample primary cooperatives level:

- Average weighted purchasing price per quintal-------Birr 123.99
- Average weighted selling price per quintal----------Birr 132.57

Gross Margin----------Birr 8.58

Marketing costs:

- Per diem----------Birr 1.10
- Share of employees' salary---------- Birr 2.08
- Interest paid---------- Birr 0.81
- Loading and unloading----------Birr 0.25
- Storage rent----------Birr 0.05
- Other costs----------Birr 2.08

Total Marketing costs per quintal----------Birr 4.69

Net Marketing Margin per Quintal---------- Birr **3.89**

2. Marketing costs and margins of maize at Damot Union level:

- Average weighted purchasing price per quintal-------Birr 132.57
- Average weighted selling price per quintal----------Birr 153.00

Gross Margin per quintal ----------Birr 20.43

Marketing costs:

- Transportation cost---------- Birr 4.00
- Perdiem----------Birr 0.42
- Share of employees salary---------- Birr 0.95
- Interest paid---------- Birr 2.29
- Loading and unloading----------Birr 2.50
- Storage rent----------Birr 0.0
- Other costs----------Birr 0.18

Total Marketing costs per quintal ----------Birr 10.34

Net Marketing Margin per Quintal----------Birr **10.09**

Finally, the marketing margins have been analyzed at each level using the following simple arithmetic model by taking the weighted average consumers' price from the database of Amhara Region Micro and Small Trade and Industry Promotion Agency as of 2006/07.

- $$TGMM = \frac{\text{Consumers' price - Farmers' price}}{\text{Consumers' price}} \times 100$$

= Birr 204.00- Birr 123.99 X100
Birr 204.00

= **39.22%**

- Marketing Gross Margin(MGM)=Consumers' price - Farmers' price

= Birr 204.00- Birr 123.99

= **Birr 80.01**

- GMMf= Price paid by the consumer - Marketing Gross Margin x 100
Price paid by the consumer

= Birr 204.00- Birr 80.01 X100
Birr 204.00

= **60.78%**

- **GMMpc**= price paid by the union – purchase price of primary cooperative X100
Price paid by the consumer

= Birr 132.57- Birr 123.99 X100
Birr 204.00

= **4.20%**

- **GMMu**= price sold by the union – purchase price of the union X100
Price paid by the consumer

= Birr 153.00- Birr 132.57 X100
Birr 204.00

= **10.01%**

As it has been seen from the above calculation, in 2006/07 the total gross marketing margin of maize was 39.22%. Out of the total gross marketing margin, the primary cooperatives and the union share was 4.20% and 10.01% respectively. The rest 25.01% was the share of wholesalers and retailers. The share of the producers of the amount spent by the consumers was about 60.78%. According to Asfaw (1998) in Ethiopia the share of producer's price as the retail price

averaged was 93% for white teff, 91% for white wheat and 86% for maize. The study by RATES (2003) also indicated that the share of the maize producers in Ethiopia was 40.90%.

Based on the above arithmetic results, it has been statistically tested by using T-test. Therefore, the results of T-value (3.782) indicated that there was a significant marketing margin difference among the farmers, primary cooperatives and DMFCU at less than 5% level significance.

4.3. Socio-Economic Characteristics of Sample Farmers

This section presented the findings from descriptive statistical analysis. The descriptive analysis made use of tools such as percentages, mean and standard deviation. T-test and χ^2 - test were also utilized to identify the most important factors that influence the marketing of maize through the cooperatives. The member farmers were categorized as participants and non-participants in order to compare the socio-economic factors affecting the marketing of maize through cooperatives. As the general result depicts, out of the total sample farmers interviewed, 69 (57.5%) farmers were participants while 51(42.5%) were non-participants in cooperatives maize marketing. Therefore, the socio-economic characteristics of the sample farmers who were the participants and non-participants in the cooperatives maize marketing in 2006/07 is summarized and discussed as follows.

4.3.1. Personal and Family Characteristics of Member farmers

4.3.1.1. Sex

Out of the sample farmers, 90% were male headed and 10% were female headed. Therefore, the majority of the cooperative members in the study area were male. The result of Chi-square

(χ^2) test indicated that there was no a significant relationship between the two sex groups with maize marketing participation. (Table 9)

Table 9: Distribution of sample farmers by sex

Sex	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Male	63	91.30	45	88.20	108	90.0
Female	6	8.70	6	11.80	12	10.0
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2-Value)	0.31					

Source: Computed from survey data

4.3.1.2. Age

The average age of the sample farmers was calculated as 43.94 years and with a standard deviation of 12.08 as well as a minimum and maximum age of 21 and 72 years, respectively (Table 10).There is a mean age difference between the participants and non participants. Hence, the participants were more aged than non-participants. But, statistically there was no a significant difference between the two group means.

Table 10: Distribution of sample farmers by age

Age group	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
21-40	28	40.58	26	50.98	54	45.0
41-60	36	52.17	19	37.26	55	45.83
>60	5	7.25	6	11.76	11	9.17
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	22		21		21	
Maximum	72		70		72	
Mean	44.62		43.02		43.94	
Std. Deviation	11.46		12.93		12.08	
T-Value	0.48					

Source: Computed from survey data

4.3.1.3. Marital Status

Out of the total sample farmers interviewed, 0.83%, 90.84%, 2.50% and 5.83% were single, married, divorced and widowed, respectively. Statist ically, there was no relationship between marital status and participation through cooperatives maize marketing (Table 11).

Table 11: Distribution of sample farmers by marital status

Marital status	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Single	0	0	1	1.96	1	0.83
Married	64	92.75	45	88.24	109	90.84
Divorced	2	2.90	1	1.96	3	2.50
Widowed	3	4.35	4	7.84	7	5.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 -Value)	2.14					

Source: Computed from survey data

4.3.1.4. Education Status

The educational status of the farmers helps to acquire new information in agricultural technologies to increase their production and productivity. Lack of knowledge will result poor utilization of technologies and low understanding on the importance of cooperatives.

From the total sample farmers, 46.67% were illiterate, 13.33% were read and write,16.67% were completed from grade 1-4,14.17% were completed from grade 5-8 and 9.16% were completed above grade 8 with a mean and a standard deviation of 2.43 and 3.24 respectively (Table 12). The mean educational status of the participants (2.52) was better than non-participants (2.35).But statistically there was no significant difference between the educational status of the participants and non-participants.

Table 12: Distribution of sample farmers by educational status

Educational status	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Illiterate	34	42.28	22	43.14	56	46.67
Read and write	9	13.04	7	13.72	16	13.33
Grade 1-4	10	14.49	10	19.61	20	16.67
Grade 5-8	7	10.15	10	19.61	17	14.17
Above grade 8	9	13.04	2	3.92	11	9.16
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0 (Illiterate)		0 (Illiterate)		0 (Illiterate)	
Maximum	12		12		12	
Mean	2.52		2.35		2.43	
Std. Deviation	3.46		2.90		3.24	
T-value	0.28					

Source: Computed from survey data

4.3.1.5. Religion

Out of the sample farmers interviewed, the religion of 119(99.17%) farmers was Orthodox Christians and only 1(0.83%) was Muslim (Table 13). Statistically religion did not have a significant effect on maize marketing participation.

Table 13: Distribution of sample farmers by religion

Religion	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Orthodox	68	98.55	51	100	119	99.17
Muslim	1	1.45	0	0	1	0.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2-Value)	0.75					

Source: Computed from survey data

4.3.1.6. Family Size

There were 552 family members in the household group with the average family size of 4.6 persons, with a minimum and maximum family size of 1 and 12 persons, respectively. As shown in the table 14, the average family size of participants (4.93 persons) was larger than non participants (4.16 persons). There

was also a statistical significant difference between the two group means at less than 5% level significance.

Table 14: Distribution of sample farmers by family size

Family Size	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
1-3	14	20.29	16	31.37	30	25.0
4-6	41	59.42	31	60.78	72	60.0
>6	14	20.29	4	7.85	18	15.0
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	1		1		1	
Maximum	12		9		12	
Sum	340		212		552	
Mean	4.93		4.16		4.6	
Std. Deviation	2.14		1.78		2.03	
T-Value	2.11 at less than 5% level significance					

Source: Computed from survey data

4.3.1.7. Farming Experience

Farming experience is another important factor for the success of farming business. The average years of farming experience of the sample farmers was computed as 22.59 years and with a standard deviation of 11.07. When the average years of farming experience of participants are compared with the non-participants, the participants are relatively shorter than non-participants. But, statistically the difference between the two group means was not significant (Table 15).

Table 15: Distribution of sample farmers by years farming experience

Years of Farming	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
1-10	11	15.94	10	19.61	21	17.5
11-20	18	26.09	16	31.37	34	28.3
21-30	27	39.13	14	27.45	41	34.2
31-40	13	18.84	6	11.77	19	15.8
>40	0		5	10.80	5	0.8
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	4		5		4	
Maximum	40		52		52	
Mean	22.36		22.90		22.59	
Std. Deviation	10.12		12.34		11.07	
T-Value	-0.26					

Source: Computed from survey data

4.3.1.8. Duration of Membership in the Cooperatives

Cooperatives are established in order to solve the common problems of farmers that cannot be solved by individual members by working independently. Among the sample cooperatives, the time of establishment for 1 cooperative was 11 years, for 2 cooperatives were 29 years and for the rest 3 cooperatives were 30 years. Therefore, the average years of membership for sample farmers was 24.24 years with a standard deviation , minimum and maximum year of 9.96, 3 and 30 years, respectively . The average year of membership for participants was longer than non participants by 1.85 years , but there was no statistical significant difference between them (Table 16).

Table 16: Distribution of sample farmers by duration of membership in cooperatives

Amount of Income	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
1-10	35	50.72	28	54.90	63	52.5
11-20	6	8.70	7	13.73	13	10.83
>20	28	40.58	16	31.37	44	36.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	3		3		3	
Maximum	30		30		30	
Mean	15.03		13.18		14.24	
Std. Deviation	9.92		10.02		9.96	
T-Value	1.00					

Source: Computed from survey data

4.3.2. Farm Characteristics of Member Farmers

4.3.2.1. Land Ownership

Land is one of the major resources of farmers used for production of crop and live stock. The size of land owned by sample farmers varied from 0 to 4 hectares with an average holding of 1.73 hectares and a standard deviation of 0.88. The average size of land for participant farmers was 1.82 hectares with standard deviation of 0.86, while that of non-participant farmers was 1.61 with standard deviation of 0.86. Though there was a mean difference between participant and non-participant farmers with respect to the size of ownership, there was no a statistical significant difference between the two group means (Table 17).

Table 17: Distribution of sample farmers by land ownership

Land Size(Ha)	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0	-	-	2	3.92	2	1.67
0.01- 1	20	28.99	21	41.18	41	34.17
1.01-2	26	37.68	13	25.49	39	32.50
>2	23	33.33	15	29.41	38	31.16
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0.25		0		0	
Maximum	4		4		4	
Sum	125.50		82.10		207.60	
Mean	1.82		1.61		1.73	
Std. Deviation	0.86		0.91		0.88	
T-Value	1.32					

Source: Computed from survey data

4.3.2.2. Land Renting Situation

Out of the total sample farmers, 37.5 % were involved in renting systems up to 4 hectares in order to obtain a part of their income on contractual basis (Table 18). Accordingly, the total area of land rented-in was 82.75 hectares and rented-out was 11.125 hectares .Therefore, the participants and non-participants engaged in rented-in were 59.42% and 66.67% having an average size of 0.66 and 0.73 hectare, respectively. On the other hand those participant and non participant farmers engaged in rented-out were 7.25% and 7.84% having an average size of 0.08 and 0.11 hectare respectively. On average the size of land rented-in and out by the participants were less than the non-participants. But statistically, there was no significant difference between them. The basic reasons for renting-in land were shortage of land, availability of extra labor in the house and the desire to have better economic position where as those farmers who are aged and unable to make use of their farm land and who have shortage of oxen and inputs were found to be the basic reasons for renting-out land.

Table 18: Distribution of sample farmers by rent of land

Member	Land Size(Ha)	Rented-in		Rented-out	
		Number	Percent	Number	Percent
Participants (69)	0	28	40.58	64	92.75
	0.01- 1	28	40.58	3	4.35
	1.01-2	8	11.59	2	2.90
	>2	5	7.25	-	
Non -Participants (51)	0	17	33.33	47	92.16
	0.01- 1	25	49.02	2	3.92
	1.01-2	6	11.77	1	1.96
	>2	3	5.88	1	1.96
Results		**Participants**	**Non - Participants**	**Participants**	**Non - Participants**
Minimum		0	0	0	0
Maximum		3.5	4	2	3
Sum		45.53	37.22	5.515	5.61
Mean		0.66	0.73	0.08	0.11
Std. Deviation		0.83	0.85	0.32	0.50
T-value		-0.41		-0.52	

Source: Computed from survey data

4.3.2.3. Cropping Pattern

The operational area of DMFCU is well known in crop production. The sample farmers grew cereals, pulses and oil seeds for food and sale to meet their cash requirements. As shown in table 19, the total area of land cultivated and amount of crops produced in 2006/07 was 282.525 hectares and 5, 180.15 quintals respectively. Maize was the dominant crop which accounted 35.7% in terms of area cultivated and 52.57% in amount of production. There was a statistical significant difference between participant and non-participant farmers in both area cultivated and production of wheat and millet as well as in production of maize.

Table 19: Distribution of sample farmers by cropping pattern practiced in 2006/07

Crop Type	Area Covered (Ha)		Production		T-Value		Total	
	Participants	Non-participants	Participants	Non-participants	Area	Production	Area	Production
Maize	61.125	39.75	1,761.25	961.75	1.24	2.79*	100.875	2,723
Wheat	42	14.75	803.5	295	2.86*	2.48**	56.75	1,098.5
Teff	27.375	24.125	279	228.5	-0.93	-0.56	51.5	507.5
Millet	15.25	6.375	275.25	121	2.39**	1.98***	21.625	396.25
Barely	10.5	11.25	75	119.5	-0.07	-2.49	21.75	194.5
Pulses	10.5	8.625	102	92.5	-0.44	-0.64	19.125	194.5
Oil seeds	5.15	5.75	27.5	38.4	-1.06	-0.47	10.9	65.9
Total	**171.9**	**110.625**	**3,323.5**	**1,856.65**	**-**	**-**	**282.525**	**5,180.15**

Source: Computed from survey data

Note: *, **and *** refers at 1%, 5% and 10% level of significance, respectively

4.3.2.4. Area of Land under Maize Cultivation

The study area has a greatest potential for maize production. Hence, the total size of land allocated by the sample farmers for maize production was 100.875 hectares. The area was varied from 0 to 3 hectares with an average holding of 0.84 hectares and a standard deviation of 0.47 hectares .The average size of land for participant farmers was 0.89 hectares with standard deviation of 0.42 hectares, while that of non-participant farmers was 0.78 hectares with standard deviation of 0.52 hectares. Statistically, there was no a significant difference between participant and non-participant farmers with respect to the size of cultivated land for maize (Table 20).

Table 20: Distribution of sample farmers by area of maize under cultivation

Area Cultivated /Ha/	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0	-	-	2	3.92	2	1.67
0.01-0.5	23	33.33	21	41.18	44	36.67
0.51-1	35	50.73	22	43.12	57	47.50
1.01-1.5	8	11.59	3	5.88	11	9.16
>1.5	3	4.35	3	5.88	7	5.00
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0.25		0		0	
Maximum	2.50		3		3	
Sum	61.225		39.65		100.875	
Mean	0.89		0.78		0.84	
Std. Deviation	0.42		0.52		0.47	
T-Value	0.22					

Source: Computed from survey data

4.3.2.5. Production of Maize

Production of maize can be increased through intensive utilization resources such as land, labor, modern agricultural inputs and extension services. Farmers in the study area tried to increase the amount of the production by using these limited resources with the help of extension agents. The total amount of maize produced by the sample farmers were 2,723 quintals. The average amount of maize produced per hectare was 26.99 quintals. Only 2 (1.67%) farmers did not produce maize in 2006/07 production year. The rest 118 (98.33%) have produced from 3 to 105 quintals with a mean and standard deviation of 22.69 and 14.39 quintals respectively. As it has been depicted from table 21, farmers who were participated on cooperatives maize marketing have produced more average amount of maize (25.75 quintals) than not participated (18.55 quintals).There was also statistically significant difference between the two mean groups at less than 1% level of significance (i.e., the participants and non participants).Therefore, as the quantity of maize produced increased, the level of participation also increased.

Table 21: Distribution of sample farmers by production of maize

Production in Qt	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0	-	-	2	3.92	2	1.67
1-15	21	30.43	24	47.06	45	37.50
16-30	33	47.83	19	37.26	52	43.33
31-45	12	17.39	5	9.80	17	14.17
>45	3	4.35	1	1.96	4	3.33
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	7		0		0	
Maximum	105		50		105	
Sum	1,777		946		2,723	
Mean	25.75		18.55		22.69	
Std. Deviation	15.53		11.61		14.39	
T-Value	2.79 at less than 1% level significance					

Source: Computed from survey data

4.3.2.6. Livestock Holdings

Farmers kept livestock for different purposes such as draught power, manure, source of income and consumption. The more the number of livestock the farmers have, the less the participation of members in maize marketing because the farmers could generate adequate cash by selling livestock. As shown in table 22, sample farmers were owned 638 cattle, 249 sheep & goat, 86 donkeys, 324 poultry and 61 bee colonies. The amount of livestock ownership in TLU for participants and non-participants did not show a statistical significant difference except donkeys which showed significant difference at 5% level. Hence, those members who have number donkeys have better participation than who do have less number of donkeys.

Table 22: Distribution of sample farmers by livestock holding 2006/07

Livestock Type	No of Heads		TLU		T-Value	Total	
	Participants	Non-participants	Participants	Non-participants		No of Heads	TLU
Cattle	397	241	270.9	168.7	1.35	638	446.6
Sheep & Goat	133	116	13.3	11.6	-0.52	249	24.9
Donkey	61	25	30.5	12.5	2.17**	86	43
Poultry	179	145	1.79	1.45	-0.28	324	3.24
Bee colony	26	35	-	-	-1.06	61	-
Total	**796**	**562**	**-**	**-**	**-**	**1358**	

Source: Computed from survey data

Note: ** represents at 5% level of significance

4.3.2.7. Oxen Ownership

Farmers who own oxen are more likely to plough their land in time than farmers who do not own oxen. It is clear that unless the land has been prepared timely, it could not have provided better yield. Out of the sample farmers, 11(9.17%) farmers did not have oxen while 109 (90.83%) have owned ranging from 1 to 8 with an average holding of 2.28 oxen and standard deviation of 1.44. The average number of oxen owned by participant farmers was 2.46 with standard deviation of 1.46, whereas for non-participants, it was 2.02 with standard deviation of 1.29. The mean difference in oxen holding was found to be statistically insignificant (Table 23).

Table 23: Distribution of sample farmers by ox ownership

Number of oxen	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0	3	4.35	8	15.69	11	9.17
1	12	17.39	6	11.76	18	15.00
2	26	37.68	22	43.14	48	40.00
>2	28	40.58	15	29.41	43	35.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0		0		0	
Maximum	8		6		8	
Mean	2.46		2.02		2.28	
Std. Deviation	1.46		1.29		1.44	
T-Value	1.73					

Source: Computed from survey data

4.3.2.8. Annual Income

Rural communities of the study area are dependent on agriculture to make their livelihood. Crop and livestock productions are the main sources of income. As it is shown in Table 24, during the survey year, the mean income for the sample farmers was 9,823.52 Birr with a standard deviation of 6,179.96 Birr. Furthermore, the mean income of participant farmers was 10,856.51 Birr with a standard deviation of 6,782.21 Birr as well as a minimum and maximum income of 2,984.00 Birr and 37,430.00 Birr respectively. While that of the non-participant farmers earned 8,425.94 Birr with a standard deviation of 4,987.40 Birr. The minimum and maximum amount of income earned was 2,625.00 Birr and 8,425.94 Birr, respectively. Therefore, the participants were earned more income than non-participants. The mean difference between the participants and non-participants in total income was found to be statistically significant at less than 5% level of significance depicting total income has positive contribution on maize marketing participation.

Table 24: Distribution of sample farmers by annual income

	Participants		Non-participants		Total	
Amount of Income (Birr)	Number	Percent	Number	Percent	Number	Percent
<=5,000.00	10	14.49	17	33.33	27	22.50
5000.01-10,000.00	30	43.48	21	41.18	51	42.50
10,000.01-15,000.00	16	23.19	7	13.73	23	19.17
15,000.01-20,000.00	8	11.59	4	7.84	12	10.0
>20,000.00	5	7.25	2	3.92	7	5.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	2,984.00		2,625.00		2,625.00	
Maximum	37,430.00		24,240.00		37,430.00	
Sum	749,100.00		429,723.00		1,178,823.00	
Mean	10,856.51		8,425.94		9,823.52	
Std. Deviation	6,762.21		4,987.40		6,179.96	
T-Value	2.16 at less than 5% level of significance					

Source: Computed from survey data

4.3.1.9. Income from Off-farm Activities

Off-farm activities are the other means of farmers' income which supplement the incomes of on-farm activities. The income generated from the off-farm activities can help to purchase agricultural inputs for improving agricultural production. There fore, out of the sample farmers, only 12.50% were involved in the off-farm business activities. The farmers were involved in handicraft and petty trade off-farm activities. The mean annual amount of income generated from the off-farm activities was 99.29 Birr with a standard deviation of 17.32 Birr. The minimum and maximum amount of income was 0.00 and 2400.00 Birr respectively. As shown from table 25, the maize marketing participants were generated a better average income (112.10 Birr) than the non participants (81.96 Birr). But statistically there was no significant difference between the two group means.

Table 25: Distribution of sample farmers by income from off-farm activities

Amount of Income (Birr)	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0.00	60	86.95	45	88.24	105	87.50
0.01-500.00	2	2.90	3	5.88	5	4.17
500.01-1000.00	4	5.80	2	3.92	6	5.00
>1000.00	3	4.35	1	1.96	4	3.33
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0.00		0.00		0.00	
Maximum	2400.00		1080.00		2400.00	
Sum	7,735.00		4,180.00		11,915.00	
Mean	112.10		81.96		99.29	
Std. Deviation	391.04		229.30		331.20	
T-Value	0.49					

Source: Computed from survey data

4.3.3. Business Activities and Members Participation

4.3.3.1. Amount of Maize Sold to the Other Marketing Agents

Members were selling their produce not only to their respective cooperatives but also they sold to the other marketing agents called wholesalers, retailers and consumers at the local and the woreda market level. Among the reasons for selling to the other marketing agents, lack of coincidence (i.e., the farmers selling and cooperatives purchasing time were not coincide) that means cooperatives did not purchase through out the year especially during cold season since they used their storage for storing fertilizer and seed as well as the cooperatives were not purchasing at competitive price, are the main. There fore, out of the sample farmers, 15 (12.5%) did not sell maize to any marketing agents including cooperatives. Where as the rest 105 (87.5%) sold to the cooperatives and other agents, 78 members (including 42 members who sold to the cooperatives) sold 578.5 quintals to the wholesalers, retailers and consumers with a weighted average price of 141.25 Birr per quintal. The results of t-value indicated that there was no significant difference between participants and non-participants for selling to the other marketing agents (Table 26).

Table 26: Distribution of sample farmers by amount and average price sold to other marketing agents

Marketing Agents	Participants			Non-Participants			Total		
	No	Quantity	Average Price	No	Quantity	Average Price	No	Quantity	Average Price
Wholesalers	2	7	117.50	9	110	126.67	11	117	126.12
Retailers	16	157.5	133.94	18	136	134.72	34	293.5	134.30
Consumers	24	122.5	166.71	9	45.50	156.39	33	168	163.92
Total	**42**	**287**	**147.53**	**36**	**291.5**	**135.06**	**78**	**578.5**	**141.25**

Results	Wholesaler		Retailer		Consumer		Total	
	Quantity	Price	Quantity	price	Quantity	price	Quantity	price
Minimum	2	110.00	1	110.00	0.50	110.00	0.50	110.00
Maximum	30	160.00	50	195.00	50.00	220.00	50.00	220.00
Mean	10.64	125.90	8.63	134.35	5.09	163.89	8.14	144.51
Std. Deviat.	9.32	16.72	11.43	22.57	3.69	37.48	9.92	34.49
T-value	-1.23	-0.32	-0.57	-0.1	-0.57	-0.1	-0.34	-1.16

Source: Computed from survey data

4.3.3.2. Use of Fertilizer

The most commonly and intensively used commercial inputs in the production of major cereal crops are DAP (Di-Ammonia Phosphate) and Urea. Chemical fertilizers are known for their responsiveness in increasing productivity to a greater extent. Due to this fact the use of fertilizer is not only increasing in its volume but also its application expanded to other crops that did not ever been grown with fertilizer. The survey results revealed that except 2(1.67%) farmers who did not produce maize 118(98.33%) farmers were used fertilizer for production. The total amount of fertilizer used by the farmers was 392.375 quintals with an average amount of 2.74 quintals. The χ^2 value indicated that the marketing participants were more users of fertilizer than non-participants at 10% level of significance. Therefore, use of fertilizer has positive contribution on maize marketing participation (Table 27).

Table 27: Distribution of sample farmers by use of fertilizer

Fertilizer	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Used	69	100	49	96.08	118	98.33
Not used	0	0	2	3.92	2	1.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Amount of Fertilizer	266.425		125.95		392.375	
Mean	3.86		2.47		3.27	
Chi-square (χ^2 –Value)	2.75 at 10% level of significance					

Source: Computed from survey data

4.3.3.3 .Use of Maize Improved Seed

At present use of high yielding variety of seed has become obligatory to boost production and assure food security. Food security couldn't be assured unless modern agricultural inputs like improved seed have been used, other things kept constant. Therefore, the total amount of maize improved seed used by 113 (94.17%) farmers was 15.8125 quintals. The rest 7(5.83%) did not use improved seed for maize production. The average amount of seed used was 0.13 quintal. As shown from table 28, the maize marketing participants were better users of improved seed than non-users on average. But statistically there was no significant difference between the two group means.

Table 28: Distribution of sample farmers by use of improved maize seed

Improved Seed	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Used	66	95.65	47	92.16	113	94.17
Not used	3	4.35	4	7.84	7	5.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Amount of Improved Seed	10.35		5.4625		15.8125	
Mean	0.15		0.11		0.13	
Chi-square (χ^2 –Value)	0.65					

Source: Computed from survey data

4.3.3.4. Access to Cooperatives Credit

Cooperatives are the main sources of credit for agricultural inputs to the farmers. Out of the total the sample farmers, 88 (73.33 %) farmers were obtained 67,279 Birr for inorganic fertilizer and improved seed from their respective cooperatives. The rest 32 (26.67%) were not taking credit. The average amount of credit taken by the whole farmers was 560.65 Birr. The participants were more accessible to credit than non participants. But there was no a statistical difference between the two group means (Table 29).

Table 29: Distribution of sample farmers by access to cooperatives credit

Credit Accessibility	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Have access	54	78.26	34	66.67	88	73.33
Not have access	15	21.74	17	33.33	32	26.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Amount of Credit	51,240.00		16,039.00		67,279.00	
Mean	742.61		314.48		560.65	
Chi-square (χ^2 –Value)	2.02					

Source: Computed from survey data

4.3.3.5. Amount of Credit Provided by Other Institutions

The main source of cash credit in the study area is Amhara Credit and Saving Institutions (ACSI).The farmers were borrowed cash basically for livestock package, land and oxen renting and purchasing of agricultural inputs. Out of the sample farmers, 41(34.17%) were borrowed from this institution. The average amount of credit provided by ACSI to the farmers was 574.08 Birr with a standard deviation of 879.23 Birr and a maximum amount of 3,000.00 Birr. The average amount of money borrowed by the participants (607.83 Birr) were more than the non-participants (528.43 Birr).But statistically there was no significant difference between the two group means (Table 30)

Table 30: Amount of credit provided by other institution (Amhara Credit & Saving Institution)

Amount of Credit in Birr	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
0.00	44	63.77	35	68.63	79	65.83
0.01-500.00	2	2.90	-	-	2	1.67
500.01-1,000.00	5	7.25	4	7.84	9	7.50
1000.01-2,000.00	14	20.29	9	17.65	23	19.17
>2,000.00	4	5.79	3	5.88	7	5.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	0.00		0.00		0.00	
Maximum	3,000.00		3,000.00		3,000.00	
Mean	607.83		528.43		574.08	
Std. Deviation	908.71		846.18		879.23	
T-Value	0.49					

Source: Computed from survey data

4.3.3.6. Distance from the Farmers Residence to the Cooperatives

In the study area, to reach to the cooperatives, the participant farmers should walk on average 56 minutes with a standard deviation of 40 minutes, while the non-participant farmers walking hours[5] takes 1 hour and 7 minutes with a standard deviation of 45 minutes. The difference in the time taken to reach the cooperatives by the two groups was statistically insignificant (Table 31).

Table 31: Distribution of sample farmers by distance from their residence to the cooperatives

Distance in Hours	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
<= 0:30	24	34.78	4	7.84	28	23.33
0:31- 1	32	46.78	29	56.86	61	50.83
1:01-1:30	7	10.14	12	23.53	19	15.84
>1:30	6	8.70	6	11.77	12	10.0
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	1 Minute		5 Minutes		1 Minute	
Maximum	4 Hours		4 Hours		4 Hours	
Mean	56 Minutes		1:7 Hours		1:09 Hour	
Std. Deviation	40 Minutes		45 Minutes		42 Minutes	
T-Value	-1.33					

Source: Computed from survey data

[5] one walking hour is expected to have equivalent distance with 6kms

4.3.3.7. Distance from the Farmers Residence to the Woreda Market

When the distance from the farmers residence to the woreda market is nearer than or the same as the distance of the cooperatives, it can influence the maize marketing through cooperatives negatively by creating competition with formal and informal traders available in the woreda market .

The average distance from the sample farmers' residence to the woreda was 1 hour and 47 minutes with a standard deviation of 59 minutes. The minimum and the maximum time required were 15 minutes and 5 hours respectively. The average distance from the participant and non-participant farmers' residence to the woreda market was taking 1 hour and 41 minutes and 1hour and 56 minutes respectively. This indicates that on average the participants time required to arrive the woreda market was shorter than non- participants. But statistically there was no significant difference between two group means (Table 32).

Table 32: Distribution of sample farmers by distance from their residence to the woreda market

	Participants		Non-participants		Total	
Distance in Hours	Number	Percent	Number	Percent	Number	Percent
<= 0:30	7	10.14	4	7.81	11	9.17
0:31- 1	20	28.99	10	19.61	30	25.0
1:01-1:30	14	20.29	9	17.65	23	19.17
>1:30	28	40.58	28	54.90	56	46.66
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	15 Minutes		15 Minutes		15 Minutes	
Maximum	5 Hours		4 Hours		5 Hours	
Mean	1:41 Hour		1:56 Hour		1:47 Hour	
Std. Deviation	56 Minute		59 Minutes		59 Minutes	
T-Value	-1.42					

Source: Computed from survey data

4.3.3.8. Distance from the Farmers Residence to the Local Market

This is another determinant factor which might affect the participation of maize marketing through cooperatives. Out of the sample farmers interviewed, 77 (64.17%) have local markets nearer than or the same distance as the cooperatives. Few local traders are relatives of farmers which can socially influence to sell their produce to them and their friends. The distance of the farmers' residence to the local market ranges from 4 minutes to 4 walking hours with a mean and a standard deviation of 1 hour and 8 minutes and a standard deviation of 50 minutes. The average distance from the participants' residence was 1:4 hour and the non-participants were 1 hour 13 minutes. Statistically there is no any significant difference between the two group means (Table 33).

Table 33: Distribution of sample farmers by distance from their residence to the local market

	Participants		Non-participants		Total	
Distance in Hours	Number	Percent	Number	Percent	Number	Percent
<= 0:30	13	18.84	10	19.60	23	19.17
0:31- 1	14	20.29	13	25.49	27	22.5
1:01-1:30	8	11.59	7	13.73	15	12.5
>1:30	5	7.25	7	13.73	12	10
No local Market nearer than/the same as coop.	29	42.03	14	27.45	43	35.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Minimum	4 Minutes		5 Minutes		4 Minutes	
Maximum	4 Hours		4 Hours		4 Hours	
Mean	1:4Hour		1:13 Hour		1:8 Hour	
Std. Deviation	48 Minutes		52 Minutes		50 Minutes	
T-Value	-1.68					

Source: Computed from survey data

4.3.3.9. Patronage Refund

Cooperatives are business organization owned and controlled by the people who use them. When the cooperatives operate for the benefits of members, they obtain profit that can be allocated to

reserve fund, work expansion, social services and members based on the business participation and share capital. Distribution of the net surplus is one of the promotional strategies which encourages members to increase the participation of members in cooperatives business activities. In 2006/07, 50.83 % of the members did not get patronage refund because out of 6 sample cooperatives, three cooperatives did not distribute net surplus to their members. The average amount of money distributed to the members was 48.33 Birr. The maize marketing participants were obtained more amount of money than non-participants .Statistically there was also a significant difference between the two group means at less than 1% level of significance (Table 34).

Table 34: Distribution of sample farmers by patronage refund

Patronage Refund	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Obtained	44	65.22	15	29.94	59	49.17
Not obtained	25	34.78	36	70.59	61	50.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Amount of patronage Refund	4630.00		1169.00		5799.00	
Mean	67.11		22.92		48.33	
Chi-square (χ^2 –Value)	13.85 at less than 1% level of significance					

Source: Computed from survey data

4.3.3.10. Exposure to Extension Services

It is obvious that an increase in agricultural productivity can be achieved by providing farmers to appropriate extension services. In the study area, the offices of agricultural development at woreda and kebele level provide the extension services for the farmers. . Out of the total sample farmers interviewed, 22.50% did not have contact with development agents while 77.50 % were contacted with development agents in order to get services on land preparation, timely sowing, use of modern agricultural inputs, timely harvesting and credit utilization and repayment.

The average frequency of contact was 8.64 times. Those members participated in maize marketing have a better contact than non-participants on average. But statistically there was no a significant difference between the two group means (Table 35).

Table 35: Distribution of sample farmers by exposure to extension services

Extension service	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Users	55	79.71	38	74.51	93	77.50
Non-users	14	20.29	13	25.49	27	22.50
Total	**69**	**100**	**51**	**100**	**120**	**100**
Frequency of Extension Service	732		305		1037	
Mean	10.61		5.98		8.64	
Chi-square (χ^2 –Value)	0.46					

Source: Computed from survey data

4.3.3.11. Access to Market Information

Provision of efficient market information can be shown to have positive benefits for farmers, marketing agents and policy makers. Up-to-date market information enables farmers to negotiate with marketing agents from a position of greater strength. Therefore, out of the sample farmers, 64.17% are users of market information from different sources such as cooperatives, radio, traders at the local and woreda market level as well as their friends when they are returned from the market after selling their produce. As shown in table 36, the participants were relatively better users of market information (65.22%) than non participants (62.75%). But statistically market information did not have special effect on participation.

Table 36: Distribution of sample farmers by access of market information

Market Information	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Users	45	65.22	32	62.75	77	64.17
Non-users	24	34.78	19	34.78	43	35.83
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	0.08					

Source: Computed from survey data

4.3.3.12. Training on Cooperatives

Training is one of the promotional instruments to enlighten the member farmers regarding the importance of cooperatives .But, 95% of the members did not get training on cooperatives for the last two years (2005/06 to 2006/07). Lack of training might contribute negatively in cooperatives maize marketing participation. As shown in the table 37, only 7.25% of the participants and 1.96% non-participants were trained on cooperatives. Statistically, training did not have effect on participation.

Table 37: Distribution of sample farmers by training on cooperatives

Description	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Trained	5	7.25	1	1.96	6	5.0
Not trained	64	92.75	50	98.04	114	95.0
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	1.73					

Source: Computed from survey data

4.3.3.13. Participation in Cooperatives Leadership

Cooperatives businesses are directed by the elected management bodies from the members. So, those members who have responsibility in the cooperatives management are expected to have better understanding on the importance of cooperatives thereby they could sell their produce to their respective cooperatives. Hence, out of the respondent farmers interviewed, only 10.83% were involved in different responsibilities (i.e., in management, controlling, credit and purchase and sale committees) in the last five years. The participants (15.94%) have better involvement in leadership than the non participants (3.92%). The significant χ^2 test indicates that more of the sample farmers who participated in the cooperatives maize marketing were involved in cooperatives leadership (Table 38).

Table 38: Distribution of sample farmers by cooperatives leadership

Cooperatives leadership	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Participated	11	15.94	2	3.92	13	10.83
Not participated	58	84.06	49	96.08	107	89.17
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	4.39 at less than 5% level significance					

Source: Computed from survey data

4.3.3.14. Availability of Other Marketing Agents

In maize marketing, different marketing agents such as local assemblers, cooperatives, wholesalers, retailers and consumers are involved. The availability of these marketing agents' could create competition among them. Cooperatives are the only organizations which can solve the marketing problems of the member farmers by finding better price to their produces. All members did not sell their produce to their respective cooperatives due to different problems encountered in cooperatives as well as in farmers themselves. Therefore, the presence of other marketing agents nearer than or the same distance as the cooperatives can affect the cooperatives maize marketing. Out of the total farmers interviewed, 83.33% of the farmers were replied the availability of other marketing agents. As shown in table 39, other marketing agents available between participants' residence and the cooperatives were relatively fewer than the non-participants. But, statistically their availability did not have a significant effect on participation.

Table 39: Distribution of sample farmers by availability of other marketing agents'

Other Marketing Agents	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Available	57	82.61	43	84.31	100	83.33
Not available	12	17.39	8	15.69	20	16.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	0.06					

Source: Computed from survey data

4.3.3.15. Availability of Other Services

Besides supplying farm inputs, purchasing farm produces and extending credit, some cooperative provide other services to the farmers. The cooperatives were provided flour mill, consumer goods supply and other services. Out of the sample farmers, 25% were beneficiary from these services. The corresponding figures for those participants and non-participants were 33.33% and 13.73% respectively (Table 40). There was statistically significant difference between cooperative participants and non-participants in getting these services. The significant χ^2 test indicated that more of the farmers who participated in the cooperatives maize marketing were beneficiary from the services mentioned above.

Table 40: Distribution of sample farmers by availability of other services

Other Services	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Available	23	33.33	7	13.73	30	25.0
Not available	64	66.67	44	86.27	90	75.0
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	6.01 at 1% level of significance					

Source: Computed from survey data

4.3.3.16. Cooperative's Purchase Price of Maize

Cooperatives are established to safeguard their respective members from un-surplus traders. Therefore, out of the sample farmers interviewed, 78.33% of the members were opined that the cooperatives' purchase price was similar with or better than other marketing agents. As it has shown in table 41, the corresponding figure for the participants and non-participants were 89.86% and 62.75% respectively. There was statistically significant difference between participants and non-participants farmers in replying the purchase price of maize was similar with or better than other competitors. The significant χ^2 test indicated that more of the farmers

who participated in the cooperatives maize marketing opined as the cooperatives' were paid competitive price for maize.

Table 41: Distribution of sample farmers by cooperative's purchase price of maize

Coops Purchase price	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Similar or better	62	89.86	32	62.75	94	78.33
Lower	7	10.14	19	37.25	26	21.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	12.70 at less than 1% significant level					

Source: Computed from survey data

4.3.3.17. Weather Condition

Weather condition is another factor for maize production. The presence of favorable weather condition increases production, keeping other factors constant. Out of the sample farmers interviewed, 58.33 % were opined as there was good weather condition for maize production in 2006/07 (Table 42). 56.52 % of the participants and 60.78% of the non- participants were opined the existence of favorable weather condition for maize production. But, there was no statistically significant difference between cooperative participants and non-participants.

Table 42: Distribution of sample farmers by response about weather condition

Weather Condition	Participants		Non-participants		Total	
	Number	Percent	Number	Percent	Number	Percent
Favorable	39	56.52	31	60.78	70	58.33
Unfavorable	30	43.48	20	39.22	50	41.67
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	0.22					

Source: Computed from survey data

4.3.3.18. Misappropriations/Corruption of the Cooperatives Property

Cooperatives are making use of higher amount of money in day-to-day business activities. The members who have given the responsibility of running the business are expected to respect the

cooperatives ethical values and principles. But, there are few members who did not loyal to their responsibility given by the general assembly. Hence, misappropriation could contribute a negative effect on maize marketing participation.

Out of the total sample farmers, 15.83 % respondents were opined that the management committee was mainly responsible for the misappropriation of the cooperatives property. The corresponding figures for those participants and non-participants were 10.15% and 23.53% respectively (Table 43). There was statistically significant difference between participants and non-participants in response about the misappropriation of cooperatives property. The significant χ^2 test indicated that more of the sample farmers who did not participate in the cooperatives maize marketing were opined the problems of misappropriation.

Table 43: Distribution of sample farmers by response about misappropriation of coops Property

	Participants		Non-participants		Total	
Misappropriation	Number	Percent	Number	Percent	Number	Percent
Taken place	7	10.15	12	23.53	19	15.83
Not taken place	62	89.85	39	76.46	101	84.17
Total	**69**	**100**	**51**	**100**	**120**	**100**
Chi-square (χ^2 –Value)	3.94 at 5% level of significance					

Source: Computed from survey data

4.3.3.19. Perception of Members on Cooperative Affairs

It is known that cooperatives are established so as to provide different services required by the members. Among the services provided, the dominant services are agricultural input supply, grain marketing and consumer goods supply. The primary cooperatives have formed unions to solve the problems that can not be solved at primary level and to improve their bargaining power by increasing the volumes of purchases and sales.

Members have provided different responses on some perception variables asked. For example, out of the total sample farmers, 81.67% were perceived on the good performance of cooperatives, 94.17% have better hope on cooperatives in enabling them to overcome their common problems in the future, 92.5% were willing to contribute money to improve the performance of the cooperatives and 99% have interest to continue on membership since they have obtained agricultural inputs and have sold their produce at better price. The details of the perception of the sample farmers on cooperatives affairs are presented in table 44.

Table 44: The perception of sample farmers on cooperatives affairs

Description	**Response**	**Participants**		**Non Participants**		**Total**	
		Count	%	Count	%	Count	%
Members capacity to purchase inputs on cash if the coop did not provide credit	Yes	25	36.23	17	33.33	42	35
	No	34	49.28	18	35.30	52	43.33
	Didn't get Credit	10	14.49	16	31.37	26	21.67
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Repayment of credit on time	Yes	51	98.55	23	45.10	74	61.67
	No	8	11.60	12	23.53	20	16.67
	Didn't take Credit	10	14.49	16	31.37	26	21.66
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Knowledge to get patronage refund, if he/she sell/purchase to/from the cooperatives	Yes	68	98.55	50	98.04	118	98.33
	No	1	1.45	1	1.96	2	1.67
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Participation on coop meeting	Yes	60	86.96	35	68.63	95	79.17
	No	9	13.04	16	31.37	25	20.83
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Believe on performance of the cooperatives	Good	61	88.40	37	72.55	98	81.67
	Not good	8	11.60	14	27.45	22	18.33
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Believe on working together to solve their common problems	Yes	67	97.10	46	90.20	113	94.17
	No	2	2.90	5	9.80	7	5.83
	Total	69	100	51	100	120	100
Willingness to contribute money to improve the performance cooperatives	Yes	65	94.20	46	90.20	111	92.50
	No	4	5.80	5	9.8	9	7.50
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Interest to continue on membership	Yes	68	98.55	51	100	99	99.17
	No	1	1.45	0	0	1	0.83

Description	Response	Participants		Non Participants		Total	
		Count	%	Count	%	Count	%
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Knowledge about his primary coop. is a member of DMFCU	Yes	62	89.86	42	82.35	104	86.67
	No	7	10.14	9	17.65	16	13.33
	Total	**69**	**100**	**51**	**100**	**120**	**100**
Believe on DMFCU in solving the marketing problems of the affiliated cooperatives	Yes	55	79.72	41	80.39	96	80
	No	7	10.14	1	1.96	8	6.67
	Do not know	7	10.14	9	17.65	16	13.33
	Total	**69**	**100**	**51**	**100**	**120**	**100**

Source: Computed from survey data

4.4. Determinants of Members' participation and Volume of Sales

The Heckman two-step procedure econometrics model has been used to analyze the factors determining the members' participation in cooperatives maize marketing and the volume of maize sold to the cooperatives. Before running the Heckman two-step procedure, the hypothesized predictor variables were checked for the existence of multicollinearity problem. The statistical package known as SPSS was employed to compute VIF and C.C values. The computed values of VIF (Appendix table 8) and C.C (Appendix table 9) were found to be very low compared to their respective critical values (<= 10 for VIF and <= 0.75 for C.C), which revealed the absence of a sever multicollinearity problem among these potential explanatory variables.

4.4. 1. Determinants of Members' participation (Probit Model) Results

The members' household characteristics were taken into account for identifying the determinants of the cooperatives maize marketing participation. Several socio-economic factors were expected to influence the participation of members in cooperatives maize marketing and were included in the probit model analysis.

21 variables were hypothesized to affect the participation decision of members in cooperatives maize marketing. Out of these variables, 15 variables were selected and entered in to the probit model for analysis.

As shown from table 45, only three variables out of 15 explanatory variables were found to be significantly affecting the members' participation in maize marketing. Those variables which have significant relationship with the members' participation in maize marketing were members' participation in cooperatives leadership (COOP_LEAD), patronage refund (PAT_REF) and cooperatives purchase price (COOP_PRICE).

Participation on Cooperatives Leadership (COOP_LEAD) has influenced the members' participation in cooperatives maize marketing positively. The result indicated that as the members were involved in cooperatives leadership position, the probability of the members' to participate in maize marketing was increased by 32.74%. The implication of this result is that the members' participation in cooperatives marketing was induced when they involved in cooperatives leadership position since they got awareness about the importance of cooperatives. Similar result was also found by Daniel (2006).

Patronage Refund (PAT_REF) has influenced the members' participation in cooperatives maize marketing positively. Those cooperatives which distributed patronage refund to the members have increased the probability of members' participation by 26. 30%. The repercussion is that members were encouraged to participate in cooperatives maize marketing if they got patronage refund. This result agrees with previous studies (Black and Knutson, 1985; Fulton and Adamowicz, 1993; Klien et al 1997 cited in Daniel, 2006)

Cooperative's Purchase Price of Maize (COOP.PRICE) has influenced the members' participation in cooperatives maize marketing positively**.** Those cooperatives that paid similar or

better price to produces of farmers as compared with other marketing agents have increased the probability of members' participation in maize marketing by 27.69%. This indicates that since there were marketing participates in the study area, the cooperatives have paid competitive price to the members in order to safeguard the members interest. Similar results were found by earlier Studies (Fulton and Adamowicz, 1993 cited in Daniel, 2006).

Table 45: Results of probit analysis on Determinants of members participation in maize marketing

Variables	Coefficient	Standard Error	t-ratio	Marginal Effect
CONSTANT	-8.09802	226761	-3.57E-05	-3.2092
FAM_SIZE	-0.01224	0.074759	-0.16368	-0.00485
EDU_STAT	-0.01734	0.043295	-0.4005	-0.00687
PRO_MAZ	0.042256	0.117064	3.61E-01	0.01675
SEED	0.026748	0.689271	0.038806	0.01061
FERT	8.12306	226761	3.58E-05	0.59901
EXT_SER	-0.23617	0.334679	-0.70566	-0.09249
TR_COOP	0.293864	0.664251	0.442399	0.11331
COOP_LEAD	**0.950959**	**0.542778**	**1.75202*** **	**0.32737*** **
PAT_REF	**0.676664**	**0.34045**	**1.98756** **	**0.26303** **
MKT_INFO	0.026297	0.284324	0.092489	0.01043
COOP_PRICE	**0.711331**	**0.339426**	**2.09569** **	**0.27692** **
DIS_WOR	-0.12324	0.149486	-0.82445	-0.04884
MKT_AGENT	-0.252	0.377108	-0.66825	-0.09831
OTH_SER	0.30054	0.275146	1.09227	0.11828
MISAPP	-0.20569	0.415271	-0.49533	-0.08183
Log likelihood function…….-66.34344				
Restricted log likelihood...…… ……....-81.82255				
Chi squared ……..… 30.82761				
P-Value…….... 0.00324				

Source: Computed from survey results, 2006/07

Note: **and *** refers significant at 5 % and10% probability level respectively

4.4. 2. Determinants of the Members Sales Magnitude (OLS Model) Results

The second stage of estimation (OLS regression) was used to determine the variables, which significantly influence the magnitude/volume of maize sold to the cooperatives by the member farmers. 13 explanatory variables were selected and entered into the model which was expected

to influence significantly the magnitude of maize sold to the cooperatives. Moreover, the inverse mills ratio (λ) was used as one of the explanatory variable in the OLS regression to control the selectivity bias.

Therefore, the OLS result shows that only five variables namely production of maize (PRO_MAZ), training on cooperatives (TR_COOP), patronage refund (PAT_REF), availability of other services (OTH_SER) and inverse mill ratio (λ) have significant effect on the magnitude/volume of maize sold to the cooperatives by the members (Table 46).

1. Production of Maize (PRO_MAZ) has influenced the volume of maize sold to the cooperatives positively. The more the members produce, the more they supply to the cooperatives. Therefore, the coefficient of the regression result indicated that as the quantity of production increased by one quintal, the volume of maize sold to the cooperatives was increased by 0.18 quintal on average per annum, under ceteris paribus assumption.

2. Training on Cooperatives (TR_COOP) was hypothesized to affect the volume of maize sold to the cooperatives by the members positively. But, On the contrary to this assumption, it has influenced negatively. The reason for this indirect relationship might be, as the members have been trained; they could get more skills to specialize in the production of other alternative crops which have high value in the market. Therefore, the result of the regression coefficient indicated that as the members got training, the volume of maize supplied was decreased by 4.29 quintals on average per annum, ceteris paribus.

3. Patronage Refund (PAT_REF) has influenced the volume of maize sold to the cooperatives positively. The members could be motivated to sell their products to their respective cooperatives by different mechanisms such as offering reasonable price to their produce, timely supply of agricultural inputs and consumer goods at the required quantity and quality and distribution of

net surplus. Since the members were encouraged by cooperatives net surplus distribution to supply more amount of maize, those cooperatives who have distributed net surplus to the members have purchased more amount of maize. Therefore, the results of the regression coefficient indicated that as the members got patronage refund, the volume of sales was increased by 2.60 quintals on average per annum, ceteris Paribus.

4. Availability of other services (OTH_SER): the availability of other services in addition to supplying inputs, purchasing farm products and extending credit has contributed the volume of maize supplied to the cooperatives positively. When other additional services like flour mill and consumer goods supply are available in the cooperatives, the members' usage and connection to the cooperatives will be increased. Hence, the result of OLS indicated that as the availability of other services provided to the members increased, the volume of maize supplied to the cooperatives was increased by 3.07 quintals on average per annum, in ceteris paribus assumption.

5. The Inverse Mills Ratio (λ): the result of the inverse mill ratio (λ) in the regression model is statistically significant. Therefore, it indicates that in Heckman two-step model, the correction for selectivity bias is significant.

Table 46: Results of the OLS regression equation on the volume of maize sold to the coops

Variables	Coefficient	Standard Error	t-ratio	Marginal Effect
CONSTANT	-8.014	4.0653	-1.971	-8.014
FAM_SZ	0.1334	0.2637	0.506	0.1334
EDU_STA	-0.088	0.1523	-0.575	-0.088
PRO_MAZ	**0.1784**	**0.0366**	**4.8688***	**0.1784***
FERTI	2.558	3.6341	0.7039	2.558
EXT_SER	1.3774	1.2185	1.1304	1.3774
TR_COOP	**-4.288**	**2.4354**	**-1.761*****	**-4.288*****
COOP_LEAD	1.769	1.6541	1.0694	1.769
PAT_REF	**2.6043**	**1.1309**	**2.3028****	**2.6043****
MKT_INFO	0.6141	1.0136	0.6059	0.6141
COOP_PRICE	1.8397	1.2077	1.5233	1.8397
DISTWOR	-0.111	0.5382	-0.206	-0.111
MKT_AGENT	1.4055	1.4217	0.9886	1.4055
OTH_SER	**3.0671**	**1.338**	**2.2923****	**3.0671****
LAMBDA(λ)	**3.8952**	**0.6271**	**6.2119***	**3.8952***
R-squared = 0.581237		Probability Value = 0.0000		
Adjusted R-squared = 0.5254029		F-value =10.41		

Source: Computed from survey results, 2006/07
Note:*, ** and *** are significant at 1%, 5% and 10% probability level

4.5. Problems of the Cooperatives in Maize Marketing

The cooperatives have been performing various marketing operations to the benefit of members in particular and the society in general. But, there are multifaceted problems which hamper their growth. From the field investigation, focus group discussion and secondary data sources, the major problems can be summarized as follows.

1. Lack of Capital: The entire sample cooperatives key informants (management committees & employees) and 62.5% of the sample farmers replied as lack of capital is the first major problem for cooperatives. The reasons for shortage of capital is reluctance of banks to provide credit due to heavy collateral requirements and previous poor loan repayment performance history, poor capital formation system by selling additional shares and purchase of members produces on credit basis.

2. Poor marketing management: At present marketing has given equal attention with production. Marketing requires effective and efficient management system in order to play a competitive role on rivalries. But, almost all cooperatives are managed by board of directors who are illiterate or found at very low level of education. This has resulted poor understanding about the modern cooperative business and inability to monitor and control the hired personnel. Also, the availability of limited and/or absence of continuous training to cooperative members, leaders, and hired staff members could not improve the management skills. Therefore, all sample cooperatives key informants and 36.67% of the sample farmers replied that poor marketing management is the second major problem for cooperatives.
3. Lack of storage facilities: Most of the cooperatives storages are old, poorly designed and handled so that it would have an impact on the quality of the produce. Storage losses due to the inadequacy and poor quality of storage facilities were enormous. According to some studies, during a period of 6 months about 23-33% grain loss was registered (Legesse Dadi et al, 1992 cited in Rates, 2003) .All sample cooperatives key informants and 34.17% of the sample farmers replied that lack of storage is the third major problem for cooperatives marketing.
4. Lack of transportation including road inaccessibility: Most cooperatives are found in rural villages which have poor transportation accessibility. Those cooperatives specially found in remote areas have transportation problems which contribute a negative impact on the marketing of members' produce. Therefore, according to the key informants and 16.67% sample cooperative members response, lack of transportation is the fourth major problem which hampers cooperatives marketing.

5. Lack of modern and reliable marketing information system: In a free market economic system, market information plays a crucial role to monitor the marketing mixes. Unless marketing information system is well developed, it will be difficult for cooperatives to supply the farmers' produces at place, time and right price. Generally, smallholders, cooperatives and private grain traders have no information on the prevailing grain prices, supplies, inter-zonal and inter-regional grain flows in the other markets and food aid arrivals. Hence, the key informants and 12.5% of the sample farmers replied lack of modern and reliable marketing information is the fifth problem in cooperatives marketing.
6. According to the key informants and secondary data sources, addition problems of cooperatives encountered were:

6.1. Poor marketing linkage between cooperatives with agro-based industries and cooperatives in surplus production area with cooperatives in deficit production area and with consumer cooperatives.

6.2. Lack of value addition through processing

6.3. Absence of modern grading and standardization systems and equipments affected the cooperatives to purchase uniform quality of produces.

CHAPTER V: CONCLUSION AND RECOMMENDATION

5.1. Conclusion

Cooperatives are established to protect the member farmers from market uncertainties and imperfection, strengthening the bargaining power and fetch better prices and lower transaction costs as well as ensure the supply of agricultural inputs and avoid risks.

In Amhara region there are 16 types of 3861 primary and 4 types of 33 secondary (union) cooperatives with a combined capital of 199.54 million Birr. 44% of primary and 73% of secondary cooperatives are multipurpose farmers' cooperatives which are mainly engaged in grain marketing, agricultural input supply and credit provision.

This thesis research conducted in one of the multipurpose farmers' cooperatives union and its affiliates to analyze the maize marketing performance. Hence, this study tried to identify the marketing margins from producer to secondary cooperatives /union/level, the socio-economic factors affecting the members' participation and the volume of sale in cooperatives maize marketing as well as the maize marketing problems of cooperatives.

To achieve the research objectives set forth, the primary data were collected from 120 randomly selected members from six sample primary cooperatives through structured interview schedule and focus group discussion with key informants using check list. Moreover, to supplement the primary data sources, secondary data were also collected from relevant institutions and organizations.

In this study, both descriptive statistics and econometric analysis were employed for analytical purpose. The software SPSS and LIMDEP were used for the estimation of descriptive statistics and econometric models.

Maize is the dominant crop produced in the study area. The total quantity of production in 2006/07 was about 2.25 million quintals. The marketing share of cooperatives out of the total marketable surplus was only 5%.

The results of marketing margins indicated that the total gross marketing margin of maize was 39.22%. From the total gross marketing margin, the primary cooperatives and the union share was 4.20% and 10.01% respectively. The rest 25.01% was the share of wholesalers and retailers. The share of the producers of the amount spent by the consumers was about 60.78%.

The statistical tests like T-test for continuous explanatory variables and chi-squared test for dummy explanatory variables were used to test the statistical significant difference between the participant and non-participant farmers in the cooperatives maize marketing. Therefore, the results of T-test indicated that family size, production of maize, household's annual income were significant. Moreover, the results of chi-squared test indicated that use of fertilizer, patronage refund, cooperatives leadership, availability of other services and misappropriations of cooperatives property were significant.

In the process of econometric analysis, due to the unobservable factors, the intention of participant farmers may or may not give a reliable estimate of the extent to which non-participant farmers that leads to selection bias. So, to correct this sample selection bias, a treatment effect model with Heckman's two-step procedure was applied. In the first-step, to explain the participation decision, a probit equation was estimated. In the second-step, a selection model the inverse Mill's ratio (LAMBDA) as an explanatory variable was employed. The model was used to make inferences about the participation potential of members in cooperatives maize marketing. Hence, based on the analysis made on the results of the model, the study were

identified the main determinants of participation decision and volume of sales in cooperatives maize marketing.

At the first stage of the Heckman two-step approach, the probit model was significant with a $\chi 2$-value of 30.83. As a result, the variables, participation in cooperatives leadership, patronage refund and cooperatives purchasing price were affected the probability of the members participation decision in cooperatives maize marketing.

Similarly, the econometric analysis made at the second stage to estimate the explanatory variables which affect the volume of maize sold to the cooperatives using the OLS model. Therefore, the OLS result indicated that five variables namely production of maize, training on cooperatives, patronage refund, availability of other services and inverse mill ratio (λ) have significant effect on the magnitude/volume of maize sold to the cooperatives.

The major problems that affect the maize marketing performance of cooperatives were lack of capital, poor marketing management, lack of storage and transportation facilities, lack of reliable market information, lack of value addition through processing and lack of standardization and grading to increase the quality and the price of the product as required by the consumers or customers.

5.2. Recommendation

To improve the marketing performance of maize, the following points are recommended based on the results of the study.

1. The marketing costs and margins can be increased when different marketing agents' are involved. Most of the marketing margins were taken by wholesalers and retailers. Because raw maize were marketed from producer to secondary cooperatives level. In order to obtain better price and to improve the marketing performance, the cooperatives should supply directly to the agro-processing factories and enter into export marketing in short-term and start value addition through processing in long-term. Therefore, the governmental and non-governmental organizations should support cooperatives to achieve the short-term and long-term objectives.
2. Production should be increased through efficient utilization of modern agricultural inputs and practices. Therefore, cooperatives should supply the required type and amount of modern agricultural inputs to the producers timely and the government should provide extension services through DAs to enhance production and productivity as a result the volume of maize supplied to cooperatives can be increased and hence the marketing performance of cooperatives will be improved.
3. The members' participation in the affairs of cooperatives increases the feeling of ownership and responsibility for success. Creating conducive environment for members to participate in different leadership positions strengthens their connection and awareness to serve the members in a better way by establishing cooperatives policies, planning for needs with hired management and voting when decision need to be made. According the cooperatives proclamation a member can be elected once and can stay for three years. He could be re-

elected for the second term if he got a confidence vote by the general assembly. This system of replacement helps to pave the way for members' involvement in the leadership position. Therefore, election and replacement of members in the leadership position should be undertaken regularly in order to increase members' involvement in cooperatives management.

4. According to cooperatives Proclamation 147/98, out of the net surplus earned by the cooperatives 30% should be kept to reserve fund and the rest 70% should be allocated in accordance with bylaws of the cooperatives society to expansion work, social services, patronage refund(for business transaction participation) and dividend (for share capital participation) .The result of this study revealed that the distribution of net surplus to the members as a patronage refund encouraged the members to increase their participation and volume of sales. Therefore, cooperatives should develop a habit of distributing net surplus to the member patrons regularly so as to increase their participation and volume of sales.
5. Price is one of the best marketing strategies to penetrate market and attract the customers. Cooperatives have been established to provide fair price to the members produces. Therefore, marketing linkage between the cooperatives in surplus production areas with cooperatives in deficit production areas and consumer cooperatives should be created to stabilize prices and make use of both producers and consumers. As a result, the cooperatives can get better market and can pay competitive price to the members produce and increase their participation.
6. Cooperatives are responsible for providing different services based on the needs of members. In practice, most of the cooperatives business activities are limited to grain marketing, input supply and provision of credit in kind only. But, there are additional services required by

members. The most important services are flour mill, consumer goods supply, and tractor, oil processing mills, farm implements and credit in cash. Cooperatives should diversify their business activities based on the needs of the members and increase the volume of their business activities to improve the members' participation and performance of cooperatives.

7. Provision of education and training to the members is a very important tool for awareness creation and improving their participation in all affairs of the cooperatives. Cooperatives are working in the competitive global market. To penetrate in this market better quality of produces should be produced and marketed by keeping the interest of consumers. Knowledge should be acquired to be put up with the current market conditions and fetch better price to the produces of the members. Governmental and non-governmental organizations should support the cooperatives in providing continuous education and training to members, board of directors and employees. Hence, members participation in the one hand and cooperatives performance on the other will be improved.
8. The financial position of cooperatives should be improved through buying additional share capital, retained earnings, credit sales of members' produces and improving the borrowing power as well as revising the credit provision policy of banks.
9. Governmental and non-governmental organizations as well as cooperatives themselves should improve the marketing infrastructures such as the transportation, storage and communication facilities.
10. Marketing information system (such as wide area network) should be developed through cooperatives. Up-to-date and reliable information should be provided to the farmers' regularly using different ways like telephone, local radio and notice boards Hence, their

bargaining power and decision making on the selection of crops to be produced will be improved.

5.3. Scope for Further Study

1. This research was based on marketing of maize. But, the cooperatives which are operating in the study area have also been participating in wheat, teff, oil seeds and pulses marketing as well in agricultural inputs and consumer goods supply. Therefore, further study on these business activities could be conducted to suggest the possible solutions for improving the entire marketing performance of cooperatives.

2. A study on internal control and management system of cooperatives could be conducted to recommend the possible ways for efficient utilization of the financial and managerial resources for the improvement of the overall performance of cooperatives.

REFERENCES

Abbot, J.C. and Makeham, J.P., 1981. Agricultural Economics and Marketing in the Tropics. Wing Tai Cheung Printing Co. Ltd, Rome, p. 58.

Alemayehu Lerenso, 1984. State Commerce and Service Cooperative in Kembata and Hadiya: An Economic Geography Analysis. M.Sc. Thesis (unpublished), Addis Ababa University, Addis Ababa, Ethiopia, pp. 40-44.

Amhara Regional State, 2004. Agricultural Commodity Marketing System in Amhara Region, Teff Marketing System (Unpublished), Volume II, Bihar Dar, Ethiopia.

Asfaw Negassa and T.S. Jane, 1997. Vertical and Spatial Integration of Grain Markets in Ethiopia Gmrp/ Medac. Working Paper 9, Addis Ababa, Ethiopia.

Astrup, Ken.1998. Orgaizing Cooperatives. VOCA/Ethiopia, Addis Ababa,Ethipia.

Barton, David. 1989. Cooperatives in Agriculture. Ed. David Cobia, Prentice Hall, Englewood Cliffs, NJ, p. 30.

Belshaw, Horage1, 959. Agricultural Credit in Economically Underdeveloped Countries. Food and Agriculture Organization of the United Nation.

Bhalla, A.s, 1992. Small and Medium Enterprises: Technology Policies and Options. IT Publication 103/101, Southampton Row, London.

Bure, Wonberma, JabiTehnan and Dembecha Woredas, 2007. Post Harvest Report. West Gojjam Zone, Bahir Dar,Ethiopia.

Central Statistics Authority (CSA), 2006. Statistical Abstract. Addis Ababa, Ethiopia.

Colman D. And Young T., 1995. Principle of Agricultural Economics. Market and Price in Less Developed Countries. Cambridge University Press.

Cooperatives Promotion Agency, 2007. Baseline Data and Report (unpublished). Amhara Region, Bihar Dar, Ethiopia.

Cramer, G. L. and Jensen, W., 1982. Agricultural Economics and Agribusiness, 2nd Ed., McGraw Hill Book Company, USA. p. 222.

Dadi, L., A. Negassa, and S. Franzel, 1992 and 1995. Marketing Maize and Teff in Western Ethiopia: Implications for Policies Following Market Liberalization. Food Policy 17 (3): 201–213.

Daniel Belayneh, 2006. Performance of Primary Agricultural Cooperatives and Determinants of Members' Decision to Use as Marketing Agent in Adaa Liben and Lume Districts. M.Sc Thesis (unpublished),Haramaya University, Diredawa, Ethiopia.

Degu Addis, 2007. Household Saving and Determinants of Saving in Rural Savings and Credit Cooperatives.The Case of Western Amhara Region, Ethiopia. M.Sc Thesis (unpublished),Haramaya University, Diredawa, Ethiopia.

DMFCU (Damot Multiporpose Farmres' Cooperatives Union. 2007. Audit and Annual Report (unpublished), West Gojjam Zone, Bur, Ethiopia.

Eleni Z. Gabre-Madhin, 2001. Market Institutions, Transaction Costs, and Social Capital in the Ethiopian Grain Market. Research Report 14, International Food Policy Research Washington, D.C.

Fassil Teffera, 1990. The Development of Peasant Service Cooperatives in Post Revolutionary Ethiopia (1974-1987). Institute of Ethiopian Studies. Addis Ababa University,Addis Ababa, Ethiopia.

FCA (Federal cooperatives Agency), 2005. Annual Report. Addis Ababa, Ethiopia.

Federal Democratic Republic of Ethiopia, 2002. Rural Development Strategy and Policy. Addis Ababa, Ethiopia.

Finance and Economic Development Bureau, 2007. Annual Statistical Bulletin, Bahir Dar, Ethiopia.

Getachew Beshargo, 2002. Cattle Marketing in Western Shewa. M.Sc Thesis (unpublished), Alemaya University, Dire Dawa, Ethiopia, P. 118.

Gizachew Getaneh, 2005. Dairy Marketing Patterns Efficiency:A Case Stusy of Ada'aLiben District of Oromiya Region, Ethiopia . M.Sc Thesis (unpublished), Alemaya University. Dire Dawa, Ethiopia.

Gujarati, D.N., 2003. Basic Econometrics. 4th Ed. McGraw-Hill, New York. pp. 563-636

Heckman, J. J., 1979. Sample Selection bias as a Specification Error. Journal of Econometrica, (47)1:153-161

Heltberg R. and Tarp F., 2001. Agricultural Supply Response and Poverty in Mozambique. Paper Presented at the Conference on "Growth and Poverty". University of Copenhagen, Copenhagen. 25-26 May 2001.

Hind, A.M., 1994. Cooperatives under Performers by Nature. Explanatory Analysis of Cooperatives and Non-cooperative Companies in the Agribusiness Sector. Journal of Agricultural Economics. 45(2): 213-219.

International Cooperatives Alliance. 2006. Statement on the Cooperative Identity.15, route Des Morillons, 1218 Grand- Saconnex, Geneva, Switzerland, Last updated February,9.

International Fertilizer Development Centre. 1993. Ethiopian Fertilizer and Fransport Sector Assessment. Addis Ababa, Ethiopia: United States Agency for International Development.

Kebebew Daka, 1978. Cooperative Movement in Ethiopia. M.Sc. Thesis (unpublished), Addis Ababa University, Addis Ababa, Ethiopia.

Kohls, Richard L. and Uhl, Joseph N., 2002. Marketing of Agricultural Products.9th ed., Prince-Hall, Inc. Upper Saddle River, New Jersey 07458

Kulandaiswamy, V., 1996. Emerging Agribusiness Complexes: The Case of Two Marketing Cooperatives, In R-Rajagopalan Ed. Rediscovering Cooperation, volume III, Anand Institute of Rural Management.

Maddala, G.S., 1983. Limited Dependent and Qualitative Variable in Econometrics. Cambridge University Press, Cambridge. p.401

Mauget, R and F. Declerck, 1996. Structure, Strategies and Performance of European Community Agricultural Cooperatives. Agribusiness. 12(3): 265-275.

Meijer, P.W.M., 1994.The Function of Maize Market in Benin, Bert Broundjin, Benin. pp. 11-32.

Mendoza G., 1995. A Primer on Marketing Channels and Margins. Lyme Rimer Publishers Inc., USA, P. 425

Mulat Demeke, V.Kelly, T.S. Jayne, Ali Said, J.C Le Vailee, And H. Chen. 1998. Agriculture Market Performance and Determinants of Fertilizer Use in Ethiopia. GMRP/ MEDaC. Working Paper 10. Addis Ababa, Ethiopia.

Rehima Mussema, 2006. Analysis of Red Pepper Marketing:The Case of Alaba and Siltie in SNNP of Ethiopia. M.Sc Thesis (unpublished), Haramaya University, Diredawa, Ethiopia.

RATES (Regional Agricultural Trade Expansion Support Program).2003. Maize Marketing Assessment and Baseline Study for Ethiopia. Nairobi, Kenya.

Roy, Ewelle Paul, 1964. Cooperatives Today and Tomorrow.

Rural and Agricultural Development Bureau, 2006. Rural Household Socio-Economic Baseline Survey of 56 Woredas in Amhara Region Vol. 12 & 13, Bahir Dar, Ethiopia.

Staath, Johan, 1965. Cooperative as a Coalition: A Game Theoretic Approach. American Journal of Agricultural Economics. Vol.51: 10784.

Tesfaye Lemma, 1995. An Analysis of Cooperativization Approach to Agricultural Development in Ethiopia: With Special Attention to producers' Cooperatives. M.Sc. Thesis, University of Reading, England.

Tretcher, D.D., 1999. Impact of Diversification on Agricultural Cooperative in Wisconsin. Agribusiness. 12(4): 385-394.

Wegenie Yirko, 1989. The Development of Agricultural Producers' Cooperatives in Ethiopia: Cases from Arsi Region. M.Sc. Thesis, Addis Ababa University, Ethiopia.

West Gojjam Zone Agricultural and Rural Development Department. 2006. Strategic Plan, Amhara Region, Bahir Dar, Ethiopia

West Gojjam Zone Cooperatives Promotion Agency Branch Office, 2006. Baseline Data, Amhara Region, Bahir Dar, Ethiopia

West Gojjam Zone Finance and Planning Department, 2005. Socio-Economic survey.Amhara Region, Bahir Dar, Ethiopia

Wikipedia, 2007. Agricultural Marketing Cooperative, Wikimedia Foundation Inc., 29 may.

Wolday Amha and Eleni G/medhin, 2003. An Analysis of the Structure, Conduct and Performance of the Ethiopian Grain Market. EFPRL/ILRL Market Level Survey.

Wolday Amha, 1994. Food Grain Marketing Development in Ethiopia After the Market Reform 1990: A Case Study of Alaba Siraro District, Berlin.

Zemen Ayalew, 2005. A Study on the Repayment of Farmers Multi Service Cooperatives Agricultural Input in Amhara Region, Bure Woreda of West Gojjam Zone. M.Sc Thesis (unpublished), Alemaya University, Diredawa, Ethiopia.

APPENDICES

8.1. Appendix A.Tables

Appendix Table 1: Membership growth trend of DMFCU

Year	No of Affiliated Coops	No of Individual Members		
		Male	Female	Total
2000	6	8,401	516	8,917
20001\02	8	10,103	629	10,732
2002\03	12	12,577	771	13,348
2003\04	28	29,480	2,285	31,765
2004\05	31	30,918	2,377	3,329
2005\06	38	50,937	5,540	56,477
2006\07	40	51,530	5,566	57,096

Source: Damot Union Base Line Data, 2007

Appendix Table 2: Financial position of DMFCU

Year	Asset			Liability	Capital
	Current	Fixed	Total		
2000	651,528.89	-	651,528.89	--	651,528.89
20001\02	651,528.86	44,624.07	696,153.93	269,566.53	399,586.00
20002\03	1,379.800.99	38,840.22	1,418,641.21	742,631.33	676,009.88
20003\04	1,495,515.25	160,284.51	1,655,799.79	457,791.61	1,198,008.18
20004\05	3,030,824.04	484,003.33	3,514,827.37	516,631.04	2,998,196.33
20005\06	5,658,203.15	745,509.51	6,403,712.66	2,129,868.43	4,273,844.23
20006\07	4,795,970.24	2,798,869.71	7,594,839.95	2,876,872.23	4,717,967.72

Source: Damot Union Base Line Data, 2007

Appendix Table 3: Grain purchasing and selling trend of DMFCU

Year	Type	Purchased		Sold		Gross Profit(Birr)
		Amount(Qt)	Value (Birr)	Amount(Qt)	Value (Birr)	
2002/03	Maize	8,614.66	1,008,410.15	8,614.66	1,111,721.87	103,311.72
	Wheat	13,681.0	2,038,725.50	13,681.0	2,312,225.81	273,500.31
	Teff	1,257.37	210,326.86	1,257.37	226,326.60	15,999.74
	Oil seeds	572.97	117,110.69	572.97	126,053.40	8,942.71
	Total	**24,126**	**3,374,573.2**	**24,126**	**3,776,327.68**	**401,754.48**
2003/04	Maize	12,158.32	1,130,476.11	12,158.32	1,502,085.74	371,609.63
	Wheat	7,054.47	921,849.66	7,054.47	987,327.45	65,477.79
	Teff	1,269.04	248,963.31	1,269.04	266,671.79	17,708.48
	Oil seeds	6,250.33	1,639,651.25	6,250.33	1,731,130.71	91,479.46
	Total	**26,732.16**	**3,940,940.33**	**26,732.16**	**4,487,215.69**	**546,275.36**
2004/05	Maize	5,787	663,283	5,787	684,390.20	21,107.20
	Wheat	108,391.99	16,735,784.06	108,391.99	20,441,654.07	3,705,870.01
	Teff	1,394.77	283,610.95	1,394.77	324,671.46	41,060.51
	Oil seeds	6,270.33	1,639,651.48	6,270.33	1,735,017.32	95,365.84
	Total	**121,844,09**	**19,322,329.49**	**121,844,09**	**23,185,733.05**	**3,863,403.56**
2005/06	Maize	22,269.54	2,751,001.81	22,269.54	2,921,783.29	170,781.48
	Wheat	17,944.54	3,236,702.89	17,944.54	3,428,848.00	192,145.11
	Teff	4,176.99	1,096,870.27	4,176.99	1,313,122.80	216,252.53
	Oil seeds	7,745.84	1,825,589.98	7,745.84	1,976,185.80	150,595.82
	Total	**52,136.91**	**8,910,164.95**	**52,136.91**	**9,639,939.89**	**729,774.94,**
2006/07	Maize	31,021.05	4,112,460.60	31,021.05	4,746,220.65	633,760.05
	Wheat	18,627.85	4,006,979.42	18,627.85	4,486,044.75	479,065.33
	Teff	2,016.73	743,989.00	0	0	0
	Oil seeds	2,004.86	772,549.22	2,004.86	915,949.32	143,400.10
	Total	**53,670.49**	**9,635,978.24**	**51,653.76**	**10,148,214.72**	**1,256,225.48**

Source: Damot Union Base Line Data, 2007

Appendix Table 4: Input supply trend of DMFCU

Year	Type	Amount supplied (Qt)	Purchase cost (Birr)	Selling price (Birr)	Gross profit (Birr)
2001\02	DAP	23,973.75	6,741,378.46	6,853,598.06	112,219.60
	Urea	8205	1,769,266.40	1,808,761.40	39,495.00
	Total	**32,178.75**	**8,510,644.86**	**8,662,359.46**	**151,714.60**
2002\03	Dap	22,664.25	5,723,462.56	5,812,479.31	89,016.75
	Urea	6,040.50	1,224,308.90	1,255,342. 92	31,034.02
	Total	**28,704.75**	**6,947,771.46**	**7,067,822.23**	**120,050.77**
2003\04	Dap	28,920.25	7,463,685.49	7,670,708.45	207,022.96
	Urea	8,682	1,794,877.45	1,860,586	65,708.55
	Total	**37,602.25**	**9,258,562.94**	**9,531,294.45**	**272,731.51**
2004\05	Dap	53,500	17,898,589.10	18,622,765.28	724,176.18
	Urea	19,566	5,635,937.77	5,842,518	206,580.22
	Total	**73,066**	**23,534,526.87**	**24,465,283.27**	**930,756.40**
2005\06	Dap	65,604.5	24,920,236.02	25,445,616.88	524,856.86
	Urea	23,703.5	7,651,353.22	7,936,436.65	285,083.43
	Total	**89,308**	**32,571,589.24**	**33,381,529.53**	**809,940.29**
2006\07	Dap	89,259.5	34,220,143.67	34,755,700.67	535,557.00
	Urea	35,088	11,845,074.48	12,055,122.48	210,048.00
	Total	**124,347.5**	**46,065,218.15**	**46,810,823.15**	**745,605.00**

Source: Damot Union Base Line Data, 2007

Appendix Table 5: Consumer goods supply trend of DMFCU

Year	purchased (Birr)	Sold(Birr)	Gross profit(Birr)
2001\02	51,324	56428.96	1081.06
2002\03	35,962.25	38,846.86	423.87
2003\04	----	------	------
2004\05	211,046.81	116,985.70	6930
2005\06	1,459,361.94	1,476,271.64	16,909.70
2006\07	364,353.42	376,042.27	11,688.85

Source: Damot Union Base Line Data, 2007

Appendix Table 6: Credit repayment trend of DMFCU Borrowed for grain marketing

Year	Borrowed (Birr)	Repaid (Birr)	Repayment (%)	Source of Credit
2002\03	434,952.31	434,952.31	100	Abyssinia Bank
2003\04	500,000	500,000	100	Abyssinia Bank
2004\05	800,000	800,000	100	Abyssinia Bank
2005\06	2,700,000	2,700,000	100	Abyssinia Bank (2, 500,000.00)
				Commercial Bank (200,000.00)
2006\07	5,171,728	5,171,728	100	Commercial Bank (5,000.000)
				Goh SACCO Union (171, 728.00)

Source: Damot Union Base Line Data, 2007

Appendix Table 7: Net profit allocation trend of DMFCU

Year	Total Net profit (Birr)	Members contribution (Birr)	Dividend (Birr)	
			For participation	For Share
2000	----	----	----	-----
2001\02	156,239.20	107,158.68	40,017.76	29,635.38
2002 \03	265,052.59	131,256.97	52,502.79	32,819.24
2003\04	386,726.50	249,913	99,965.25	62,478.28
2004\05	876,943.18	769,548.23	321,561.23	178,645.12
2005\06	1,169,859.97	526,212.23	221,691.27	120,346.68
2006\07	5,71042.37	359,236.18	151,503.52	82,000.00

Source: Damot Union Base Line Data, 2007

Appendix Table 8: Variance Inflation Factor (VIF) for the continuous explanatory variables

VARIABLES	**R^2**	**VIF**
FAM_SZ	0.222	1.285
ED_STA	0.287	1.403
PRO_MAZ	0.631	2.710
DIS_WOR	0.239	1.314

Source: Computed from Survey Result, 2007

Appendix Table 9: Contingency coefficient (C.C) for dummy variables

VARIABLES	SEED	FERTI	EXT.SER	TR.COOP	COOP.LEAD	PAT.REF	ACC.MI	COOP.PRICE	MKT.AGENT	OTH.SER	MISAPP
SEED	1.00	0.46	0.20	0.06	0.09	0.04	0.11	0.05	0.08	0.10	0.18
FERTI		1.00	0.09	0.03	0.05	0.00 2	0.04	0.07	0.06	0.08	0.12
EXT.SER			1.00	0.12	0.12	0.28	0.26	0.06	0.03	0.13	0.09
TR.COOP				1.00	0.12	0.23	0.01	0.03	0.10	0.37	0.10
COOP.LEAD					1.00	0.09	0.15	0.12	0.06	0.11	0.07
PAT.REF						1.00	0.04	0.34	0.04	0.30	0.36
ACC.MI							1.00	0.01	0.01	0.15	0.01
COOP.PRICE								1.00	0.09	0.17	0.21
MKT.AGENT									1.00	0.12	0.17
OTH.SER										1.00	0.09
MISAPP											1.00

Source: Computed from Survey Result, 2007

Appendix Table 10: Tropical livestock unit for Sub-Saharan Africa

SPECIES	TLU
Cattle	0.7
Sheep/Goats	0.1
Horses/Mules	0.8
Donkeys	0.5
Poultry	0.01

Source: International Livestock Center for Africa, 1990 Cited in Zemen, 2005

8.2. APPENDIX B.INTERVIEW SCHEDULE

Mekelle University

School of Graduate studies

Faculty of Dryland Agriculture and Natural Resources

Department of Cooperatives

Program of Cooperatives Marketing

This interview schedule is prepared to collect data from cooperatives member farmers for the purpose of studying the Maize Marketing Performance of Damot Multipurpose Farmers Cooperatives Union and its Affiliates, Amhara Region, Ethiopia. This interview schedule is used only for the academic purpose. Therefore, I will keep the information confidentially and will not be transferred to third party without prior consent of you. Thank you for your cooperation.

I. General information

1. Name of the enumerator_____ Signature_____
2. Date _____
3. Name of the woreda_____
4. Name of the cooperative _____
5. Distance of the cooperative from the woreda center (Kms) _____
6. Name of the respondent/farmer _____Kebele_____ Special Name(Got)_____

II. Member's Information

1. Age_____ (years)
2. Sex

   1. Male 2. Female
3. Martial Status

   1. Married 2. Single 3. Divorced 4. Widowed
4. Educational level

   1. Illiterate 2. Read and write (including religious education) 3. Primary education, number of year's _____ . Secondary education, number of year's ____ 5. College/university/, number of year's _____
5. Religion

   1. Orthodox 2. Muslim 3. Protestant 4. Others/specify_____

6. When did you start farming your own? For _____Years

7. Household Membership

S/No	Full Name	Relation to the HH head	Sex		Age	Main occupation	Educational Level
			Male	Female			
1							
2							
3							
4							
5							

Note: A. Relation to the HH head means 1. Son /Daughter 2.Wife/Husband 3.Parent 4. Relative 5.Employee 6.Others /Specify/_____

B. Main Occupation means 1.Farming 2.Animal rearing 3.House work 4.Student 5. Others /Specify/_____

C. Educational Level means 1.Illitrate 2.Read and writes (including religious education) 3.Regular student _____grade completed

8. Did the household involve in any off/non-farm activities in 1998/99 Ethiopian production year?

1. Yes 2. No

9. If yes to 8, in what type of activity?

1. Petty trade (poultry & egg, milk & milk products, hides & skins, honey) 2. Handicraft
3. Others /Specify_____

10. How long have you been the member of this cooperative? For _____Years

11. Did you have position/responsibility / in the cooperative in last five years?

1. Yes 2. No

12. If yes to 12, what was your position?

1. Management Committee 2. Control Committee 3. Purchase and sale committee
4. Credit Committee 5. Others/ specify _____

III. Farm Characteristics of the Member Farmer

1. Land

1.1. How much is your farm size in hectares (own land)? Wet (Irrigated) land ___ Ha, Dryland _____Ha, Total farm size _____Ha

1.2. Have you rented in /shared in someone land in 1998/99 Ethiopian production year?

1. Yes 2. No

1.3. If yes, what was the size of the land rented in/ shared in? _____Ha

1.4. If yes to 1.2, what was/ were the reason (s) for renting in/shared in?

1. Availability of fertilizer and other farm inputs 2. Because of land shortage 3. Because of the extra labor force I had 4. Others/ specify _____

1.5. If yes to 1.2, type of agreement

1. In birr 2. In grain 3 Both in Birr and in grain

1.6. If it was in birr, how much it was? _____Birr

1.7. If it was in grain, how much is the share?

1. 1/2 (Equal) 2. 1/3rd 3. 2/3rd 4. Others (specify)

1.8. Have you rented out land to other farmers?

1. Yes 2. No

1.9. If yes to1. 8, what was the size of the land rented out? _____ Ha

1.10. If yes to 8, what was the reason for renting out/ sharing out?

1. Shortage of money to buy fertilizer and other inputs 2. Shortage of ox 3. Disabled 4. Others/ specify_____

1.11. If yes to 8, type of agreement?

1. In birr 2. In grain

1.12. If it was in birr, how much it was? _____Birr

1.13. If it was in grain, how much is the share?

1. 1/2 (Equal) 2. 1/3rd 3. 2/3rd 4. Others (specify) _____

2. Crop Enterprise in1999

S/No	Types of Crop	Area (Ha)	Amount produced (Qts)	Value (Birr)	Purpose *
1	Cereals				
1.1	Maize				
1.2	Sorghum				
1.3	Teff				
1.4	Wheat				
1.5	Finger Millet				
1.6	Barely				
1.7	Others/specify/				
2	Oil seeds				
2.1	Niger(Nug) seed				
2.2	Rape seed				
2.3	Flux				
2.4	Others/specify				
3.	pulses				
3.1	Field bean				
3.2	Field pea				
3.3	Chick pea				
3.4	Others/specify/				
5	Fruits and vegetables				
5.1	Produced in Autumn/Meher/				
5.2	Produced through Irrigation				

* Purpose 1. Consumption 2. Sale C. Others/ specify_____

3. Livestock Enterprise in 1999 E.C

S/No	Types of Livestock and Livestock Products	Number	Value of each (Birr)	Purpose of Keeping *
1	Types of Livestock			
1.1	Oxen			
1.2	Cows			
1.3	Calves			
1.4	Heifers			
1.5	Sheep			
1.6	Goat			
1.7	Mule			
1.8	Donkey			
1.9	Horse			
1.10	poultry			
1.11	Bee colony			
1.12	Others/ Specify/			
2	Live stock products	Amount	Value of each (Birr)	Purpose *
2.1	Milk and milk products			
2.2	Honey and wax			
2.3	Hides and skins			
2.4	Egg			
2.5	Others/ Specify/			

* Purpose of keeping 1. Milk production 2. Consumption 3.Draft power 4.Sale 5. Others/ specify_____

4. Other sources of income in1998/99 Ethiopian production year?

S/No	Sources of income	Value (Birr)
1	Wood, Crop residue and the like	
2	Off-farm income	
3	Others/ Specify/	

5. How was the weather condition of 1998/99 E.C for maize production?

1. Favorable 2. Unfavorable

IV. Business Activities of Cooperatives and Members participation

1. Selling and purchasing activities of Maize

1.1. Did you sell maize to in 1998/99 Ethiopian production year?

1. Yes 2. No

1.2. If yes to 1.1, to whom, how much quantity and by what price have you sold?

1.2.1. To the Cooperative _____ quintal, one quintal average price _____Birr

1.2.2. To local assemblers' _____ quintal, one quintal average price _____Birr

1.2.3. To retailers' _____ quintal, one quintal average price _____Birr

1.2.4. To wholesalers' _____ quintal, one quintal average price _____Birr

1.2.5. To Ethiopian Grain Enterprise _____ quintal, one quintal average price _____Birr

1.2.6. To consumers' _____quintal, one quintal average price _____Birr

1.2.7. Others/ specify/ _____quintal, one quintal average price _____Birr

1.3. Which of the following do you think are important characteristics of cooperative Purchasing?

1. Genuinely measures (no cheating in the weight) 2. Better price 3. Proximity (nearness)

4. It has patronage refund 5. Others/ specify_____

1.4. If you sold maize to other marketing agents, where could (did) you get them?

1. At the farm level 2. At local market 3. At woreda (main) market

4. Others/specify_____

1.5. Why you sold to other marketing agents?

1. The cooperative was not ready to purchase 2. Lack of coincidence (the day you sold and the purchasing day of the coops couldn't coincide) 3. Price difference/the cooperative didn't pay competitive price 4. Others/ specify_____

1.6. Did you know the price for a quintal of your maize in the nearby market?

1. Yes 2. No

1.7. If yes to 1.6, which price was better?

1. The cooperative price 2. The nearby market price 3. They are the same 4. Others/ specify_____

2. Supply of Farm Inputs

2.1. Did you use farm inputs last year (in 1999 E.C)?

1. Yes 2. No

2. 2. If yes to 2.1, what type of farm inputs, you have used?

1. Fertilizer 2. Improved seed (maize /wheat/Teff)

3. Others/specify/_____

2.3. If yes to 2. 1, from where you got farm inputs?

2.3.1. Fertilizer:

1. Cooperative 2. AISCO 3. Ambasel trading hous 4. Ethiopian Seed Enterprise 5. Retailers 6. Others/ specify_____

2.3.2. Improved seed:

1. Cooperative 2. AISCO 3. Ambasel trading house 4. Retailers 5. Others/ specify_____

2.4. What was the amount/quantity of inputs you get from the cooperative?

2.4.1. Fertilizer: DAP _____Qts, Urea _____Qts Total _____ Qts

2.4.2. Improved seed: Maize __Qts, Wheat __Qts, Teff___Qts, others (specify) _ Qts, Total___Qts

2.5. Had not been getting farm inputs from the cooperative, what were you going to do?

1. Stop using inputs (I couldn't buy from other sources) 2. Purchase from other sources but minimizes the amount used 3. Continue using inputs by purchasing from other sources 5. Others/ specify_____

2.6. What was/ were the possible reason (s) for buying inputs from the cooperative?

1. Provide it on credit 2. No other sources provide in sufficient amount 3. Relatively lower price 4. Others/ specify _____

3. Credit Services

3.1. Did you get credit from the cooperative in 1998/99 E.C?

1. Yes 2. No

3.2. If yes to 3. 1, for what purpose did you get credit?

1. Fertilizer 2. Improved seed 3. Animal package 4. Farm implements 5. Others/ specify_____

3.3. If yes to 3.1, how much was the down payment you paid in order to get this kind credit? _____Birr

3.4. If Yes to 3.1, how much was the credit you get from the cooperative? _____ Birr

3.5. What were the preconditions to obtain credit?

1. Membership 2. Personal guarantees 3. Agricultural land 4. Group collateral
5. Others/ specify_____

3.6. Had not been getting input in credit, do you have the capacity to buy in cash the amount you needed?

1. Yes 2. No

3.7. Do you know other credit agencies that extend credit in your area?

1. Yes 2. No

3.8. If yes to 3.7, which agency?

1. Amhara Credit and Saving Institute (ACSI) 2. Saving and Credit Cooperatives (SACCO)
3. Others/ specify_____

3.9. If yes to 3.7, did you take credit from this/ these sources?

1. Yes 2. No

3.10. If yes to 3.7, how much was the credit you have taken from these sources? _____Birr

3.11. If yes to 3. 9, for what purposes you take the credit?

1. For purchasing farm inputs 2.For livestock package 3. For contracting land/ox 4 .For other social obligations 5. Others/ specify_____

3.12. If Yes to 3. 9, what kind of collateral did you provide to obtain this loan?

1. Signature, personal guarantee 2. Agricultural land 3. Group collateral 4. Live stock and other fixed assets collateral 5. Others/ specify_____

3.13. If No to 3.9, why you didn't take credit from these credit agencies?

1. Shortage of supply 2. High interest rate 3. Restrictive procedure 4. No need to take 5. Others/(specify)_____

3.14. Have you repaid the credit you have taken from the cooperative in 1999 on time?

1. Yes 2. No

3.15. If No to 3.14, why did you not repay on time?

1. Price of grain was reduced during repayment 2. Crop failure by natural hazard 3. The cooperative did not notify me to repay during the time of repayment 4. Others (Specify)_____

4. Distances from the Member's Residence to the Respective Marketing Agents

4.1. How many hours you need to travel to get the following on foot for a single trip?

4.1.1. Cooperative _____ hours

4.1.2. Local market (if there is) _____ hours

4.1.3. Local assemblers (if there is) _____hours

4.1.4. The woreda (main) market _____ hours

4.2. By what means you usually take your produces when you sell?

1. carrying by own 2. Using donkey /other animals/ 3. Using carts 4. Using trucks 5. Others/ specify_____

4.3. If Yes to 4. 2, on average how many hours did you spend in a journey to sell your maize to the cooperative? _____ Hours

5. Surplus/profit from the Cooperatives Business

5.1. Have you heard the cooperative obtain surplus from business transactions in the past two years?

1. Yes 2. No

5.2. If yes to 5.1, did you get money as patronage refund from the cooperative?

1. Yes 2. No

5.3. If yes to 5.2, how much it was? _____ Birr

5.4. If No to 5.2, do you know the possible reasons?

1. I didn't sell my products to the coop. 2. The general meeting decided to be reinvested in the Coop's. 3. The cooperative did not get surplus 4. The cooperative didn't purchase farm products 5. Others/ specify_____

5. 5. Do you know, if you sell your produces to or buy inputs from the cooperative; you will get money as patronage refund/ dividend?

1. Yes 2. No

6. Market Information and Extension services

6.1. Did you get and follow market information?

1. Yes 2. No

6.2. If yes to 6.1, from whom you get?

1. Cooperative 2. DA 3. Radio 4. Peasant Associations 5. Governmental offices 6. Speaking with other farmers 7. Speaking with traders/regular customers 8. Others (specify) _____

6.3. Did you have your own Radio in 1999 E.C?

1. Yes 2. No

6.4. Is (are) there DA/s in your kebele /nearby area?

1. Yes 2. No

6.5. If yes to 6.4, do have contact with DA/s?

1. Yes 2. No

6.6. If yes to 6.4, how many times have you contacted him or her /them in 1999 E.C?

_____times

6.7. If you have contacted with DA/s, what services did he/they provide you?

1. Land preparation 2. Timely sowing 3. Use of modern agricultural inputs 4. Timely harvesting 5. Credit utilization and repayment 6. Others/specify----------

6.8. If No to 6.7, what was your possible reason (s)?

1. No need of contacting him/them 2. He/ They is/are far from my residence 3. Others /specify----------

7. Members Participation in Cooperatives Meeting

7.1. Have you participated in cooperative meeting in 1999 E.C?

1. Yes 2. No

7.2. If yes to 7.1, how many times did you participate? For _____ times.

7.3. What issues were raised during the meeting?

1. Approval of annual plan 2. Listening of audit report 3. Election of different committees 4. Distribution of net profit/surplus 5. Others/specify----------

7.4. If No to 7.1, why?

1. I don't have interest 2. I didn't know the presence of meeting 3. Due to personal problem 4. Others/specify_____

8. Other Benefits of the Multipurpose Agricultural Cooperative

8.1. Did you get other services besides distributing inputs, purchasing your grains and providing credit in last year?

1. Yes 2.No

8.2. If yes to 9.1, which services did you get?

1. Transportation services 2. Storage services 3. Grain mill service 3.Tractor service 4. Employment opportunity 5. Consumer goods supply 6. Others/ specify_____

8.3. What more services you require from the ooperative?_____

9. Cooperatives Education/ Training

9.1. Did you get education/ training from the Cooperative in past two years?

1. Yes 2. No

9.2. If Yes to 9.1, on what points it has given you education/ training?

1. The benefits of the cooperative 2. The need of the members' participation to the cooperative 3. The principles of the Cooperative s 4. Others/specify_____

9.3. Did you get any training or education about the cooperative from any other institution(s) other than your cooperative?

1. Yes 2. No

9.4. If yes to 9.3, which institution(s) gave you that education/ training?

1. The woreda cooperative promoters and organizers 2. The union 3. Non Government Organizations 4. Others/ specify_____

10. Other Issues on the Long-Term Success of the Cooperative

10.1. Did you believe that the cooperative is doing a good job in solving the problems in which the farmers are facing these days?

1. Yes 2. No

10.2. If No to 10.1, what is/are the major commonly felt problems that isn't/aren't solved by the cooperative in your area?

1. Household consumable items (such as salt, soap, oil, cloths, etc) 2. The farm inputs are not provided in sufficient amount 3. The credit demand 4. Farm implements 5. Others/ specify_____-

10.3. In general, do you believe that the farmers will overcome their commonly felt problems by working together such as establishing cooperative in the future?

1. Yes 2. No

10.4. If No to 10.3, what is/ are the possible reasons?

1. Lack of responsibility for common work 2. Misuse of the cooperative by some individuals
3. Lack of commitment by the members 4. Political influence/ intervention
5. Others specify_____

10.5. Would you be willing to contribute money to improve the performance of the cooperative?

1. Yes 2. No

10.6. If No to 10.5, what are the possible reasons?

1. I do not trust the management body 2. I cannot afford 3. The government should improve it 4. Others/ specify_____

10.7. Do you want to continue your membership of the cooperative?

1. Yes 2.No

10.8. If Yes to 10.7, what is/are the possible reason(s)?

1. It supplies farm inputs 2. It purchases (assures a market for) my products 3. I get consumer goods 4. I don't want to isolate from other farmers 5. There is external pressure
6. Others/ specify_____

10.9. Is there misappropriation/corruption of cooperative's property?

1. Yes 2. No

10.10. If yes to 10.9, who misuses cooperative's property?

1. Management committee 2. Purchase and sale Committee 3. Store keepers 4. Shop keepers 5. Employees 6. Others/specify_____

10.11. If yes to 10.9, what is/are the reason(s) for misappropriation?

1. Lack of trust/personal use 2. Lack of proper internal control system 3. Lack of skilled manpower 4. Others/specify_____

10.12. What were the major problems in cooperatives maize marketing?

1. Lack of road/transport 2. Lack of storage facilities 3. Lack of capital 4. Poor marketing management 5. High transport cost 6. Lack of market information 7. Others (specify)___

11. Members Awareness about Union

11.1. Did you know as your cooperative is a member of Damot union?

1 .yes 2 .No

11.2. If yes to 11.1, what services has been your cooperative getting from the union?

1. Purchasing of grain 2. Supplying input 3. Supplying consumer goods 4. Providing storage services 5. Providing credit services 6. Providing transportation services 7. Providing market information 8. Providing Tractor renting service 9. Providing training 10. Others/specify_____

11.3. If No to 11.1, what could be the possible reason(s)?

1. My cooperative did not introduce me 2. I did not participate in cooperatives meeting
3. Others/specify_____

11.4. Do believe Damot cooperatives union could solve the marketing problems of its affiliated cooperatives?

1. Yes 2. No

11.5. If yes to 11.4, what could be? ?

1. Finding better price to the farmers produce 2. Supplying agricultural inputs at required quantity and reasonable price 3. Supplying consumer goods at faire price 4. Providing storage services 5. Providing credit services 7. Providing transportation services 8. Providing market information 9. Others/specify/_____

11.6. If No to 11.4, what could be the possible reason(s)?

1. Lack of skilled manpower in cooperatives 2. Shortage of capital/finance 3. Lack of coordination with its affiliated cooperatives 4. Others/specify_____

THANK YOU