# Mekelle University

## The School of Graduate Studies

## Faculty of Dryland Agriculture and Natural Resources

**Performance Evaluation of Hashenge Cooperative Union and its Affiliates:**

**Ofla Woreda, Tigray, Ethiopia**

by

**Tafesse W/Egziena**

A

**Thesis**

**Submitted in Partial Fulfillment of the Requirements for the**

**Master of Science Degree**

In

**Cooperative Marketing**

**Advisor:  G.Veerakumaran (PhD)**

**March, 2008**

# Declaration

This is to certify that this thesis entitled "**Performance Evaluation of Hashenge Cooperative Union and its Affiliates**" submitted in partial fulfillment of the requirements for the award of the degree of MSc. in **Cooperative Marketing** to the School of Graduate Studies, Mekelle University, through the Department of Cooperatives, done by **Mr. Tafesse W/Egziena**, **Id.No. FDA/GR022/98**, 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**: Tafesse W/Egziena          Signature: _____

                                                                                     Date: _____

**Name of the Supervisor**:  G.Veerakumaran (PhD)     Signature: _____

                                                                                     Date: _____

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## ABSTRACT

Cooperation is a way of living, a philosophy of life, and has been the very basis for human civilization. The roots of formal Cooperation can be traced to ancient times. Cooperatives are believed to enable the rural and urban poor to meet their economic, social, and cultural needs collectively, which is often difficult to achieve individually. So, this paper is concerned with evaluating the performance of *Hashenge Cooperative Union* and its *Affiliates* (found in Ofla Woreda of the Southern Zone of Tigray State) in meeting their members' needs. To this end, primary data, from *200* randomly selected member and non-member respondents, and secondary data, from the *Union's* documents, were collected and analyzed using *Tables* and *Percentages*, *Financial Ratios*, *ANOVA*, *t-Test*, *OLS Regression*, *Logistic Regression*, and *Chi-Square Analysis* with the help of MINITAB, a statistical package.

It was found that *membership* and *financial performance* of the *Cooperative Union* under study showed an improving trend over the *study period*. Membership to a Cooperative was found to promote *awareness* and/or *income* of members. This was manifested in the improvement of *livestock* and *house* ownership, quality of *clothing* and *food* consumed, and attitude towards *modern health services* and *education*. A household, among the urban community, was found to save, on the average, *Birr 13* per month provided it purchases *sampled items* from the *Union* instead of from *traders*. The study also came out with a range of perspectives on the *Strengths*, *Weaknesses*, *Opportunities*, and *Threats* of the Cooperatives under study. *Good customer handling, poor time management, increasing number of qualified professionals in the area of Cooperation, and unhealthy competition from traders* were among the *Strengths, Weaknesses, Opportunities,* and *Threats* respectively.

# ACKNOWLEDGEMENT

My heart-felt appreciation goes to my advisor Dr. G. Veerakumaran for his genuine and constructive comments without which the quality of this proposal would not have been like this. I would also like to extend my sincere thanks to Fitsum Hagos (PhD) and Girmay G. Samuel (MSc) for their invaluable comments that contributed to the strength and quality of the methodology of the paper. Besides, I am greatly indebted to my instructors Dr. G. Veerakumaran, Prof. G. B. Pillai, Prof. S. Nakiran, Dr. C. Pitchai, Dr. Fitsum Hagos, Dr. Grish Mangleek, Dr. R. Dayanandan, Dr. Radhakrishna, and Dr. Kelemework Tafere for their contribution to the successful completion of my course work. I would also like to thank my internal examiner Prof. G. B. Pillai and my external examiner Ato Bekele Tasew for their critical evaluation of my thesis, and Ato Aregawi G. Michael for his sincere chairmanship during my defense.

Last, but not least, I appreciate Ato Aklilu Kahsay and Ato Solomon Bekele for their matchless contributions that realized the data collection phase the thesis. Above all, many thanks go to the Almighty God Who is always behind every success in one's attempt.

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **ACE** | Agriculture cooperatives in Ethiopia |
| **AfLshn** | Affiliation |
| **Aftr** | After |
| **ANOVA** | Analysis of Variance |
| **A/R** | Accounts Receivable |
| **Bfor** | Before |
| **BODs** | Board of Directors |
| **CE-to-NW** | Capital Employed-to-Net Worth |
| **CGS** | Cost of Goods Sold |
| **CI** | Confidence Interval |
| **cLF/y** | Clothing frequency per year |
| **Coef** | Coefficient |
| **Const** | Constant |
| **CPI** | Consumer Price Index |
| **CSA** | Central Statistical Authority |
| **DF (df)** | Degrees of Freedom |
| **DepR** | Dependency Ratio |
| **EtF/d** | Eating frequency per day |
| **GP** | Gross Profit |
| **IOFs** | Investor Owned Firms |
| **Lhldg** | Landholding |
| **LivOwn** | Livestock Ownership |

| | |
|---|---|
| **LivStd** | Living Standard |
| **Mbrshp** | Membership |
| **MhOwn** | Modern House Ownership |
| **MPC**s | Multipurpose Cooperatives |
| **NLrnCh** | Number of Learning Children |
| **Nonmbr** | Nonmember |
| **NSaCh** | Number of Scholl-age Children |
| **OLS** | Ordinary List Square |
| **Ownrshp** | Ownership |
| **PrsnHc** | Presence of a Health Center |
| **PrsnSc** | Presence of a School |
| **Qtl** | Quintal |
| **RegRes** | Region of Residence |
| **ROE** | Return on Equity |
| **ROI** | Return on Investment |
| **SAM** | Social Accounting Matrix |
| **SCC**s | Saving and Credit Cooperatives |
| **SE** | Standard Error |
| **SWOT** | Strength, Weakness, Opportunity, and Threat |
| **TA** | Total Asset |
| TLU | Tropical Livestock Unit |
| **UA** | Urban Agriculture |
| **UmHs** | Use of Modern Health Services |

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# CHAPTER-I

# Introduction

## 1.1 <u>Background and Justification</u>

### *The Evolution of Cooperation:*

Cooperation is a way of living. It is a philosophy of life (Emory S.Bogardus 1964)[1]. Cooperation has been the very basis for human civilization (O.R Krishnaswamy and V.Kulandaiswamy 2000)[2]. Cooperation means living, thinking, and working together (Hajela 1990)[3]. Cooperation existed even before man came to this earth of ours. It is much older than man himself. Cooperation existed even in the animal world. The cornerstone of cooperation is *mutual help*. It is to survive with dignity and purpose (Daman Prakash 1999)[4]. It is truly the basis of domestic and social life. Cooperative effort is ultimately the group instinct in man, which enables him to live together, work together, and help each other in times of stress and strain (Mathur 1989)[5]. Right from the hunting age up to the present day, the progress and development of human beings in all spheres: social, economic, religious, and political is marked by the sense of thinking, working, and living together (Hajela 1990)[6].

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[1] Bogardus, S.Emory 1964*: Principles of Cooperation-League of USA People in Business.* The cooperative league of USA Illinois.

[2] Krishnaswamy, O.R. & Kulandaiswamy, V.: *Cooperation, concept and theory.* Arudura Academy, Coimbatore-641007, Tamilnadu.

[3] Hajela, T.N.1990**:** *Principles, Problems, and Practices of Cooperation***.** Shivalal Agarwala & Co Agra. Pp.4, 238

[4] Prakash, Daman 1999**:** *The contribution of cooperatives to Social development***,** Indian Cooperative review, January, Vol.XXXVI, (3)

[5] Mathur, B.S. 1989**:** *Cooperation in India***.** Sahithya Bhavan, Agra.Pp.65-87.

[6] Hajela, T.N.1990**:** *Principles, Problems, and Practices of Cooperation***.** Shivalal Agarwala & Co Agra. Pp.4, 238

Cooperation is not a new concept. The instinct to cooperate with the members of one's species has been present in almost all living things. The tiny ant lives with other ants of its kind and stores its food in common for common benefit. It is a common sight that when a grain of rice or corn is too heavy for a single ant to carry to its adobe, two or three ants join in the task of carrying the grain to their common adobe. The very ant hill, the mound over the ant's nest, is not built by a single ant. The beehive is another instance of even small insects cooperating together. Animals in forests generally live in herds (Rajagopal 1992)[7].

The human being is no exception. Man is by nature a social animal. Man cannot live alone by himself. He cannot produce all the food or clothing he needs. Nor can he erect by himself the hut he lives in. He takes the help of the members of his family or of other men. It may be a truism to state that the concept of cooperation is as old as human society (Rajagopal 1992)[8]. Cooperation is older than the Cooperative movement (Hajela 1990)[9]. *Cooperation is the noblest idea. It transforms human life from a conflict of classes struggling for opposite interests to a friendly rivalry in the pursuit of common good of all. Cooperation means nothing less than an economic system designed to suppress capitalism by mutual aid.* Cooperatives all over the world are instruments of social and economic transformation. People come together not only for fellow feeling, but also to help themselves. *Cooperatives are autonomous and voluntary associations of persons of similar needs and wants united together for the purpose of meeting their social, economic, and cultural needs and wants that would have been impossible to achieve on individual bases* (Mathur 1989)[10].

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[7] Rajagopal O.A 1992**:** A study on governing of member control perspective in horticultural cooperatives.

[8] Rajagopal O.A 1992**:** *Ibid*

[9] Hajela, T.N.1990**:** *Principles, Problems, and Practices of Cooperation***.** Shivalal Agarwala & Co Agra. Pp.4, 238

[10] Mathur, B.S. 1989**:** *Cooperation in India***.** Sahithya Bhavan, Agra.Pp.65-87.

The roots of formal cooperation can be traced to ancient times. Instances of Cooperative effort could be found in the ancient India, China, Egypt and Babylonia in agriculture and crafts. In ancient India there were guilds for weavers, metal workers etc. Cooperative Societies were found among ancient Greeks in the form of burial benefit societies and religious and cultural associations. History records the organization of first saving and credit banks in China for the purpose of enabling devout Chinese to defray the expenses of their pilgrimage. Crop protection against theft was another incentive for some sort of Cooperative organization. In Roman era, collegial, a type of Cooperative craftsmen organization came into prominence. In the early Christian era also there were some instances of Cooperative experiments in the form of artisan societies, burial benefit societies, irrigation societies, etc. During the middle ages, the Cooperative idea was transformed from religious informal institution into a more formal business institution. The roots of formal cooperation may be traced to three sources: (1) medieval European guilds, (2) mutual self-help association of early industrialization period, (3) social experiments of Utopian Socialists and other Cooperative leaders (O.R Krishnaswamy and V. Kulandaiswamy 2000)[11].

The origin of Cooperative associations ante-date Robert Owen (1771-1858) and certainly Rochdale pioneers (1844). The origin of cooperation both in English and Scotland dates back to the 1760's. Though the germs of several Cooperative ideas are to be found in these sporadic Cooperative efforts, they had no ulterior purpose and were not linked together in any wider movement. They were only isolated experiments with little practical effect, and they collapsed after a few years of existence. The modern cooperation is in no way the continuation of the

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[11] Krishnaswamy, O.R. & Kulandaiswamy, V.: *Cooperation, concept and theory.* Arudura Academy, Coimbatore-641007, Tamilnadu.

ancient and medieval forms; and no historical link exists between these early attempts and the modern formal Cooperatives. Almost all of the early Cooperatives failed. Finally a society organized by a group of 28 workers in Rochdale, an industrial town in England - The Rochdale Society of Equitable Pioneers - on 21st December 1844, proved a successful venture. The single factor in their success was the way in which they absorbed the lessons of the previous failures (Krishnaswamy O.R and V.Kulandaiswamy 2000)[12].

*Cooperative Movement in Ethiopia:*

Modern Cooperative movement in Ethiopia started in 1960 during the regime of Emperor Haile Sillassie I. Before the stated years and still today people are organized through traditional Cooperatives. The Cooperative movement in Ethiopia can be categorized under four phases: (i) Traditional Cooperative, (ii) Cooperative under Haile Sillassie Regime (1961-1975), (iii) Derg Regime (1975 – 1991), and (iv) Post 1991. In the history of Cooperative movement in Ethiopia, the government has taken serious measures after 1996. The measures include organizing different types of Cooperative Societies under one umbrella by establishing Cooperative Promotion Bureaus and Registrar in each region. A proclamation to provide for the establishment of Cooperative Societies, proclamation No. 147/1998, has also been proclaimed by the Federal government.

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[12] Krishnaswamy, O.R. & Kulandaiswamy, V.: *Ibid.*

## 1.2  <u>Statement of the Problem</u>

The very goal of the introduction of the Cooperative movement in Ethiopia is to help the economically weaker sections of the community grow stronger through pooling their limited material and financial resources and knowledge. Cooperatives are believed to enable the rural and urban poor to meet their economic needs collectively, which is often difficult to achieve individually.

 "*Cooperatives are organizations with a number of social, cultural, and economic objectives. The very basis for starting a Cooperative Organization is the necessity of satisfying a common economic need by mutual help and mutual effort. Every Cooperative has certain specific economic objectives/aims. As an economic entity, a Cooperative is primarily responsible for seeking solutions to the common economic problems of its members. Thus, the Cooperative association is a means for the economic well-being of the members. Though Cooperatives aim primarily at satisfying the needs of their members through their operation, they also contribute to the development of the society at large. Thus, the economic objectives of Cooperatives are of two types: a) micro objective, relevant to members and b) macro objectives, relevant to the society at large.*" (O.R. Krishnaswamy and V.Kulandaiswamy 2000)[13]

In a net shell, Cooperatives are meant for improving the living standard of their members in particular and the community in general. Therefore, the present study aims at evaluating the two-tier Cooperative organization of *Hashenge Cooperative Union and its Affiliates* with respect to its performance towards improving its *members' livelihood* and the *community's wellbeing*.

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[13] Krishnaswamy, O.R. & Kulandaiswamy, V.: *Ibid.*

## 1.3  <u>Purpose of the Study</u>

Performance evaluation is the basis for determining the actual results being met by a given firm. It creates a fertile ground for finding out deviations from predetermined standards (objectives) and intentions so that timely corrective actions can be taken in case of unfavorable deviations. Performance evaluation is a vital means for assessing and improving the effectiveness of any organization. Therefore, it is naturally necessary to evaluate the performance of the Cooperatives under study to see whether they are doing in line with what they were meant for.

## 1.4  <u>Research Objectives</u>

*General objective*

The general objective of the study is to assess the performance of *Hashenge Cooperative Union and its Affiliates* with respect to the accomplishment of the very purpose of their establishment, improving the wellbeing of its members and the larger community.

*Specific objectives*

i.  To evaluate the *trend* of *membership* and *financial performance* of *Hashenge Cooperative Union.*

ii.  To examine the *impact* of *Hashenge Cooperative Union and its Affiliates* on the *living standard* of members.

iii.  To assess some *benefits* of *Hashenge Cooperative Union* to the *urban community* of the study area.

iv.  To analyze *Strengths*, *Weakness*, *Opportunities*, and *Threats* of the Cooperatives.

## 1.5  <u>Research Hypotheses</u>

**Impact of Membership on Living Standard:**

- *Asset[14] Ownership*

  *Hypothesis 1:* Membership to a Cooperative improves *Livestock Ownership* of members.

  *Hypothesis 2:* Cooperative membership promotes *Ownership of a Modern House[15]*.

- *Eating frequency per day*

  *Hypothesis 3:* Membership to a Cooperative improves *Eating frequency per day* of members.

- *Clothing frequency per year*

  *Hypothesis 4:* Membership to a Cooperative improves *Clothing frequency per year* of members.

- *Education*

  *Hypothesis 5:* Member households send *more number of Children to School* than non-member households.

- *Health*

  *Hypothesis 6:*  Cooperative Members show a better tendency to wards using *Modern Health Services* than Non-members.

- *Satisfaction with Membership*

  *Hypothesis 7: Satisfaction* of Members with their Cooperative's performance is correlated with their *Patronage frequency*.

**Benefits to Urban Community:**

*Hypothesis 8:* Tendency of *purchasing Cooperative products* varies with the type of *job* pursued among the Urban Community.

*Hypothesis 9: Cost* incurred when purchasing certain products from *Hashenge Cooperative Union* is   less than the *Cost* incurred when purchasing the same products from *Traders*.

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[14] Includes *Livestock(sheep,  goats, cattle, horses, mules,  donkeys, camels, and chickens)* and *Modern House*

[15] Refers to a house which is roofed with corrugated iron sheets as opposed to a *traditional hut*

# CHAPTER-II

# Literature Review

## *Prelude:*

Although the significance of Cooperatives is widely applauded, research studies on the Cooperative area, particularly regarding performance of Cooperatives in improving the living standard of their members in particular and the community in general are scarce in Ethiopia. Therefore, the review under this section includes various literatures on the performance of Cooperatives all over the globe. The objective of the review was to assess the findings of earlier related studies so that gaps could be identified and then filled. The review touches published and unpublished sources that have been presented in a chronological order.

## *Review:*

*Claudia Parliament et.al (1989)[16]* made an attempt to compare the financial performance of Cooperatives and investor owned dairies in a study. The study employed the following ratio measures to evaluate the performance of Cooperatives: Profitability ratios, Leverage rations, Solvency ratios, and Efficiency ratios. Using the standard financial ratio analysis, the performance of dairy Cooperatives was found to be significantly better than the performance of dairy Investor Owned Firms (IOFs) in terms of leverage, coverage, and efficiency ratios and not worse in terms of profitability over the period 1976-1987. Even without allowing for benefits that

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[16] Claudia Parliament, Z. Lerman, J.Fulton: *Performance of Cooperatives and Investor Owned Firms in the Dairy industry"*, University of Minnesota, 1989.

are unique to members and for potential public good aspects, the Cooperatives appear to meet or exceed generally accepted business standards at least in the dairy industry.

The *Cooperative Sector of Saskatchewan (1998)*[17] made a study to assess the contribution of Cooperatives to the economy of Saskatchewan. As to the trend of Cooperative membership, the study discovered that total active membership in Cooperatives showed a decline from 1996 to 1998. There were 387 active agricultural and resource Cooperatives in 1998 compared to 408 in 1996, a decrease of 5.1 percent. Active membership fell from 72,209 to 67,940, a decline of 5.9 percent. Some of the changes in membership numbers could be attributed to reporting practices. Increasingly, those Cooperatives that file reports with the Department of Justice were discovered to choose to only report active membership. This shift in membership classification was believed to reflect a change in membership, rather than a change in actual number of active members. Furthermore, in 1998, the study found that a greater number of Cooperatives failed to report membership formation altogether. Approximately 180 of the Cooperatives that reported membership number for the 1996 fiscal year failed to report the same information on their annual returns for the current reporting period. Farmers continue to perceive Cooperatives as an effective means of growing, processing, and marketing their produce. Furthermore, it was found that the average debt-to-asset ratio for all Cooperatives in 1998 was 0.40, down slightly from 0.46 in 1996. Once again, this number had been largely influenced by the high (0.92) debt-to-asset ratio of financial Cooperatives. Removing financial Cooperatives from this mix drops the ratio for 1998 to 0.33, a slight increase from 1996 (0.31).

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[17] Cooperative Sector of Saskatchewan (1998): *An Economic Impact Analysis of the Cooperative Sector in Saskatchewan*

According to this study also, members' equity for all Cooperatives was reported at $1.57 billion in 1998. Adjusting for the Consumer Price Index (CPI), this represented an increase in members' equity of 10 percent from 1996. Recorded revenues for 1998 increased slightly from the previous study, with Cooperatives generating $6.95 billion, compared to $6.90 in 1996. However, after adjusting for inflation this represents a net decrease in revenue of 1.9 percent. Net income (surplus) in 1998 dropped to $209 million from $246 million in 1996, representing an inflation-adjusted decline of 17.1 percent. This decline reflects the diminished performance of Saskatchewan Wheat Pool, which saw its inflation adjusted revenue decrease by $74 million and net income by $33 million. Saskatchewan Cooperatives employed 15,046 people in 1998, which represents an increase of 4.3 percent from 1996. Total wage bills (salaries and benefits) for Cooperatives in 1998 were $459 million, up from $424 million in 1996. The capital investment of $372 million reported in 1998 is a significant increase from the $124 million of 1996. This change amounts to an inflation-adjusted 192 percent increase. Total assets were $1.56 billion compared to $1.33 billion in 1996, an inflation adjusted increase of 14.0 percent. Liabilities also increased, from $828 million in 1996 to $871 million in 1998, for an adjusted rise of 2.4 percent, while the average debt-to-asset ratio rose from 0.39 to 0.43. Members' equity jumped to $425 million in 1998 from $319 million in 1996, an adjusted increase of 29.9 percent.

*Sanjib Bhuyan (2000)*[18] reported that major problems faced by the Cooperative included lack of member loyalty, inability to control or manage operating cost, inability to balance different interests of members, members expecting too much from the Cooperative, finding good farmer leaders for the Cooperative management, members relied more on farm income. Most current

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[18] Sanjib Bhuyan (2000): *Grower and Manager Issues in Fruit and Vegetable Cooperatives,* Department of Agricultural, Food & Resource Economics, Rutgers University, New Jersey.

non-members would not join a Cooperative because they do not believe that Cooperatives actually reduce farmers' long-term marketing risks. Plus, there are better investment alternatives. Most non-members are, however, aware of the potential benefits of a Cooperative. Most members were not satisfied with prices they received although Cooperative managers believed their members received competitive prices.

*Joe Folsom (2003)*[19] made a study on the economic impact of Cooperatives in Minnesota. The methodology of the study measured the total impact and the impact of local ownership and single-level taxation. Revenue data collected from 311 respondents to a survey of Minnesota Cooperatives were used. The value-added component within the model included employee compensation, proprietary income, other property income, and indirect taxes. Responding Cooperatives represented 44 business sectors and had 943,450 members, representing an estimated 50 percent of the total Cooperative membership. The 185 credit unions serve another 1,457,183 members.

The study came to discover that the $6.07 billion in revenues generated by the 311 Cooperatives and 185 Credit Unions result in total direct, indirect, and induced impacts of $10.89 billion in output and total employment of 79,363. Most significant, however, are the benefits attributable to local ownership and single level taxation that increases $600 million in output, employment of 7,725, and tax revenues of $210.5 million. The benefits of local ownership and single-level taxation are also attributable to business structures such as sole proprietorships with these characteristics. The researcher recommended, on the ground of the findings, that policy considerations should foster an environment conducive to development of and investment in locally owned business enterprises, such as Cooperatives

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[19] Joe Folsom (2003): *Measuring the Economic Impact of Cooperatives in Minnesota,* a Research Report.

*Kimberly Zeuli et.al (2003)*[20] in their study on the economic impact of Cooperatives measured the economic impact of Cooperatives at the State level and therefore quantified a portion of their contribution to economic development. Financial data were collected from almost 800 agricultural and non-agricultural Cooperatives in Wisconsin during 2000. The total economic impact of these Cooperatives was assessed using a Social Accounting Matrix (SAM) model. Direct, indirect, and induced effects were estimated in terms of jobs, wages and salary, and total income. The analysis did not attempt to measure the total value of Cooperatives to either their local economies or their members.

The Cooperatives represented a total of 2.7 million members and $5.6 billion in gross sales. More than $250 million was generated in net profits while $323 million was returned to members in the form of cash patronage refunds and dividends and almost $65 million paid in Federal, State, and local taxes. In the aggregate, and taking into account multiplier effects, Wisconsin Cooperatives support nearly 30,000 full-time jobs and generate almost $1 billion in total income within the State. They also produce more than $200 million in Federal, State, and local tax revenues. The cash patronage refunds and dividends that are distributed to Cooperative members annually also have significant economic impacts. When these returns are cycled through the State's economy they in effect support a total of 4,637 jobs that generate $114 million in total income. The returns further create more than $500 million in total value-added, the influx of additional net income into the State *(2003).*

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[20] Kimberly Zeuli et.al (2003): *Measuring the Economic Impact of Cooperatives,* University of Wisconsin—Madison, a Research Report.

*R.Gopalsamy (2004)[21]* conducted a study on performance evaluation of a Cooperative Bank. The study mainly focused on analyzing the deposit mobilization pattern, growth, lending performance, and funds management of the bank. The study was mainly based on secondary data analyzed using various statistical techniques like averages, standard deviation, coefficient of variation, annual compound growth rate, correlation coefficient, and multiple regression. Trend analysis has also been used for predicting the deposits and loans of the bank for the year 2010. The study showed that there is more than a three-fold increase in the total deposits of the bank in 2001-2002 as compared to 1993-1994. There was more than a two-fold increase in the total loans granted by the bank in 2001-2002 as compared to 1993-1994.

*Peter Calkins et.al (2005)[22]* made a study on the impacts of farmer Cooperatives on the standard of living of cocoa producing villages in Côte d'Ivoire and Ghana. The study focused on measuring and evaluating the roles, impacts, and relative importance of cocoa farmer organizations in the improvement of the productivity, market power, management ability and socio-economic well-being of member households in Côte d'Ivoire and Ghana. An attempt was also made to distinguish those impacts from the independent evolution of living conditions on the part of non-members within the same villages, as well as cocoa producers in control villages. Six regions were selected for the purpose and from each region, a random sample of 75 producer households was selected: 35 who were members of Cooperatives, 20 non-members who were immediate neighbors of the members selected and might therefore benefit from spill-over effects of Cooperative membership, and 20 control-group producers who lived in villages with similar

[21] Gopalsamy, R**.:** *Performance evaluation of Virudhunagar District Central Cooperative Bank Limited***,** a PhD Thesis, Manonmaniam Sundaranar University, Jan. 2004

[22] Peter Calkins et.al (2005): *The Impacts of Farmer Cooperatives on the standard of Living of Cocoa Producing Villages in Côte d'Ivoire and Ghana,* a Research Report.

climate and marketing conditions to the first two groups, but which had never had a Cooperative established in the community; to determine the spill over of Cooperative benefits to non-member households.

The hypothesis tested in the study led to significantly positive results for the role of Cooperatives. In terms of production technology, the study found out that a more judicious (but not greater) use of "modern" inputs (fertilizers, pesticides, mechanical implements) led to 19% (42 kg) higher per hectare yields for Cooperative members than for non-members, and especially control-village producers. Cooperatives were also found to be highly beneficial in terms of cocoa marketing. Members receive fairer weight and quality evaluations of their beans, superior marketing and transportation services, and higher revenues both per bag (prices including bonus paid by the Cooperatives to their members for yield, weight and grade accorded) and per hectare than non-members or control farmers.

*Mitchell et.al* (2005)[23] in their study on Agricultural Cooperatives in Ethiopia (ACE) reported that the market power of Cooperatives is squeezing the profits of small traders in local markets, and unions are competing with wholesalers at regional levels. Cooperative unions have established linkages with processors and private exporters to obtain the best prices and most favorable terms possible considering the volume of products being produced and the current development of the unions. The success of Cooperative and union marketing efforts has led to complaints from traders and their allies about special treatment of Cooperatives as they see competition from Cooperatives and Cooperative unions increasing and their market power being eroded. Unions are handling an increasing volume of inputs, selling to both members and non-member farmers; a

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[23] Mitchell Group, Inc.: *Evaluation of Agricultural cooperatives in Ethiopia (ACE) Program Activities for USAID/Ethiopia,* 1816 11th Street NW, Washington DC, Dec.9, 2005

growing proportion of these inputs are now being imported by individual unions. The volume of fertilizer sold by unions increased dramatically but is hampered by the monopoly of the state fertilizer enterprise and a company owned by the party controlling government.

The study added that members of sugar Cooperatives are some of the best-off farmers in Ethiopia, providing their members a high standard of living and sufficient funds to diversify into other types of high-value business activities (irrigated vegetable farming, hotels, etc). Milk Cooperatives and the dairy union have achieved remarkable improvement in the price of milk and access to market, encouraging more farmers to join the Cooperatives and increase the number of cows they milk and, over time, the productivity of their herd. Part of the success of the union is due to its partnership with a private dairy processor. However, the union now feels strong enough to start processing and distributing milk itself, causing some concern on the part of the private processor.

According to this study, the payment of patronage dividends to farmers, which was set until recently at 70% of the net surplus of a Cooperative or Union, has been the most important incentive for farmers to join Cooperatives. Bonus for high-quality, fair trade, and organic coffee had a significant impact on total farmer income, encourage them to improve quality, and provide a strong incentive for farmers to join coffee Cooperatives and affiliate with unions. As they expand the volume of products marketed, primary societies and unions are finding it necessary to increase the size and standards of their warehouses and other facilities. They are also finding it necessary to acquire transport, tractors, and simple processing equipment to provide for the needs of their members. After several years of successes, some Cooperatives and Unions have begun to acquire assets of their own that are sufficient to allow them access to credit without the need of a

guarantee. More Cooperatives and most unions now have access to electricity at least part of the time. Principal areas where reforms are important to Cooperatives and their members are: 1) property rights to rural land, 2) banking system, and 3) privatization of state enterprises engaged in agribusiness.

A study by *Axumite G. Egziabher*[24] on Cooperatives and urban farming showed the importance of Urban Agriculture (UA) for the producers and for urban consumers. The Cooperative has created unity and solidarity among the members and the aspiration to strengthen them selves, to solve their common problems, and to fight against perceived common enemies. The Cooperative has enabled the members to understand the importance and advantages of organizing themselves, and of discussing and solving their own problems. Urban farmers are in a good position to change their products according to the demand of the market. The fact that they sell more fresh vegetables than those obtainable from other sources that must rely on more distant production areas is a further advantage in marketing their products. The Mekanissa, Furi, and Saris Producers' Cooperative provides a significant proportion of the supply of fresh vegetables to Addis Ababa. For example, in 1983, it was estimated that the Cooperative provided about 63% of the swiss chard, 17% of the carrots, about 14% of the beetroots, and 6% of the cabbages supplied to the Addis Ababa market.

The study also showed that as the prices of the Cooperative are often lower than those of other sources, and the Cooperative shops are located in the relatively accessible area of the Kefetegnas

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[24] Axumite G. Egziabher*: Urban Farming, Cooperatives, and the Urban Poor in Addis Ababa,* a Report**.**

(administrative parts of a city) concerned, it is possible that most of the urban population would be able to satisfy their vegetable needs from the nearest Cooperative shop. It was also understandable that a majority of the low-income population would make good use of the Cooperative shops because traveling to the central markets would mean additional transportation costs. The Cooperative shopkeepers also confirmed that they never faced any problem in selling their produce. It was not only cheaper but also the freshest as it did not travel any long distance.

*Research Gap:*

While very few studies have made attempts on evaluating the performance of Cooperatives, there is no mention of *Hashenge Cooperative Union* and *its Affiliates* in the papers. Furthermore, the study of performance of Cooperatives should not be limited only to the analysis of *financial ratios*. Cooperative performance can be measured by estimating the incremental value of the Cooperatives to their members, their impact on the *livelihood* of their members with respect to *asset ownership*, *education*, and *health* conditions. An appropriate measure of Cooperative performance could be the *profitability* of the member's farming operations *with* and *without* the Cooperative. The *difference in the prices* members receive after and before their membership can also be another performance measure. Therefore, with this gap in mind, the need for the present study was felt and hence this study.

# CHAPTER –III

# Materials and Methods

## 3.1  Site Selection and Description

*Hashenge Cooperative Union* and *its affiliated primary Cooperatives* are found in *Ofla Woreda*. This Woreda is among the *35* Woredas of Tigray Regional State. It is found in the Southern Zone of the State. Ofla Woreda is bound by Endamehoni Woreda from the North, Region-3 from the North-West, Raya Azebo Woreda from the North-East, Alamata Woreda from the South-East and the South. Ofla Woreda has a total population of *175,815* of which *90,045* are females and *85,770* males (in the year 2006). The total area of the Woreda is *1,297.50* square kilometers with a population density of 135.5 persons per square kilometer. It is situated at an altitude of about *2,400* meters above sea level with average annual temperature of $21C^0$ and average annual rain fall of about *800* millimeters. The main economic sector in the woreda is Agriculture (more than 83 percent of the population is engaged in Agriculture). The farmers in the Woreda mainly depend on rainfall for crop and livestock production. Cattle, sheep, and goats are the most common farm animals reared in the woreda. Specifically, there are *28092* cows, *23201* oxen, *14424* bulls, *70691* sheep, and *53929* goats. Barley, wheat, teff, bean, and linseed are the major crops cultivated on the rain fed farmlands. Wheat, onion, potato, pea, pepper, and tomatoes are also cultivated under irrigation.

There was a promising Cooperative movement in Ofla Woreda in the years *2004 - 2007*. There were *16* multi-purpose Cooperatives, one fishery Cooperative, *20* Saving and Credit

Cooperatives (SACCOs), *27* construction Cooperatives, *one* mining Cooperative, *four* handcraft Cooperatives, *nine* irrigation Cooperatives, *one* electricity Cooperative, *eight* beekeeping and honey marketing Cooperatives, *eight* sheep and goat fattening Cooperatives, and *one* youth entertainment Cooperative (2007). In the same period, there were *two* Cooperative Unions in the woreda namely: (a) Hashenge Multi-purpose Cooperative Union that had *14* affiliated primary cooperatives with a total of *17,216* members of which *13,589* are males and *3,627* females, (b) Firyat Ofla Saving and Credit Cooperative Union with 25 affiliated primary Saving and Credit Cooperatives.

**Figure 3.1.1:** Map of Ofla Woreda, the Study Area



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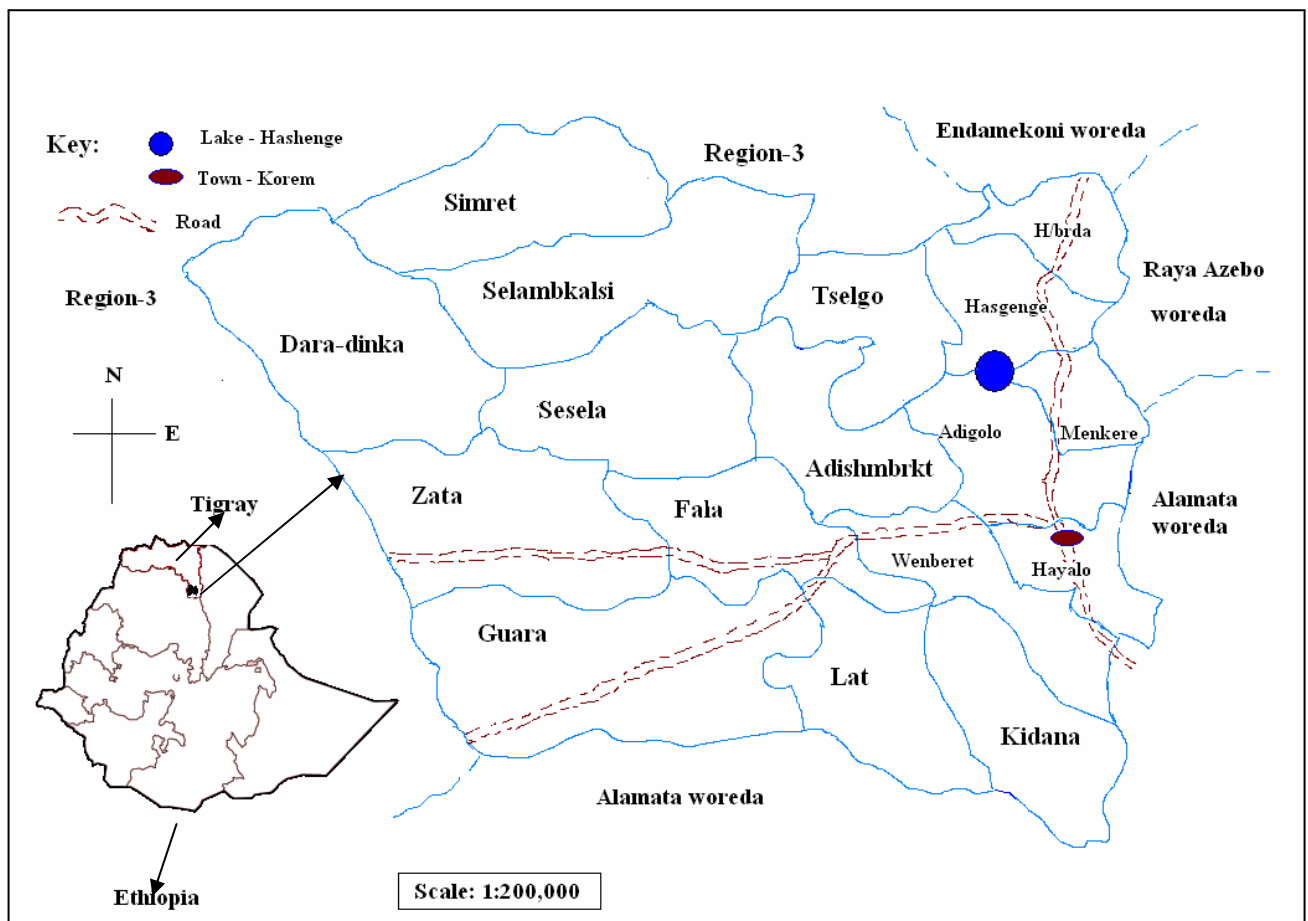
*Hashenge Cooperative Union* was established in May 2004. The researcher has selected the mentioned Woreda and Cooperative Union on the ground of simple random sampling. The Union is specifically found in a town called Korem which is at a distance of *160* kms from the Regional Capital, Mekelle and *619* kilometers from the National Capital, Addis Ababa. Korem town has a total population of *30,706* of which *14,496* are males and *16,210* females (CSA 2006)[25].

## 3.2 <u>Sample Size and Sampling Techniques</u>

Of the 14 primary Cooperatives affiliated to *Hashenge Cooperative Union*, *seven* were selected for the purpose of this study. These include *Hugumberda*, *Falasofia* (Fala), *Tadesech* (Guara), *Hadashberhan*, *Zata*, *Simret*, and *Mahalofla* Primary Cooperatives. Cooperatives from different angles of the Woreda were selected in order to capture important differences in *agro-climate*, *infrastructure*, and *proximity to markets* thereof. The sample size was determined on the basis of *practical approach*, i.e., with size of the population, nature of the population (whether or not it is homogeneous), nature of the respondents (whether or not they are willing to give responses), type of sampling technique used, and available budget taken account of.

A random sample of *100 member* households and *60 non-member* households was taken. Of the 60 non-members, *30* are non-members that *use some services of nearby Cooperatives* (*Nonmbr*) and *30* non-members that *do not use Cooperative services at all* (*Control*). The latter 30 non-members were used as a Control Group. The inclusion of this control group helped to critically evaluate performance of the Cooperatives. Otherwise, the results might have led to an erroneous conclusion that there is no difference between the well being of members (before and after affiliation) and non-members, which might result from spill-over effects of Cooperative performance to the nearby larger community.

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[25] Central Statistical Authority, 2006, Ethiopia

Member respondents were selected using *Proportionate Simple Random Sampling* technique from the selected primary Cooperatives; with each primary Cooperative's list of members used as the sampling frame. The two groups of non-members, *Nonmbr* and *Control*, were selected randomly from the same villages the member respondents were taken. The sample also included *40 urban dwellers* from the town of *Korem* for the purpose of investigating the contribution of *Hashenge Cooperative Union* to the livelihood of the Urban Community. For this purpose, a single *kebele* (administrative part of a town) was randomly selected and the individual respondents were taken from the selected *kebele* on the basis of *Simple Random Sampling* technique. Therefore, the overall sample size has been *100 + 30 + 30 + 40= 200* individuals.

## 3.3 <u>Data Collection Procedures</u>

The study has utilized *primary* and *secondary*, *qualitative* and *quantitative* data from different sources. The primary data were collected from the randomly selected member and non-member individuals with the help of a pre-tested *Interview Schedule*. A semi-structured *Questionnaire* prepared in *Amharic* (the National Language) was also administered to collect data from the Urban Community. Although the Woreda is found in Tigray Region, the people in the study area tend to speak in Amharic due to their proximity to the Amhara Region. That's why the questionnaire was prepared in Amharic.

*Focus Group Discussion* was also conducted with selected persons from the Board of Directors (BODs) of each selected sample Cooperative, Managers and Accountants of Cooperatives. The required secondary data were simply taken from the *documents* of the Cooperative Union under consideration.

A total of 10 enumerators, 8 skilled and 2 unskilled (for the simple purpose of distributing and then collecting the questionnaire) participated in the primary data collection phase after they had been given the necessary training by the researcher. The role of the *Researcher* was coordinating and supervising the hired data collectors throughout the data collection phase.

## 3.4  Variables and Analytical Methods

Below are given the different variables and statistical analysis methods used in the attempt made to address each and every *Specific Objective* of the study (*Trend of Membership* and *Financial Performance*, *Impact on Living Standard*, *Benefits to Urban Community*, and *SWOT* [26] *Analysis* of the Cooperatives under study). The statistical *software* used for analyzing the collected data was MINITAB.

### A. Trend of Membership and Financial Performance of *Hashenge Cooperative Union*

Simple descriptive statistics such as *tables* of membership and *financial ratios* have been used for the purpose of assessing the *trend* of *Membership* and *Financial Performance* of *Hashenge Cooperative Union*. Simple *charts* have also been used to present this *trend* over the three-year-period of the *Cooperative Union*. No sophisticated trend analysis methods have, however,  been used for there were no sufficient data to do so due to the fact that the *Cooperative Union* was only three years old and also there was a problem of data recording by the *Union's* personnel.

### B. Impact of Membership on *Living Standard* of Members

Members were asked to rate the status of their *Living Standard* (*LivStd*) *after* affiliation as compared to *before* affiliation on a five-point scale (*1 = worse, 2 = same, 3 = slightly better, 4 =*

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[26] Stands for *Strength, Weakness, Opportunity*, and *Threat*

*much better,* and *5 = very much better*). Simple *tables* and *percentages* have been used to see the *proportion* of the respondents in each category of the scale. As it was difficult to find data on monetary income of the respondents for two main reasons (*i.* inability to remember and/or calculate, *ii.* unwillingness to tell), nothing has been done on the direct impact of the Cooperatives on the monetary income of the respondents. Therefore, *Asset Ownership* (*Livestock* and *Modern House*) has been taken as an indicator of the impact of Cooperatives on the living standard of their members. An attempt has been made to see if *Asset Ownership* varies among members (*before* and *after* their affiliation), non-members that *use* Cooperative services, and non-members that *never use* Cooperative services.

Analysis of variance *(ANOVA)* was employed to find out whether there is a statistically significant difference in *Livestock Ownership* among the *four categories* of the variable *Mbrshp* given below (Table 3.5.1). The number of *Livestock* owned by a household has been measured in *Tropical Livestock Unit* (TLU). This unit is commonly taken to be an animal of *250 kg live weight*. (TLU conversion used: *1 TLU = 1 cattle = 1 horse = 6.67sheep = 6.67goats = 0.87 mule = 1.54 donkeys = 0.69 camel = 200 poultry*) [27].

The dependent and independent variables of interest in this analysis are *Livestock Ownership* (*LivOwn*) and status of membership (*Mbrshp*) respectively. In fact, the study could be confounded by such factors as *Region of Residence, Size of Landholding, Family Dependency Ratio (Number of Dependents ÷ Number of Independents),* and *Non-farm Income,* such as income from employment not related to membership, aid from children and/or relatives, etc. (N.B: Dependents are persons in the age group of *< 15 and > 64 years*, Independents are persons

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[27] Ramakrishna, G. and Assefa Demeke (2002): *An Empirical Analysis of Food Insecurity: The case of North Wollo*, Africa Development, Volume XXVII, No.s 1&2, 2002, pp. 127 – 143.

in the age group of *15 – 64 years* )[28].The first *three* factors have been taken account of by including them in the analysis to control for the effect of their variation on the dependent variable. But as there was no household with *Non-farm Income* among the respondents, this factor was not included in the analysis so as not to make the effect of the independent variables less powerful.

**Table 3.5.1:** Name and Category of Variables used in the Analysis of *Asset Ownership*

| Variable Code | Description | Category* |
|---|---|---|
| *LivOwn* | Ownership of *Livestock* in TLU | |
| *MhOwn* | Ownership of *Modern House* | *1 = Own*<br>*0 = don't Own* |
| *Mbrshp* | Status of Membership | *Bfor*<br>*Aftr*<br>*Nonmbr*<br>*Control* |
| *RegRes* | Region of Residence of a household | *1 – 7*** |
| *Lhldg* | Landholding in Hectare (ha) | |
| *DepR* | Dependency Ratio in a household | |

*\*Category is applicable to categorical variables only.*
*\*\*1=Hugumberda, 2=Fala, 3=Guara, 4 =Hadashberhan, 5=Zata, 6=Simret, 7=Mahalofla*

| Dependent variable | Independent variable | Blocking variable |
|---|---|---|
| *LivOwn* (ANOVA) | *Mbrshp* | *Lhldg*<br>*RegRes*<br>*DepR* |

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[28] Ethiopia Population Images (2006): Ministry of Finance and Economic Development, Population Department, Addis Ababa

Non-members were classified in to two groups namely *Control* and *Nonmbr. Control,* as the name implies, has been used as a *Control Group*. This was done for the purpose of critically assessing the performance of the Cooperatives. Cooperative benefits may have spill-over effects to the nearby larger community. As a result, both members and non-members can be comparatively better-off due to Cooperative benefits. In some cases, for example, Cooperatives sell *fertilizer* and *high yielding seed variety* to members and non-members. Therefore, if the Control Group were not included in the study, the contribution of Cooperatives towards enhancing the livelihood of their members might have been overlooked.

The independent variable, that the researcher wanted to find out the effect of on *LivOwn*, is *Mbrshp*. The effect of this variable has been investigated using *ANOVA* with *RegRes, DepR,* and *Lhldg* taken as *Blocking Variables*. The inclusion of the factor *RegRes* as a blocking variable helped to control for variations in *distance* from nearby town, availability of *infrastructure* (road, school, and health center), *grazing land*, *weather conditions*, etc faced by the respondents. *Pair-wise comparison* of *average values* of *LivOwn* has been employed to specifically know which *mean* is statistically different from which. The other *Asset* considered in the study was *Modern House. Hypothesis tests* on the differences among *Proportions* of households that own a *Modern House* for each membership status have been carried out.

Other indicators that have been considered in the study to examine the impact of the Cooperatives on the livelihood of their members were *Frequency of Eating per day* (*EtF/d*) and *Frequency of Clothing per year* (*cLF/y*). Here, two statistical tests have been employed: *Paired t-test* and *Two-Sample t-test*. The former is appropriate for comparing the *average* value of *EtF/d* and *cLF/y* for two dependent groups (groups that are related somehow), *Bfor* and *Aftr* in this case. The latter is applied for comparing two independent groups, *Aftr* (members) and non-members

(*Control* and *Nonmbr*), in this case. Members and the two groups of non-members were compared for their frequency of *Eating* and *Clothing* so as to be able to find out whether there was a tangible impact of Cooperatives on their members' wellbeing.

*Education* and *Health* issues were also taken as indicators of impact of Cooperatives on members' living standard. Members and non-members have been compared for their: (a) *Average Number of Learning Children*, over the study period (2004 – 2007) and (b) Tendency towards using *Modern Health Services*[29]. The presence of a *School* or a *Health Center/Clinic* with in a *3-km-distance* was accounted for in this case. This is because, given two households, one member and the other non-member, the tendency of each household to send children to school or use modern health services will vary just because of variations in distance, regardless of their status of membership. For the purpose of statistical inference, *Ordinary Least Square (OLS) Regression* and *Binary Logistic Regression* (*Logit*) analyses have been employed.

**Table 3.5.2:** Name and Category of Variables used in Analyzing *Education* and *Health* issues

| Variable code | Description | Category* |
|---|---|---|
| *NLrnCh* | *Average* Number of *Learning Children* in a household | |
| *UmHs* | Use of *Modern Health Services* by a household | *1= User* <br> *0 = non-User* |
| *AfLshn* | Being Member or Non-member | *2 = Member* <br> *1= Nonmbr* <br> *0 =Control* |
| *PrsnSc* | Presence of a School with in a *3-km-distance***  | *1=Present* <br> *0 = Absent* |
| *NSaCh* | *Average* Number of School-Age Children in a household | |

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[29] Clinic and/or Hospital service to treat a disease

| *PrsnHc* | Presence of a *Health Center* with in a 3-km-distance | *1=Present* |
|---|---|---|
| | | *0= Absent* |
| *Lhldg* | *Average* Size of Farm Land a household owns | |
| *DepR* | *Average* Dependency Ratio in a household | |

*\*Category is applicable to categorical variables only, \*\* Distance from home*
*Note: "Average" refers to average… over the study period (2004 – 2007)*

| Dependent variable | Independent variable | Blocking variable |
|---|---|---|
| • *NLrnCh* (OLS) | *AfLshn* | *PrsnSc* |
| | | *NSaCh* |
| | | *DepR* |
| | | *Lhldg* |
| • *UmHs* (Logit) | *AfLshn* | *PrsnHc* |
| | | *Lhldg* |
| | | *DepR* |

The *OLS* Regression Model employed has the following form:

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + u$$

Where; Y = Average Number of *Learning Children* in a household *(NLrnCh)*

$x_1$ = Being Member or Non-member (*AfLshn*)

$x_2$ = Presence of a School with in a 3-km-distance (*PrsnSc*)

$x_3$ = Average Number of School-Age Children in a household (*NSaCh*)

$x_4$ = Dependency Ratio in a household (*DepR*)

$x_5$ = Size of Land holding of a household (*Lhldg*)

$\beta_i$'s = Parameter estimates for the independent variables ($x_i$'s)

$\alpha$ = A constant (intercept)

u = Error term (absorbs unobserved factors)

$X_i$'s are explanatory variables and $Y$ is the explained variable. The $\beta_i$'s are slopes (the change in $Y$ for every unit change in the respective explanatory variable with all other explanatory variables held constant), and $\alpha$ is the intercept (the value of $Y$ when all $X_i$'s = 0).

Binary Logistic (Logit) Regression is appropriate when the dependent variable is *categorical* variable with only *two* categories (e.g. *yes-no*, *user-nonuser*, or *present-absent* variable). So, Logit Regression has been used to examine the effect of *AfLshn* and other explanatory variables on the categorical dependent variable *UmHs* (*User – nonUser*). The Model employed has the following form:

$$\text{Logit } Y_1 = \ln (p/1\text{-}p) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

Where; $Y_1$ = A household uses Modern Health Services (*User*)

$\quad X_1 = $ Being Member or Non-member (*AfLshn*)

$\quad X_2 = $ Size of Land holding of a household (*Lhldg*)

$\quad X_3 = $ Dependency Ratio in a household (*DepR*)

$\quad X_4 = $ Presence of a Health Center with in a 3-km-distance (*PrsnHc*)

$\quad \beta_i$'s = Parameter estimates for the independent variables ($x_i$'s)

$\quad \alpha = $ A constant (intercept)

$\quad \ln = $ Natural logarithm

$\quad p = p\ (Y_1) = $ the probability that a household is *User*

The model can be written as a multiplicative function by taking the exponential form of both sides: *Odds (User)* $=p \div (1\text{-}p) = exp\ \{\alpha + \beta_i X_i\} = e^{\alpha} e^{\beta_i x_i}$. This is a model for *Odds*[30]. Odds change

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[30] Odds of an event = (Probability of the event occurring) $\div$ (probability of the event not occurring) = $p \div (1\text{-}p)$

multiplicatively with $X_i$. A *one* unit increase in $X_i$ leads to a change (increase or decrease) of $e^{\beta i}$ in the odds that a household would be *User*. The logarithm of the odds changes linearly with $X_i$; however, the logarithm of *Odds* is not an intuitively easy or natural scale to interpret. Alternatively, it can be expressed in terms of probability as, $p = exp\ \{\alpha + \beta_i\ X_i\} \div \{1 + exp\ (\alpha + \beta_i\ X_i)\}$. Or, $p = Odds \div (1+odds)$; where, $exp = e = 2.71828 =$ base of natural logarithm, $p \div (1-p) = Odds\ of\ User,\ Xi = independent\ variables$. $X_i$'s can be categorical or continuous, but *Y* is always categorical (qualitative), *User* or *non-User* in this case. The *Logistic Regression* is a powerful tool in its ability to estimate the individual effects of continuous or categorical independent variables on categorical dependent variables (Wright 1995)[31].

**Members' Satisfaction**

The field survey showed that there was a considerable difference in the satisfaction of members with their Cooperative's performance. Respondents were asked to rate their status of satisfaction on a three-point scale (*0 = Unsatisfied, 1 = Neutral, and 2 = Satisfied*). One of the hypothesized factors to have affected the *Satisfaction Level* of members was *frequency of Patronizing* their Cooperative. Consistent with this hypothesis, members that patronized (used services of) their Cooperative frequently said they were happy with their membership and want to continue with their affiliation. Simple *tables* and *percentages* have been utilized to describe the distribution of the respondents' *Satisfaction* by *Patronage frequency*. For the purpose of inference, *Ordinal Logistic Regression* was used to investigate and model the association between *Satisfaction Level* and *Patronage frequency*.

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[31] Wright, R.E. 1995. **Logistic regression,** *Reading and Understanding Multivariate Statistics.* American Psychological Association, Washington, DC.

**Table 3.5.3:** Name and Category of Variables used in the Ordinal Logistic Regression Analysis

| Variable | Description | Category | Type of variable |
|---|---|---|---|
| *Satisfaction* | Level of satisfaction of members with their cooperative | *0 =Unsatisfied*<br>*1 = Neutral*<br>*2 = Satisfied* | Dependent |
| *Patronage* | Frequency with which members use their cooperative's services | *0 = Rarely\**<br>*1 = Often\*\**<br>*2 = Always\*\*\** | Independent |

*\*Little or no patron, \*\*Most-of-the-time patron, \*\*\*Patron every time transaction was needed*

The *Ordinal Logistic* Model employed has the following form:

$$Logit\mathbf{1} = \ln\frac{p(0)}{1-p(0)} = \alpha_1 + \beta\chi, \quad Logit2 = \ln\frac{p(0)+p(1)}{1-p(0)-p(1)} = \alpha_2 + \beta\chi,$$

Where; X = Frequency with which members use their Cooperative's services (Patronage)

Logit 1 = Logit of being *Unsatisfied (Satisfaction = 0)*

Logit 2 = Logit of being *Unsatisfied* or *Neutral (Satisfaction = 1)*

$\alpha_i$'s = Intercepts /constant terms

$\beta$ = Parameter estimate for the independent variable (slope)

P(0) = Probability of *Unsatisfied*

P(1) = Probability of *Neutral*

ln = Natural logarithm

Ordinal Logistic Regression is appropriate for a dependent variable with *three* or *more* categories that have *natural ordering* (e.g. low, medium, high). The fitted model includes a Logit equation

for each response category minus one (for the reference event, *Satisfied* in this case). The assumption in using this model is that the effect of the predictor variable is common across all categories of the dependent variable (Minitab Inc. )[32].

## C. Benefits to Urban Community

By their very nature, Cooperatives benefit not only their members but also the community at large. The study has made an attempt to assess the benefit *Hashenge Cooperative Union* contributes to the residents of the town of Korem in terms of cost savings. The distribution of the urban respondents by *Income*, *Education*, and *Occupation* has been described with the help of *tables* and *percentages*. A *Paired T- test (t-t)* analysis was also conducted to see if there is a significant difference between the total *Costs* paid to *Traders* and *Hashenge Cooperative Union* for specific sample items. These items include Macaroni, Salt, Lentil, Peas, "Alcha" (yellowish powder used for cooking), Sugar, Rice, Soap, Pasta, Honey, and Coffee. A Chi-square ($x^2$) Test *of Independence* has also been used to find out if there exists an association between the type of job pursued (*Occupation*) and use of the *Union's* products (*Usage*) by a household.

**Table 3.5.4:** Name and Category of Variables used in the *Chi-square ($x^2$) Test* of Independence

| Variable | Description | Category |
|----------|-------------|----------|
| *Occupation* | Type of job pursued by a person | *Civil servant*<br>*Trader*<br>*Other\** |
| *Usage* | Whether a person uses the Union's products | *User*<br>*Non-user* |

*\* Includes farmers, religious persons, students, and daily laborers*

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[32] Copyright © 2000-2003 Minitab Inc

The value of the *Chi-square statistic* is given by: $\chi^2 = \sum \left[ \dfrac{(F_o - F_e)^2}{F_e} \right]$ ; Where $\sum$ = summation, $F_o$ = observed frequency, $F_e$ = expected frequency.

**D. SWOT Analysis of *Hashenge Cooperative Union and its Affiliates***

For the purpose of SWOT Analysis, a focus group discussion was conducted with *seven* selected persons, one from the Board of Directors (BODs) of each sampled Cooperative. The Manager and Accountant of *Hashenge Cooperative Union* also participated in the discussion. The group discussion was moderated in such a way that allowed for a favorable environment to encourage a truly open discussion of the questions, keeping the discussion focused on the major issues, probing the participants to achieve a deeper understanding, managing dominant participants, and bringing out quiet participants. Information obtained from non-member respondents was also included in assessing strengths and weaknesses of the Cooperatives.

## 3.5 <u>Methodological Limitations</u>

During data analysis, some methodological limitations were faced. In principle, when using Chi-square analysis to test a hypothesis, there should not be a cell with expected frequency of less than 5. In this practical analysis, however, this problem was faced by the researcher. A remedial attempt was made by merging two or more cells into one, but the problem did persist. Another limitation was inability to use sophisticated trend analysis tools due to lack of sufficient data for the purpose. Besides, the secondary data obtained from *Hashenge Union* were written in Tigrigna, the regional language of Tigray State, and a difficulty was faced in translation. Much time was also sacrificed to get the data.

# CHAPTER – IV

# Results and Discussion

This section presents the results of the empirical analysis made based on the specified statistical tools and models given in section 3.4.

## 4.1 Trend of Membership and Financial Performance

To assess the *trend* of membership of *Hashenge Cooperative Union*, secondary data on the number of members, both primary Cooperatives and individual members, were taken from the limitedly available documents of the *Union*. The table below presents the data.

**Table 4.1.1:** Trend of Membership of *Hashenge Cooperative Union:* Primaries and Individuals

| Year | Primary coops | Individual members | | |
| --- | --- | --- | --- | --- |
| | | Male | Female | Total |
| 2004 | 10 | 10466 | 2553 | 13019 |
| 2005 | 10 | 10466 | 2553 | 13019 |
| 2006 | 14 | 13589 | 3627 | 17216 |
| 2007 | 14 | 13589 | 3627 | 17216 |

**Source: Documents of the Union**

As Table 4.1.1 outlines, the *Union* had *10* primary Cooperatives in the year of its establishment (May 2004) with a total number of *13,019* individual members, both male and female. The same status of membership was sustained also in the year 2005. After about two years of its establishment, *four* more primary Cooperatives were affiliated to the *Union*, which increased the

number of primaries to *14*. Chart 4.1.1 below presents the trend of membership of *Hashenge Cooperative Union* with regard to primary Cooperatives.

**Chart 4.1.1:** Trend of Membership of *Hashenge Cooperative Union*: Primary Cooperatives
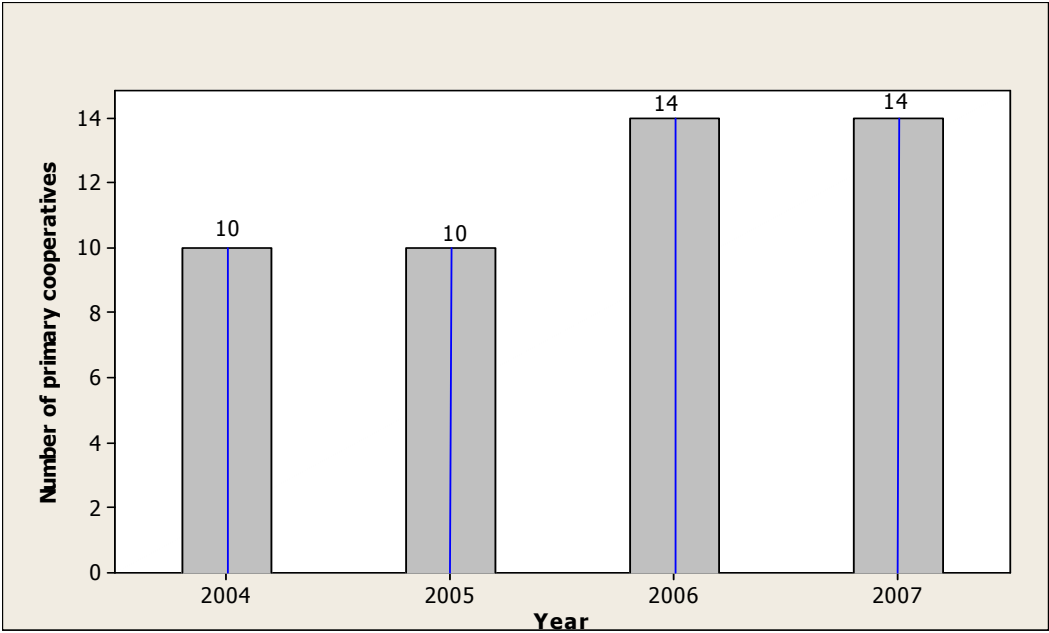


**Source: Documents of the Union**

The affiliation of the *four* primary Cooperatives in the year 2006 added about *4,197* individual members to the total membership of the *Union*, which increased to *17,216* individuals. The most important pull factor that attracted new members to join the Cooperatives was found out to be *cost and/or effort saving* experienced by the earlier members from their affiliation. *Better output prices, lower input prices,* and *dividend* obtained from membership also contributed their own share in attracting new members. A similar study by *Mitchell Group, Inc (2005)* reported*: "The payment of patronage dividends to farmers, which was set until recently at 70 percent of the net surplus of a Cooperative or Union, has been the most important incentive for farmers to join cooperatives."* In the year 2006, membership of *Hashenge Cooperative Union* showed an increment in both sexes but at different rates. Chart 4.1.2 below presents the fact.

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**Chart 4.1.2:** Trend of Membership of *Hashenge Cooperative Union*: Individual members
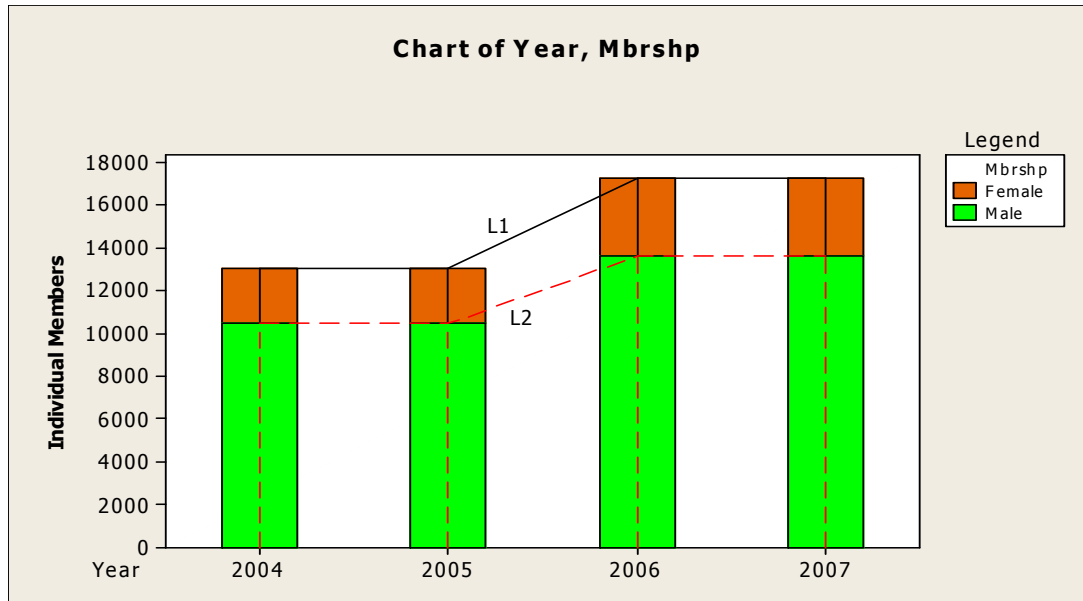


**Source: Documents of the Union**

In Chart 4.1.2, the distance between $L_1$ and $L_2$ increases as one goes from the bar of 2005 to the bar of 2006. This shows that the number of female members increased at a *higher rate* than that of male members from the year 2005 to the year 2006. Had the rate of increase been the same, $L_1$ and $L_2$ would have been parallel. On the other hand, had the rate of increase for males been higher, the distance between $L_1$ and $L_2$ would decrease as one goes from the bar of 2005 to the bar of 2006. In figures, the number of females increased by about *42 percent*, but the number of males increased by only about *30 percent*.

One reason for the varying rates of increment in the number of male and female members could be the fact that women are getting more relief from affiliation to a Cooperative than do men. This is because women usually assume much more burden, such as traveling long distances in search of market for farm and/or household inputs and outputs, than men in the rural area. So, if they

join a Cooperative, the problems associated with traveling long distances in search of markets for inputs and/or outputs by women will be solved. This is because Cooperatives are good marketers in the sense that they procure outputs from individual members and sell them in an organized way. On the other hand, Cooperatives are selling inputs needed by their members in their locality.

Contrary to the above findings, *The Cooperative Sector in Saskatchewan (1998)* under its study on *"An Economic Impact Analysis of the Co-operative Sector in Saskatchewan"* reported that *total active membership in Cooperatives showed a decline from 1996 to 1998. The study reasoned out that some of the changes in membership numbers could be attributed to reporting practices.* The problem of untimely reports also holds in the current study. As has been indicated in Table 4.1.1, total membership remained constant for consecutive years. This was so due to lack of continuous report, to the *Union,* on newly joining members to the primary Cooperatives.

**Table 4.1.2:** Trend of *Volume* and *Value* of business of the *Union*: Merchandise, Honey, & Crops

| Year | Item | | | | | | | Total value |
| | Merchandise | Honey | | | Crops | | | |
| | Value | Volume | Price | Value | Volume | Price | Value | |
|---|---|---|---|---|---|---|---|---|
| 2005 | 645477.80 | 142 | 24.49 | 3477.50 | 59710 | 8.99 | 537072.45 | 1,186,027.75 |
| 2006 | 519164.00 | 152 | 23.62 | 3590.00 | 24013 | 1.77 | 42470.98 | 565,224.98 |
| 2007 | 356630.20 | 156.25 | 26.42 | 4128.50 | 90619 | 3.34 | 302379.69 | 663,138.39 |

*N.B: Volume = Quantity in Kilogram (kg), price = price/kg, Value = Sales in Birr\**

*\*Birr is the Ethiopian Currency; 1Birr ≈ 0.11US Dollar*

**Source: Documents of the Union**

An attempt was made to trace the trend of business carried out by the *Union* in terms of *sales* in the years 2005 - 2007. The year 2004 was excluded in this case as there were no data on sales in that year. The relevant data obtained from the *Union's* documents have been presented in Table 4.1.2 above. This table shows the trend of the *Union's* volume of business with respect to *Merchandise*[33], *Honey*, and *Crops*[34].

Total *sales* from these items decreased from the year 2005 to the year 2006 and then slightly increased in the year 2007 as compared to the sales in 2006. During the three-year period, *sales* from *merchandise* kept on decreasing at an increasing rate. As there were no data on the *quantity sold* and *unit price* for *merchandise* for the years considered, the decrease in the *Merchandise sales* could not be specifically ascribed to either price changes or quantity changes. A possible justification follows: The *Union* was purchasing the *Merchandise* from the market and then reselling them to its members or non-members. So, the decreasing trend of *Merchandise sales* could be ascribed to *decreased quantity* purchased and sold by the *Union* as a result of *merchandise* price escalations exhibited by the market during the study period. Another reason could be the fact that the *Union* was shifting to new projects, such as *sheep fattening* and distribution of *pumps* to members.

Conversely, sales from *honey* did not vary significantly though there was an indication for an increasing trend. The *Union* was purchasing *honey* and *crops* from its affiliates and then resold them to the market. For *honey*, price per kg was Birr 24.49, Birr 23.62, and Birr 26.42 in the years 2005, 2006, and 2007 respectively.

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[33] Includes: Macaroni, salt, lentil, peas, "alcha", sugar, rice, soap, pasta, honey, and coffee.
[34] Include: Cereals (wheat, barley, teff, sorghum, maize) and pulses (beans, peas, chickpeas, lentil)

**Chart 4.1.3:** Trend of *Hashenge Union's* Sales: Crop, Honey, and Merchandise
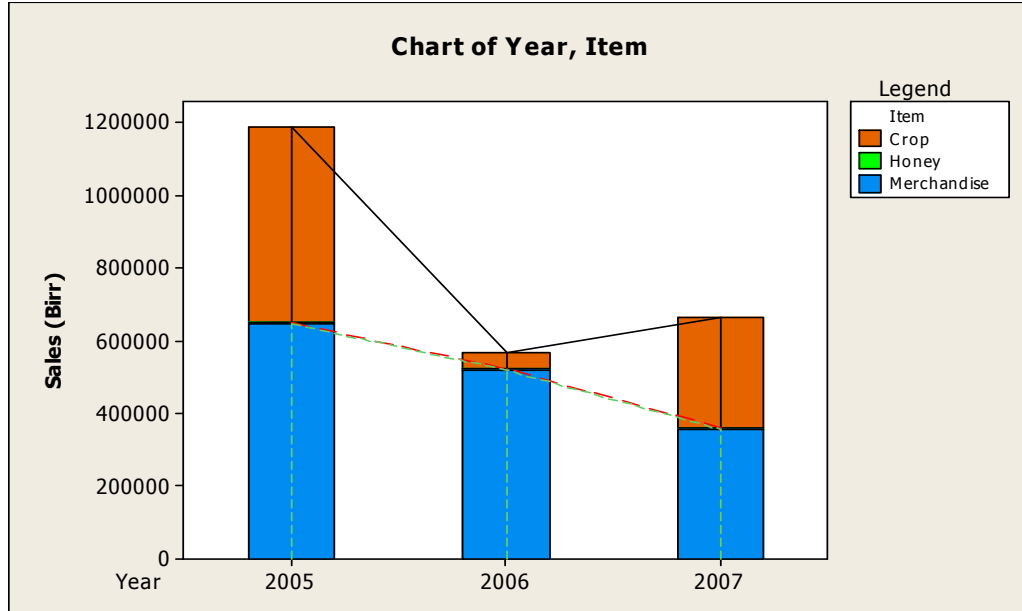
Though the price fluctuated, total *sales* from *honey* kept on increasing. This increase in *sales* from the year 2005 to the year 2006 shows that the quantity of *honey* sold increased by a higher rate (*seven percent*) than the decrease in price (*four percent*) between these two years.

As outlined in Chart 4.1.3, *sales* from *crops* showed an irregular trend during the years considered. Crop *sales* decreased in 2006 as compared to the *sales* in 2005 and then increased in the year 2007. The decrease from 2005 to 2006 happened due to the simultaneous decline in both unit price (price per kg) and quantity sold. In fact, the rate of decrease in price (about *80 percent*) was much higher than the rate of decrease in quantity sold (about *60 percent*). The decrease in crop quantity sold by the *Union* may be the immediate out come of the decreased price. Also, the decrease in *sales* for *crops* could be related to decline in the production of crops by the individual members of the primary Cooperatives.

**Financial Ratios:**

Ratio analysis is a powerful tool of financial analysis. A ratio is used as a benchmark for evaluating the financial position and performance of a firm. As a result, the study has made use of financial ratios with the view to evaluate the trend of financial performance of *Hashenge Cooperative Union*. The ratios are outlined in Table 4.1.3 below.

**Table 4.1.3:** Trend of Financial Performance: Ratio analysis

| Ratio | Year | |
|---|---|---|
| | **2005/06** | **2006/07** |
| **I. Liquidity Ratios** | | |
| • Current Ratio | 1.07 | 1.22 |
| • Quick Ratio | 0.54 | 1.20 |
| **II. Leverage Ratios** | | |
| • Debt Ratio | 0.63 | 0.37 |
| • Debt-Equity Ratio | 1.68 | 0.59 |
| **III. Activity Ratios** | | |
| • Inventory Turnover Ratio | 4.21 | 17.73 |
| • A/R Turnover Ratio | 7.59 | 10.53 |
| • Average Collection Period | 47.43 | 34.19 |
| • TA Turnover Ratio | 1.18 | 1.75 |
| **IV. Profitability Ratios** | | |
| • GP Margin | - | 0.08 |

<u>**Source: Documents of the Union**</u>

*Liquidity:*

As a conventional rule, a *Current Ratio* of *2:1* or more is considered satisfactory. This rule is based on the logic that in a worse situation, even if the value of the *current assets* is halved, the firm will be able to meet its *current obligations* (Nev.1985). In 2005/06, *Hashenge Union* had a *current ratio* of *1.07:1* which may be interpreted as an indicator of insufficient liquidity. This is because it had a very low *margin of safety* for creditors. This ratio increased to *1.22:1* in the year

2006/07 indicating a slightly better *liquidity*. In the latter year, both *current asset* and *current liability* decreased. But the rate of decrease in *current asset* was smaller than that of *current liability* and the result was a slightly bigger *Current Ratio*. The *Quick Ratio* of *0.54:1* for the year 2005/06 indicates that if the *Union* did not sell its *inventory* and it had to pay all *current liabilities*, it might have been in a difficulty meeting its obligations because its *quick assets* (*current assets* minus *inventory*) were only *0.54:1* times of *current liabilities*. Generally, a *Quick Ratio* of *1:1* is considered to represent a satisfactory current financial condition (Nev.1985). This ratio increased to *1.20:1* in 2006/07 showing a better position of the *Union* with respect to meeting current obligations with available cash and other quick assets. To sum up, the improved liquidity could be ascribed to the fact that the *Union* shifted its concentration to long term financing on durable asset, such as pumps decreasing the need for *current liability*.

### Leverage/Capital Structure:

Leverage ratios are calculated to determine the proportion of *debt* in total financing-the extent to which a firm has relied on *debt* in financing its *assets*. The *Debt Ratio* of *0.63:1* for the year 2005/06 means that lenders had financed *63 percent* of *Hashenge Union's net assets*. It obviously implies that owner members have provided the remaining finance, *37 percent*. In 2006/07, the *Debt Ratio* decreased to *0.37:1* indicating that the portion of finance covered by creditors decreased to *37 percent* in that year. The *Debt-Equity Ratios* of *1.68:1* and *0.59:1* respectively for 2005/06 and 2006/07, on the other hand, show that lenders have contributed *Birr 1.68* for *each Birr* of the owners' contribution in 2005/06 and *Birr 0.59* for *each Birr* of the owners' contribution in 2006/07. A *Debt-Equity Ratio* of *greater than 1* implies a greater claim of creditors than owners. From the point of view of the owners, this is advantageous during a period of good economic activities given a lower interest rate than the firm's overall rate of return. The

decrease in these ratios indicates that the amount of *total debt* of the *Union* decreased in 2006/07. As discussed above, there was a shift from *current liability* to *long-term liability* and the overall result was a decrease in *total debt,* because the decrease in *current liability* was higher than the increase in *long-term liability*.

*Asset Management:*

Funds of creditors and owners are invested in various *assets* to generate *sales* and *profits*. The better the management of *assets*, the larger the amount of *sales*. *Activity Ratios* are used to evaluate the efficiency with which a firm manages and utilizes its *assets*. The *Inventory Turnover Ratio* of *4.21:1* in the year 2005/06 shows that the *Union* had been converting its inventory into *sales* (at cost) about *4 times* in that year. In other words, it held an average *inventory* for *12 months/4.21 = 2.85 months, or 360 days/4.21 = 85.51 days.* On the other hand, *Accounts Receivable (A/R) Turnover Ratio* indicates the number of times *A/R* turnover each year. The higher the *A/R Turnover Ratio*, the more efficient is the management of credit. This ratio was *7.59:1* for the year 2005/06, indicating that the *Union* was able to turnover its *A/R 7.59 times* in that year. In other words, its debtors remained outstanding for *12 months/7.59 = 1.58 months* or *360 days/7.59 = 47.43 days*. This is called the *ACP (Average Collection Period).*

*Inventory Turnover* and *A/R Ratios* increased respectively to *17.73:1* and *10.53:1* in 2006/07, which were respectively *4.21:1* and *7.59:1* in 2005/06. On the other hand, *ACP* decreased to *34.19 days*. The *Total Asset (TA) Turnover Ratios* of *1.18:1* and *1.75:1* respectively in 2005/06 and 2006/07 show that the *Union* generated *sales* of *Birr 1.18* and *1.75* for *every Birr* invested in *total assets* for the respective years. In summary, all the *Asset Management Ratios* considered show that the efficiency of the *Union* in managing its assets improved in 2006/07 as compared to

in 2005/06. This is in conformity with the conjecture that experience increases efficiency. Another reason could also be the fact that the rate of default of debtors has decreased.

*Profitability:*

Although a Cooperative is a non-profit organization, it needs to earn a reasonable amount of profit to survive and grow over a long period of time. Profits are essential especially from dealings with the macro environment (non-members). But it would be wrong to assume that every action initiated by management of the Cooperative should be aimed at maximizing profits, irrespective of social consequences.

Profitability ratios are used to evaluate the overall performance of a firm, and *Hashenge Union* is not an exception. In the year 2005/06, there had been no Gross Profit, rather Gross Loss. The *Gross Profit (GP) Margins* of *0.08* (Table 4.1.3) for the year 2006/07 shows that the *Union* generated *gross profits* of *eight percent* of its *sales* in that year. A higher GP margin is a sign of good management. Although the *Union* incurred a net loss in both years, the loss decreased from Birr 243,005.62 in 2005/06 to Birr 159,497.14 in 2006/07. The trend over the two years under study shows that the performance of *Hashenge Cooperative Union* was improving. The improvement was the result of higher sales value due to higher sales prices, better demand of the community, better experience of the Union personnel, and an increase in the proportionate volume of higher margin items, such as pumps and sheep.

## 4.2 Impact of Membership on Living Standard of Members

One of the objectives of the study was to examine the impact of membership to a Cooperative Society on living standard. To this end, members were asked to rate the status of their living standard (*LivStd*) *after* affiliation as compared to *before* affiliation on a five-point scale (*1 = worse, 2 = same, 3 = slightly better, 4 = much better, and 5 = very much better*).

As outlined in Table 4.2.1, only *six* percent of the member respondents said there was no improvement in their living standard *after* their affiliation as compared to *before* affiliation. Specifically, *two* percent of the respondents who have not benefited from membership said they were leading a livelihood which is worse than the livelihood they had prior to joining the Cooperatives. These respondents were in most cases newly affiliated members who hadn't yet enjoyed tangible benefits from their Cooperative.  The main reason they mentioned to have led to a worse situation was higher price for merchandise charged by the Cooperatives to members. They said that they were forced to purchase items from their Cooperative society at higher prices than was charged by the market. This was meant to strengthen the Cooperative Societies, at the expense of individual members,   to enable them survive their infancy stage.

**Table 4.2.1:** Description of Sample Responses on *Living standard (LivStd)*

| *LivStd* | Count | Percent |
|---|---|---|
| *1* | *2* | *2.00* |
| *2* | *4* | *4.00* |
| *3* | *56* | *56.00* |
| *4* | *18* | *18.00* |
| *5* | *20* | *20.00* |
| Total | 100 | |

**Source: Field Survey**

The remaining *94* percent of the respondents said their livelihood *after* affiliation has shown improvements of varying degrees. Of these, *56* percent have achieved *slight* improvement (*LivStd* = *3*), *18* percent *much* improvement (*LivStd* = *4*), and *20* percent *very much* improvement (*LivStd* = *5*). The main reason for achieving a better livelihood *after* affiliation given by the majority respondents (*45* percent) was that their Cooperatives have helped them a lot in saving much of their *production* and *marketing effort*. That is, the Cooperatives provide farm inputs and consumption commodities to their members and buy members' outputs at their village. By doing so, they helped members to save the *time* and *effort* that would have been spent in purchasing inputs and selling outputs after traveling a long distance for many hours, if not days.

Members are also better-off due to the fact that their Cooperatives are charging them reasonable prices for farm inputs and paying higher prices for outputs than local exploitative traders would. Other advantages of affiliation include: access to credit, improved saving habit, enhanced awareness on the benefit of education, and better concept of modern health services.

Where has the improvement in *Living Standard* of members been reflected? To answer this question, *Asset Ownership* (*Livestock* and *Modern house*), *Eating frequency per day, Clothing frequency per year, Education (Number of Learning Children), and Health (Use of Modern Health Services)* of a household have been analyzed below.

### i. *Livestock Ownership*

*H$_0$: Membership to a Cooperative does not improve Livestock Ownership of members.*

**ANOVA Test:**

Analysis of variance (*ANOVA*) was employed to find out whether there is a statistically significant difference in *Livestock Ownership* among the four categories of the variable *Mbrshp*

*(Bfor, Aftr, Nonmbr,* and *Control).* In this analysis, *Region of Residence, Landholding,* and *Dependency Ratio* have been controlled for. The *ANOVA* results in Table 4.2.2 below show that all the independent variables included in the analysis are significantly associated with *LivOwn* at a level of significance less than or equal to *10 percent.* That is, the average number of livestock (in *TLU*) owned by the respondents varied across the categories of these variables. The value of the coefficient of determination ($R^2 = 0.558$) indicates that the model explains about *56* percent of the variation in the *number of livestock* owned by a household. The remaining variation, *44* percent, is accounted for by other variables not included in the model.

**Table 4.2.2**: Analysis of Variance on *Livestock Ownership* in Tropical Livestock Unit (*TLU*)

| Source of variation | DF | F | P |
|---|---|---|---|
| *Mbrshp* | 3 | 21.88 | 0.000* |
| *Lhldg* | 6 | 1.91 | 0.028** |
| *RegRes* | 6 | 1.98 | 0.069*** |
| *DepR* | 6 | 1.79 | 0.100*** |
| | | $R^2 = 0.558$ | |

*\*Significant at 1% level of significance, \*\* Significant at 5% level of significance, \*\*\* Significant at 10% level of significance*

**Source: Field Survey**

*Mbrshp* is the most important variable that the researcher was interested in. The attempt was to see if membership to a Cooperative Society affects *Livestock Ownership* of a household. The significant *F- statistic* associated with *Mbrshp (F = 21.88, p = 0.000)* in Table 4.2.2 shows the presence of an over all significant difference among the *average LivOwn* values across the categories of *Mbrshp.* This is a statistical evidence for the presence of significant relationship

between *LivOwn* and *Mbrshp* at *1%* level of significance. However, this result shows only the fact that *Livestock Ownership* is not the same for at least two categories of *Mbrshp*. It does not show the *average LivOwn* of which category is different from which. As the interest of the researcher was to see the impact of *Mbrshp* on *LivOwn*, a *pair-wise* comparison of the *average LivOwn* values has been conducted to specifically see which *mean value* is significantly different from which (Table 4.2.3).

**Table 4.2.3:** Pair-wise Comparison of *Average LivOwn* across the Categories of *Mbrshp*

| Variable level | *Mean LivOwn* (in TLU) | t-statistic | p-value |
|---|---|---|---|
| *Aftr* | *4.471* | - | - |
| *Bfor* | *2.807* | - | - |
| Difference | 1.664 | 7.202 | 0.000* |
| *Aftr* | *4.471* | - | - |
| *Nonmbr* | *3.126* | - | - |
| Difference | 1.345 | 3.686 | 0.003* |
| *Aftr* | *4.471* | - | - |
| *Control* | *2.339* | - | - |
| Difference | 2.132 | 5.619 | 0.000* |

*Significant at 1% level of significance*

<u>**Source: Field Survey**</u>

Table 4.2.3 shows the *average* number of livestock owned by members *before* their affiliation (*mean = 2.807*), *after* their affiliation (*mean = 4.471*), non-members that use Cooperative services (*mean = 3.126*), and non-members that do not use Cooperative services (*mean = 2.339*). The results indicate the presence of statistically significant difference between the *average* number of

livestock owned by the member respondents *before* and *after* their affiliation. That is, the number of livestock member households owned *after* affiliation was significantly greater, at *1%* level of significance, than the number of livestock they used to own *before* affiliation (*difference = 1.664, t = 7.202, p = 0.000).* This indicates that households were better-off *after* affiliation in terms of *Livestock Ownership.* Here, one can raise the question: Was the improvement in *Livestock Ownership* of households *after* affiliation really brought about by their *membership* to a Cooperative? In fact, as there was a time gap between the two events (*before* affiliation and *after* affiliation), changes in *Livestock Ownership* could have been caused by other factors that might come in to being over time.

Comparison of *Livestock Ownership* of the category *Aftr* with that of the categories *Control* and *Nonmbr* helped to clarify the doubt. The *p-values* associated with the *F-statistics* of the differences between the *mean* values of *Livestock Ownership* of *Aftr* and *Nonmbr,* and *Aftr* and *Control* indicate the presence of a *significant difference* between the *average* number of livestock that members and non-members owned. Therefore, it can be concluded that the improvement in the *Livestock Ownership* of members after they joined a Cooperative was brought about by their affiliation. If the improvement was caused by other factors than affiliation to a Cooperative, the non-member respondents could have also been beneficiaries of the changes that improved *Livestock Ownership* of the members. In that case, there wouldn't have been a significant difference among the *average Livestock Ownership* values for *Aftr*, *Nonmbr*, and *Control.* Therefore, $H_0$ can be rejected safely with regard to *Livestock Ownership.*

The improvement in the number of livestock owned by members *after* affiliation could be ascribed to improved income of members due to better bargaining power when selling outputs

and/or buying inputs through their Cooperative. Dividend income and improved access to credit secured from membership could have also contributed their own share.

## ii. *House Ownership*

$H_0$: *Membership to a Cooperative does not promote Ownership of a Modern house.*

**Test for Proportions:**

The second type of *asset* considered in the study was *Modern House* (the first being *Livestock*). To assess the effect of membership to a Cooperative on *Ownership* of a *Modern House*, analysis of *Proportions* was employed as a statistical tool. That is, the *Proportions* of households in each category of the variable *Mbrshp* that owned a *Modern House* were compared. Table 4.2.4 outlines these *Proportions* along with tests for the significance of differences in proportions. N.B: All possibly confounding socio-economic and geographic factors were controlled for in determining the *Proportions*.

The difference in the *Proportions* of households owning a *Modern House before* affiliation and *after* affiliation turned out to be significant (*difference = 0.200*, *z = 3.08, p = 0.001*). The results indicate that only five percent (*0.050*) of the households owned a *Modern House before* their affiliation. *After* affiliation, the proportion increased to *25* percent (*0.250*), a remarkable increase. The question is: Was the increase in the *Proportion* of house owners really caused by their affiliation to a Cooperative Society? To answer this question, comparison of the *Proportion* of *Aftr* with that of *Nonmbr* and *Control* was helpful.

The non-significant *z-statistic* corresponding to the difference between the *proportions* of house owners for *Aftr* and *Nonmbr* (Table 4.2.4) is an indication that there was no difference in the percentage of house owners among members and non-members that use Cooperative services.

This may lead to the conclusion: "The difference in the *Proportions* of house owners for *Aftr* and *Bfor* was brought about by changes in the socio-economic situations as a whole, not by membership to a Cooperative".

**Table 4.2.4:** *House Ownership* Proportion of Respondent Households

| Variable level | Proportion | *z-statistic* | *p-value* |
|---|---|---|---|
| *Aftr* | 0.250 | - | - |
| *Bfor* | 0.050 | - | - |
| Difference | 0.200 | 3.08 | 0.001* |
| *Aftr* | 0.250 | - | - |
| *Nonmbr* | 0.230 | - | - |
| Difference | 0.020 | 0.29 | 0.387 |
| *Aftr* | 0.250 | - | - |
| *Control* | 0.020 | - | - |
| Difference | 0.230 | 3.61 | 0.000* |

*Significant at 1% level of significance*

**Source: Field Survey**

However, the absence of difference between the *Proportions* of house owners for *Aftr* and *Nonmbr* might have been caused by spill-over effect of Cooperative benefits, as these non-members (*Nonmbr*) are users of Cooperative services. Therefore, comparison of the *Proportions* of house owners of members *(Aftr)* and non-members that do not use Cooperative services *(Control)* is necessary to minimize the doubt. These control non-members *(Control)* were taken from the same socio-economic conditions as the members *(Aftr)* and *Nonmbr*.

The underlying premise was that if the Cooperatives under study did not have any contribution to *House Ownership* of their members, the *Proportions* of house owners of members *(Aftr)* and control non-members *(Control)* would not be different.

The results of the hypothesis test on the difference of the *Proportions* of *Aftr* and *Control* (Table 4.2.4) show that the difference is significant at *1%* level of significance (*difference = 0.230*, $z = 3.61$, $p = 0.000$). Thus, Cooperative members have been better-off with respect to *House Ownership* due to their affiliation. This could be ascribed to the fact that membership to a Cooperative Society improves income and/or promotes awareness to modern way of life (Member Education Principle). Therefore, $H_0$ can be rejected with a *99%* level of confidence.

### iii. *Eating and Clothing frequencies*

> $H_0$: *Membership to a Cooperative does not improve Eating frequency per day of members.*

**T-test:**

The above null hypothesis ($H_0$) states the absence of difference between the *Eating frequencies* of members *before* and *after* their affiliation. To support or reject this hypothesis, the collected data were treated using *t-test* analysis. The results are displayed in Table 4.2.5 below.

**Table 4.2.5:** Results from Paired t- and Two-Sample t-Tests: *EtF/d* and *cLF/y*

| Variable level | Eating frequency/day | | | Clothing frequency/year | | |
|---|---|---|---|---|---|---|
| | *Mean* | *t-statistic* | *p-value* | *Mean* | *t-statistic* | *p-value* |
| *Aftr* | *2.530* | - | - | *2.280* | - | - |
| *Bfor* | *2.050* | - | - | *1.610* | - | - |
| Difference | 0.480 | 6.440 | 0.000* | 0.670 | 14.180 | 0.000* |
| *Aftr* | *2.530* | - | - | *2.280* | - | - |
| *Nonmbr* | *2.533* | - | - | *2.267* | - | - |
| Difference | -0.003 | -0.030 | 0.511 | 0.013 | 0.070 | 0.470 |
| *Aftr* | *2.530* | - | - | *2.280* | - | - |
| *Control* | *2.433* | - | - | *2.133* | - | - |
| Difference | 0.097 | 0.850 | 0.199 | 0.667 | 0.800 | 0.213 |

*\* Significant at 1% level of significance*

**Source: Field survey**

The small *p-value* ($p = 0.000 < \alpha = 1\%$) associated with the *average* difference between the *Eating frequencies per day* of *Aftr* and *Bfor* suggests that the data are inconsistent with $H_0$. That is, this *p-value* suggests the rejection of the null hypothesis at the *1%* level of significance ($\alpha = 0.01$) and hence the difference between the *average Eating frequencies* for these two categories of *Mbrshp* has a statistical significance. Specifically, the *mean* of *Aftr* ($= 2.530$) shows that members had a better per day *Eating frequency after* their affiliation than *before* affiliation (*mean = 2.050*). The question here is "Was this improvement in *Eating frequency* of members really brought about by their affiliation to the Cooperatives?" The answer to this question needs a comparison of members' *Eating frequency* with that of non-members.

The *p-value* corresponding to the *average* difference between the *Eating frequencies* of *Aftr* and *Nonmbr* (*t = -0.030, p = 0.511*) indicates the absence of sufficient evidence to reject the null hypothesis, witnessing that members were not in a better situation, with respect to *Eating frequency*, as compared to the first group of non-members (*Nonmbr*). This could lead to the conclusion that membership to a Cooperative does not have any contribution towards improving livelihood in terms of *Eating frequency* per day. But, to fully support this conclusion, comparison of members' *Eating frequency* with that of the control group, *Control,* was compulsory. This is because non-members that used some Cooperative services might have been better-off, with respect to *Eating frequency*, owing to spill-over effects of nearby Cooperatives. Fortunately or unfortunately, the *p-value (p = 0.199)* of the *mean* difference between the *Eating frequencies* of *Aftr* and *Control* indicates the absence of significant difference between the two *means*.

The conclusion from the above arguments is that the improvement in the *Eating frequency* of members *after* their affiliation, as compared to *before* affiliation, was not caused by their membership. The justification is, had the improvement in the *Eating frequency* of members been a result of their membership, it would have also been better than the *Eating frequency* of non-members. As there is no significant difference between the *Eating frequencies* of members (*Aftr*) and non-members (*Nonmbr* and *Control*), $H_0$ cannot be rejected safely.

> $H_{0:}$ *Membership to a Cooperative does not improve Clothing frequency per year of members.*

The *p-value* (*t = 14.180, p = 0.000*) for the *mean* difference between the *Clothing frequencies* of *Aftr* and *Bfor* (Table 4.2.5) suggests the rejection of the null hypothesis. It shows that there is a significant difference in the *number of times* member households purchased clothes *after* their

affiliation as compared to *before* affiliation per year. Similar to the *Eating frequency* situation shown above, the *p-values* corresponding to the differences of *average Clothing frequencies* of members (*Aftr*) and non-members (*Nonmbr* and *Control*) turned out to be insignificant. That is, there was no difference between the *Clothing frequencies* per year of members and non-members. Therefore, it could be concluded that the improvement in the *Clothing frequency* of members *after* their affiliation, as compared to before affiliation, was not the result of their membership. So, $H_0$ cannot be rejected safely. The member respondents said that even though their income improved, they did not want to express it in terms of frequency of eating or clothing. Rather, they focused on improving the quality of food consumed and cloth purchased. They also went for investing on assets, such as livestock and house, education, and health.

### iv. *Education*

$H_{0:}$ *Member Households send no more number of Children to School than non-member Households.*

**Regression Analysis (OLS)**

OLS Regression Analysis was conducted to test the above null hypothesis. Table 4.2.6 presents the *Regression Coefficients* of the variables that were hypothesized to have an effect on the dependent variable, *NLrnCh* (number of *Learning Children* in a household), along with their tests of significance. All the *Independent Variables* except *Lhldg* came up with the expected direction of association with the *Dependent Variable*. That is, the *Independent Variables* that were expected to have a *positive* or *negative* correlation with the *Dependent Variable* have come up with the expected sign. It is clear that the distance of a school from residence has an impact on decision of parents to send their children to school and willingness of children to go to school. That is, as the distance of a school from residence decreases *(PrsnSc* increases from *0* to*1),*

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*NLrnCh* is expected to increase. Similarly, as the number of school-age children in a household (*NSaCh*) increases, the number of *Learning Children* in that household is expected to increase. It is also expected that as *DepR* increases, *NLrnCh* would decrease. That is, as the number of dependents in a household gets larger, the non-dependents have to work harder so as to earn the living of the whole family. So, they couldn't get the chance of going to school. By the same token, as the value of *AfLshn* increases (changes from *Control = 0* to *Nonmbr = 1* and then to *Member = 2*), the value of *NLrnCh* is expected to increases as well. This is in accordance with the conjecture that membership to a Cooperative Society increases income and /or promotes the awareness of people towards the importance of education and, therefore, parents' decision to send their children to school would be better.

**Table 4.2.6:** Regression Analysis: *NLrnCh* versus *AfLshn*, *PrsnSc*, *NSaCh*, *DepR*, and *Lhldg*

| Predictor | Coef | SE Coef | t | p |
|-----------|------|---------|---|---|
| Constant | -0.365 | 0.505 | -0.72 | 0.477 |
| AfLshn | 1.040 | 0.238 | 4.35 | 0.000* |
| PrsnSc | 0.314 | 0.033 | 9.55 | 0.000* |
| NSaCh | 0.499 | 0.152 | 3.28 | 0.003* |
| DepR | -0.374 | 0.729 | -0.51 | 0.612 |
| Lhldg | -0.092 | 0.017 | -5.47 | 0.000* |

**Analysis of Variance (Overall model test)**

| Source | DF | SS | MS | F | P |
|--------|----|----|----|----|----|
| Regression | 5 | 34.260 | 6.852 | 10.54 | 0.000* |
| Residual Error | 24 | 15.606 | 0.650 | | |
| Total | 29 | 49.866 | | | |

R-Sq = 68.7%

*Significant at 1% level of significance

**Source: Field Survey**

The Regression Equation:

$$\boxed{\textbf{NLrnCh} = -0.365 + 1.040\ AfLshn + 0.350\ PrsnSc + 0.499\ NSaCh - 0.374\ DepR - 0.611\ Lhldg}$$

On the other hand, it is natural to expect that a household with a bigger size of farm land would have a better income and hence send more number of children to school. But, the results of the analysis show that as land holding (*Lhldg*) increases, *NLrnCh* decreases (*Lhldg* has a negative coefficient). The reason could be, as the size of land a household owns gets bigger, parents' decision to send their children to school will be poorer; i.e., they would rather send their children to the farm, as bigger farms need more labor.

All the included independent variables except *DepR* have turned out to have a significant effect on the dependent variable (*NLrnCh*). The significant coefficients indicate the change (increase or decrease) in the number of learning children for every *one* unit change in the respective variables. The coefficient of *AfLshn*, for example, indicates that for every *one* unit increase in *AfLshn* with in its range of values (*0, 1,* and *2*), *NLrnCh* increases by about *1.04*, *ceteris paribus*[35]. In other words, as one moves from *Control* (coded 0) to *Nonmbr* (coded 1), the number of learning children in a household increases on the average by *1.04* children, *ceteris paribus*. Similarly, the number increases by *1.04* as one goes from *Nonmbr* (coded 1) to *Member* (coded 2). Said differently, the number increases by *2.08 (2×1.04)* when *AfLshn* changes from *Control* (coded 0) to *Member* (coded 2), *ceteris paribus*. To sum up, the *positive* and *significant* coefficient of *AfLshn* (*Coef =1.040, t = 4.35, p = 0.000*) indicates the fact that *affiliation to a Cooperative Society* promotes the *number of learning children* in a household. So, $H_0$ can be safely rejected. This could be ascribed to increased *income* and/or better *awareness* to education of member households.

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[35] A Latin phrase meaning "*Keeping all other factors constant*"

**v. *Health***

Livelihood can also be measured by way of assessing the types of health services used for treatment by a household. Especially in the rural areas, people tend to go for traditional ways of treatment. This may be due to either inability to cover the *costs* or lack of *trust* in the effectiveness of using modern health services. The underlying assumption here is that households that use *Modern Health Services* have a better livelihood/income and awareness than those that use traditional treatments.

**Table 4.2.7:** Description of Sample Responses on Use of Modern Health Services (*UmHs*)

| | Present | | Absent | | |
| | *UmHs* | | *UmHs* | | |
| ***Affiliation*** | *User* | *non-User* | *User* | *non-User* | *Total* |
|---|---|---|---|---|---|
| *Member* | 82 (82)* | 3 (3) | 10 (10) | 5 (5) | 100 |
| *Nonmbr* | 26 (86.67) | 1 (3.33) | 1 (3.33) | 2 (6.67) | 30 |
| *Control* | 20 (66.67) | 2 (6.67) | 2 (6.67) | 6 (20) | 30 |
| Total | 128 | 6 | 13 | 13 | 160 |

***Presence of a health center (PrsnHc)***

  *\*Figures in parentheses represent percentage*

<ins>Source: Field Survey</ins>

Table 4.2.7 shows that *92 percent* of the member respondents said they go to a nearby clinic whenever a member of their family gets sick. Of these, *82 percent* have a clinic with in a 3-km-distance from their residence but *10 percent* do not have. The remaining *eight percent* of the member respondents said they go for traditional treatments, such as "mahguma", a traditional way of taking out "spoiled" blood from the body. The main reasons for this are that there was no

clinic nearby (according to *five percent* of them), financial shortage (*two percent*), and lack of

trust in the effectiveness of modern medication (*one percent*).  It is also indicated that *90 percent*

of the non-member respondents (*Nonmbr*) said they go for modern health services when some

one is "seriously" sick, of which *86.67 percent* have got a clinic with in a 3-km-distance from

their residence, but *3.33 percent* do not have. The remaining *10 percent* said they go for

traditional treatments. Some of the reasons cited are: a) belief in traditional treatments (*3.33*

*percent*), b) cost (*four percent*), and c) distance (*2.67 percent*).

Table 4.2.7 also reveals the fact that *73.34 percent* of the control non-members (*Control*) visit

nearby clinics for treatment, of which *66.67 percent* could get a clinic with in a 3-km-distance

from home whereas *6.67 percent* could not. The remaining *26.67 percent* of the control group

said they make use of traditional treatments due to such factors as unmanageable distance of

clinics (*12 percent*), high cost of clinic services (*10 percent*), and more trust in traditional ways of

treatment than modern medication (*4.67 percent*).

Along with the above description of the sample responses, the following hypothesis was tested

for the purpose of statistical inference.

*H₀: Cooperative Members show no better tendency towards using Modern Health Services than Non-members.*

**Binomial Logistic regression**

Binomial Logistic Regression was employed to assess the association between *AfLshn* and the

binary dependent variable *UmHs*, use of *Modern Health Services*, (with the categories *0 = non-*

*User* and *1 = User*). Other factors that can possibly confound *UmHs* have also been included in

the analysis to control for their effect on the dependent variable. Table 4.2.8 present the results of the analysis.

**Table 4.2.8:** Binomial Logistic Regression: *UmHs* vs. *AfLshn*, *PrsnHc*, *Lhldg, FmSz,* and *DepR*

| Predictor | Coef | SE Coef | z | p | Odds Ratio | 95% CI Lower | Upper |
|-----------|------|---------|---|---|------------|--------------|-------|
| Constant | -0.907 | 0.606 | -1.50 | 0.134 | | | |
| AfLshn | 0.705 | 0.337 | 2.09 | 0.036** | 2.02 | 1.05 | 3.92 |
| PrsnHc | 3.077 | 0.597 | 5.16 | 0.000* | 21.69 | 6.74 | 69.85 |
| Lhldg | 0.031 | 0.015 | 2.08 | 0.038** | 1.03 | 1.00 | 1.06 |
| DepR | -0.600 | 0.484 | -1.24 | 0.215 | 1.82 | 0.71 | 4.71 |

*Significant at 1% level of significance, ** Significant at 5% level of significance,*

Goodness-of-Fit Test:
- *Hosmer-Lemeshow $\chi^2$ = 0.391*　　　*DF = 8*　　　*p = 0.882***

*\*\*\*Shows that the null hypothesis of good fit of the model to the data can't be rejected*

**Source: Field Survey**

The Binomial Logistic Equation:

*Logit (User)  =  -0.907+ 0.705AfLshn +3.077PrsnHc+0.031Lhldg -0.600DepR*

Of the explanatory variables included in the model, only *DepR* was found to have no significant association (*z = -1.24, p= 0.215*) with the dichotomous dependent variable (*UmHs*). All other independent variables are significant. It can be seen from the above equation that *AfLshn, PrsnHc,* and *Lhldg* have a positive impact on the likelihood of households to use *Modern Health Services*. As *PrsnHc* and *Lhldg* increase by *one* unit at a time, the *Logit*[36] that a household will be *User* increases by *3.077* and *0.031* respectively, *ceteris paribus*. The *p-value* for the coefficient of

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[36] Relationship b/n Probability and Logit: Probability $= 1 \div (1 + e^{-\text{Logit}})$

*AfLshn* ($z = 2.09$, $p = 0.036$) indicates that whether a household is affiliated to a Cooperative Society has an effect, at a level of significance of *1%*, on the use of *Modern Health Services*. The coefficient of *AfLshn* (*0.705*) represents the change in the *Logit* that a household would use *Modern Health Services* (would be *User*) as *AfLshn* changes by *one* unit. This coefficient results in an odds ratio of *2.02 (= $e^{0.705}$)*. This value shows that the *Odds* in favor of using *Modern Health Services* is *2.02* times higher for non-members that use cooperative services (*Nonmbr* coded *1*) versus the control group (*Control* coded *0*), and *2.02* times higher for members (*Membr* coded *2*) versus *Nonmbr*, *ceteris paribus*. Therefore, the *odds* that members would use *Modern Health Services* are *4.09 (= $e^{2\,(0.705)} = e^{1.4107}$)* times higher than that of the control group, *ceteris paribus*, indicating that members have more tendency to visit *clinics* when sick than non-members. So, one can reject $H_0$ safely.

The above results reveal the fact that the likelihood of members towards using *Modern Health Services* is better than that of non-members. Further, non-members that use service of nearby Cooperatives have better tendency towards the use of *Modern Health Services*. This could be due to the reason that the income and/or awareness of members and non-members that use Cooperative services are better than that of the control group. This is an indication for the fact that non-members are also better-off given they utilize services of nearby Cooperatives; spill-over effect of Cooperative benefits.

### *Satisfaction of Members with their Cooperatives' Performance*

Member satisfaction is determined by the benefits obtained from membership to a Cooperative. As a principle, Cooperative benefits are distributed to members in proportion to the volume of business made with the Cooperative. It is expected that members who patronize their Cooperative

most frequently would get the highest satisfaction from their membership. An attempt has been made to assess the correlation between *Patron frequency* and *Satisfaction* of members. To this end, respondents were asked to rate their level of satisfaction on a three-point-scale (*2 = Satisfied*, *1 = neutral*, and *0 = Unsatisfied*). Data on members' frequency of patronizing their Cooperatives were also collected on three categories (*Rarely*, *Often*, and *Always*). Table 4.2.9 presents the distribution of *Satisfaction* by *Patronage*.

**Table 4.2.9:** Description of Sample Responses: *Satisfaction* vs. *Patronage*

| | Satisfaction | | | |
|---|---|---|---|---|
| *Patronage* | *Satisfied* | *Neutral* | *Unsatisfied* | *Total* |
| *Rarely* | *0 (0)** | *4 (4)* | *4 (4)* | *8* |
| *Often* | *17 (17)* | *12 (12)* | *11 (11)* | *40* |
| *Always* | *45 (45)* | *6 (6)* | *1 (1)* | *52* |
| *Total* | *62 (62)* | *22 (22)* | *16 (16)* | *100* |

*Figures in parenthesis show percentage*
**Source: Field Survey**

As indicated in the above table, *62 percent* of the member respondents were satisfied with their affiliation to a Cooperative society. Of these, *45 percent* patronized (used services of) their Cooperative always and *17 percent* sometimes. It can be understood from the table that no one who patronized his/her Cooperative rarely was satisfied with being a member of that Cooperative. This out come is consistent with the fact that Cooperatives benefit their members in proportion to each member's frequency of using services of the Cooperative. Another *22 percent* of the respondents said they were neutral (neither satisfied nor unsatisfied) with their

membership. Of these, *four percent* patronized their Cooperative rarely, *12 percent* often, and the remaining *six percent* always. The last *16 percent* of the respondents said they were unsatisfied with their Cooperative's performance. Of these, *four percent* patronized their society rarely, *11 percent* often, and only *one percent* always.

As can be seen from the discussion above, some members who patronized their Cooperative *always* were not satisfied with the performance of their Cooperative. The main reason for this, as they said, was that their Cooperative was not bringing benefits that could match members' expectation. That is, what the Cooperative society could perform was less than what was expected from members. Except in the cases where expectation exceeded performance, members who patronized their Cooperative more often came up with more satisfaction. This is consistent with the "Benefit in proportion to Patronage" principle of Cooperative Businesses. Along with the above description of the sample responses, the following hypothesis was tested for the purpose of statistical inference.

> **$H_0$:** *Satisfaction and Patronage are independent.*

**Ordinal Logistic Regression**

As the dependent variable (*Satisfaction*) is a categorical one with *three* levels, *Ordinal Logistic regression* was an appropriate analysis to employ. Table 4.2.10 presents the results of the analysis. The *p-value* for the coefficient of *Patron* ($z = -5.16, p = 0.000 < 0.01$) indicates that *satisfaction* with the performance of one's Cooperative is significantly associated with how often one *patronizes* his/her Cooperative society. So, $H_0$ can be safely rejected with a *99%* confidence level. The negative sign associated with this coefficient is an indication for the fact that when *Patron* frequency increases by *some* unit, the *odds* of being *Unsatisfied* decrease by a certain factor.

**Table 4.2.10:** Results from Ordinal Logistic Regression: *Satisfaction* vs. *Patronage frequency*

| Predictor | Coef | SE Coef | Z | P | Odds Ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|---|---|---|
| *Const (1)* | 0.665 | 0.515 | 1.29 | 0.196 | | | |
| *Const (2)* | 2.253 | 0.558 | 4.03 | 0.000* | | | |
| *Patron* | -1.993 | 0.386 | -5.16 | 0.000* | 0.14 | 0.06 | 0.29 |

*\* Significant at the 1% level of significance*

Goodness-of-Fit Test:
- *Pearson $\chi^2$ = 4.759*      *DF = 3*      *p = 0.190\*\**

**\*\*Shows that the null hypothesis of good fit of the model to the data can't be rejected**
**Source: Field Survey**

The Ordinal Logistic equation:

> *Logit 1 = Logit (Unsatisfied) = 0.665 -1.993Patron, Logit 2 = Logit (Unsatisfied or Neutral) = 2.253 -1.993Patron*

It can be seen from the *logistic equation* that as *Patron* increases by *one* unit (from *Rarely* to *Often*, and from *Often* to *Always*), the *Logit* of *Unsatisfaction* (*Logit 1*) and Logit of *Unsatisfaction* or *Neutrality* (*Logit 2*) decrease by *1.993* units. A decrease in *Logit* is associated with a decrease in *odds*. For example, if *Patron* increases from *0 = Rarely* to *1= Often*, the *odds* of being *Unsatisfied* (*Satisfaction = 0*) decrease by a factor of $e^{1.993}$ = 7.34. On the other hand, the *odds ratio* of *0.14* indicates that a *one* unit increase in *Patron* results in *86 percent* decrease in the *odds* that a member will be *Unsatisfied* versus *Satisfied* and that the member will be *Unsatisfied* or *Neutral* versus *Satisfied*. In summary, the results indicate the fact that members who patronized (used services of) their Cooperatives *more frequently* were *more likely to be satisfied* with the performance of their Cooperative Society.

## 4.3    Benefits to Urban Community

Data were collected from the urban community of the town of Korem. The purpose was to assess the cost savings, if any, of the urban people by purchasing certain items from *Hashenge Cooperative Union* instead of from *traders*. Table 4.3.1 presents the distribution of the urban respondents by *income*, *education*, and *occupation.*

**Table 4.3.1:** Distribution of Urban Respondents by *Income, Education, & Occupation*

| Level of Education | Occupation | Income group | | | | Total |
|---|---|---|---|---|---|---|
| | | 0 -400 | 401-1000 | 1001-1500 | 1500+ | |
| 0-5 | | | | | | |
| | Civil Servant | 0 (0)* | 0 (0) | 0 (0) | 0 (0) | 0 (0) |
| | Trader | 5(12.5) | 2 (5.0) | 2 (5.0) | 0(0) | 9 (22.5) |
| | Other[37] | 9 (22.5) | 0 (0) | 0 (0) | 0 (0) | 9 (22.5) |
| 6-8 | | | | | | |
| | Civil Servant | 0 (0) | 0 (0) | 0(0) | 0 (0) | 0(0) |
| | Trader | 0 (0) | 0 (0) | 0(0) | 0 (0) | 0(0) |
| | Other | 7(17.5) | 0 (0) | 0(0) | 0 (0) | 7(17.5) |
| 9-12 | | | | | | |
| | Civil Servant | 1(2.5) | 0 (0) | 2(5.0) | 0(0) | 3(7.5) |
| | Trader | 2(5.0) | 0 (0) | 0(0) | 2(5.0) | 4(10) |
| | Other | 0(0) | 0 (0) | 0(0) | 0 (0) | 0 (0) |
| Diploma | | | | | | |
| | Civil Servant | 0 (0) | 3(7.5) | 2(5.0) | 0 (0) | 5(12.5) |
| | Trader | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0(0) |
| | Other | 0 (0) | 0 (0) | 0 (0) | 0 (0) | 0(0) |
| Degree | | | | | | |
| | Civil Servant | 0 (0) | 0 (0) | 2(5.0) | 1(2.5) | 3(7.5) |
| | Trader | 0 (0) | 0 (0) | 0 (0) | 0(0) | 0(0) |
| | Other | 0 (0) | 0 (0) | 0 (0) | 0(0) | 0(0) |
| Total | | 24 (60) | 5 (12.5) | 8 (20) | 3 (7.5) | 40 (100) |

*Note: Figures in parentheses represent percentage*

**Source: Field Survey**

As Table 4.3.1 shows, of the *40* respondents taken from the urban community, *60 percent* are in the monthly income group of *Birr 0 – 400* (mainly *Traders* and *Others*) and *20 percent* in the

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[37] Includes farmers, religious persons, students, and daily laborers

income group of *Birr 1001 – 1500* (mainly *Civil servants*). These are the two income groups with relatively higher proportion of the respondents. The remaining *20 percent* of the respondents are in the income groups of *Birr 401 – 1000* (*12.5 percent*) and *Birr 1500* and above (*7.5 percent*, mainly *Traders*). This indicates that *Traders* are at the two extremes of the income groups, depending on the nature and size of the business they are in.

When it comes to education, the majority of the respondents (*45 percent*) are in the educational level of *0 – 5 grades*. The least percentage (*7.5 percent*) goes to the degree status. There were no civil servants in the educational levels of *0 - 5* and *6 – 8 grades* as there were no traders in the educational levels of *6 – 8*, *diploma*, and *degree*. This illustrates the fact that persons with relatively higher level of education look for government employment. As to the distribution of occupation, *27.5 percent* of the respondents are *Civil servants* mainly including teachers, nurses, and secretaries. While *32.5 percent* are *Traders*, the remaining *40 percent* is taken up by daily laborers, urban farmers, students, and religious persons (*Other*).

The field survey showed that there were *users* and *non-users* of products of the *Union* under study among the urban dwellers. *70 percent* of the respondents were *users* of products of *Hashenge Cooperative Union* but *30 percent* turned out to be *non-users*. The main reasons raised by the *non-users* were: (a) no difference between prices charged by *traders* and the *Union,* (b) incompatibility of products supplied by the *Union* and products demanded by them, (c) poor punctuality of the *Union's* personnel, (d) inconvenient location of the *Union,* and (e) do not know the presence of the *Union*. On the other hand, the main reasons raised by *users* as to why they purchase products from the *Union* were: (a) lower prices charged by the *Union,* (b) good quality

(unadulterated) products, (c) place convenience, (d) hospitability of the *Union* personnel, and (e) product diversity.

As shown above, the views of the respondents towards the *Union's* performance in terms of pricing, location (place, number of out lets), and product attributes (quality, quantity, diversity) and information on its presence differed from the *users* to the *non-users*. However, much difference was not expected among respondents' views on the *Union's* price, quality of products, information, and location. This was because the *Union* was selling the same products at similar prices to every one. At the same time the respondents were taken from the same kebele and therefore they were more or less at the same distance from the *Union*, which minimizes variations in distance and access to information about the presence of the *Union*. Therefore, the variations in judging the *Union's* performance seemed to stem from differences in living standard/income levels. A similar study by *Axumite G.* reported: "*As the prices of the Cooperatives are often lower than those of other sources, and the Cooperative shops are located in the relatively accessible area of the Kefetegnas concerned, it is possible that most of the urban population would be able to satisfy their vegetable needs from the nearest Cooperative shop. It is also understandable that a majority of the low-income population would make good use of the Cooperative shops because traveling to the central markets would mean additional transportation costs. The Cooperative shopkeepers also confirmed that they never faced any problem in selling their produce. It was not only cheaper but also the most fresh as it did not travel any long distance*". Naturally, level of income, and hence living standard, is related to type of occupation pursued. So, it is expected that usage of the *Union's* products and occupation will have correlation. A Chi-square ($\chi^2$) test of independence between *Occupation* and use of *Union* products (*Usage*) was conducted to test the following hypothesis.

## Chi-square ($\chi^2$) test:

Chi-square test of independence is a statistical tool used to assess and interdependence between two variables. Table 4.3.2 presents the results of the test on *Occupation* and *Usage.*

**Table 4.3.2:** Chi-square Test of Independence: *Occupation* vs. *Usage*

| | Occupation | | | |
|---|---|---|---|---|
| **Usage** | Civil servant | Trader | Other | Total |
| User | 4 (7.70)** | 12 (9.10) | 12 (11.20) | 28 |
| Nonuser | 7 (3.30) | 1 (3.90) | 4 (4.80) | 12 |
| Total | 11 | 13 | 16 | 40 |

Chi-Square ($\chi^2$) = 9.197, DF = 2, p = 0.010*, *Significant at 1% level of significance*

   ***Figures in parentheses represent expected counts/frequencies*

**Source: Field Survey**

The calculated *Chi-square statistic* was found to be significant *($\chi^2$ = 9.197, p = 0.010).* This is an indication for the presence of sufficient evidence to reject the null hypothesis of independence between *Occupation* and *Usage.* Therefore, a person's occupation has an effect on the use of products from the *Union* under study. For instance, it can be seen from the table that civil servants are the least users (only *36.36 percent* of them are users) whereas traders are the most users (*92.3 percent* of them are users). Although the fact that traders are most users is open for further study, it may be an evidence for the low prices charged by the union; because traders are very sensitive to small price changes.

The main point of interest here is that assessing whether the *users* of *Hashenge Cooperative Union's* products are exploiting any advantage thereof. A *Paired t- test analysis* was conducted to see if there is a significant difference between the total *costs paid* to *traders* and the *Union* for specific sample items per month by urban consumers. The test aimed at proving or disproving the following hypothesis.

$H_0$: *There is no difference in the Costs incurred when purchasing certain products from the Union versus from Traders.*

**Paired T-test:**

Paired t-test is used to test observations related in some way. In this case, the observations are the sample urban community treated by *traders* and the *Union*. Table 4.3.3 presents the results of the test.

**Table 4.3.3:** Paired T-test for Cost paid to Traders *minus* Cost paid to Union

|  | *Mean* | *SE Mean* | *t-value* | *p-value* | 95%CI *Lower* | *Upper* |
|---|---|---|---|---|---|---|
| *Cost paid to Traders* | *412.57* | *17.006* | - | - | - | - |
| *Cost paid to Union* | *399.29* | *17.703* | - | - | - | - |
| Difference | 13.28 | 2.2978 | 5.78 | 0.000* | 8.6314 | 17.9271 |
| *T-test of mean difference = 0 (vs. > 0): * Significant at the 1% level of significance* | | | | | | |

<u>**Source: Field Survey**</u>

As indicated in the above table, on the average, a person pays, respectively, *Birr 412.57* and *Birr 399.29* to *traders* and the *Union* for the sample items. The test has a *p-value* of *0.000* indicating that the difference between the *costs* is significantly greater than zero. This is an evidence for the fact that there is a significant difference between the total *costs paid* to *traders* and the *Union* ($H_0$ can be rejected safely). That is, a person can save, on the average, about *13 Birr* (*difference =*

*13.28*) if he/she purchases the items under consideration from the *Union* instead of from *traders*. The *95 percent confidence interval* for the mean difference indicates that one can achieve a *cost saving of Birr 8.63* to the minimum and *Birr 17.93* maximum. The chances that the cost difference will be out of the given interval are only *five in hundred*. These chances are still partially in favour and partially against the benefit of the persons using the *Union's* products.

## 4.4 **SWOT Analysis**

SWOT stands for *Strength*, *Weakness*, *Opportunity*, and *Threat*. An attempt was made to analyze the *strengths* and *weaknesses* of the Cooperatives under study and the *opportunities* and *threats* faced by them from the external environment. To this end, a focus group discussion was conducted with seven selected persons from the Boards of Directors (BODs) of the sampled Cooperatives. The manager and accountant of *Hashenge Cooperative Union* also participated in the discussion. Some information was also obtained from individual member and non-member respondents including the urban respondents. The discussion came out with a range of perspectives on the *strengths*, *weaknesses*, *opportunities*, and *threats* of the Cooperatives under study.

Just like any other organization, Cooperatives have their own *strengths* and *weaknesses*. They also face *opportunities* and *threats* from the external environment. Some of the *strengths* of the Cooperatives under study raised by the respondents were (a) good customer handling of the Cooperative personnel, (b) provision of unadulterated products, which creates good image of the Cooperatives, (c) charging prices that are competitive with the prices charged by traders.

On the other hand, some *weaknesses* were also raised which include (a) poor demand for qualified professionals, (b) lack of transparency; for example, initial cost of a given undertaking

is not revealed to members; only final profit, if any, is told to members. This approach, they said, is not transparent as it could not help them know how much investment is bringing how much profit, (c) Poor time management; Cooperative personnel are not punctual in their dealings, (d) No flexibility in modifying decisions for the better as they are made on committee bases, (e) Implementation problem of plans due to lack of qualified professionals, (f) No effort is made to promote what the Cooperatives are doing.

There are also *opportunities* that should be exploited by Cooperatives so as to bring more benefits to their members in particular and the community in general. Some of the *opportunities* raised were: (a) the mushrooming number of educated man power in the area of cooperation, (b) increasing awareness of Cooperative benefits among the society, (c) government support to Cooperatives, and (d) the fact that religious persons, such as priests, are assuming the BOD positions of the Cooperatives, which will promote transparency and honesty in leadership and mitigate the evil outcomes of corruption, as they said.

*Threats* were mentioned to be of two types in nature: internal and external. Among the internal threats that pose difficulties to the performance of the Cooperatives mentioned were (a) Members' expectation from their Cooperative. It was discussed that members are expecting too much from their Cooperative, for example, they need very low prices to be charged when purchasing items and very high prices when they sell. Therefore, if this trend is not changed, they said, membership of the Cooperatives will keep on decreasing due to withdrawals, which may ultimately result in dissolution of the Cooperatives, (b) Members need immediate dividend payment. This will result in the shortage of funds for intensifying and diversifying the Cooperative business, (c) Conflict of interest among members and the inability to balance different needs of individuals by the management, (d) the participants also said that they are

facing a major problem in finding professionals in the area of cooperation. As a result, their Cooperatives are managed by individuals, on the basis of common sense, with out having any business knowledge. So, if helped with professionals, the Cooperatives will definitely lift the farmers out of poverty in the near future.

**Table 4.4.1:** Summary of *SWOT* Analysis

| **Strengths**: | **Weaknesses**: |
|---|---|
| • Good customer handling | • Poor demand  for qualified professionals |
| • Unadulterated products | • Lack of transparency |
| • Competitive pricing | • Poor time management |
| | • Rigidity of decisions |
| | • Plan implementation problems |
| | • Poor promotional effort |
| **Opportunities**: | **Threats**: |
| • Increasing number of qualified professionals | • Too much expectation of members |
| • Awareness of society to Cooperative benefits | • Need for immediate dividend |
| • Religious leaders of Cooperatives | • Unhealthy competition from traders |
| • Government support to Cooperatives | • Lack of research in the area of cooperation |

Among the external threats, the most serious one was mentioned to be (e) unhealthy competition from traders. According to the respondents, local traders are competing unfairly against Cooperatives with a deliberate intention of cutting short the emergence of the Cooperatives at their start up. (f) Another problem mentioned was the fact that there are no research supported endeavors to promote the newly emerging Cooperative movement in the country. Much of, they said, the work being done so far is on the basis of their own indigenous skill which is more of traditional in nature. The concern is that unless this initiative is backed by scientific research findings, it won't proceed to the extent desired.

# CHAPTER-V

# Conclusion and Recommendation

This chapter presents the main limitations faced and findings obtained from the undertaken empirical analysis in a summarized way. Policy implications have also been presented as a recommendation from the researcher's side.

## 5.1  Limitations

The major limitations faced in preparing the paper are time limitation, financial limitation, and information limitation. Although one full year was given for the thesis work, much of the time was spent in requesting to get the fund necessary for the purpose. This process took a lot of time that would otherwise have been used for field survey activities. The fund was again so limited that it could not compensate for the time spent unnecessarily. Every activity conducted in the data collection phase demanded a sum of money so as to race against time. On the other hand, the problem faced in obtaining accurate and enough data for the purpose cannot be over emphasized. Respondents were unable and/or unwilling to forward necessary information. Getting secondary data from the concerned *Cooperative Union* was also equally problematic. There were no complete records of the activities undertaken by the *Union* each year.

## 5.2  Conclusion

Membership of *Hashenge Cooperative Union* showed an overall *increasing trend* over the period considered (2004 – 2006/07). The important pull factors that attracted new members to join the Cooperatives were found out to be *cost and/or effort saving*, *lower input prices*, *higher output prices*, and *dividend*; the first one being most important. Conversely, the study found that total

*sales (in Birr)* from *Merchandise*, *Honey*, and *Crops* tended to decrease over the study period mainly due to shift of business to other *projects* such as purchase and distribution of *pumps* and *sheep fattening* and sale projects. Regarding financial performance, the *Union* showed improvements in *liquidity*, *efficiency*, and *profitability* from 2005/06 to 2006/07. *Experience* and a decrease in the *default rate* of debtors contributed to the improvement. But in terms of *leverage*, no improvement was shown. This may be due to increased share capital as a result of the increased membership.

With respect to *Asset Ownership*, it was discovered that the number of *livestock* member households owned *after* affiliation was better than that they used to own *before* affiliation. Cooperative members were also better-off with respect to *House Ownership* due to their affiliation. This could be ascribed to the fact that membership to a Cooperative Society improves *income and/or promotes awareness to modern way of life* (Member Education Principle).

On the other hand, it was discovered that there was no improvement in the *eating* and *clothing* frequencies of members *after* affiliation. The member respondents said that even though their income improved, they did not want to express it in terms of *frequency* of *eating* or *clothing*. Rather, they focused on improving the *quality* of *food* and *cloth* consumed/purchased. They also went for investing on assets (e.g. *livestock* and *house)*, *education*, and *health*. It was found out that membership to a Cooperative Society contributed to *promoting the number of learning children* and *tendency towards using modern health services* of a household. Another finding was that a member's satisfaction with the performance of his/her Cooperative was significantly associated with *how often one patronizes his/her Cooperative Society*. The *more frequently* a member patronized his/her Cooperative, the *more satisfied* he/she would be.

Among the urban community, a person's *occupation* was found to have an impact on the *use of products* from the *Union* under study. For instance, it was discovered that *civil servants* were the *least* users whereas *traders* were the *most* users of the *Union's* products. The fact that traders are the most users witnesses the reasonability of the prices charged by the *Union*, as traders are sensitive to prices. If a person is a *user* of the *Union's* products, it was found that he/she could save, on the average, about *Birr 13* per month if he/she purchases *sampled items* from the *Union* instead of from *traders*.

The study also came out with a range of perspectives on the *Strengths*, *Weaknesses*, *Opportunities*, and *Threats* of the Cooperatives under study. *Good customer handling* and *poor time management* of the Cooperatives were among the mentioned *Strengths* and *Weaknesses* respectively. On the other hand, *increasing number of qualified professionals in the area of Cooperation* and *unhealthy competition from traders* respectively were mentioned to be the most important *Opportunities* and *Threats* to the performance of the Cooperatives from the external environment.

## 5.3 <u>Recommendation</u>

Although there is an overall increasing trend in the *Union's membership* and efficiency of *financial performance*, the need for *educated man power* in the area of Cooperation cannot be overemphasized so as to achieve much better efficiency in performance. *Education* and/or *training sessions* are needed to improve the business and management skills, including cost management skills, of the Cooperative personnel. Regular training may be necessary. Most importantly, a fertile ground needs to be created from the government's side to promote *Research Endeavors* in the area of *Cooperation* to support *Cooperative Businesses* with scientific and fact based findings.

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# APPENDIX:

## I. Interview Schedule

### 1.1 To Members

---

*Performance Evaluation of Hashenge Cooperative Union and its Affiliates*

---

1. Name: _____

2. Age:  a. 14 – 24      b. 25 – 35      c. 36 – 46      d.  47 – 57    e. 58+

3. Sex:   a. Male            b. Female

4. Marital status:   a. Married      b. Single     c. Divorced      d. Widowed

5. Name of Cooperative society:

      a. _____
      b. _____
      c. _____
      d. _____

6. Tabia your coop is located at:

      a. _____
      b. _____
      c. _____
      d. _____

7. Your residence (Tabia):

      a. _____
      b. _____
      c. _____
      d. _____

8. Duration of membership:

   a. &lt; 1 year    d. 3-4 years

   b. 1-2 years    e. 4-5 years

   c. 2-3 years    f. &gt; 5 years

9. Satisfaction/happiness with membership:

   a. Very unsatisfied

   b. Unsatisfied

   c. Neutral

   d. Satisfied

   e. Very satisfied

10. Reasons for un satisfaction:

   a. _____

   b. _____

   c. _____

11. Sources of satisfaction:

  *I. Production aspect:*

   a. Lower input price

   b. Better quality input

   c. Better access to inputs

   d. Increased use of fertilizer

   e. Increased use of purchased seeds (HYV)

   f. Increased use of chemicals (herbicides, pesticides…)

   g. Shift to more profitable crop/animal

   h. Better access to farm credit

   i. Better farm implements

   j. Better irrigation facilities

   k. Better harvesting facilities

  *II. Marketing aspect:*

   a. Secured market

   b. Better output price

  c. Reduced transportation cost

  d. Reduced transportation effort

  e. Better storage facilities

*III. Others aspects:*

  a. Better saving habit

  b. Better social relationship

  c. Better awareness to democracy

  d. Better awareness to gender equality

  e. Better awareness to family planning

  f. Better perception to education

  g. Better government aid

  h. Better information on new innovations

12. Status of annual income after affiliation as compared to before affiliation:

  a. Lower

  b. Same

  c. Better

  d. Much better

13. Annual income before affiliation:

  a. 0-100 birr
  b. 101-300birr
  c. 301-500birr
  d. 501-1000 birr
  e. More than 1000 birr

14. Annual income after affiliation:

  a. 0-100 birr
  b. 101 -300birr
  c. 301-500birr
  d. 501-1000birr
  e. 1001-5000 birr
  f. More than 5000 birr

15. Reasons for reduced income:

  a. _____

  b. _____

c.  _____

16. Reasons for increased income:

                a.  Lower input price

                b.  Higher output price

                c.  Dividend

                d.  Employment in  coop

                e.  Better productivity

                f.  Shift to more profitable business

                g.  New non-farm business

17. Most commonly produced and sold crops/animals before affiliation:

                a.  _____

                b.  _____

                c.  _____

                d.  _____

18. Unit price received before affiliation (respectively):

                a.  _____

                b.  _____

                c.  _____

                d.  _____

19. Total quantity produced per year before affiliation (respectively):

                a.  _____

                b.  _____

                c.  _____

                d.  _____

20. Most commonly produced and sold crops/animals after affiliation:

                a.  _____

                b.  _____

                c.  _____

                d.  _____

21. Unit price received after affiliation (respectively):

        a. _____

        b. _____

        c. _____

        d. _____

22. Total quantity produced per year after affiliation (respectively):

        a. _____

        b. _____

        c. _____

        d. _____

23. Living conditions before affiliation:

    ***I.*** *Food*

        A. Type (in terms of crops/animals consumed):

           a. _____

           b. _____

           c. _____

        B. Frequency per day:

           a. _____

           b. _____

           c. _____

    ***II.*** *Clothing*

        A. Type:

           a. _____

           b. _____

           c. _____

        B. Frequency per year:

           a. _____

           b. _____

           c. _____

    ***III.*** *Housing*

        A. Number (rooms):

a.  _____

b.  _____

B.  Type:

a.  Modern

b.  Traditional

*IV. House property* (bed, phone, tape...):

a.  _____

b.  _____

c.  _____

*V.  Farm equipment* (tractor, pump…):

a.  _____

b.  _____

c.  _____

*VI.* Other *durables* (truck, mill…)

a.  _____

b.  _____

c.  _____

*VII.  Livestock* (cattle, shoats, equine, poultry…)

A.  Type:

a.  _____

b.  _____

c.  _____

B.  Number (respectively):

a.  _____

b.  _____

c.  _____

*VIII. Health* service used:

a.  Traditional

b.  Modern (clinics, hospital…)

*IX.*  Is there a clinic/health center near your residence?

a. Yes

b. No

**X.** *Education* (self, spouse, children – learning/total ):

a. _____

b. _____

c. _____

**XI.** Is there a school near your residence?

a. Yes

b. No

24. Living conditions after affiliation:

**I.** *Food*

A. Type (in terms of crops/animals consumed):

c. _____

d. _____

e. _____

B. Frequency per day:

a. _____

b. _____

c. _____

**II.** *Clothing*

A. Type:

a. _____

b. _____

c. _____

B. Frequency per year:

a. _____

b. _____

c. _____

**III.** *Housing*

A. Number (rooms):

      a.   _____

      b.   _____

      c.   _____

B. Type:

      a.   Modern

      b.   Traditional

**IV.** *House property* (bed, phone, tape, electricity...):

      a.   _____

      b.   _____

      c.   _____

**V.** *Farm equipment* (tractor, pump…):

      a.   _____

      b.   _____

      c.   _____

**VI.** Other *durables* (truck, mill…)

      a.   _____

      b.   _____

      c.   _____

**VII.** *Livestock* (cattle, shoats, equine, poultry…)

A. Type:

      a.   _____

      b.   _____

      c.   _____

B. Number (respectively):

      a.   _____

      b.   _____

      c.   _____

**VIII.** *Health* service used:

      a.  Traditional

      b.  Modern (clinics, hospital…)

**IX.** Is there a clinic/health center near your residence?

      a.  Yes

      b.  No


**X.** *Education* (self, spouse, children – learning/total ):

      a.  _____

      b.  _____

      c.  _____

**XI.** Is there a school near your residence?

      a.  Yes

      b.  No

25. Frequency of patronizing one's coop:

      a.  Always when I need to sell/buy

      b.  Sometimes when I need to sell/buy

      c.  Rarely

26. Rate of improvement in living standard after membership?

      a.  Slightly improved

      b.  Much  improved

      c.  Very much improved

27. Area of farm land owned (ha, oxen day):

      a.  _____

      b.  _____

      c.  _____

      d.  _____

28. Number of employed /productive (non-dependent) family members:

      a.  1

b.    2

c.    3

d.    4

29. Number of unemployed /non-productive (dependent) family members:

a.    1

b.    2

c.    3

d.    4

30. Presence/absence of a non-farm source of income:

a.    None

b.    Aid from children

c.    Aid from relatives

d.    Non-farm employment

31. Will you continue with your membership in the future?

a.  Yes

b.  No

*I.  If yes, reasons:*

a.  _____

b.  _____

c.  _____

d.  _____

*II.  If no, reasons:*

a._____

b._____

c._____

d._____

32. Areas that need improvement in your coop:

a.    Services provided

b.    Dividend payment

c. Prices received by farmers

d. R/p between Board, managers, and members

e. Leadership & management skills of the manager

f. Leadership & management skills of the Board

g. Voice in co-op's decision making

## 1.2 To Non-members

---

## *Performance Evaluation of Hashenge Cooperative Union and its Affiliates*

---

1. Name: _____

2. Age:  a. 14 – 24      b. 25 – 35      c. 36 – 46      d. 47 – 57     e. 58+

3. Sex:  a. Male         b. Female

4. Marital status:  a. Married      b. Single     c. Divorced      d. Widowed

5. Your residence (Tabia):

   a. _____

   b. _____

   c. _____

   d. _____

6. Is there any coop near your residence/farm?

   a. Yes

   b. No

7. Do you sell any thing to a coop:

   a. Yes

   b. No

8. Do you buy any thing from a coop:

   a. Yes

b. No

9. Is there any improvement in your production, marketing, and other aspects these days?

    a. Yes

    b. No

10. Sources of improvement:

*I. Production aspect:*

    a. Lower input price

    b. Better quality input

    c. Better access to inputs

    d. Increased use of fertilizer

    e. Increased use of purchased seeds (HYV)

    f. Increased use of chemicals (herbicides, pesticides…)

    g. Shift to more profitable crop/animal

    h. Better access to farm credit

    i. Better farm implements

    j. Better irrigation facilities

    k. Better harvesting facilities

*II. Marketing aspect:*

    a. Secured market

    b. Better output price

    c. Reduced transportation cost

    d. Reduced transportation effort

    e. Better storage facilities

*III. Others aspects:*

    a. Better saving habit

    b. Better social relationship

    c. Better awareness to democracy

    d. Better awareness to gender equality

    e. Better awareness to family planning

    f. Better perception to education

g. Better government aid

h. Better information on new innovations

11. Status of annual income during the past 5 years as compared to 5years back:

       a. Lower

       b. Same

       c. Better

       d. Much better

12. Annual income 5 years back:

       a.     0-100 birr
       b.     101-300birr
       c.     301-500birr
       d.     501-1000 birr
       e.     More than 1000 birr

13. Annual income during the past 5 years:

       a.     0-100 birr
       b.     101 -300birr
       c.     301-500birr
       d.     501-1000birr
       e.     1001-5000 birr
       f.     More than 5000 birr

14. Reasons for reduced income:

       a. _____

       b. _____

       c. _____

15. Reasons for increased income:

       a. Lower input price

       b. Higher output price

       c. Employment in coop

       d. Better productivity

       e. Shift to more profitable business

       f. New non-farm business

16. Most commonly produced and sold crops/animals 5 years back:

       a. _____

       b. _____

c. _____

d. _____

17. Unit price received 5 years back (respectively):

a. _____

b. _____

c. _____

d. _____

18. Total quantity produced per year 5 years back (respectively):

a. _____

b. _____

c. _____

d. _____

19. Most commonly produced and sold crops/animals during the past 5 years:

a. _____

b. _____

c. _____

d. _____

20. Unit price received during the past 5 years (respectively):

a. _____

b. _____

c. _____

d. _____

21. Total quantity produced per year during the past 5 years (respectively):

a. _____

b. _____

c. _____

d. _____

22. Living conditions 5 years back:

I. *Food*

A. Type (in terms of crops/animals consumed):

90

a. _____

b. _____

c. _____

B. Frequency per day:

a. _____

b. _____

c. _____

*II.  Clothing*

A. Type:

a. _____

b. _____

c. _____

B.  Frequency per year:

a. _____

b. _____

c. _____

*III. Housing*

A.  Number (rooms):

a. _____

b. _____

B.  Type:

a.  Modern

b.  Traditional

*IV.  House property* (bed, phone, tape...):

a. _____

b. _____

c. _____

*V.   Farm equipment* (tractor, pump…):

a. _____

b. _____

c. _____

*VI.* Other *durables* (truck, mill…)

    a. _____

    b. _____

    c. _____

*VII.* *Livestock* (cattle, shoats, equine, poultry…)

    A. Type:

        a. _____

        b. _____

        c. _____

    B. Number (respectively):

        a. _____

        b. _____

        c. _____

*VIII.* *Health* service used:

    a. Traditional

    b. Modern (clinics, hospital…)


*IX.* *Education* (self, spouse, children – learning/total):

    a. _____

    b. _____

    c. _____

23. Living conditions during the past 5 years:

    *I.* *Food*

        A. Type (in terms of crops/animals consumed):

            a. _____

            b. _____

            c. _____

        B. Frequency per day:

            a. _____

            b. _____

            c. _____

II.   *Clothing*

    A. Type:

        a.  _____

        b.  _____

        c.  _____

    B.  Frequency per year:

        a.  _____

        b.  _____

        c.  _____

III.   *Housing*

    A.  Number (rooms):

        a.  _____

        b.  _____

        c.  _____

    B.  Type:

        a.  Modern

        b.  Traditional

IV.   *House property* (bed, phone, tape, electricity...):

        a.  _____

        b.  _____

        c.  _____

V.   *Farm equipment* (tractor, pump…):

        a.  _____

        b.  _____

        c.  _____

VI.   Other *durables* (truck, mill…)

        a.  _____

        b.  _____

        c.  _____

VII.   *Livestock* (cattle, shoats, equine, poultry…)

    A.  Type:

a. _____

b. _____

c. _____

B. Number (respectively):

a. _____

b. _____

c. _____

*VIII. Health* service used:

a. Traditional

b. Modern (clinics, hospital…)

*IX. Education* (self, spouse, children – learning/total):

a. _____

b. _____

c. _____

24. Rate of improvement in living standard during the past 5 years?

a. Slightly improved

b. Much improved

c. Very much improved

25. Area of farm land owned (ha, oxen day):

a. _____

b. _____

c. _____

d. _____

26. Number of employed /productive (non-dependent) family members:

a. 1

b. 2

c. 3

d. 4

27. Number of unemployed /non-productive (dependent) family members:

a. 1

b. 2

c. 3

d. 4

28. Presence/absence of a non-farm source of income:

a. None

b. Aid from children

c. Aid from relatives

d. Non-farm employment

29. Areas that need improvement in your coop:

a. Services provided

b. Dividend payment

c. Prices received by farmers

d. R/p between Board, managers, and members

e. Leadership & management skills of the manager

f. Leadership & management skills of the Board

g. Voice in co-op's decision making

## II. Questionnaire to Urban Community

<div align="center">

## መቐለ ዩኒቨርሲቲ

## የህብረት ስራ ትምህርት ክፍል

</div>

ይህ መጠይቅ በመቐለ ዩኒቨርሲቲ የህብረት ስራ ትምህርት ክፍል የሁለተኛ ዲግሪ መመረቅያ ፅሁፍ ለማዘጋጀት የቀረበ ነው:: ስለሆነም ፅሁፉ ትርጉም ያለውና በእውነት ላይ የተመሰረተ ይሆን ዘንድ ለሚከተሉት ጥያቄዎች በተቻለ መጠን ትክክለኛውን መልስ ትሰጡ ዘንድ በትህትና እጠይቃለሁ::

ለትብብራችሁ በቅድሚያ ልባዊ ምስጋናዬን አቀርባለሁ::

<div align="right">

ታፈስ ወ/እግዚኢና

</div>

1.  ስም: _____
2.  ፆታ: _____
3.  ዕድሜ:_____
4.  ስራ: _____
5.  የትዳር ሁኔታ:
    ሀ. ባለ ትዳር
    ለ. ትዳር የሌለው/ላት

6.  የቤተሰብ መሪ የትምህርት ደረጃ:
    ሀ. 0 -5 ክፍል      መ. ዲፕሎማ ምሩቅ
    ለ. 6- 8 ክፍል      ሰ. ዲግሪ ምሩቅ
    ሐ. 9- 12ክፍል      ረ. ከዲግሪ በላይ

7.  የቤተሰብ የወር ገቢ:

|     |              |                    |
|-----|--------------|--------------------|
| ሀ.  | 0 -150 ብር    | መ.  4001 -1000 ብር  |
| ለ.  | 151- 250  ብር | ሰ.  1000- 1500 ብር  |
| ሐ.  | 251 400ብር    | ረ. ከ 1500 ብር በላይ   |

8.   ሐሽንገ ህብረት ስራ ዩኔን በከተማዎ እንዳለች ያውቃሉ?

   ሀ.  አዎ          ለ.  አላውቅም

   ( መልስዎ አላውቅም ከሆነ እዚህ ያቁሙ፡ አዎ ከሆነ ይቀጥሉ)


9.   ከዩኔኒ የሚገዙት ነገር አለ?

   ሀ.  አዎ          ለ. የለም


10.   መልስዎ የለም ከሆነ ምክንያቱን ቢገልፁልን፡

   1.   _____

   2.   _____

   3.   _____

   4.   _____

   (መልስዎ የለም ከሆነ እዚህ ያቁሙ፡ አዎ ከሆነ ይቀጥሉ)


11.   መልስዎ አዎ ከሆነ ምክንያቱን ቢገልፁልን፡

   1.   _____

   2.   _____

   3.   _____

   4.   _____


12.   ከዩኔኒ ምንምን ይገዛሉ? ዋጋቸውስ?

|   | የሚገዙት ነገር | ዋጋ በኪሎ ወይ በ ጣሳ |
|---|-----------|-----------------|
| 1 |           |                 |
| 2 |           |                 |
| 3 |           |                 |

| | | |
|---|---|---|
| 4 | | |
| 5 | | |

13. እሏይ የጠቀሷቸው ነገሮች ከነጋዴ በስንት ይገዟቸው ነበር?

| | የሚገዙት ነገር | ዋጋ በኪሎ/በጣሳ |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

14. እሏይ የጠቀሷቸው ነገሮች በወር ምን ያህል ይጠቀማሉ?

| | የሚጠቀሙት ነገር | በወር የሚጠቀሙት መጠን (በኪሎ) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

15. በእርስዎ አስተያየት ሓሽንግ የኔን ለከተማው ህዝብ ትጠቅማለች ይላሉ?

ሀ. አዎ

እንዴት?

1. _____

98

2. _____

3. _____

4. _____

5. _____

## ለ. አትጠቅምም

እንዴት?

1. _____

2. _____

3. _____

4. _____

5. _____

16. ሐሽንገ ዩኔን ማሻሻል አለባት የሚሏቸው ነገሮች ካሉ ቢገልፁልኝ:

1. _____

2. _____

3. _____

4. _____

5. _____

**III: Description of Demographic Characteristics of Member Respondents: Sex, Age, & Marital status**

| | Sex | | |
|---|---|---|---|
| Age/Marital Status | Female | Male | Total |
| 14-24 | | | |
| Married | 2 (1.250)* | 13 (8.125) | 15(9.375) |
| Unmarried | 2 (1.250) | 5 (3.125) | 7 4.375) |
| 25-35 | | | |
| Married | 6 (3.750) | 26 (16.25) | 32(20.000) |
| Unmarried | 2 (1.250) | 2 (1.250) | 4(2.500) |
| 36-46 | | | |
| Married | 8 (5.000) | 45 (28.125) | 53(33.125) |
| Unmarried | 2 (1.250) | 3 (1.875) | 5(3.125) |
| 47-57 | | | |
| Married | 1 (0.625) | 22 (13.750) | 23(14.375) |
| Unmarried | 3 (1.875) | 4 (2.500) | 7(4.375) |
| 58&+ | | | |
| Married | 0 (0.000) | 3 (1.875) | 3(1.875) |
| Unmarried | 3 (1.875) | 8 (5.000) | 11(6.875) |
| **Total** | **29 (18.125)** | **131 (81.875)** | **160(100.000)** |

Note: Figures in parentheses represent percentage.

**IV: Financial Statements of Hashenge Union**

Hashenge Cooperative Union, plc
Income Statement
For the year 2005/2006, ending September 21/2006

**Sales**:

- Merchandise                577621.64

- Crop                       125589.40

- Fertilizer                 385399.71

- Hide                        60526.00

- Honey                        2322.50

- Sheep                        5809.00

**Total sales**                                    **1157268.25**

**Purchase:**

- Merchandise     586937.29

- Fertilizer      580624.30

- Crop            125346.83

- Hide             42011.15

- Sheep             7057.00

**Total purchase**                **1341977.57**

**Add: Beg inv**

- Merchandise      72708.22

- Fertilizer      233377.20

- Sheep             2545.15

**Total**                         **308630.57**

Total merchandise available for sale     **1650608.14**

Less: End.Inv                    (322,734.62)
CGS                                               1327873.52

**Gross Profit (Loss)**                           **(170605.27)**

**Administrative Expenses:**

- Salary                   15840.60
- Transport              25950.65
- Per diem               22101.00
- Labor                    7378.85
- Interest                 8734.27
- Sack cost              1814.25
- Miscellaneous      6623.57
- Telephone bill       1498.42
- Car service            339.00
- Oil and grease      9585.32
- Store rent             6927.50
- Bank service         129.00
- Stationery             508.82
- Bees lost              865.44
- Depreciation        5516.66

**Total admn expenses**                                         **(113777.35)**

**Loss from Operations:**                                       **(284382.62)**

**Other revenues**

- Car rent                 19325.00
- Reg fee                 14000.00
- Miscellaneous      8052.00

**Total**                                                                **41377.00**

**Net Profit (Loss)**                                                **(243005.62)**

Hashenge Cooperative Union, plc
Balance Sheet
As of September 21/2006

Current asset:
- Cash on hand ........ 348.45
- Cash in bank ........ 135100.18
- Cash in doc ........ 47955.83

Inventory (Ending):
- Merchandise ........ 72708.22
- Fertilizer ........ 233377.20
- Sheep ........ 2545.15
- Stationery ........ 5406.64
- Prepaid insurance ........ 5574.16
- Feed ........ 3123.25 ........ **322734.62**

A/R (end):
- Fert.Cr ........ 122965.85
- Merch. Cr ........ 28640.11
- Members ........ 840.00 ........ **152445.96**

Total current asset ........ **658585.03**

| Fixed asset: | Initial cost | Deprn. | Book value |
|---|---|---|---|
| Shop eqp | 4452.50 | 371.04 | 4081.46 |
| Office furn | 520.00 | 39.00 | 481.00 |
| Bldg | 61824.70 | - | 61824.70 |
| Bees | 3269.56 | - | 3269.56 |
| Modern beehive | 17985.40 | 1049.15 | 16936.25 |
| Isuzu car | 243448.17 | 4057.47 | 239390.70 |
| Total fixed asset……….. | 331500 | 5516.66 | 325983.67 |

**Total Asset (CA+FA)** ........ **984568.71**

Liability:
- Patronage div
- A/P (Ambasel) ........ 36064.63
- A/P (ESCO) ........ 273714.00

**Total lib (Current)** ........ 306911.30 ........ **616689.93**

Capital:
- Share
- Expansion (50%) ........ 115000.00
- Reserve (25%) ........ 7728.14
- Social services (25%) ........ 3864.07
- Gift…………………… ........ 3864.07

Total cap ........ 237422.50 ........ 367878.77

**Total liab and cap** ........ **984568.70**

Hashenge Cooperative Union, plc
Income Statement
For the year 2006/2007, ending September 21/2007

**Sales**

| | | |
|---|---|---|
| Fertilizer | 9627.00 | |
| Merchandise | 1028931.16 | |
| Crops | 23151.00 | |
| Honey | 14637.50 | |
| Bees | 5150.00 | |
| Sheep and Oxen | 47429.30 | |
| Hide | 117339.77 | |
| **Total** | | **1546265.73** |

**Cost of Goods Sold:**
**Beg. Inv:**

| | | |
|---|---|---|
| Merchandise | 72708.22 | |
| Fertilizer | 8234.80 | |
| Sheep | 2545.15 | **83488.17** |

**Purchase:**

| | | |
|---|---|---|
| Merchandise | 923635.66 | |
| Crops | 321761.27 | |
| Bees | 5456.00 | |
| Sheep and Oxen | 26753.85 | |
| Honey | 8303.90 | |
| Hide | 128601.40 | **1414512.08** |
| **Merchandise Available for Sale** | | **1498000.25** |

**Less Ending Inv:**

| | | |
|---|---|---|
| Merchandise | 48978.40 | |
| Crops | 9815.11 | |
| Honey | 9176.50 | |
| Sheep and Oxen | 4050.00 | |
| Merchandise | 4816.00 | **(76,836.01)** |
| **CGS** | | **1421164.24** |
| **Gross Profit** | | **125101.49** |

**Other Revenues:**

| | | |
|---|---|---|
| Car Rent | 227418.29 | |
| Interest | 11477.65 | |
| Miscellaneous | 31634.16 | **270530.10** |

**Operating and Other Expenses:**

| | |
|---|---|
| Salary | 70634.35 |
| Oil and Lubricant | 105951.42 |

| | | |
|---|---|---|
| Maintenance | 32980.60 | |
| Spare parts | 13087.50 | |
| Insurance | 10919.54 | |
| Labour | 16239.40 | |
| Telephone | 5937.26 | |
| Transport | 30583.50 | |
| Store rent | 7895.00 | |
| Sack cost | 3320.00 | |
| Feed | 18002.40 | |
| Sheep medication and tax | 535.00 | |
| Miscellaneous | 21298.16 | |
| Per Diem | 81485.80 | |
| Bank Services | 856.35 | |
| Interest | 18356.33 | |
| Stationery | 6364.13 | |
| Yearly Services | 110681.99 | **555128.73** |
| **Operating Loss** | | **(284598.63)** |
| **Net Loss** | | **159497.14** |

Hashenge Cooperative Union, plc
Balance Sheet
<u>As of October 18/2007</u>

**<u>Current Asset</u>**

| | | |
|---|---|---|
| Cash on hand | 141393.87 | |
| Deposit | 9600.00 | |
| Accounts Receivable (fert) | 14373.40 | |
| Accounts Receivable (Coops) | 132400.86 | |
| Merchandise | 48978.40 | |
| Crops | 9815.00 | |
| Honey | 9176.50 | |
| Fertilizer | 4816.00 | |
| Sheep | 4050.00 | |
| Utilities | 13114.10 | |
| Bee | 8408.71 | |
| Feed | 1000.00 | |
| Stationery | 2660.71 | |
| Prepaid Insurance | <u>3679.00</u> | |
| **Total** | | **403466.72** |

**<u>Fixed Asset</u>**  **Book Value**

| | | | |
|---|---|---|---|
| Office Furniture | 29426.20 | | |
| -Accumulated Depreciation | /2594.00/ | 26832.20 | |
| Shop Furniture | 5307.50 | | |
| -Accumulated Depreciation | /1339.29/ | 3968.21 | |
| Modern Beehive | 55685.40 | | |
| -Accumulated Depreciation | /4646.15/ | 51039.25 | |
| Sheep house | 61824.70 | | |
| -Accumulated Depreciation | /6182.47/ | 55642.23 | |
| Store | 202312.60 | 202312.60 | |
| Isuzu | 243448.17 | | |
| -Accumulated Depreciation | /101436.74/ | 142011.43 | |
| **Total** | | | **481805.92** |
| **Total Asset** | | | **885272.64** |

**<u>Liability and Capital:</u>**
**Liability**

| | | |
|---|---|---|
| Accounts Payable (Coops) | 122730.00 | |
| Accounts Payable (Rural Credit) | 153901.86 | |
| Accounts Payable (Ambasel) | 48571.60 | |
| Accounts Payable (ESCO) | <u>4835.24</u> | |
| **Total Liab.** | | **330038.70** |

**Capital**

| | | |
|---|---|---|
| Share | 115000.00 | |
| Gift | <u>548116.42</u> | 663116.42 |

| | | |
|---|---|---|
| Reserve | 15550.03 | |
| Patronage | 36064.63 | |
| Loss (current) | - 159497.14 | -107882.48 |
| **Total Cap** | | **555233.94** |
| **Total Liab. And Capital** | | **885272.64** |

## V: Financial Ratios

### i. Liquidity ratios:

1. Current ratio = Current Asset/Current Liability

2. Quick ratio (Acid Test Ratio) = (Current Asset – Inventory)/ Current Liability

### ii. Leverage ratios (Capital structure ratios):

1. Debt Ratio (DR) = Total Debt (TD)/Capital Employed (CE)

2. Debt-Equity Ratio = TD/Net Worth (NW)

### iii. Activity (Asset mgt/Efficiency) ratios:

1. Inventory Turnover Ratio = Cost of Goods Sold (CGS)/Average Inventory

2. Accounts Receivable (A/R) Turnover =  Credit Sales/Average A/R

      Or   Sales/ Ending A/R

3. Average Collection Period = 360/ (A/R turnover) = (A/R/Sales)*360

4. Total Asset (TA) Turnover = Sales/TA

### iv. Profitability ratios:

1. Gross profit (GP) margin = (Sales – CGS)/Sales = GP/Sales