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.

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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.

Keywords: Trend, Impact, Benefit, SWOT
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ACRONYMS AND ABBREVIATIONS

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<tr>
<th>Acronym</th>
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<tr>
<td>ACE</td>
<td>Agriculture cooperatives in Ethiopia</td>
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<tr>
<td>AfLshn</td>
<td>Affiliation</td>
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<td>Aftr</td>
<td>After</td>
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<td>ANOVA</td>
<td>Analysis of Variance</td>
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<td>A/R</td>
<td>Accounts Receivable</td>
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<td>Bfor</td>
<td>Before</td>
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<tr>
<td>BODs</td>
<td>Board of Directors</td>
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<tr>
<td>CE-to-NW</td>
<td>Capital Employed-to-Net Worth</td>
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<tr>
<td>CGS</td>
<td>Cost of Goods Sold</td>
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<td>CI</td>
<td>Confidence Interval</td>
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<td>cLF/y</td>
<td>Clothing frequency per year</td>
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<td>Coef</td>
<td>Coefficient</td>
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<td>Const</td>
<td>Constant</td>
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<td>CPI</td>
<td>Consumer Price Index</td>
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<td>CSA</td>
<td>Central Statistical Authority</td>
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<tr>
<td>DF (df)</td>
<td>Degrees of Freedom</td>
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<td>DepR</td>
<td>Dependency Ratio</td>
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<td>EtF/d</td>
<td>Eating frequency per day</td>
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<td>GP</td>
<td>Gross Profit</td>
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<td>IOFs</td>
<td>Investor Owned Firms</td>
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<td>Lhldg</td>
<td>Landholding</td>
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<td>LivOwn</td>
<td>Livestock Ownership</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>LivStd</td>
<td>Living Standard</td>
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<td>Mbrshp</td>
<td>Membership</td>
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<td>MhOwn</td>
<td>Modern House Ownership</td>
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<td>MPCs</td>
<td>Multipurpose Cooperatives</td>
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<tr>
<td>NLrnCh</td>
<td>Number of Learning Children</td>
</tr>
<tr>
<td>Nonmbr</td>
<td>Nonmember</td>
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<tr>
<td>NSaCh</td>
<td>Number of School-age Children</td>
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<td>OLS</td>
<td>Ordinary List Square</td>
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<td>Ownrshp</td>
<td>Ownership</td>
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<tr>
<td>PrsnHc</td>
<td>Presence of a Health Center</td>
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<td>PrsnSc</td>
<td>Presence of a School</td>
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<td>Qtl</td>
<td>Quintal</td>
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<tr>
<td>RegRes</td>
<td>Region of Residence</td>
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<tr>
<td>ROE</td>
<td>Return on Equity</td>
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<td>ROI</td>
<td>Return on Investment</td>
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<td>SAM</td>
<td>Social Accounting Matrix</td>
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<td>SCCs</td>
<td>Saving and Credit Cooperatives</td>
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<td>SE</td>
<td>Standard Error</td>
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<td>SWOT</td>
<td>Strength, Weakness, Opportunity, and Threat</td>
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<td>TA</td>
<td>Total Asset</td>
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<tr>
<td>TLU</td>
<td>Tropical Livestock Unit</td>
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<td>UA</td>
<td>Urban Agriculture</td>
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CHAPTER-I

Introduction

1.1 Background and Justification

The Evolution of Cooperation:

Cooperation is a way of living. It is a philosophy of life (Emory S.Bogardus 1964). Cooperation has been the very basis for human civilization (O.R Krishnaswamy and V.Kulandaiswamy 2000). Cooperation means living, thinking, and working together (Hajela 1990). 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). 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). 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).

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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.
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)\(^\text{11}\).

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

\(^{11}\) 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 Statement of the Problem

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)\(^\text{13}\)

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.

\(^{13}\) Krishnaswamy, O.R. & Kulandaiswamy, V.: Ibid.
1.3 **Purpose of the Study**

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 **Research Objectives**

*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 Research Hypotheses

Impact of Membership on Living Standard:

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

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

- **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)\textsuperscript{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

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)*\(^\text{17}\) 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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\(^{\text{17}}\) 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)\(^\text{18}\) 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

\(^\text{18}\) 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)\(^\text{19}\) 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

*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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R.Gopalsamy (2004)\textsuperscript{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)\textsuperscript{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


\textsuperscript{22} Peter Calkins et.al (2005): \textit{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

\(^{23}\) 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 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 themselves, 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

(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 *21°C* 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
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).  

3.2 Sample Size and Sampling Techniques

Of the 14 primary Cooperatives affiliated to Hashenge Cooperative Union, seven were selected for the purpose of this study. These include Hugumberda, F alasofia (Fal a), Tades ech (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 Data Collection Procedures

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 =

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.e., 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: $1\ TLU = 1\ cattle = 1\ horse = 6.67\ sheep = 6.67\ goats = 0.87\ mule = 1.54\ donkeys = 0.69\ camel = 200\ poultry$)\textsuperscript{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

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**

<table>
<thead>
<tr>
<th>Variable Code</th>
<th>Description</th>
<th>Category*</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>LivOwn</em></td>
<td>Ownership of <em>Livestock</em> in TLU</td>
<td></td>
</tr>
<tr>
<td><em>MhOwn</em></td>
<td>Ownership of <em>Modern House</em></td>
<td>(1 = \text{Own})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0 = \text{don’t Own})</td>
</tr>
<tr>
<td><em>Mbrshp</em></td>
<td>Status of Membership</td>
<td><em>Bfor</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Afr</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Nonmbr</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Control</em></td>
</tr>
<tr>
<td><em>RegRes</em></td>
<td>Region of Residence of a household</td>
<td>(1 – 7^{**})</td>
</tr>
<tr>
<td><em>Lhldg</em></td>
<td>Landholding in Hectare (ha)</td>
<td></td>
</tr>
<tr>
<td><em>DepR</em></td>
<td>Dependency Ratio in a household</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Blocking variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>LivOwn</em> (ANOVA)</td>
<td><em>Mbrshp</em></td>
<td><em>Lhldg</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>RegRes</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>DepR</em></td>
</tr>
</tbody>
</table>

Non-members were classified into 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. Pairwise 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 Afor in this case. The latter is applied for comparing two independent groups, Afor (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. The presence of a School or a Health Center/Clinic within 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

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

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)

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Blocking variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NLrnCh (OLS)</td>
<td>AfLshn</td>
<td>PrsnSc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NSaCh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DepR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lhldg</td>
</tr>
<tr>
<td>• UmHs (Logit)</td>
<td>AfLshn</td>
<td>PrsnHc</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lhldg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DepR</td>
</tr>
</tbody>
</table>

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; \( Y = \text{Average Number of Learning Children in a household (NLrnCh)} \)

\( x_1 = \text{Being Member or Non-member (AfLshn)} \)

\( x_2 = \text{Presence of a School with in a 3-km-distance (PrsnSc)} \)

\( x_3 = \text{Average Number of School-Age Children in a household (NSaCh)} \)

\( x_4 = \text{Dependency Ratio in a household (DepR)} \)

\( x_5 = \text{Size of Land holding of a household (Lhldg)} \)

\( \beta_i \)'s = \text{Parameter estimates for the independent variables (x_i's)}

\( \alpha = \text{A constant (intercept)} \)

\( u = \text{Error term (absorbs unobserved factors)} \)
$X_i$’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:

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

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

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

$x_2$ = Size of Land holding of a household ($Lhldg$)

$x_3$ = Dependency Ratio in a household ($DepR$)

$x_4$ = Presence of a Health Center within a 3-km-distance ($PrsnHc$)

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

$\alpha = A$ constant (intercept)

$\ln$ = Natural logarithm

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

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

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$^{30}$ Odds of an event = (Probability of the event occurring) ÷ (probability of the event not occurring) = $p ÷ (1-p)$
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 $User$, $X_i$ = 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)\textsuperscript{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.

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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Category</th>
<th>Type of variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>Level of satisfaction of members with their cooperative</td>
<td>0 = Unsatisfied</td>
<td>Dependent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Neutral</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Satisfied</td>
<td></td>
</tr>
<tr>
<td>Patronage</td>
<td>Frequency with which members use their cooperative’s services</td>
<td>0 = Rarely*</td>
<td>Independent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Often**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Always***</td>
<td></td>
</tr>
</tbody>
</table>

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

The Ordinal Logistic Model employed has the following form:

\[
\text{Logit1} = \ln \frac{p(0)}{1-p(0)} = \alpha_1 + \beta X, \quad \text{Logit2} = \ln \frac{p(0) + p(1)}{1-p(0) - p(1)} = \alpha_2 + \beta X,
\]

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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Category</th>
</tr>
</thead>
</table>
| *Occupation* | Type of job pursued by a person | *Civil servant*  
*Trader*  
*Other*  |
| *Usage* | Whether a person uses the Union’s products | *User*  
*Non-user*  |

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

\(^{32}\) Copyright © 2000-2003 Minitab Inc
The value of the Chi-square statistic is given by: 
\[ \chi^2 = \sum \left[ \frac{(F_o - F_e)^2}{F_e} \right] \]; 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 Methodological Limitations

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>
<thead>
<tr>
<th>Year</th>
<th>Primary coops</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>10</td>
<td>10466</td>
<td>2553</td>
<td>13019</td>
</tr>
<tr>
<td>2005</td>
<td>10</td>
<td>10466</td>
<td>2553</td>
<td>13019</td>
</tr>
<tr>
<td>2006</td>
<td>14</td>
<td>13589</td>
<td>3627</td>
<td>17216</td>
</tr>
<tr>
<td>2007</td>
<td>14</td>
<td>13589</td>
<td>3627</td>
<td>17216</td>
</tr>
</tbody>
</table>

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

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

Source: Documents of the Union
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**

<table>
<thead>
<tr>
<th>Year</th>
<th>Merchandise</th>
<th>Honey</th>
<th>Crops</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Volume</td>
<td>Price</td>
</tr>
<tr>
<td>2005</td>
<td>645477.80</td>
<td>142</td>
<td>24.49</td>
</tr>
<tr>
<td>2006</td>
<td>519164.00</td>
<td>152</td>
<td>23.62</td>
</tr>
<tr>
<td>2007</td>
<td>356630.20</td>
<td>156.25</td>
<td>26.42</td>
</tr>
</tbody>
</table>

_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\textsuperscript{33}, Honey, and Crops\textsuperscript{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.

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{33} Includes: Macaroni, salt, lentil, peas, “alcha”, sugar, rice, soap, pasta, honey, and coffee.
  \item \textsuperscript{34} Include: Cereals (wheat, barley, teff, sorghum, maize) and pulses (beans, peas, chickpeas, lentil)
\end{itemize}
\end{footnotesize}
Chart 4.1.3: Trend of Hashenge Union’s Sales: Crop, Honey, and Merchandise

Source: Documents of the Union

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 outcome 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

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005/06</td>
</tr>
<tr>
<td>I. Liquidity Ratios</td>
<td></td>
</tr>
<tr>
<td>• Current Ratio</td>
<td>1.07</td>
</tr>
<tr>
<td>• Quick Ratio</td>
<td>0.54</td>
</tr>
<tr>
<td>II. Leverage Ratios</td>
<td></td>
</tr>
<tr>
<td>• Debt Ratio</td>
<td>0.63</td>
</tr>
<tr>
<td>• Debt-Equity Ratio</td>
<td>1.68</td>
</tr>
<tr>
<td>III. Activity Ratios</td>
<td></td>
</tr>
<tr>
<td>• Inventory Turnover Ratio</td>
<td>4.21</td>
</tr>
<tr>
<td>• A/R Turnover Ratio</td>
<td>7.59</td>
</tr>
<tr>
<td>• Average Collection Period</td>
<td>47.43</td>
</tr>
<tr>
<td>• TA Turnover Ratio</td>
<td>1.18</td>
</tr>
<tr>
<td>IV. Profitability Ratios</td>
<td></td>
</tr>
<tr>
<td>• GP Margin</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Documents of the Union

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 \((1 = \text{worse}, \ 2 = \text{same}, \ 3 = \text{slightly better}, \ 4 = \text{much better}, \ \text{and} \ 5 = \text{very much better})\).

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 \textit{Living standard (LivStd)}

<table>
<thead>
<tr>
<th>LivStd</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>2.00</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>4.00</td>
</tr>
<tr>
<td>3</td>
<td>56</td>
<td>56.00</td>
</tr>
<tr>
<td>4</td>
<td>18</td>
<td>18.00</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>20.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

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

\[ H_0: \text{Membership to a Cooperative does not improve Livestock Ownership of members.} \]

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, Afr, Nonmb, 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)**

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>DF</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mbrshp</td>
<td>3</td>
<td>21.88</td>
<td>0.000*</td>
</tr>
<tr>
<td>Lhldg</td>
<td>6</td>
<td>1.91</td>
<td>0.028**</td>
</tr>
<tr>
<td>RegRes</td>
<td>6</td>
<td>1.98</td>
<td>0.069***</td>
</tr>
<tr>
<td>DepR</td>
<td>6</td>
<td>1.79</td>
<td>0.100***</td>
</tr>
</tbody>
</table>

$R^2 = 0.558$

*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**

<table>
<thead>
<tr>
<th>Variable level</th>
<th>Mean LivOwn (in TLU)</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aftr</td>
<td>4.471</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bfor</td>
<td>2.807</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>1.664</td>
<td>7.202</td>
<td>0.000*</td>
</tr>
<tr>
<td>Aftr</td>
<td>4.471</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nonmbr</td>
<td>3.126</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>1.345</td>
<td>3.686</td>
<td>0.003*</td>
</tr>
<tr>
<td>Aftr</td>
<td>4.471</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Control</td>
<td>2.339</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>2.132</td>
<td>5.619</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

*Significant at 1% level of significance

**Source: Field Survey**

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 into 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, H₀ 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**

$$H_0: \text{Membership to a Cooperative does not promote Ownership of a Modern house.}$$

**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 \textit{Aftr} and \textit{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**

<table>
<thead>
<tr>
<th>Variable level</th>
<th>Proportion</th>
<th>z-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{Aftr}</td>
<td>0.250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>\textit{Bfor}</td>
<td>0.050</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>0.200</td>
<td>3.08</td>
<td>0.001*</td>
</tr>
<tr>
<td>\textit{Aftr}</td>
<td>0.250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>\textit{Nonmbr}</td>
<td>0.230</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>0.020</td>
<td>0.29</td>
<td>0.387</td>
</tr>
<tr>
<td>\textit{Aftr}</td>
<td>0.250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>\textit{Control}</td>
<td>0.020</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>0.230</td>
<td>3.61</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

*Significant at 1% level of significance

**Source: Field Survey**

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

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

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

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

\begin{center}
$H_0$: Membership to a Cooperative does not improve Clothing frequency per year of members.
\end{center}

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

\[ H_0: \text{Member Households send no more number of Children to School than non-member Households.} \]

**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),
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

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.365</td>
<td>0.505</td>
<td>-0.72</td>
<td>0.477</td>
</tr>
<tr>
<td>AfLshn</td>
<td>1.040</td>
<td>0.238</td>
<td>4.35</td>
<td>0.000*</td>
</tr>
<tr>
<td>PrsnSc</td>
<td>0.314</td>
<td>0.033</td>
<td>9.55</td>
<td>0.000*</td>
</tr>
<tr>
<td>NSaCh</td>
<td>0.499</td>
<td>0.152</td>
<td>3.28</td>
<td>0.003*</td>
</tr>
<tr>
<td>DepR</td>
<td>-0.374</td>
<td>0.729</td>
<td>-0.51</td>
<td>0.612</td>
</tr>
<tr>
<td>Lhldg</td>
<td>-0.092</td>
<td>0.017</td>
<td>-5.47</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Analysis of Variance (Overall model test)

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5</td>
<td>34.260</td>
<td>6.852</td>
<td>10.54</td>
<td>0.000*</td>
</tr>
<tr>
<td>Residual Error</td>
<td>24</td>
<td>15.606</td>
<td>0.650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>49.866</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R-Sq = 68.7%

*Significant at 1% level of significance

Source: Field Survey
The Regression Equation:

\[
NLrnCh = -0.365 + 1.040 \text{AfLshn} + 0.350 \text{PrsnSc} + 0.499 \text{NSaCh} - 0.374 \text{DepR} - 0.611 \text{Lhldg}
\]

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 \(\text{DepR}\) 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 \(\text{AfLshn}\), for example, indicates that for every one unit increase in \(\text{AfLshn}\) with in its range of values \((0, 1, \text{and} 2)\), \(NLrnCh\) increases by about 1.04, \textit{ceteris paribus}\textsuperscript{35}. In other words, as one moves from \text{Control} (coded 0) to \text{Nonmbr} (coded 1), the number of learning children in a household increases on the average by 1.04 children, \textit{ceteris paribus}. Similarly, the number increases by 1.04 as one goes from \text{Nonmbr} (coded 1) to \text{Member} (coded 2). Said differently, the number increases by 2.08 \((2 \times 1.04)\) when \(\text{AfLshn}\) changes from \text{Control} (coded 0) to \text{Member} (coded 2), \textit{ceteris paribus}. To sum up, the positive and significant coefficient of \(\text{AfLshn} (\text{Coef} = 1.040, t = 4.35, p = 0.000)\) indicates the fact that \textit{affiliation to a Cooperative Society} promotes the \textit{number of learning children} in a household. So, \(H_0\) can be safely rejected. This could be ascribed to increased \textit{income} and/or better \textit{awareness} to education of member households.

\textsuperscript{35} A Latin phrase meaning “\textit{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*)**

<table>
<thead>
<tr>
<th>Presence of a health center (<em>PrsnHc</em>)</th>
<th><strong>UmHs</strong></th>
<th><strong>UmHs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Present</strong></td>
<td><strong>User</strong></td>
<td><strong>non-User</strong></td>
</tr>
<tr>
<td><strong>Member</strong></td>
<td>82 (82)*</td>
<td>3 (3)</td>
</tr>
<tr>
<td><strong>Nonmbr</strong></td>
<td>26 (86.67)</td>
<td>1 (3.33)</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>20 (66.67)</td>
<td>2 (6.67)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>128</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Absent</strong></th>
<th><strong>User</strong></th>
<th><strong>non-User</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Member</strong></td>
<td>10 (10)</td>
<td>5 (5)</td>
</tr>
<tr>
<td><strong>Nonmbr</strong></td>
<td>1 (3.33)</td>
<td>2 (6.67)</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>2 (6.67)</td>
<td>6 (20)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

*Figures in parentheses represent percentage*

**Source: Field Survey**

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 within 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.

\[ H_0: \text{Cooperative Members show no better tendency towards using Modern Health Services than Non-members.} \]

**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 \( 0 = \text{non-User} \) and \( 1 = \text{User} \)). 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 presents the results of the analysis.

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

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

*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:

$$ \text{Logit (User)} = -0.907 + 0.705 \text{AfLshn} + 3.077 \text{PrsnHc} + 0.031 \text{Lhldg} - 0.600 \text{DepR} $$

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 Logit36 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 (*Nonmbbr* coded 1) versus the control group (*Control* coded 0), and 2.02 times higher for members (*Membr* coded 2) versus *Nonmbbr*, *ceteris paribus*. Therefore, the *odds* that members would use *Modern Health Services* are 4.09 ($= e^{2 \cdot 0.705} = e^{1.4107}$) 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; spillover 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

<table>
<thead>
<tr>
<th>Patronage</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Unsatisfied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rarely</td>
<td>0 (0)*</td>
<td>4 (4)</td>
<td>4 (4)</td>
<td>8</td>
</tr>
<tr>
<td>Often</td>
<td>17 (17)</td>
<td>12 (12)</td>
<td>11 (11)</td>
<td>40</td>
</tr>
<tr>
<td>Always</td>
<td>45 (45)</td>
<td>6 (6)</td>
<td>1 (1)</td>
<td>52</td>
</tr>
<tr>
<td>Total</td>
<td>62 (62)</td>
<td>22 (22)</td>
<td>16 (16)</td>
<td>100</td>
</tr>
</tbody>
</table>

*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 outcome 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.

\[ H_0: \text{Satisfaction and Patronage are independent.} \]

**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

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>Z</th>
<th>P</th>
<th>Odds Ratio</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const (1)</td>
<td>0.665</td>
<td>0.515</td>
<td>1.29</td>
<td>0.196</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Const (2)</td>
<td>2.253</td>
<td>0.558</td>
<td>4.03</td>
<td>0.000*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patron</td>
<td>-1.993</td>
<td>0.386</td>
<td>-5.16</td>
<td>0.000*</td>
<td>0.14</td>
<td>0.06</td>
<td>0.29</td>
</tr>
</tbody>
</table>

* 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:

$$Logit \ 1 = \logit (\text{Unsatisfied}) = 0.665 -1.993\text{Patron}, \logit (\text{Unsatisfied or Neutral}) = 2.253 -1.993\text{Patron}$$

It can be seen from the logistic equation that as Patent 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***

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Occupation</th>
<th>Income group</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0 -400</td>
<td>401-1000</td>
<td>1001-1500</td>
<td>1500+</td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>Civil Servant</td>
<td>0 (0)*</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Trader</td>
<td>5 (12.5)</td>
<td>2 (5.0)</td>
<td>2 (5.0)</td>
<td>0 (0)</td>
<td>9 (22.5)</td>
</tr>
<tr>
<td></td>
<td>Other*</td>
<td>9 (22.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>9 (22.5)</td>
</tr>
<tr>
<td>6-8</td>
<td>Civil Servant</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Trader</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>7 (17.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>7 (17.5)</td>
</tr>
<tr>
<td>9-12</td>
<td>Civil Servant</td>
<td>1 (2.5)</td>
<td>0 (0)</td>
<td>2 (5.0)</td>
<td>0 (0)</td>
<td>3 (7.5)</td>
</tr>
<tr>
<td></td>
<td>Trader</td>
<td>2 (5.0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (5.0)</td>
<td>4 (10)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Diploma</td>
<td>Civil Servant</td>
<td>0 (0)</td>
<td>3 (7.5)</td>
<td>2 (5.0)</td>
<td>0 (0)</td>
<td>5 (12.5)</td>
</tr>
<tr>
<td></td>
<td>Trader</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Degree</td>
<td>Civil Servant</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (5.0)</td>
<td>1 (2.5)</td>
<td>3 (7.5)</td>
</tr>
<tr>
<td></td>
<td>Trader</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>24 (60)</td>
<td>5 (12.5)</td>
<td>8 (20)</td>
<td>3 (7.5)</td>
<td>40 (100)</td>
</tr>
</tbody>
</table>

*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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*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) hospitality 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 outlets), 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 everyone. 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**

<table>
<thead>
<tr>
<th>Usage</th>
<th>Occupation</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Civil servant</td>
<td>Trader</td>
<td>Other</td>
<td>Total</td>
</tr>
<tr>
<td>User</td>
<td>4</td>
<td>12</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>(7.70)**</td>
<td>(9.10)</td>
<td>(11.20)</td>
<td></td>
</tr>
<tr>
<td>Nonuser</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(3.30)</td>
<td>(3.90)</td>
<td>(4.80)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>13</td>
<td>16</td>
<td>40</td>
</tr>
</tbody>
</table>

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.

\[ H_0: \text{There is no difference in the Costs incurred when purchasing certain products from the Union versus from Traders.} \]

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

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SE Mean</th>
<th>t-value</th>
<th>p-value</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost paid to Traders</td>
<td>412.57</td>
<td>17.006</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cost paid to Union</td>
<td>399.29</td>
<td>17.703</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Difference</td>
<td>13.28</td>
<td>2.2978</td>
<td>5.78</td>
<td>0.000*</td>
<td>8.6314</td>
<td>17.9271</td>
</tr>
</tbody>
</table>

\( T\)-test of mean difference = 0 (vs. > 0): * Significant at the 1% level of significance

Source: Field Survey

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 manpower 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, without 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

<table>
<thead>
<tr>
<th>Strengths:</th>
<th>Weaknesses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Good customer handling</td>
<td>• Poor demand for qualified professionals</td>
</tr>
<tr>
<td>• Unadulterated products</td>
<td>• Lack of transparency</td>
</tr>
<tr>
<td>• Competitive pricing</td>
<td>• Poor time management</td>
</tr>
<tr>
<td>• Poor demand for qualified professionals</td>
<td>• Rigidity of decisions</td>
</tr>
<tr>
<td>• Lack of transparency</td>
<td>• Plan implementation problems</td>
</tr>
<tr>
<td>• Poor time management</td>
<td>• Poor promotional effort</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities:</th>
<th>Threats:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increasing number of qualified professionals</td>
<td>• Too much expectation of members</td>
</tr>
<tr>
<td>• Awareness of society to Cooperative benefits</td>
<td>• Need for immediate dividend</td>
</tr>
<tr>
<td>• Religious leaders of Cooperatives</td>
<td>• Unhealthy competition from traders</td>
</tr>
<tr>
<td>• Government support to Cooperatives</td>
<td>• Lack of research in the area of cooperation</td>
</tr>
</tbody>
</table>

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 Recommendation

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.
REFERENCES

- Central Statistical Authority (2006)
- Copyright © 2000-2003 Minitab Inc

• Hyun, Woo-Yong: *Using Multinomial Logistic Regression Analysis to Understand Anglers Willingness to Substitute Other Fishing Locations*: Department of Recreation, Park and Tourism Sciences, Texas A&M University.

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


• Rajagopal, O.A 1992: *A Study on Governing of Member Control Perspective in Horticultural Cooperatives*.


• Scheaffer, Richard L.: *Categorical Data Analysis*: University of Florida.


• Wooldridge, Jeffrey M.: *Introductory Econometrics, A Modern Approach*: Michigan State University, South-Western College Publishing.


**WEBSITES:**

• http://www.co-op.ac.uk
• http://www.ica.coop
• http://www.ilo.org/coop
• http://www.google.com.et/
• http://www.wikipedia.com
• http://www.wisc.edu/uwcc
APPENDIX:

I. Interview Schedule

1.1 To Members

Performance Evaluation of Hashenge Cooperative Union and its Affiliates

1. Name: _________________
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. < 1 year                     d. 3-4 years
   b. 1-2 years                     e. 4-5 years
   c. 2-3 years                     f. > 5 years

9. Satisfaction/happiness with membership:
   a. Very unsatisfied
   b. Unsatisfied
   c. Neutral
   d. Satisfied
   e. Very satisfied

10. Reasons for dissatisfaction:
    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. 101-300 birr
   c. 301-500 birr
   d. 501-1000 birr
   e. More than 1000 birr

14. Annual income after affiliation:
   a. 0-100 birr
   b. 101-300 birr
   c. 301-500 birr
   d. 501-1000 birr
   e. 1001-5000 birr
   f. More than 5000 birr

15. Reasons for reduced income:
   a. _______________
   b. _______________
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. 

80
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
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
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 5 years back:
   a. Lower
   b. Same
   c. Better
   d. Much better

12. Annual income 5 years back:
   a. 0-100 birr
   b. 101-300 birr
   c. 301-500 birr
   d. 501-1000 birr
   e. More than 1000 birr

13. Annual income during the past 5 years:
   a. 0-100 birr
   b. 101-300 birr
   c. 301-500 birr
   d. 501-1000 birr
   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. __________
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:
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

### የመቀጠል ይሆነት ከተለቀም ይችላል

ውን መቀጠል ይሆነት ይችላል የመቀጠል ገ.’ ቈ.” ች.” ይችላል የሚለagnostic ይመለለው። የለመጋለ የተበር የተጾም ይወሳች። ከወሳች ቤት ች.” ች.” ይለው። ከወሳች ለመ ያስመልክት ይህ ለማውረት ይችላል ወስነን ከችልወጥ ወስነን ከችልወጥ ከሚል ይችላል።

አት-ሰራት በችልወጥ ለማ መቀጠል ከፈፀም ከቀረበው ከፈፀም ከችልወጥ ከሚል ይችላል።

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|5. | የተ-ች. ለ-ች.:  
     ወ. ቁ-ች.  
     ኢ. ለ-ች. ለች./አተ |
|6. | የተ-ሰታ መሆን ይችላል ይችላል:  
     ወ. 0-5 ለች.  መ ለ-ች. ይችላል ይችላል  
     ኢ. 6-8 ለች.  ኢ. ለ-ች. ይችላል ይችላል  
     ለ. 9-12 ለች.  ለ. ለ-ች. ይችላል ይችላል |
|7. | የተ-ሰታ ይችላል ይሆኔ: |
8. ከወጉ ክርስት ከሄ ግን መተካማ ከተጠቀም ከስተናጋ ይወስ በን? ይወስ ከሄ ግን መተካማ ከተጠቀም ከስተናጋ ይወስ በን?

9. ከወጉ ከመወሪ የሆኑ ከሌ ይወስ ከሄ ግን መተካማ ከተጠቀም ከስተናጋ ይወስ በን?

10. ይወስ ከሄ ግን መተካማ ከተጠቀም ከስተናጋ ይወስ በን?
1. ______________________
2. ______________________
3. ______________________
4. ______________________

11. ይወስ ከሄ ግን መተካማ ከተጠቀም ከስተናጋ ይወስ በን?
1. ______________________
2. ______________________
3. ______________________
4. ______________________

12. ከወጉ ታሳታ ይወስ ይወስ በን? ይወስ በን?
13. እወ የጋብቻው የህርጋ የሱን የታወቅ ከወር?

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<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

14. እወ የጋብቻው የህርጋ ከወር ይህ ወላ ይህም?

<table>
<thead>
<tr>
<th>የጋብቻው የህርጋ</th>
<th>የወራ የጋብቻው የህርጋ ይህም (ወራ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

15. ከወር ከጆች ከም ከወሩ የማይች ከጆች ይህም?

v. ከወር

አነጆት?

1. ______________________

98
2. ______________________
3. ______________________
4. ______________________
5. ______________________

 hendisi

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________

16. ከምሳ የገኝ ዋና እስነ ይphies ያለኝ በታጠceptor ከ. ብርሸብ

1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
### III: Description of Demographic Characteristics of Member Respondents: Sex, Age, & Marital status

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

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:
<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>15840.60</td>
</tr>
<tr>
<td>Transport</td>
<td>25950.65</td>
</tr>
<tr>
<td>Per diem</td>
<td>22101.00</td>
</tr>
<tr>
<td>Labor</td>
<td>7378.85</td>
</tr>
<tr>
<td>Interest</td>
<td>8734.27</td>
</tr>
<tr>
<td>Sack cost</td>
<td>1814.25</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>6623.57</td>
</tr>
<tr>
<td>Telephone bill</td>
<td>1498.42</td>
</tr>
<tr>
<td>Car service</td>
<td>339.00</td>
</tr>
<tr>
<td>Oil and grease</td>
<td>9585.32</td>
</tr>
<tr>
<td>Store rent</td>
<td>6927.50</td>
</tr>
<tr>
<td>Bank service</td>
<td>129.00</td>
</tr>
<tr>
<td>Stationery</td>
<td>508.82</td>
</tr>
<tr>
<td>Bees lost</td>
<td>865.44</td>
</tr>
<tr>
<td>Depreciation</td>
<td>5516.66</td>
</tr>
</tbody>
</table>

**Total admin expenses** \(\text{\textdollar}113777.35\)

**Loss from Operations:** \(\text{\textdollar}284382.62\)

**Other revenues**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car rent</td>
<td>19325.00</td>
</tr>
<tr>
<td>Reg fee</td>
<td>14000.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>8052.00</td>
</tr>
</tbody>
</table>

**Total** \(\text{\textdollar}41377.00\)

**Net Profit (Loss)** \(\text{\textdollar}(243005.62)\)
Hashenge Cooperative Union, plc  
Balance Sheet  
As of September 21/2006

<table>
<thead>
<tr>
<th>Current asset:</th>
<th>Initial cost</th>
<th>Deprn.</th>
<th>Book value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash on hand</td>
<td>348.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash in bank</td>
<td>135100.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash in doc</td>
<td>47955.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventory (Ending):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merchandise</td>
<td>72708.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td>233377.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>2545.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stationery</td>
<td>5406.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepaid insurance</td>
<td>5574.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed</td>
<td>3123.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total current asset</td>
<td></td>
<td></td>
<td>322734.62</td>
</tr>
</tbody>
</table>

| A/R (end):          |              |        |            |
| Fert.Cr             | 122965.85    |        |            |
| Merch. Cr           | 28640.11     |        |            |
| Members             | 840.00       |        |            |
| Total current asset |              |        | 152445.96  |

| Fixed asset:        |              |        |            |
| 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       | 36064.63     |        |            |
| A/P (Ambasel)       | 273714.00    |        |            |
| A/P (ESCO)          |              |        |            |
| Total lib (Current) | 306911.30    |        |            |

| Capital:            |              |        |            |
| Share               | 115000.00    |        |            |
| Expansion (50%)     |              |        |            |
| 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
Total 83488.17

Purchase:
Merchandise 923635.66
Crops 321761.27
Bees 5456.00
Sheep and Oxen 26753.85
Honey 8303.90
Hide 128601.40
Total 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
Total (76836.01)

CGS 1421164.24

Gross Profit 125101.49

Other Revenues:
Car Rent 227418.29
Interest 11477.65
Miscellaneous 31634.16
Total 270530.10

Operating and Other Expenses:
Salary 70634.35
Oil and Lubricant 105951.42
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>32980.60</td>
</tr>
<tr>
<td>Spare parts</td>
<td>13087.50</td>
</tr>
<tr>
<td>Insurance</td>
<td>10919.54</td>
</tr>
<tr>
<td>Labour</td>
<td>16239.40</td>
</tr>
<tr>
<td>Telephone</td>
<td>5937.26</td>
</tr>
<tr>
<td>Transport</td>
<td>30583.50</td>
</tr>
<tr>
<td>Store rent</td>
<td>7895.00</td>
</tr>
<tr>
<td>Sack cost</td>
<td>3320.00</td>
</tr>
<tr>
<td>Feed</td>
<td>18002.40</td>
</tr>
<tr>
<td>Sheep medication and tax</td>
<td>535.00</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>21298.16</td>
</tr>
<tr>
<td>Per Diem</td>
<td>81485.80</td>
</tr>
<tr>
<td>Bank Services</td>
<td>856.35</td>
</tr>
<tr>
<td>Interest</td>
<td>18356.33</td>
</tr>
<tr>
<td>Stationery</td>
<td>6364.13</td>
</tr>
<tr>
<td>Yearly Services</td>
<td>110681.99</td>
</tr>
<tr>
<td><strong>Operating Loss</strong></td>
<td><strong>555128.73</strong></td>
</tr>
<tr>
<td><strong>Net Loss</strong></td>
<td><strong>159497.14</strong></td>
</tr>
</tbody>
</table>
# Hashenge Cooperative Union, plc
## Balance Sheet
### As of October 18/2007

### Current Asset
- **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**: 3679.00

**Total Asset**: 403466.72

### Fixed Asset
- **Office Furniture**: 29426.20
  - Accumulated Depreciation: 2594.00
- **Shop Furniture**: 5307.50
  - Accumulated Depreciation: 1339.29
- **Modern Beehive**: 55685.40
  - Accumulated Depreciation: 4646.15
- **Sheep house**: 61824.70
  - Accumulated Depreciation: 6182.47
- **Store**: 202312.60
- **Isuzu**: 243448.17
  - Accumulated Depreciation: 101436.74

**Total Fixed Asset**: 481805.92

**Total Asset**: 885272.64

### Liability and Capital:

#### Liability
- **Accounts Payable (Coops)**: 122730.00
- **Accounts Payable (Rural Credit)**: 153901.86
- **Accounts Payable (Ambasel)**: 48571.60
- **Accounts Payable (ESCO)**: 4835.24

**Total Liab.**: 330038.70

#### Capital
- **Share**: 115000.00
- **Gift**: 548116.42
  - 663116.42

**Total Capital**: 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