

*Factors Affecting Distribution Channel Of Dairy Products
(In the case of Jimma Town Dairy producers)*

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DECLARATION

I hereby declare that this thesis entitled “Factors Affecting Marketing Distribution Channel Of Dairy Products In Jimma Town) in Ethiopia”, has been Carried out by me under the guidance and supervision of Ato wondweson siyoum and Gadise Amensiis

The thesis is original and has not been submitted for the award of degree of diploma any university or instructions.

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CERTIFICATE

This is to certify that the thesis entities “Factors Affecting Marketing Distribution Channel Of Dairy Products In Jimma Town” , Submitted to Jimma University for the award of the Degree of Master of Business Administration (MBA) and is a record of Valuable research work carried out by Mr. Reshad Aba fita under our guidance and supervision

Therefore we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree of diploma.

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Abstract

The study was undertaken with the objective of assessing Factors affecting distribution channels of dairy product in Jimma town, Ethiopia. The specific objectives were: To describe dairy producers participating in Formal and Informal milk marketing channels, To Identify factors affecting dairy producers' choice of milk marketing channel and To Identify the constraints Dairy farmers' face when supplying milk to formal marketing channels. Cross-sectional data was collected from 62 dairy producers, 24 cafeterias randomly selected urban and peri urban households of four sub city of Jimma town. Both descriptive and quantities techniques (correlation and Multinomial Logistic Regression) were used in data analysis. From the results Out of the total dairy producers 34.4%, 31.1, 21.3% and 13.1% were consumers, cooperative, cafeterias/hotels and wholesalers /retailers market channels/outlets, respectively and they are 55.7% and 44.3% dairy producers used Formal market system and informal marketing system were milk dairy market distribution channels respectively. Regression result shows that access to credit, institutional support and member to dairy cooperative association and Payment model dairy market use has positive and significant effect on the preference of formal milk markets and Ages of household head, Experience dairy producer head and average milk sold per day has negative and significant effect on formal milk markets. Based on the main findings the study recommend sex, to aware milk producers to choose good market outlets such as cooperatives for efficient and profitable marketing of dairy and suggests the government to increase the access of cooperatives and the improvement of the infrastructure to enhance milk marketing. As a result, access to milk market outlets of households can be segmented by socioeconomic and demographic characteristics, physical capital, market access, institutional support services and attributes of alternative milk market outlet The findings are quite consistent with the expected behavior of Ethiopia dairy farmers and provide a clear picture of the milk marketing behavior . In view of research findings, several policy proposals are suggested. These include offering reasonable prices price per litre of milk, propelling collective actions, provision of non-price incentives, re-structuring existing dairy institutional arrangements, establishing milk collection centers, encouraging value addition (adoption of best upgrading practices) and investment in dairy processing (empowering SMEs).

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ABBREVIATION OR ACRONOMY

FAO----- Food and Agriculture Organization of the United Nations

ILRI -----International Livestock Research Institute

NGO ----- Non-governmental organization

GDP ----- Gross Domestic Product

ILRI ----- International Livestock Research Institute

MoALD ----- Ministry of Agriculture and Livestock Development

MoARD----- Ministry of Agriculture and Rural Development

MoLD----- Ministry of Livestock Development

SDP----- Smallholder Dairy Project

USAID ----- United States Agency for international development

DP= Dairy Producers

CCJMDP= Cooperatives Committees Of Jimma Multipurpose dairy Production

JULFOHE= JIMMA URBAN LIVESTOCK AND FISHING OFFICE HEAD AND EXPERTS

VOLMEOFP= Volume Of Milk Produced And Sold Per Day

SELLINGP= Selling Of Milk Price Per/L

DISTANCE= Distance To Nearest Market

ACCESSCR= Access To Credit

INSTITUS= Institutional Support

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

The dairy industry is a major employer in the world and it is growing further as the demand for milk is increasing with the growth in population to over the 7 billion market. Dairy farming is a key economic activity among the developing countries. It fills the funding gap created by the

inadequacies of the financial markets and low acceptance of insurance policies (Omole et al 2004). It ensures regular cash flows to the farmers as opposed to intermittent incomes from crop cultivation and other forms of livestock keeping (FAO, 2011). The roles of livestock play in developing countries, especially to rural livelihood improvement and augmenting livelihood of poor, are well recognized (Upton, 2004). Primarily, livestock provide draft power, food, income, transportation, alternative energy sources (dung cake for fuel and biogas), social prestige and status in communities. Livestock production creates income opportunities for landless poor who provide fodder, collect water to feed and engage in value addition and marketing. Livestock and their products are estimated to compose a third of total value of agricultural gross output in developing countries and this share is rising from time to time (ILRI, 2005). Livestock production is an integral part of the country's agricultural production system. Ethiopia, with its extreme variations in agro-climatic conditions, possesses the largest livestock population in Africa and considered to be rich in biodiversity. Ethiopia has the largest livestock population in Africa, comprising of; 49 million heads of cattle, 26 million heads of sheep, 21 million heads of goats, 7 million equines, 1 million camels and 39 million chickens (CSA 2009, pp 11). The livestock sector accounts for about 40% of agricultural GDP and 18% of the overall national GDP of the country. There are pastoral, highland smallholders, urban and peri-urban, agro pastoral and intensive systems of livestock production in Ethiopia. In the highlands, where about 70% of the human and livestock populations are, mixed crop-livestock farming is typically practiced within the same management unit. In the lowlands, however, livestock husbandry predominates, and there is little or no crop farming.

According to Adams et al (2009) under feeding of cows especially in terms of energy or an imbalanced ration was a major cause of short lactation length and excessive drops in milk generally accompanying this.

This short lactation length was a result of poor nutrition as most farmers in the chain depended on use of high quantities concentrates and maize Stover as major source of feeds. At that time, there was an emergence of new institutional arrangements in milk collection, processing and marketing, which included hawkers, brokers' self-help groups, neighbors and business establishments like hotels (Karanja, 2003).

Smallholder dairy farmers can enhance their growth and profitability by being involved in production, distribution and marketing coordination and governance at various levels in the food value chain thereby integrating vertically and horizontally. Vertical integration occurs

where two or more stages in the process of production and marketing are effectively controlled by single management (Rehber, 1998). Vertically integrated farmers maximize return on investments through value addition, complimenting own produce from other sources as well as offering diversified products from the same material inputs. When selling their products, such actors will use marketing channels that enable their produce to reach the market at least cost per unit of output.

Dairy products in Ethiopia are channeled to consumers through formal and informal marketing systems (Tsehay, 2001). The formal marketing system appeared to be expanding during the last decade with private farms entering the dairy processing. The informal market directly delivers dairy products by producers to consumer (immediate neighborhood or sales to itinerant traders or individuals in nearby towns).

In Ethiopia, the share of milk sold in formal market is less than 2% compared to 15% in Kenya and 5% in Uganda (Muriuki and Thorpe, 2001). As an option, dairy farmers processed 93% of milk produced into milk products. Generally, the low marketability of milk and milk products pose limitations on possibilities of exploring distant but rewarding markets. Some others studied livestock and livestock products marketing in parts of Ethiopia (Holloway et al., 2000; Yigezu, 2000; Muriuki and Thorpe, 2001; Tsehay, 2001; Mohammed et al. 2004; Woldemichael, 2008). However, none of past studies identified factors affecting milk market outlet choices in jimma town, Ethiopia.

It is many private producers and small scale cooperative production and marketing distribution channel of dairy products jimma town from its catchment areas, with dairy products in which most of them have complications related to poor collaboration among and between value chain actors, inefficient dairy and dairy products marketing, poor marketing facilities and services. The study by Ketema, et. al. MoARD, (2007, pp 149), indicated that in Ethiopia, fresh milk is distributed through the informal and formal marketing systems. The informal market involves direct delivery of fresh milk by producers to consumers in the immediate neighborhood and sales to itinerant traders or individuals in nearby towns. Milk is transported to towns on foot, on donkey and horseback or by public transport, and commands a higher price there than when sold in the neighborhood, to cover transport costs. Dairy production is insufficient to meet demand in most parts of Ethiopia: consumers report that low availability of dairy products is a major reason for not consuming dairy products (Asfaw, et. al. 2011, pp 32-43). A study by Negassa (2009, pp 48-56) in the Arsi zone shows that about 72, 62, 43, and 38 percent of consumers surveyed indicated that their current monthly levels of consumption of fluid milk, edible butter, cheese, and cosmetic butter (used for hair care) respectively are insufficient. This

study will therefore conduct to determine factors affecting production and marketing distribution channel of dairy products in jimma town small scale cooperative associations and private producers managing distribution channel such as poor collaboration, lack of market access that many farmers face, policy decision on assurance of quality and standards, product marketing, among others is taken in the absence of vital information on how they affect the entire value chain, aggravated environmental problems agricultural growth ,accelerations declining terms of trade, traditional technologies, limited supply of inputs (feed, breeding stock, artificial insemination and water), inadequate extension service, poor marketing infrastructure, lack of marketing support services and market information, limited credit services, absence of producers’ organizations, and natural resources degradation. Choice of marketing channels is one of the important factors for producers because different channels are characterized by different profitability and cost. Understanding the factors influencing the channel selection and how the restrictions associated with these factors can be alleviated. Is also essentials not only in marketing channel development but also in increasing farm income and investment condition especially for small scale’s dairy production. Oromia is one of the potential milk production and marketing areas in Ethiopia. In the zone, it is common to see household choices among milk market outlets. Then, what motivate households to choose among milk market outlets available in the study area? Systematic identification of factors faced by households in market outlet choice is increasingly seen by agricultural research as important component of any strategy for reaching the millennium development goals (giuliani and padulosi, 2005).Therefore the study provides an empirical basis for identifying options to increase milk market outlet choices of households. In doing so, the study attempts to contribute to filling the knowledge gap by assessing factors affecting milk market outlet choices in jimma town, Ethiopia.

1.2. Statement of the problem

Global consumption, production and trade of livestock products in developing countries have increased rapidly in the last two decades and are expected to continue to rise (Delgado et al. 1999; Delgado 2003; Hall et al. 2004). This trend has been termed as the ‘livestock revolution’ (Delgado et al. 1999).

The importance of facilitating market access to dairy farmers as well as developing chain competitiveness and efficiency are valuable preconditions to improve their livelihoods (Lundy et

al., 2004; Padulosi et al., 2004). Dairy policies have been relaxed to allow market forces to determine farm level prices. This has exposed farmers to lower milk prices while downstream retail prices are higher (Huff, 2003, Artukoglu et.al, 2008, Tsougiannis et al, 2008). This has resulted into considerable mistrust among market chain actors in developing countries (Markus et al., 2008). IN Ethiopia with high population densities, smallholder farmers usually cultivate less than one hectare of land, which may increase up to 10 ha or more in sparsely populated semi-arid areas, sometimes in combination with livestock of up to 10 animals (Dixon etal, 2003). Until recently, the African agricultural landscape was characterized by sluggish growth, low factor productivity, declining terms of trade, and often also by practices that aggravated environmental problems. Some recent agricultural growth accelerations notwithstanding, the sector's growth remained insufficient to adequately address poverty, attain food security, and lead to sustained GDP growth on the continent (Dessy et al., 2006 and World Bank, 2008).

Many small scale farmers practice intensive dairy farming where they do stall feeding and a combination of stall feeding and grazing. This is because of their small land sizes usually less than 5 acres (Bebe et al., 2003a). Because of intensification most of the farmers prefer to keep the large mature breeds (Bebe et al., 2003b) as they believe they are more productive as compared to others. In terms of output the smallholder open grazing is realized to have less output than the zero grazing itself (Karanja 2003). Even though Ethiopia is home to the largest population of cattle in Africa, with the latest estimate 52,129,017 head of cattle (CSA, 2011), are mostly maintained by smallholder, commercial and pastoral farmers; and more than 99% are indigenous low yielders that greeneries a high gap between demand and supply of milk and milk products. The demand for milk is even expected to grow more as Ethiopia's population of 93,815,992 (CAI World Fact Book, 2012) expands and demographic changes result in an increasingly urbanized population, the fastest-urbanizing country in Africa with 4.3 percent growth per year, has unmet demand for milk and milk products.

Dairy production is crucial in Ethiopia as milk and milk products are important source of food and income. Despite the huge potential, dairy production has not been fully exploited and promoted in the country. A number of factors such as use of traditional technologies, limited supply of inputs (feed, breeding stock, artificial insemination and water), inadequate extension service, poor marketing infrastructure, lack of marketing support services and market information, limited credit services, absence of producers' organizations, and natural resources degradation (Berhanu et al., 2007) have contributed to un-exploitation of dairy potential.

In addition, policy decision on assurance of quality and standards, product marketing, among others is taken in the absence of vital information on how they affect the entire value chain. It is observed that income generating capacity of dairy value chain actors through collaborative work has not been exploited. Primary reason among others seems to be poor collaboration among and between value chain actors, inefficient dairy and dairy products marketing characterized by high margins and poor marketing facilities and services. The lack of market access that many farmers face is considered to be a major constraint to combating poverty (Best et al., 2005).

Current knowledge on dairy value chains, performance and prices is poor for designing policies (Ayele et al., 2003). Moreover, modern retail revolution is reshaping the way food is produced, procured and retailed. These rapid changes in these markets affect the entire value chain with enormous implications for the competitiveness and future viability of dairy farmers. As modern markets replace traditional markets, outlets for dairy farmers are reduced.

A number of factors such as use of traditional technologies, limited supply of inputs (feed, breeding stock, artificial insemination and water), inadequate extension service, poor marketing infrastructure, lack of marketing support services and market information, limited credit services, absence of producers' organizations have contributed to un-exploitation of dairy potential.

There is not enough information to dairy farmers on the best milk distribution channel in jimma town. In most cases farmers have opted to sell their milk to distribution channels that offer the highest price per litre of milk produced. But a distribution channel that offers the highest price is not necessarily the one that offers other economic benefits. This means there is need for dairy farmers to weigh individual economic benefits of a channel in order to strike a balance that will maximize their economic benefits.

In doing so, the study attempts to contribute to filling the knowledge gap by assessing factors affecting milk marketing distribution channel of dairy products in jimma.

The purpose of the study was to evaluate the factors that influence the choice of distribution channels and strategies for dairy farmers in jimma town. The study aimed at making the farmers informed about the best distribution channels and the economic benefits given by these channels. It is from this background that the study strived to establish the most profitable milk distribution channel and strategies that can be adopted by dairy producers.

This research Answer the following research questions. Why do some producers sell dairy products in the formal market while others continue to sell in the informal market in study area? Which factors influence the choice of milk marketing channel? Which constraints producers face when supplying milk to formal marketing channel?

1.3. Objective of the study,

1.3.1. General Objective

The overall objective of this study was to assess factors affecting distribution of dairy products in Jimma town, south west Ethiopia

1.3.2. Specific Objectives:

- To describe dairy producers participating in Formal and Informal milk marketing channels
- To Identify factors affecting dairy producers' choice of milk marketing channel.
- To Identify the constraints Dairy farmers' face when supplying milk to formal marketing channels

1.4. Significant of the study

The primary beneficiaries from this study are the milk producers as their constraints will be exposed and get solved by the concerned government body. For Consumers, traders, hotels/restaurants can benefit in that its promotion enables actor oriented products, improved hygiene and quality products. Will help as a base for planning effective market access that many farmers face, policy decision on assurance of quality and standards, marketing infrastructure, marketing support services and market information, marketing facilities service to achieve the goal of national and regional .

The findings of this study will be uses, policy makers to effectively manage dairy products and to tackle problems that happen due to preventable factors contribute to production and marketing in small scale cooperative and private producers managing distribution channel.

The findings of the study will serve as base line for further study or serve as secondary data for other studies. The finding helps the dairy farming profession and other agricultural workers to know the magnitude of the problem in the study area.

1.5. Scope of the study

This study was conducted in Jimma town and its surrounding area (6 km) away from city boundary. It assesses the urban and peri-urban marketing distribution channel of dairy products:

The study was carried out from March to May 2017. Respondents which comprised, key market participants (milk producers and cafeterias,) were used to conduct this study

1.6. Organization of the study

This research was organized under five chapters. Chapter one pinpoints background, statement of the problem, research questions, objectives, significance of the study, scope and limitations of the study and Chapter two presents review of theoretical and empirical evidences to the study. Chapter three research methodology (description of the study area, data types and sources, methods of data collection, sampling techniques and methods of data analysis) of the study. Chapter four results and discussion .chapter five conclusion and recommendation.

1.7. Limitations of the Study

Since the study period was the beginning of main crop planting season, peri-urban producers were not available as required. Other limitation of this study is that the sample taken was limited to the areas surrounding Jimma city and the result may not be applied to other areas. Hence, it can be used as indicator for future research.

1.8. Definition of Key Terms

Dairy Farming : Dairy farming is a class of agriculture, or an animal husbandry enterprise, for long production of milk, usually from dairy cows but also from goat, sheep and camels, which may be either

processed on site or transported to a dairy factory for processing and eventual retail sale (en.wikipedia.org/wiki/Dairy farm).

Market, Marketing and Marketing System Concepts

Market: Market, in its physical or conceptual term, is a place where exchange takes place (Adane, 2008).

Marketing: Marketing includes moving products from producers to consumers and comprises exchange activities of buying and selling, the physical activities designed to give the product increased time, place and form utility, and the associated functions of financing, risk bearing and dissemination of information to participants in the marketing process (Jabbar et al., 1997). Livestock marketing involves the sale, purchase or exchange of products such as live animals, and livestock products of milk, meat, skins, wool and hides for cash or goods in kind international live stock center for Africa (ILCA) 1990.

Marketing System: A marketing system is comprised of a number of elements: the particular products (for example, live animals and their products) and their characteristics being transferred from producer to consumer; the characteristics of participants (e.g., the producer, the trader, and the consumer); the functions or roles that each participant performs in the market; and the locations, stages, timetable and physical infrastructures involved. (Adane ,2008).

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1. Dairy products around the world

2.1.1. Overview of the global market

According to (FAO) dairy products sector is extremely vibrant and experiencing a real surge in popularity. And also concur in saying that global dairy product production and consumption is set for promising growth. Growth projections for consumption highlight the considerable rise in the consumption of milk and dairy products in least developed countries (LDCs), followed by those of North Africa, However, annual per capita milk and dairy product consumption estimates (in milk equivalent) show that per capita consumption levels should remain very high in western countries (Europe and North America) despite their saturated markets.

New packaging technology making it possible to store dairy products more hygienically and for longer periods coupled with options to replace meat by cheese in the ingredients for meals, appear to be key drivers of this potential growth in cheese consumption worldwide The European Union is still the world's biggest consumer of milk and dairy products(LACTIMED).2015.The main milk production zones (cow's milk for the most part) are Western Europe, North America and Oceania (New Zealand) The production of fresh dairy products has grown considerably since the 1960's and Western Europe maintains a leading position in the production zones for yoghurt and whey

2.1.2. International Trade In Milk And Dairy Products

According to USDA reports, international trade in drinking milk (in all its forms) absorbs around a twentieth of global cow's milk production (Commonwealth Bank, 2010). International trade in milk and dairy products has exhibited quite large fluctuations over the last few decades, resulting in changes to public policies in western countries and their decisions stop subsidizing products in this industry. GATT (General Agreement on Tariffs and Trade) negotiations, followed by those of the World Trade Organization (WTO), have also changed in the sense of liberating trade from all public intervention. As such, a structural change in the shape and form of the main exporters and importers has taken place on the international dairy scene following this freeing-up of the market. Volumes produced and trade in largely subsidized products like milk powder and butter have been widely affected and

shown significant falls whereas high value products like cheese or fermented milks have been spared from this structural change. .

The European Union accounts for the largest share in total volume of exported and imported milk, even though its average annual rate of growth over the 25 years studied was just 0.25%. Worldwide, new EU members, Oceania and Latin America have increased their share of total exported volumes. Fluctuations, and particularly rising prices of whole milk powder on international markets, have significantly influenced increased supply at a global level due to the benefits of these price rises on farm-gate prices of raw milk in most producer countries (Rabobank, 2010).

2.1.3. The dairy products market: an increasingly concentrated market

According to the expression coined by Professor Jean-Louis Rastoin (Montpellier SupAgro, President of the UNESCO World Food Systems Chair), the global market in dairy products displays an “oligopoly with fringes” structure. Euro monitor estimates show that the ten key global players hold nearly a quarter of the global market. It appears that they are being increasingly challenged by retailers’ own brands and by a multitude of disparate companies (large national firms, SMEs and artisanal micro businesses) which share the rest of the market and are gradually making inroads into the global market). As such, in parallel to globalised and standardized products such as yoghurts, industrial milk-based desserts, yellow fat spreads and cheddar type cheeses, typical local products continue to exist or are even growing as a result of recent changes in consumer preferences, habits and lifestyles. Disparate companies (large national firms, SMEs and artisanal micro-businesses) which share the rest of the market and are gradually making inroads into the global market. As such, in parallel to globalised and standardized products such as yoghurts, industrial milk-based desserts, yellow fat spreads and cheddar type cheeses, typical local products continue to exist or are even growing as a result of recent changes in consumer preferences, habits and lifestyles.

It is an undeniable fact that supermarkets and hypermarkets (SMHM) form an essential distribution channel to reach the largest number of consumers. Nevertheless, there are some channels likely to suit dairy specialty products seeking to develop an alternative image to that of the majority of producers. Among these are specialized shops (creameries and cheese mongers), but also some traditional grocers which are places where the focus is on marketing typical products

2.2. Analytical Framework

The theoretical framework to identify factors influencing urban dairy farmers to choose milk marketing channel is based on consumer preferences, which is centered in consumer theory.

In consumer theory, demand functions are derived from considering a model of utility maximization coupled with underlying economic constraints and or decision making for the set of options that maximize utility (Varian, 1999; Nicholson, 2002; Dwivedi, 2004). In this study smallholder dairy farmers sell their milk produce in different market outlets including neighbors, vendors, MCC and processors. Specifically, this study intended to investigate factors influencing the dairy farmers and or actors in choosing milk marketing channel between the two principle categories of milk marketing channels (formal and informal). However preliminary studies and observation in the study areas indicated that within the informal milk marketing channel there were subsets of market outlets such as vendors, hotels/restaurants, and milk collection centers. Thus, the use of the MNL model is justifiable considering the multiple choices of outlets.

2.2.1. Multinomial logistic regression model

Multinomial Logistic Regression (MNL) model allows for analysis of different individual Characteristics when confronted with multiple choices (Maddala, 1983; Green, 1993; Borooah, 2002; Hill *et al.*, 2008). It estimates the probability of individual choosing an activity or a particular milk market outlet (neighbors, restaurants, milk collection center, and processors) given some set of explanatory variables.

The MNL can be used to predict a dependent variable, based on continuous and/or Categorical independent variables, where the dependent variable takes more than two Forms (Griffiths *et al.*, 2001; Kohler and Kreuter, 2005). Furthermore, it is used to determine the percent of variance in the dependent variable explained by the independent variables and to rank the relative importance of independent variables.

Logistic regression does not assume a linear relationship between the dependent variable And independent variables, but requires that the independent variables be linearly related to the logit of the dependent variable (Gujarati, 1992). Pundo and Fraser (2006) explained that the model allows for the interpretation of the logit weights for the variables in the same way as in linear regression. Moreover, MNL is used when the dependent variable exhibits more than two categories (a polychromous variable) that cannot be ranked (Jari, 2009; Kohler and Kreuter, 2005).

The model has been chosen because it allows one to analyze data where participants are faced With more than two choices. In this study, smallholder urban dairy farmers are faced with four choices, which are; neighbor households, restaurants/migahawa, Milk Collection Centre (MCC), formal market (direct to milk processing plants). It is postulated that, the urban dairy households are keeping dairy cows for commercial purpose but this does not nullify the fact that they also keep dairy cows to provide milk for own household consumption. In marketing milk, urban dairy farmers have to decide on the marketing outlet to be selected so as to maximize their utility, subject to socio-economic and household constraints.

Therefore the MNL is developed on the axiom of utility maximization. It assumes that if an individual makes choice from a complete list of consumption bundle then, is the maximum among the option. The statistical model is driven by the probability that choice is made. Based on the theory of consumer behavior, it is postulated that individual will choose a particular option (market channel) that offers the greatest utility. An individual faced with the decision to choose from among milk market channel alternatives is perceived to make this decision following the utility function formulated by Greene (1993);

The underlying assumption is that individual chooses option j if and only if the utility derived from it is greater than that of all other options. From the utility maximizing function specified in equation 4, it can be seen that urban dairy households make decisions to produce, consume and market, subject to socio-economic and other household factors. It follows that if the costs that are associated with using a particular channel are greater than the benefits, households will be discouraged from choosing it, shifting to another option that maximizes their utility. For instance, if there are socio-economic and/or technical challenges specific to formal markets (processing plant), that increase marketing cost above the revenue, households will be discouraged from using formal market. They then, analyze the costs associated with informal markets (other market subsets besides processing plant). If the socio-economic and/or technical factors that are unique to a sub set of informal markets increase marketing costs above returns, then households will decide to sell their produce in a subset which is more rewarding. In the utility function, the amount of good say k that is consumed or sold does not have to exceed the amount that is produced.

Sheffrin et al. (2006) however pointed out that it is difficult to measure utility directly; therefore, it is assumed that households make choices based on the option that maximizes their utility. Thus, decisions to participate in either formal (selling to processing plant) or choosing among market subsets within informal markets signify the direction, which maximizes utility. With the given postulation, the multinomial logistic regression was used to relate the decisions to participate in formal markets, and selecting any channel within informal markets and the factors that influence these choices.

The general multinomial logistic regression model which was used is as specified in equation 5 and is derived from Schmidt and Strauss (1975) quoted by Kyalo (2009). Since there are four categories in the dependent variable, two equations were estimated to provide probabilities for the $J + 1$ choice of a decision maker with characteristic X_i . The β_i s are the coefficients to be estimated through the maximum likelihood method. The empirical specification was simplified as presented in equation 6.

In the model, market channel choice, with four possibilities, viz. neighbors, restaurants/hawkers (Milk vendors), MCC, and processing plant; has been set as the dependent variable. The variable of neighbors holds the value of 1, Milk vendors take the value of 2, MCC takes the value of 3, and processing plant outlet takes the value of 4. The MNL model suggested in this study was used to determine the odds of each/all market versus processing plant market channel. Paying attention to the that fact, the MNL model follows the theory of probability, therefore the probability that the dairy farmer prefers one market compared to the other was restricted to a

range between zero and one ($0 = P_i = 1$). It should be noted that logit (II infinity) (Gujarati, 1992).

2.3. Empirical studies

Global sales of dairy products are forecast to pass the reach \$500 billion per annum soon. India, US and China have in that order the world largest production. Parmalat, a major processor in Zambia is since 2011 part of Lactalis, the number 3 dairy processor in the world. Two countries with a large dairy cooperative are Netherlands and New Zealand. These cooperatives are also among the top 5 dairy processors in this World. In Sub-Saharan Africa for expanding the dairy industry by bringing the traditional cattle sector into the formal dairy system. In a country like Uganda, the dairy sector contributes around 40-50 percent of the livestock Gross Domestic Product (GDP) and 17-19 percent of the overall agricultural GDP (DDA, 2002). Dairy is an important livelihood option, especially for rural and peri-urban citizens, and can develop into a dynamic sector of the economy (Staal et al, 2008). Even though Ethiopia is home to the largest population of cattle in Africa, with the latest estimate 52,129,017 head of cattle (CSA, 2011), are mostly maintained by smallholder, commercial and pastoral farmers; and more than 99% are indigenous low yielders that greeneries a high gap between demand and supply of milk and milk products. Information on value share in the chain is important for all stakeholders to know. According to the Agricultural Consultative forum (2012), for a MCC to make a profit they need increase the levels of production in their localities. Though different classifications have been used to characterize the dairy production system in the country; based on their locations, Ahimed et al. (2003) classified into three broad categories, namely, urban, peri-urban and rural dairy production. Peri-urban dairy production system is the production, processing and marketing of milk and milk products that are channeled to urban centers (Rey et al., 1993) and smallholder and commercial dairy farmers near the capital city Addis Ababa and other regional Towns (Tsehay, 2002).

This sector controls most of the country's improved dairy stock. Because of steadily increasing demand in milk consumption, peri-urban dairy farms are growing around cities and towns (Satal and Shapiro, 1996). Staal S.J. 2002. The competitiveness of smallholder dairy production: Evidence from sub-Saharan Africa, Asia and Latin America.

The demand for milk is even expected to grow more as Ethiopia's population of 93,815,992 (CAI World Fact Book, 2012) expands and demographic changes result in an increasingly urbanized population, the fastest-urbanizing country in Africa with 4.3 percent growth per year, has unmet demand for milk and milk products. Despite the existing high potential for dairy

development due to huge livestock resources, conducive climatic conditions and urbanizations, the performance of the dairy industry in Ethiopia has not been encouraging when evaluated against even the dairy performance of Eastern African countries.

The annual growth rate in cow milk production reported in 1990 in Ethiopia was nearly 1% as opposed to 6.2% in East Africa and 3.3% in the whole of Africa. The per capita milk consumption in Ethiopia, 18.68 liters is very low as compared to the global average of 100 liters and even far below the average for Africa, 26 liters (Alemu et al. 2000). 75% of poor people in developing countries live in rural areas, depending mostly on agriculture as their source of income and way of survival (World Bank, 2007).

A major challenge is that a large part of the agricultural activities in developing countries currently occur in the informal economy (Henson & Cranfield, 2009). This supports the notion that there is a need for better market linkages between small producers and the market in developing countries (Shepherd, 2007). More specifically, these market linkages need to focus on establishing a long-term relationship „between small farmers on one hand and downstream agribusiness (processors, exporters and retailers) on the other“ (Vorley, Lundy & Macgregor, 2008, p.188). private companies usually prefer to work with organized farmers over individual farmers (Vorley et al., 2008).

A distribution channel is a component of a supply chain. In general terms, a supply chain includes all firms that engage in activities that are necessary to convert raw materials into a good or service. A supply chain can be subdivided into a supplier network and a distribution channel. There can exist multiple channels through which a good can be distributed to the consumers³. Boone and Kurtz (2001) show that the length of the distribution channel is influenced by several factors. An initial factor is the size and type of the market: if the end consumer is a firm that is geographically concentrated, buying large quantities of a product characterized by extensive technical knowledge and requiring regular service, such firm will be most likely supplied via a short channel.

2.3.1. Empirical studies on logistic regression

Studies that employed both multinomial and logistic regression in general are well documented in research; some of them include the study by Ferto and Szabó (2002) who applied the multinomial logistic model to reveal the determinants influencing the choice supply channels in Hungarian fruit and vegetable sector where by the choice alternatives were the wholesalers chain, marketing cooperative chain, and producer organ.

The conditional (fixed effects) logit was employed by Staalet al. (2006) in an analysis that evaluated farmers' choice of milk marketing channels in Gujarat among the choice options that were available in the area. The choice options were: direct sales to individual customers, sales to generally informal private traders/vendors and sales to cooperatives/private dairy processors.

Sonda (2008) employed the multinomial logistic regression in analyzing livestock related factors and farmers' choice of maize cultivars in Tanzania. The binary logit model was used by (Mbise, 2007) to determine factors influencing the decision of coffee farmers to adopt either co-operative or non-co-operative market channels.

2.3.2. Empirical models and determinants of market choice for smallholder farmers

Staalet *al.* (2006) in their study on smallholder Dairy Farmer Access to Alternative Milk Market Channels in Gujarat; employed the conditional (fixed effects) logit analysis to evaluate farmers' choice of milk marketing channel among those that were available in the area: direct sales to individual customers, sales to generally informal private traders/vendors and sales to cooperatives/private dairy processors. The latter two milk channels were included explicitly, thus the comparator variable was direct sales to customers. The results indicated that farmers are less likely to select the private traders market channel when there is option of selling to individual customers. Similarly, though not statistically significant, households may be less likely to select the coop/private Processors channel than the individual customer channel. As expected, households that kept the higher number of livestock were more likely to select both the private traders and dairy coop/processor channel as opposed to selecting the individual customer channel. The interpretation here was that farmers producing more milk sought out channels that can more easily accept larger, and possibly more variable, quantities of milk. Interestingly, the results presented by Staalet *al* indicated that households were less likely to select channels that paid cash, or that took milk on informal credit. Conversely, channels that offered monthly payment or provided formalized credit terms (written contract) were more likely to be selected (the base comparator in the analysis). Finally authors concluded that, there was no evidence in the results that informal markets would diminishes the scale of production increased or that processed milk markets were more attractive to large scale producers than informal traders.

Sharma *et al.* (2009) examined determinants of market channel choices of milk producers in India.

A two-stage multinomial logit model was employed to investigate determinants and effects of market channel choices of milk producers. The paper also attempted to investigate what impacts these market channel choices may have on farmers' income and technology adoption. Results indicate that small dairy farmers and the poor were likely to be excluded from modern private sector channels. Household's socio-economic variables (farm size, age and education) were important determinants of marketing channel choice in the case of the modern private sector. Large farmers had better opportunity to participate in modern private channels. Market

infrastructure such as road, provision of veterinary services, and distance from the milk collection centres, markets, milk collection centres and price risks had significant effect on farmers' choices of market channels. The second stage results of the Heckman model showed that education, membership of the producers' association/cooperatives, provision of veterinary services, and farm size had significant impact on cooperative marketing channel and farmers' income while in the case of modern private sector, education and price risk had significant impact on income. Ferto and Szabó (2002) investigated factors that influenced farmers' choice of supply chain in Hungarian fruit and vegetable sector using a multinomial logit model. In this study farmers had three possible choices; wholesale chain, marketing cooperative chain and producer organization chain. The results indicated that, the farmer's decisions with respects to supply channels were influenced differently by transaction costs. Decisions among producers selling to wholesale market were negatively affected by the farmer's age, information costs as well as bargaining power and monitoring costs. Producers' choices to sell to marketing cooperative or producer organization were different.

Moreover, the probability that farmers would sell their products to marketing cooperative was found to be positively influenced by the age and information costs, whereas asset specificity and bargaining power affected it negatively. The results indicated a similar picture for producer organizations without significance, except for asset specificity though unexpected with opposite sign. Sayinet *al.* (2011) used the logit model to evaluate factors affecting milk marketing decisions. Results show that milk selling decisions were significantly affected by income and demographic characteristics. Empirical findings also showed that milk producers who received milk incentive premiums received higher price than others. Results also show that decisions whether to sell to cooperatives or individuals were significantly affected by income and demographic characteristics. In particular, income had positive effect on the sell to cooperatives, while participation in cooperatives and the probability of selling milk to street sellers declined with age. Empirical findings also show that price premia and market scarcity were important factors in influencing these choices.

Bhuyan (2009) used a binomial logistic model to determine factors that influence a dairy farmer's choice of cooperatives as market channel. The covariates included various farm and farm operator characteristics and farm management efficiencies. The study hypothesized that some of the factors that were likely to influence dairy farmers' decisions average price received for raw milk; level of education of a dairy farmer; whether a dairy farmer received government payment; whether a dairy farmer had a written contract with handlers and processors; whether a

dairy farmer was financed by a buyer to acquire inputs and had a nutrition plan for his cows; and how solvent the dairy farm was.

Moreover, Bhuyan (2009) reported that, dairy farmer's decision to sell his/her raw milk to cooperatives was found to be influenced by the price of milk as dairy farmers were more likely to sell their milk to non-cooperative buyers when they offered better prices.

Similarly, dairy farmers who received additional payments from the government were less likely to participate in cooperatives. Likewise, other factors that significantly increased the likelihood of a dairy farmer to sell his/her raw milk to cooperatives included the educational level of the farmer, whether there was a written contract for marketing milk, and the degree of solvency of the dairy farm. More specifically, it was found that the higher the education level of the dairy farmer, the higher the likelihood of participation, *ceteris paribus*. In terms of farm operator characteristics, a dairy farmer's level of education impacted his decision to sell to cooperatives. It was established that the likelihood of such a dairy farmer selling his raw milk to a cooperative increased with the level of education. Finally, there was no relationship between farm size and dairy farmers' decisions to participate in cooperatives, or between farm size and dairy farmers' cooperative membership.

Kyeyamwaet *al.* (2008) used a multinomial logistic regression to assess factors that influence market choice among livestock farmers in rural Uganda. According to this study, market categories were dichotomized. The first step of the Heckman two stage procedure's results showed that dairy household milk market entry decision was strongly and significantly affected by age of the household head, family size, education level, experience in dairy production, number of cross breed milking cows owned and distance from milk market center. In addition, the second stage estimation results revealed that marketable milk volume was found to be strong and significantly affected by the number of cross breed milking cows owned, family size, age squared and annual non-dairy income source of sampled dairy households. More specific, the probit model analysis results revealed that dairy household milk market participation decision was positive and significantly affected by formal education level of the dairy household head. This result confirms that education improves the readiness of the dairy household to accept new idea and innovations, and get updated demand and supply price information which in turn enhances their willingness to produce more, and thus increase their market participation level.

Sinjaet *al.* (2006) analysed factors that determine participation in milk marketing groups in Kenya using the Logit model (Probit) accommodated. Results showed that most of the variables used in the regression (age of trader, education level of leader, region where the group is found, gender of trader, type of business, and contact with regulatory authority) did not significantly affect participation in a milk marketing group. The probability of joining a group was found to be the same in all regions and there were no differences with respect to sex, education and age of milk trader. The type of business the trader operated had significant influence on their probability of joining a group.

Discrete choice models (logit such binary, multinomial, tobit and probit) as econometric modeling techniques that focus on the analysis of the behavior of decision makers who face a finite set of alternative choices were involved in the review. It was learnt that such models (logistic regression) attempt to relate the conditional probability of a particular choice to various attributes of the alternatives, which are specific to each individual, as well as the characteristics of the decision makers. Additionally, empirical studies under different market settings were cited and thoroughly discussed with the aim of getting a clear applicability of the choice models among farmers with respect to agricultural (milk) marketing channels.

A review on marketing channels that milk value chain actors use to supply their milk to the market has indicated principally two milk channels (informal and formal channels) that govern the milk value chain in Tanzania. A characterization of these two imperative milk market channels was conducted with the target of setting the prevailing difference in terms of efficiency as well as the dominant user of the each channel within the Tanzania context.

Based on the literature reviewed the majority of supplies/producers prefer using the informal channel despite the weaknesses pointed out by former researches.

Empirical findings have indicated that informal milk channel is vital and more income generating market channel for many rural and urban dairy value chain actors in Tanzania, while other hold against it attaching due credence to formal and modernized channel. Conversely, a wide range of views on whether “ informality or formality” has been expressed from time to time.

Some scholars see the informal channel as a constraint to development (Farrell, 2004) and others see it as a potential source of economic growth and poverty alleviation. Over the last decades a theory and policy shift has taken place, from banning the informal economic activities and businesses to integrating them to formal economy. These antagonistic views pose questions that need to be unanswered. However, there is diminutive information on whether the benefits from participating in the formal milk channel exceed those from the informal market. The proposed research was therefore an Endeavour to address this information gap based on factors that

determine milk value chain choice between informal and formal channels among smallholder dairy farmers as well on evidences from profit margin analysis of dairy farmers in study areas.

2.4. Milk Marketing

Marketing outlets, marketing channels and marketing chains are used to describe dairy marketing systems (Sintayehuet *et al.*, 2008). Marketing outlet is the final market place to deliver dairy products into which it may pass from different channels. Different studies have identified different product flow channels and outlets. From observation we infer that milk channels are narrower than butter channels due its relatively high perishable nature. As a result, butter can travel long distance from remote areas to Addis Ababa markets. Therefore the possible outlets for butter from rural farmers can be restaurants, traders, consumers ,retailers and wholesalers. However, marketing outlets, marketing channels and marketing chains differ from location to location, commodity to commodity, culture to culture and objective of actors' engagement.

The marketing system for milk involves all elements that influence directly or indirectly the movements, transportation and price of fresh milk once it leaves the point of production. These include:

- Collection of milk from dairy producers.
- The transformation system if any which processes and/or packages milk product for final consumption.
- The transportation system through which milk and milk products move between functions (a and b).

The marketing functions mentioned above were performed by marketing intermediaries. Markets are the context, both physical and conceptual, where exchange takes place. Marketing includes all activities involved in getting right products to right places at right time, and in a suitable form. This process usually involves many marketing functions. They include collection, processing and transporting and through having adequate and accurate information. So products are conveyed to consumption centers with minimum costs and waste. Marketing objectives vary, for individual producers or consumers. Moreover, objectives may be to maximize benefits from available resources or in other words to increase wealth. From a social point of view, the objectives may be to encourage efficient allocation of resources to create wealth and promote economic growth in order to improve general welfare of the society. Important considerations may also be to improve distribution of income between sectors of the economy and to maintain some stability of supply and demand for marketed goods. The delivery of milk to final consumers, however, is usually done through the so-called marketing channels. These are sequences of intermediaries and markets through which the commodity passes from producers to ultimate consumers (www.irl.org web site 2007). This service is nowadays available in big groceries and super markets, where milk processing plants offer show refrigerators for displaying their products which were packed and ultra-heat treated and transported to sell outlets via cooled truck. This channel is

equipped with modern storage and refrigeration facilities. The volume of milk distributed through this channel is small compared to the other channels. This may be attributed to high prices charged to consumers with respect to low fresh milk prices. The milk is either sold raw directly to consumers or to the processors. The main players in the milk market are the processing companies, brokers and milk bars (Muriuki, et al, 2003). The major constraint facing smallholder farmers is that they do not have proper means of delivering their milk to the process or sand also poor road infrastructure (Muriuki, etal, 2003). This affects marketing of farmers' milk given the perishable nature of milk. Kenya has one of the largest dairy industries in sub-Saharan Africa. Though the last livestock census was conducted in 1966, the current official cattle population statistics come from the ministry of Livestock and development, through its field reports compiled by extension officers.

2.4.1. Milk Marketing outlets

In his study, Debrah, (1992, pp 257-268), also identified 3(three) milk market outlets and intensity of use as follows.

2.4.1.1. **Intra-urban producer**

The intra-urban producers sold their milk through three principal outlets:

Producer-consumer (P-C) outlet: direct sales to individual consumers, including transactions at the farm gate or delivers to individual consumers, including transactions at the farm gate or delivers to individuals' homes or business premises.

Producer-catering institution–consumer (P-CL-C) outlet: delivers to catering institutions such as coffee houses, hotels and restaurants.

Producer-government institution-consumer (P-GI-C) outlet: sales to government institution such as the armed forces, school and hospitals.

Evidence suggests that large producers, who sold on average 24 liters/household per day, find it more convenient to sell catering and government institution than to sell directly to individuals. Small producers, on the other hand, with average sales of 3 liters/household per day, mainly sold directly to consumers.

The P-C out let gave the highest average producer price. In almost all cases, fresh milk was transported from the production point to the points of sale. The majority of producers, particularly small producers who delivered milk to consumers, delivered milk on foot; others used donkeys or private or public transport. Since no accurate costs of transportation by foot or

donkey could be obtained, approximate costs were estimated by asking respondents how much they would be willing to pay to have delivered over similar distances.

2.4.1.2. Peri-Urban Producers

The peri-urban producers sold the bulk of their fresh milk in the city of Addis Ababa through the P-CI-C and the P-GI-C channels. About 4% of their total volume marketed was sold to individual consumers in Sebeta (Place of production) and to itinerant traders. Neither butter nor cheese was sold.

The peri-urban producers sold an average of 77 liters of fresh milk a day. Prices ranged from EB 0.59/litre when sold in Sebeta to EB0.73/litre when sold to catering institution in Addis Ababa. Fresh milk was transported to Addis Ababa using private and/or public transport at an estimated cost of EB 0.14/liter. The site prices at Sebeta are estimated at EB 0.59 and EB 0.54, respectively, when sold to catering and government institution in Addis Ababa. Also, StephenG.Mbogoh, 1990, pp 76, in his study on marketing efficiency, pricing and policy implications identified five marketing systems for fresh milk in Addis Ababa.

These are:

1. Direct sales to consumers by producers
2. Sales to consumers by kebele shops and often government outlets (i.e outlets other than grocery stores, supermarkets and small private shops or kiosks.
3. Sales to consumers by itinerant traders.
4. Sales to consumers by small private shops and kiosks and
5. Sales to consumers by grocery stores and supermarkets.

Marketing outlets, marketing channels and marketing chains are used to describe dairy marketing systems (Sintayehu et al., 2008). Marketing outlet is the final market place to deliver dairy products into which it may pass from different channels. Different studies have identified different product flow channels and outlets. From observation we infer that milk channels are narrower than butter channels due its relatively high perishable nature. However, marketing outlets, marketing channels and marketing chains differ from location to location, commodity to commodity, culture to culture and objective of actors' engagement.

2.5. Dairy Products Marketing Systems In Ethiopia

According to the CSA (2011), 6.55% of the milk produced per year in rural Ethiopia was sold in the market, 48.48% home consumed, 0.41% used for wages in kind and 44.56 % processed into butter and cottage cheese. Milk is sold to market outlets through either formal or informal milk

marketing channels. Until 1991, formal market of milk exclusively dominated by dairy development enterprise which supplied 12% of total fresh milk in Addis Ababa (Holloway *et al.*, 2000). Since then, however, cooperatives have begun collecting, processing, packaging and distributing dairy products. Even then, proportion of total production being marketed through formal markets remains small (Muriuki and Thorpe, 2001). Although the share of formal milk marketing channel has steadily increased over decades, the informal marketing channel still accounts for a very large proportion of marketed milk.

Governments of Ethiopia have plans to upgrade dairy production to alleviate poverty and reduce malnutrition. For this to be effective, they should take into account the huge informal milk marketing sector. This requires empirical study to investigate factors affecting milk sales decisions and access to alternative milk market outlet choices of farmers.

To date, considerable work has been conducted in Ethiopia on factors affecting market participation decision of households (Jabbaret *al.*, 2007; Asfaw and Jabbar, 2008; Berhanu and Dirk, 2008; Asfaw, 2009).

In addition, Barrett (2008) also provided a recent detailed review and synthesis of market participation literature. Nevertheless, none of these studies has focused on factors affecting dairy farmers' milk sales decision and access to alternative milk market outlet choices in the informal milk marketing sector. Hence, generating data with regards help to formulate appropriate policies that improve the livelihood of dairy farmer

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2.5.1. Marketing channels of dairy products In Ethiopia

In Ethiopia, milk and milk products are marketed through both informal and formal marketing systems. In the dominant informal marketing system, producers sell to consumers directly or to

unlicensed traders or retailers. Price is usually set through negotiation between the producer (seller) and the buyer; this system is predominant in the rural dairy production system. In the formal marketing system there are cooperatives and private milk collecting and processing plants that receive milk from producers and channel to consumers, caterers, supermarkets and retailers; this system does exist in urban and peri-urban dairy system of Shashemene–Dillamilkshed, although the number of cooperatives is few and its performance is low (Woldemichael 2008). The traditional milk producer associations/groups are locally called FaraqaAnnanni, and are a traditional voluntary group that involves women who have milking cows or camels. Members are organized based on common interest of selling cow/camel whole milk, whereby milk is transported and sold by one of the member's thus reducing transport and marketing cost per unit of milk through economies of scale. smallholder dairy production in Ethiopia by the government and non-governmental organizations (for recent studies and review of past dairy interventions in Ethiopia see Ahmed et al. 2004; Bernard et al. 2008 and Yigrem et al. 2008).

However, very little attention has been given in terms of understanding the local purchase and consumption patterns for dairy products by the consumers in the production area. This chapter reviews literature on historic development of dairy production in Ethiopia, dairy production systems of jimma town, traditional milk handling and processing in jimma town, dairy products marketing, consumption of dairy products, gender in dairy value chain, actors in dairy value chain, policies in dairy value chain, concepts and definitions, empirical evidences (on dairy products marketing, factors affecting dairy products supply decision, determinants of dairy products market access, factors affecting fluid milk consumption) and limitations of value chain approach as analytical tool. In the rural lowland agro-pastoral system of Mieso, dairy producers use two different milk marketing methods: traditional milk associations/groups and individual sellers. Similar systems in West Africa for example in Guinea Bissau (Picaos-Goncalves 1995, pp 226), where farms and herds are small (1-5 ha, 5-10 cattle), and cattle are used for traction, subsistence milk and manure. Similar peri- and intra-urban production systems operate in Addis Ababa, Ethiopia (Staal 1995, pp 245-250), where over 70 per cent of milk was sold directly to consumers mainly from small landless dairy enterprises located within the city (Debrah 1992, pp 257-268). The remainder was sold through itinerant traders, small shops, kiosks and larger grocery stores. When we come to consider the case of Ethiopia,

Using the terms “formal and “informal” to describe “government –controlled” and “non-government controlled” (private) marketing systems respectively (as defined elsewhere), the

dairy marketing subsystem in Ethiopia can be classified in to two subsystems (Debrah 1992, pp 257-268):

2.6. Variable description

The study conjectured that the dairy farmer's choice of certain milk market outlet is influenced by a number of socioeconomic factors, used in this study as the explanatory variables. The basis for the assumption was theoretical considerations found in the literature. The variables used in the MNL model are summarized in (Table 4).

2.6.1. Variables in the Multinomial Logistic Regression model

Table 4: Variables in the Multinomial Logistic Regression model

Variables	Description	Types	Values
Dependent Variable			Number of options
MLKCP	Milk market preference	Categorical	available to choose
Independent Variables			
AGE	Age of household head	Continuous	Number of years
PRICE	Price per litre offered at the Market	Continuous	In Birrs
SEX	Sex of the household head	Dummy	0=female, 1=male
VMP	Volume/size of Milk Produced	Continuous	Number of litres
FSHH	Family size of household	Continuous	Man equivalent
EDLHH	Education level of household head	Categorical	Categories are based on number years
EXHH	Experience in dairy production	Categorical	Categories are based on number of years
DNMM	Distance from dairy market	Continuous	Kilometer
ACCR	Access to credit	Dummy	0=no,1= Yes

2.6.2. A consideration of explanatory variables of the logistic regression

Age of the household head (AGE)

Age of the household head is a continuous variable and is measured in years. Age is a proxy measure of farming experience of household. Aged households are believed to be wise in resource use, and therefore age is expected to have a positive effect on market participation and marketable surplus. Schnitkey *et al.* (1992) argues that age of the head of the household normally provides a proxy for experience in farming. Further, these farmers are expected to have stronger social network and can establish reputation within the network. This implies that older heads are more informed about the marketing system.

Price per litre offered at the market (PRICE)

Farmers' marketing decisions are based on market price information, and poorly integrated markets may convey inaccurate price information, leading to inefficient product movement. Therefore, it is hypothesized that market price is positively related to market channel choice. A study conducted by Bhuyan (2009) showed that a unit increase in price paid to dairy farmers by a cooperative significantly raised the probability of selling to this channel.

Sex of the household head (SEX)

This is a dummy variable that takes a value of one if the household head is male and zero otherwise. The variable is expected to have a positive relation with milk market channel entry decision and milk sale volume. In mixed farming system, both men and women take part in livestock management. Gabreet *et al.* (2001) indicated that female headed households have smaller farms, lower per capita expenditures and lower Marketed crop surplus. However, it is a fact that female-headed households in developing countries have less assets and less family labor to rely on to generate income, they are usually less well off than male-headed households (IFPRI, 2001). Further, a study conducted by Gizachew (2005) indicated a negative relation between sales volume of milk and male-headed households. Study conducted by Musema (2006) confirmed the same result. However, in this specific study, the maintained hypothesis is that a male household head is Expected to have a relatively strong influence choice of market outlets than male farmers.

Education Level of the Household Head (ELHH)

The education level of the household head is a categorical variable and is measured in years of formal schooling of the household head. Education plays an important role in the adoption of innovations/new technologies. Further, education is believed to improve the readiness of the

household to accept new idea and innovations, and gets updated price information which in turn enhances the producers' willingness to produce more and increase market participation (Somano, 2008). Similarly, a study conducted by Gizachew (2005), and Musema (2006) showed that formal education was positively related to household market participation and marketed volume. Therefore, in this specific study, formal education is hypothesized to affect milk market channel participation decision and sale volume of milk positively.

Volume of milk output (VMP)

Volume of milk output is a continuous variable measured in liters. The variable is expected to have a positive contribution to smallholder dairy market choice participation decision and level of milk market participation. A marginal increase in dairy production has obvious and significant effect in motivating choice of market outlet. Production beyond consumption has two fates based on various reasons; either sell it as fluid milk or processed into different dairy derivatives. A study conducted by Singh and Rai (1998) observed that milk production had positive and significant effect on marketed surplus. In addition, Wolday (1994) observed that output of food grains (wheat *teff* and maize) had positive effect on quantity supplied in the market. Thus, the volume / size of the milk output is assumed to have positive effect on market outlet entry choice.

Distance to nearest dairy product market (DNMM)

Distance to nearest dairy product market is the location of the dairy household from the nearest milk market and is measured in kilometers. The closer the dairy market to dairy household, the lesser would be the transportation charges, loss due to spoilage and better access to market information and facilities. A study conducted by Holloway and Ehui (2002) revealed that distance to milk market was negatively related to the milk market participation decision of dairy households. Similarly Wolday (1994) showed a negative relationship between distance from household residence to grain market and volume of the marketed food grain. Therefore, in this study, distance to the nearest milk market is hypothesized to be negatively related to market participation decision.

Experience in dairy production and marketing (EXPP)

Experience attained by a dairy farmer tends to influence his/her choice of market outlet. Well experienced farmers are expected to have better access to different market outlets and, as a result, it is hypothesized that a positive relationship between experience and market outlets' choice will exist.

According to Schnitkey *et al.* (1992), farmers that are more experienced in marketing management and to have stronger networks and more credibility, thus experience lower transaction costs. Further, these farmers will have stronger social network and will have established reputation within the network. This implies that older heads are more informed about the marketing system. This relationship is expected to have a positive sign in the regression equation.

Family size (FSHH)

Size of household is a continuous variable and measured in adult equivalent. As dairying is labor intensive activity, dairy production in general and marketable surplus of dairy products in particular is a function of labor. Accordingly, households with more members tend to have more labor which in turn increases milk production thereby making them more willing to participate in marketing (Somano,2008). the variable is assumed to have a positive impact on the milk market channel participation.

Access to credit (ACCR)

Access to credit is measured as a dummy variable taking a value of one if the household has access to credit and zero otherwise. This variable is expected to influence the marketable surplus of milk and market participation positively. Access to credit improves the financial capacity of dairy households to buy more improved dairy cows and finance other expenses related to dairying thereby increasing milk production and market participation.

Model postulate summary

According to Gujarati, (1992), the coefficient on this variable measure the expected change in the logit for a unit change in each independent variable, all other independent variables being equal. The sign of this coefficient shows the direction of influence of the variable on the logit. It follows that a positive value indicates an increase in the likelihood that a household will change to the alternative option from the baseline group. Therefore, in this study, a positive value implies an increase in the likelihood of channeling milk to the particular marketing channel. On the other hand, a negative sign means that a unit increase in the explanatory variable will lead to a decrease in the probability of channeling milk to such particular market outlet, for this case the choice of marketing to either informal (market subsets) or formal market.

2.7. Conceptual Framework

The conceptual framework is essential as a guideline in identifying important variables and for effective and efficient data collection. Scarborough and kydd (1992) suggest that such a framework should help to indicate the most useful area in which to focus the limited research resources and ensure that data collected are relevant to meet the objectives of the research. In this study, it is assumed that independent variables such as social economic factors influence the choice of market outlets among smallholder dairy farmers. Dairy products market channels connect producers, cooperatives, traders (wholesalers and retailers), and hotels/restaurants to consumers. The starting point in the dairy products market

channels is the producers. The final users of the products are the consumers (within the city and outside of the urban boundary). Dairy products are then channeled either to cooperatives, hotels/restaurants, traders and then to consumers. These factors are assumed to be influenced by the background variables (institutional and technical factors) like infrastructure, market information, member of cooperative and government policies. The conceptual framework for this study is shown in (figure)

(institutional and technical factors) like infrastructure, market intelligence, machinery and government policies. The conceptual framework for this study is shown in (Figure 5).

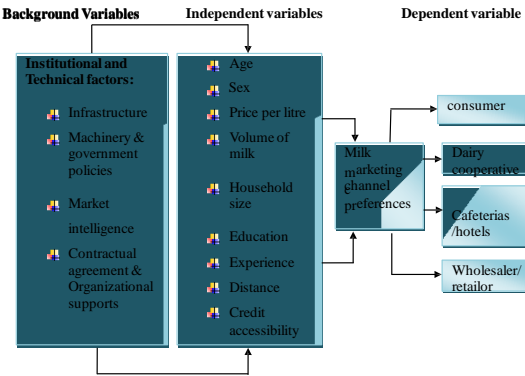


Figure 5: Conceptual framework for this study

2.8. Major Constraints of Dairy Development Systems in Ethiopia

2.8.1. Production constraints

In his study, Debrah, (1992, pp 257-268), stated that, the livestock sub-sector in general and the dairy sub-sector in particular do not make a contribution to the national income considering with its size. The reasons for this are numerous and include both non-technical and technical constraints and explained as follows

The major technical constraints are:

- i. Animal Health Disease.
- ii. Feed and Nutritio
- iii. ***i) Animal health***

Animal health and improved management is also one of the major constraints of dairy development in Ethiopia which cause poor performance across the productive system.

Many of the problems result from the interaction among the technical and non-technical constraints themselves e.g. poorly fed animals develop low disease resistance, fertility problem, partly because the animal health care system relies heavily on veterinary measures, poor grazing management systems continue to cause high mortality and morbidity (e.g internal parasites), many of the disease constraints which affect supply are also a consequence of the non-technical constraints e.g. insufficient money to purchase drugs or vaccines.

ii) Feed and nutrition

Mohamed, et. al, (2004, ww.ifpri.org/epdtp123) stated that, Severe shortages, low quality and seasonal unavailability of feed likewise remain as major constraints to livestock production in Ethiopia. These constraints need to be addressed and technological change be promoted to increase milk production. The most notable constraints to increase the quantity and quality of animals are feed shortage and diseases (Berhanu A. et al. 2010, pp 40-44).

2.8.2. Marketing constraints

The key constraints that the domestic livestock markets are facing include: lack of and unequal access to up-to-date market information on prices; time-specific demands and quality requirements; poorly developed road networks connecting the livestock supply areas (e.g., pastoralist areas) to the markets; an inadequate number of market centers for live animals with adequate waiting and holding ground, feeding, watering, resting facilities, livestock scales, loading ramps, crushes, etc.; clan conflicts due to competition for limited land and water resources; lack of grades and standards; and a lack of effective value chain coordination/consultation forum among the livestock value chain participants (Debrah et.al. 1990,pp 34).

The potential to expand the domestic dairy market is constrained by low productivity at the farm level, inefficient and expensive milk collection and storage, and transportation to the processing plants. Access to adequate quantities and quality of safe raw milk on a sustainable and competitive price basis is critical to the success of processing firms. Other issues are: access to technology and effective response to changes in consumer tastes, market dynamics, and policies. Promotional work to create awareness of the nutritional value of milk is also critical to overcome some of the cultural factors affecting the consumption of dairy products in Ethiopia (Asfaw, et. al., 2011, pp 41).

CHAPTER THREE:

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Research Design /Approach

A formal cross-sectional survey was carried to collect primary data from dairy farmers in four sub city involved in dairy farming in the study area. A structured questionnaire was used after being pre-tested and was administered through direct interviews among selected sample farmers. The objective of descriptive research is to answer who, what, when, where, which, why and how of the subject under study.

A cross-sectional survey design employing qualitative and quantitative data collection techniques were used. This study was conducted in Jimma town and its surrounding area (6 km) away from city boundary. It assesses factors affecting distribution channel of dairy products:

The study was carried out from March to May 2017. Respondents which comprised, key market participants (milk producers and cafeterias,) were used to conduct this study. The cross-sectional survey is a one-shot data collection from respondents. Regarding this study, data from the producer's, sample cafeterias and the live stock experts and from Jimma town multipurpose dairy development private limited company cooperative association committee head,

.information on milk marketing, major market actors ,milk marketing channels and farmers' market participation in different marketing channels (formal and in formal milk marketing channels) factors influencing farmers participation in marketing different channels, constraints faced by farmers in milk marketing channel and farmers' perception on formal milk marketing channel was obtained.

3.2. Source and Type of Data

Both quantitative and qualitative data types were used in the study under investigation. In order to generate these data types, both secondary and primary data sources were used. Secondary sources include reports of line ministries, journals, books, Central Statistical Authority (CSA) and internet browsing, national policies, urban administration reports, among others. Primary data sources include dairy producer households, cafeterias (milk trader), Jimma town multipurpose dairy development private limited company cooperative association and urban livestock and fishery Development Offices, and. The major data collection methods used includes discussions, observation, formal survey and visual aids. Survey questionnaires were prepared and pre-tested for households operating within the study area. Using the closed ended questionnaire, were conducted to gather data emphasis was put on two categories of marketing channels (formal marketing system and informal milk marketing system) on household characteristics, socioeconomic and demographic characteristics, farm information, membership to dairy marketing organization ,distance to milk collection centers, technology use, milk production, milk market outlets and institutional factors such access to credit and support from government ,among others. Trained and experienced enumerators collected data from households during march 1-30 /2017

3.3. Sampling Design and sample size

Sampling is the process of obtaining information about the entire population by examining only part of it, (Kothari, 2004). He describes sampling as the procedure by which some elements of a given population are selected as representative of the entire population. The primary purpose of sampling is that by selecting some elements of a population the researcher can draw conclusions about the whole population. The significance of sampling comes from the fact that the precision of conducting the sampling procedures will determine the extent to which the research findings are general sable. The research study employed proportionate stratified random sampling in the selection of the respondents because the population was not even in all the locations under study.

According to Kothari the target population is divided into sub populations that are individually more homogenous than the total population. They are called strata. In relation to this study, target population was categorized into 2 sub- populations or strata referred to as observation areas. Sample size is determined using Kothari’s (1990) the finite population sample size calculation formula as follows.

The population proportion, P is 0.5 and q will be 1-0.5=0.5; at confidence level of 90% and acceptable error of 10%.

Multi-stage sampling technique was used to select the samples. The researcher favored this technique as it helps to get more representative sample from geographically scattered participants (Koul, 1984). Four successive multi-stage sampling techniques was used to select sample urban and peri-urban ,sub-city, kebel, small scale cooperative associations ,private producers , cafeterias , Jimma Town Multipurpose Dairy Development Private Limited Company cooperative association head ,and livestock experts.

The total population size was 495(401 milk producers,70 cafeterias’ owners population) out of which a total of 92 respondents were used (62 sample milk producers, 24 sample cafeterias 4from Jimma Town Multipurpose Dairy Development committee, and also 2 from Jimma town livestock and fishery officers) in the envisaged study area are included

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2(N-1) + Z^2 \cdot p \cdot q}$$

where ,n-sample size

N-Number of total population

z-value of confidence level from z-table

e-precise (error)

$$n = \frac{(1.64)^2 \cdot (0.5)(0.5) 495}{(0.1)^2(495-1) + (1.64)^2(0.5)(0.5)} = 62$$

Table 1: The summary of the total population of sample s, sample size and sampling technique is presented as follows: List of s, Population and Sample Size of () Included in the Study areas. Sample size of research

NO	Type of respondents	popul ation	Sample size	%	Sample technique
1	Dairy producers	401	62	15.5	Multistage
2	Cafeterias	70	24	34	Multistage
3	Dairy cooperative head	16	4	25	Multistage
4	Livestock and fishing office head	8	2	25	Multistage
	Total	495	92	-	

Table 1 sample size of the research

3.4. Methods of data collection

Structured questionnaire was used to collect data from dairy farmers. This tool was pre-tested to improve on its validity and reliability. The questionnaire bore questions that brought out answers to milk prices, farm size, volume of milk produced, number of milking animals, marketing channels, and household demographic characteristics. Also focus group discussion was used to capture on activities in the milk chain

Primary data covered both qualitative and quantitative were collected in march 2017 from dairy farmers and cafeteria/hotels . Data on dairy farmers' characteristics such as sex, age, level of formal education, household size, volumes of milk produced per days. On milk marketing, emphasis was put on two categories of marketing channels (formal and informal milk marketing) where variables including as price offered, payment period, average volumes of milk supplied by individual dairy farmers ,membership to dairy marketing organization, distance to milk collection centers, source of market information and form of farmer payments by milk buyers as well as institutional factors such as access to credit and support from government

3.5. Data Analysis Technique

Data were edited, coded, entered in the computer and cleaned to ensure accuracy, consistency, uniformity and completeness. Heckman Probit model was used to determine farmers' milk marketing channel choice. Statistical Package for Social Sciences (SPSS) was used to generate descriptive statistics. STATA was used for regression analysis. Results were presented by the use of means, percentages, P values, tables and figures

3.6. Model Specification And Description Of Study Variables

➤ Variables

- marketing distribution channel of dairy products: formal and informal
- consumer
- cooperative
- cafeteria/hotels

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter deals with the findings of the study and their interpretations. It has three parts where the first part deals with characteristics and background of respondent. The second part deals with analysis of data collected from documents to show the trends of dairy producers. Third part presents analysis of responses from association leader producers, cafeteria, officer experts and heads followed by interview with producers and markets. By describing characteristics of the respondents, it is possible to know some background information out the sample population who participated in the study. The following 3 tables shows the general characteristics (sex, age, marital status, educational level, family work experience and family size of dairy producers respondents involved in the study

4.2. Socio- demographic characteristics of participants in the study area.

Questionnaires were distributed to the farmers with the help of two research assistants. The research targeted population of 92(62 dairy producers, 24 cafeterias, 4 dairy cooperative head and 2 expert officer). Out of the 91 respondents farmers that were targeted in the study (61 dairy producers, 24 cafeterias, 4 dairy cooperative head and experts of livestock officers) completed and returned the questionnaires. Therefore the study achieved a high questionnaire return rate of 98.9%. The reason for this high response can be attributed to the fact that questionnaires were hand delivered to the respondents by the researcher and two research assistants

4.2.1. Sex, Age and marital status of Respondents of dairy producer

As can be seen from Table 2 in relation to sex distribution of respondents: Dairy Producers, CCJMDP and JULFOHE were males (96.72%), 100% and 50% respectively .The rest of respondents (3.28%) and 50% of Dairy producers and JULFOHE experts were females respectively

Table 2 . Respondents by Sex, Age and marital status

Variables	Category	Dairy producers		CCJMDP		JULFOHE S		Total	
		No	%	No	%	No	%	No	%
Sex	M	59	96.72	4	100	1	50%	64	95.52
	F	2	3.28	-	-	1	50%	3	4.48
	Total	61	100	4	100	2	100%	67	100
Age in Years	18 – 30;	2	2.3%	-	=	=	=	2	3
	31 – 45;	28	44.4	4	100	2	100%	34	50.75
	46 – 60;	26	41.3	-	=	=	==	26	38.81
	Over 60	8	12.7	-	=	=	=	8	11.94
	Total	61	100	4	100	2	=	67	100
MSTATUS	Single	3	4.92	-	=	=	=	3	4.48
	Married	58	95.08	4	100	2	100	64	95.52
	Total	61	100	4	100	2	100	100	100

Source from calculation

KEY: D= DAIRY PRODUCERS

CCJMDP= COOPERATIVES COMMITTEES OF JIMMA MULTIPURPOSEDAIRY PRODUCTION

JULFOHE=JIMMA URBAN LIVESTOCK AND FISHING OFFICE HEAD AND EXPERTS

Looking at age structure, 2(2.3%) of dairy producers were in the age category of 18 – 30years,28(45.9%) of dairy producers were between (31 – 45); and (46 – 60) years old. 3(4.92%) of dairy producers were above 60 years old. This shows that majority of respondents of dairy producers is in a age of between 31-60 group. The age of Cooperatives Committees Of Jimma Multipurpose Dairy is4(100%) between 31-45 year this means all of sampled committee of dairy cooperative is middle age and the age of Jimma urban livestock and fishing office head and experts 2(100%) there age were between (31 – 45) years.

In terms of the marital status, Dairy Producers, CCJMDP and JULFOHE95.8%, 100%,and 100% were married respectively. This factor in conjunction with age and gender indicated that majority of participants were married above middle aged.

4.2.2. Respondents in terms educational level and farmers experience

As to educational background do respondents, first-degree were dairy producers, Dairy cooperative committees and JULFOHE experts holds (1.64%).1(50%) and 2(100%)respectively .Dairy producers 11(18.03%)and Dairy cooperative committees

2(40%)were diploma holders, whereas 28(45.9%)and12 (19.67%),7(11.47 %) AND 2(3.3%)of Dairy producers were secondary, primary, post-secondary and none class respectively Table3 Educational level , and farming Experience

Variable	Category	Dairy producers		CCJMDP		JULFOHE S		Total	
		No	%	No	No	%	No	No	%
EDU	1= None	2	3.3	=	=	=	=	2	3
	2 = Primary	12	19.67	=	=	=	=	12	17.91
	3 =Secondary	28	45.90	1	20.0			29	43.3
	4 = Post Secondary Certificate	7	11.47	=	=	=	=	7	10.45
	5=Diploma	11	18.03	2	40.0	=	=	13	19.40
	6=BA and above	1	1.64	1	20.0	2	100	4	6
	Total	61	100	4	100	2	100	67	100%
EXP	1=Less than 5years	2	3.3	1	20.0			3	4.5
	2=5-10years	10	16.40	1	20.0			11	16.42
	3=10-15years	19	31.15	1	20.0	2	100	22	32.84
	4=over 15years	30	49.18	1	20.0			31	46.30
	Total	61	100	4	100	2		67	100

Therefore, from the study we conclude that almost 98% the respondent joined formal education. Regarding the work experience of respondents, 30(49.9%) of Dairy producers and 1(20%) dairy cooperative committees served over 15 years .19(31%) dairy producers ,1(29%) and 2(100%) of experts served 10-15 years. 10(16.40%) dairy producers and 2(40%) respondents have served 6andaboveyears and14(16.1% dairy cooperative have served 5-10years and2(3.3%) dairy producers served below 5 years. From the Table one can understand that majority of respondents they well experienced.

4.3. Milk Marketing Channel Characteristics

4.3.1. Socio-economic characteristics of dairy farmers with marketing channels

Dairy milk in the study area was marketed through both formal and informal marketing channels. There were different types of milk marketing channels.

Table 4 Major milk marketing channels of the study area

The Major Milk Marketing Channels	Proportion
1. Producer → Consumer	34.43%
2. Producer ⇒ Dairy Cooperative ⇒ Consumer	31.15%
3. Producer ⇒ Cafeterias/Hotels ⇒ Consumer	21.31%
4. Producer ⇒ Wholesaler/Retailer ⇒ Consumer	13.11%
Total	100%

Source: survey result, 2017.

The selected market characteristics of formal and informal milk marketing channels include, volume of milk handled, unit price offered per litre of milk, distance to the milk collection centre, payment period for credit sales, marketing costs, farmers membership to cooperative unions, and source of market information and institutional support. Most farmers would be attracted by a distribution channel that would extend to them credit facilities like soft loans, animal feeds and drugs. Therefore this study was done to find out from farms if access to credit facilities influences choice of distribution channel, rating of access to credit as well as acceptance of credit through formal or informal distribution channels. This was analyzed using frequency rate as well as percentage rate. The study findings areas shown below

Table 5 Marketing characteristics of Dairy product farmers in study area(dependent variables)

Variables	Description	Frequency	Percent %	RANK	
Marketing System	Marketing system they used	Formal marketing system	34	55.74	1 ST
		Informal marketing system	27	44.26	2 nd
Marketing Channels	Marketing Channels(outlets)	Consumers	21	34.43	1 st
		Dairy Cooperative	19	31.15	2 nd
		Cafeterias/Hotels	13	21.31	3 rd
		Wholesales/Retailer	8	13.11	4 th

From the above table 5 The survey has established that dairy cooperative association and private producers in jimma town. It has been observed that smallholder dairy farmers jimma sell their milk via choice 4 different outlets such as neighbors(consumer),dairy cooperative, milk product traders (cafeterias/restaurants/hotels,), and wholesalers/retailer.

Further, the study grouped the milk market outlets into principally two market channels which are informal channel and formal channel. Results in Figure show that majority 34 (55.74-%) of interviewed dairy farmers in Jimma town channel their milk to the formal channel, while the study shows that only 27(44.30)% of the dairy farmers channel their milk through the informal channel. The probable explanation for what make majority of smallholder dairy farmers in Jimma on formal channel is the presence milk collection centers in Jimma City. With the availability of milk collection centers farmers are encouraged to market their milk through the formal channel since milk collection centers can handle large volume of milk. These findings are consistent with the results that Sayinet *al.* (2011). The research findings indicate that 21(34.43%) of dairy farmers channel their milk to neighbors (consumer), 19(31.15%)to dairy cooperative , 13(21.31%) to cafeteria/hotels and the remaining percent of dairy farmers 8(13.11%) sell milk directly to wholesalers/retailers

Overall Dairy Producers N= 61									
Markets System	Consumers		Dairy Cooperative		Cafeterias/Hotels		Wholesales/Retailer		Total
	frequency	%	Frequency	%	Frequency	%	Frequency	%	
Formal Market System	3	8.9	16	47.06	10	29.41	5	14.70	34
Informal Market System	18	66.7	3	11.11	3	11.11	3	11.11	27
Total	21		19		13		8		61

Tables 6. Type of milk market channels for dairy producer households

Market outlets under Formal market system cooperative union purchased 16 (47%) cafeterias 10(16%), wholesalers 5 (8%) and consumer 3(4%) of total the total 34 milk sold by Dairy producer.

On the other hand, informal channel outlets 18(67%) consumer 3(11.11%) cooperatives 19,3(11.11%)cafeterias, 13 3(11.11%)wholesalers of the milk sold by producer. .However, some producer sold milk in more than two market outlets depending on unit price offered, volume of milk produced, and urgency of the need for cash. Results show that majority farmers in jimma town sold milk from their farms to formal milk marketing channel.

Result indicated in figure 2 age proportion of 56(91.8%) of respondents fell between the ages of 31 and 60.the rest 3(4,9%) ,2(3.3%) there age were Above 60 and between 18-30years respectively. Majority of the age between 46and 60 was participated marketing system informal marketing channels .This implies that Age influences marketing channels outlets. Age influences the income generating capacity of an individual. The result shows that farmers with middle age were involved in dairy production in Jimma town

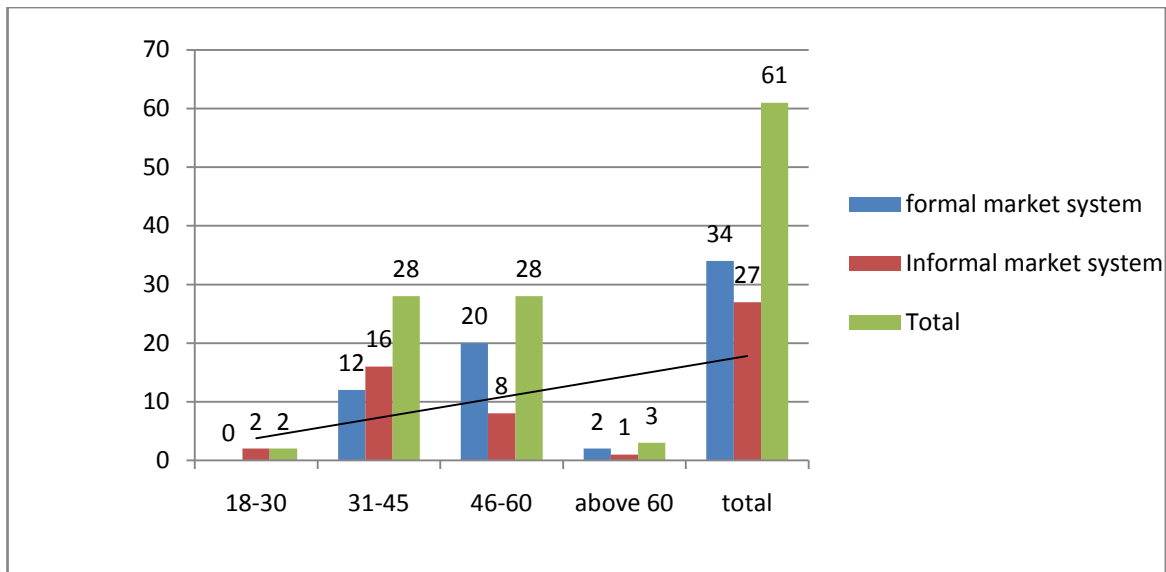


Figure 1 Dairy Producers In Jimma Town Participating In Milk Marketing

In terms of gender, a significant proportion of 59 (96.7%) of the respondents were male and only 2(3.3%) female. The proportion of female-headed households in the present study was lower than the 47.7 % for Hawassa town (Haile et al. 2012) and the 33 % for Addis Ababa (Azage2004). Our result was also in agreement with the findings of previous studies by (Teferee2003; Azage2004) for Addis Ababa and Yitaye et al. (2008) in northwest Ethiopia, who reported most of the urban dairy farmers were male-headed.

Markets System	Gender		Total
	Female	Male	
Formal Market System	1	33	34
Informal Market System	1	26	27
Total	2	59	61

Table6. Distribution of dairy producers by gender and marketing channels

markets system	Maritas status		Total
	single	married	
formal market system	0	34	34
Informal market system	3	24	27
Total	3	58	61

Table 7. distribution of dairy producers by marital status and marketing channels

In both theoretical and practical situations, education level plays an immense role in ensuring household access to basic needs. From the above data the most dairy producers 28 (45.9%) of the respondents the was secondary, 12(19.7%) level of education was primary, 11 (18%).Diploma 7 (11.5%) had certificate the rest 3(4.9%) was (1 BA and 2 unwritten person. The dominant level of education for actors in the milk marketing was 28(45.9%)were secondary education the second category 19(31.15%) were above secondary school(certificat- BA and Above). out of 11 diploma holders 10(90.9%) of them participated in formal marketing system. Education is one of the long term strategies that may be used to improve dairy cow and milk production and marketing.

Markets System (Participation)	Educational level						Total
	none	primar y	secondary	certificat e	diplo ma	BA and Above	
Formal Market System	1	6	14	2	10	1	34
Informal Market System	1	6	14	5	1	0	27
Total	2	12	28	7	11	1	61

Table 8 distribution of dairy producers by Educational level and marketing channels

The proportion of dairy farmers who had college and university education in the current study was lower than the result of Yousuf (2003) who reported 24 % for Harar town (Ethiopia). Majority of the respondents in the present study had formal education and is important to understand extension messages and to realize the importance of new technologies within a short time. According to Ofukou et al. (2009) farmers with high educational levels usually adopt new technologies more rapidly than lower educated farmers.

Table 9 shows In terms of the family size a proportion of 21 (34.4 %) had above 10 from this 17(80.95%) formal market system. the second highest proportion was 18(29.5%) of between 4 and 6.and 16(26.2%) between 7-10. the least percentage was 6 (9.8%) composing of between 1-3 family household. This result is agreement the findings of Haile et al. (2012) for Hawassa town (7.1 ± 0.22 persons Asaminew and Eyasu (2009) for Bahir Dar Zuria (8.2) and Mecha woredas (7.2). Large family size was considered very important for dairy activities

Markets System	Family Size Household				Total
	1-3	4-6	7-10	Above 10	
Formal Market System	0	7	10	17	34
Informal Market System	6	11	6	4	27
Total	6	18	16	21	61

Table 9 distribution of dairy producers by Family Size and marketing channels

Table 10. shows that experience farmer participating in marketing channels 30(49.8%) of the respondents had been selling milk for the past 15years, 19(31.15%) of the respondents for the past 10 to15 years, 10(16.4%) of the respondents for 15to 20years and 3.3 %of the respondents for less than 5 years. It is evident that a majority of the farmers have been selling their milk above 15 years indicating that they were vast with information concerning dairy farming and their responses could be heavily relied on. 18(60%) dairy producers who have above 15 years experiences was participated market system of informal channels. From this finding experience of respondent is regarding to formal market system is high.

Markets System	below five years	5-10 years	10-15 years	above 15 years	Total
Formal Market System	0	3	13	18	34
Informal Market System	2	7	6	12	27
Total	2	10	19	30	61

Table 10. Distribution of dairy producers experience and marketing channels

From the below figure 3 data shown the highest 23 (36,5%) dairy farmers produces above 50 liters per day 17(27.0%) produces below 20 liters ,8(12.7%) between 20-30 liters, 14(22.2%) produces 31-40 and 41-50 liters. Table shows that 27.0%ofthe respondents sold less than 20litres ofmilkperday,12.7% of the respondents sold 20to30litres, 9.5% of the respondents soldbetween31-40 liters,11.1%of the respondentssold41-50litersandtherest 38.1% soldabove50liters. The study was to assess how the quantity of milk supplied by the farmers influences choice of distribution channel in Jimma town .Farmers produce different quantities of milk and the smaller the amount the more It is likely for the farmer to sell to milk traders . A farmer who produces huge quantities of milk is likely to

sell to a formal channel of distribution because he is assured of continued absorption of all his milk produce.

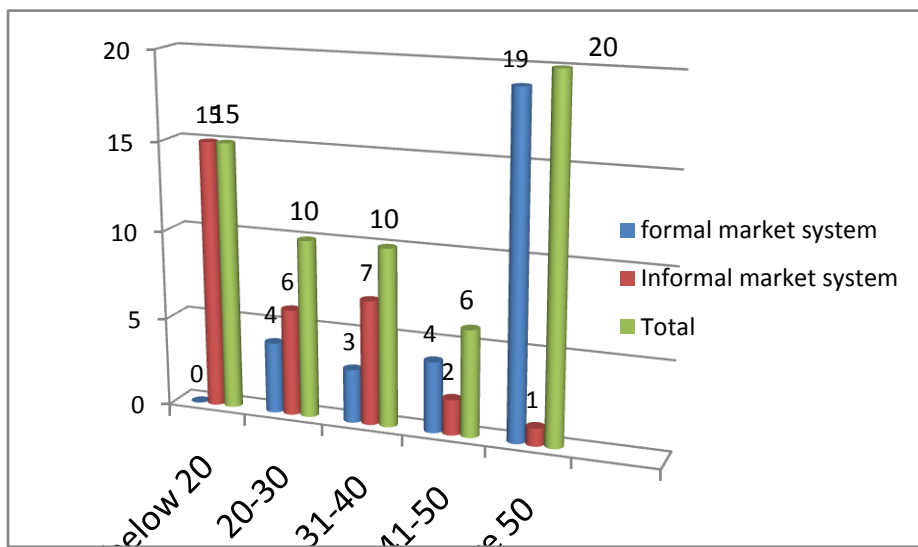


Figure 2 distribution of dairy producers by volume of milk produced

Table 11 Show that 24.59% of the respondents sold less than 20 liters of milk perday,26.23% of the respondents sold 20-30 litres,8.33% of the respondents sold between31-40litres,14.75% of the respondents sold41-50 liters and the rest sold above50litres 55.73% of the respondents indicated that they Preferred to sell their milk through formal distribution channels while as the rest of the respondents indicated they preferred informal distribution channels. The study findings agree with Muriuki(2003)who found out that dairy farmers opted for channels that absorb or take their produce (milk)in large quantities throughout the production season

Markets System	Average Sale Of Milk Litres Per Day					Total
	below 20	20-30	31-40	41-50	above 50	
Formal Market System	2	9	3	7	13	34
Informal Market System	13	7	2	2	3	27
Total	15	16	5	9	16	61

Table 11. Distribution of dairy producers by Amount t of milk sold and choosing marketing channels

Majority of the respondents 35 (57.1%) indicated that their selling price range that they had sold milk at any milking period was between20and25birr. 13 (21.31%)of the respondents indicated their selling price to be less than 20 birr per liter . the rest 13 (21.31%)of the respondents indicated their selling price to be between 26and30birr per liter. The standard deviation of .53 is interpreted to mean a wide

variation amongst the respondents. Farmers prefer to sell milk to that distribution channel that offers the highest price. This result contradict Even though the highest price 13.5 Birr/l was reported from Jimma against 10.0 birr/l in other towns, still they require milk collection center and large scale processing otherwise there is high demand for fresh milk like that of other surveyed Towns. Workneh and Ulfina (2011) also reported the parallel increases of demand in livestock sector because of the increase in population.

In another hand the figure 4 the price of milk was settled by different person On average,24(39.34%). 5(8.2%), 13(21.31%),19(31.15%)of dairy producers that the respectively milk price was set by producers, buyers , negotiated and dairy cooperative respectively . from the result bargaining power was dairy producers of Jimma town.

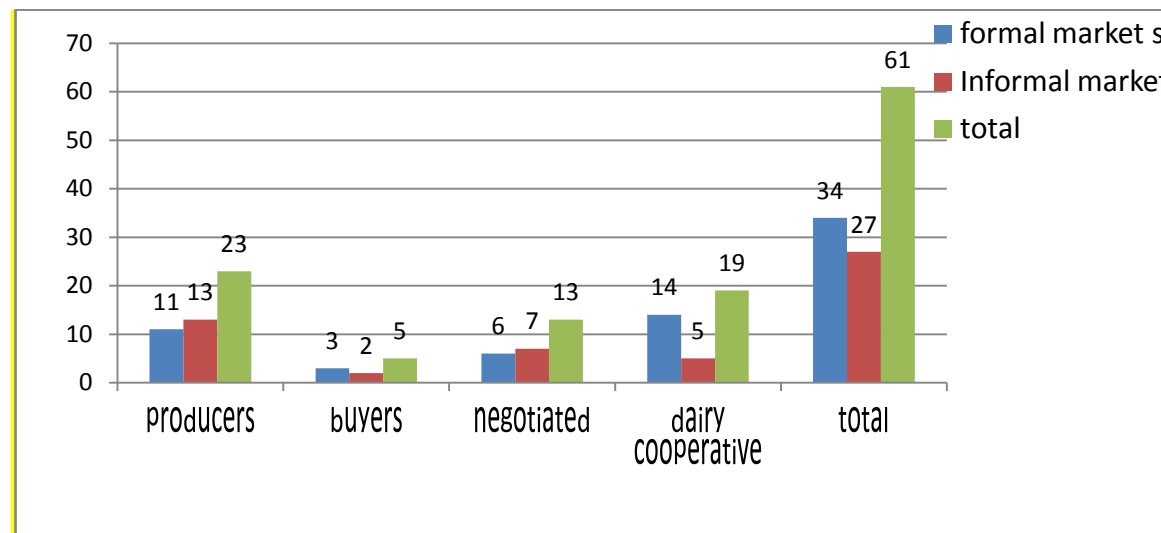


Figure 3 . Who set the price of milk for selling in the marketing channels

Farmers prefer to sell milk to that distribution channel that offers the highest price. This is in agreement with Mburuetal(2007)who assert that pricing and payment of the various actors in the distribution channel are essential in determining the choice of distribution. Author argues that the distribution channel that offers the best value is likely to be chosen by dairy farmers and it becomes the preferred choice.

Milk collection centers (dairy cooperative) were the major sources of market information for farmers that participated informal channel. It was found that majority of farmers(44.12%)informal marketing channel received market information from milk collection centers managed by cooperatives unions and(41%) mass media. And Consistently ,Fulleret al.(2004);Awudu and

Eliud(2010);Omiti*etal.*(2009)and Montshwe(2006)concluded that access to market information and the use of it has been found to increase market participation.

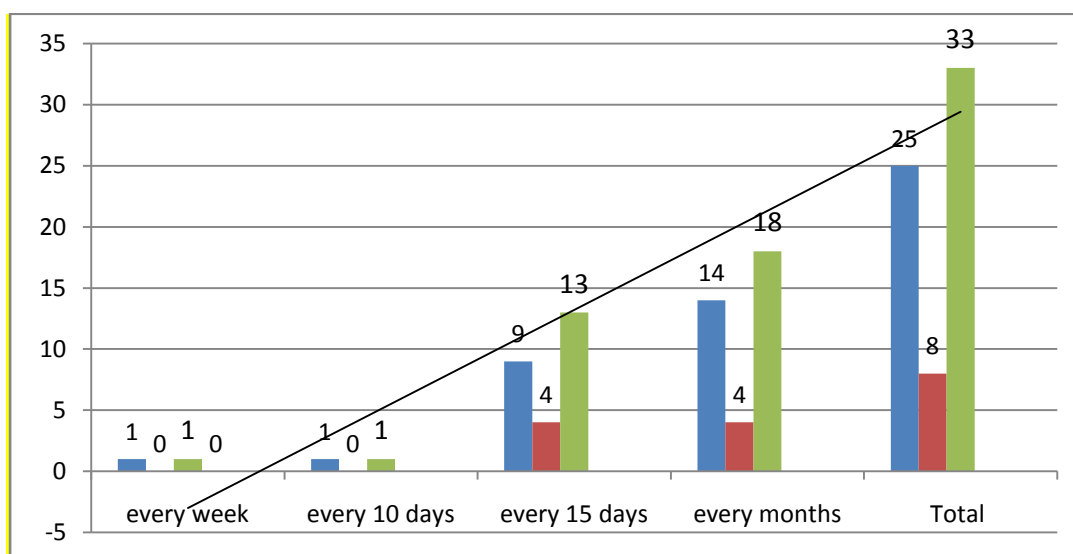
Table 1 .source of market information

markets system e(participation)	what is the source of market information ?					Total
	dairy cooperative	extension workers	Buyers	mass media	others	
formal market system	15	0		14	4	34
Informal market system	6	1	5	4	11	27
Total	21	1	6	18	15	61

For informal channel participants, the major source of market information was others (friends, parents and neighborhoods farmers) as reported by 40% farmers. This was because informal channel participants were indirect contact with milk vendors that picked milk from their farms. Other sources of market information for informal participants were milk collection centers (22%), buyers (18.5% and mass media (14%).

figure 5. indicated that Credit payment was commonly used and significant ($P \leq 0.05$) formal marketing compared to informal channel. Nearly **74.07%** farmers in the formal marketing channel sold their milk on credit as compared to **35.48%** in the informal channel. In addition, length of payment period was longer in the formal marketing channel and was statistically significant ($P \leq 0.5$). Both credit and delayed payment arrangements acted as disincentives for farmers to sell milk to the formal channel

Figure 4 if payment mode was credit how long does it take you to be paid



Delaying of services by cooperatives to their members was one of the major causes of mistrust Against cooperatives with references to playing its mandated roles

ArtukogluandOlgun (2008)

Table 2 distribution dairy producers by member of dairy cooperative organization and marketing system

markets system	Do you member of dairy cooperative organization		Total
	No	yes	
Formal Market System	6	28	
Informal Market System	11	16	
Total	17	44	

From the above table The study revealed that majority farmers that participated informal marketing channel belonged to a dairy cooperative union. Nearly 82.35% formal marketing channel participants belonged to dairy farmer cooperative union compared to only 59% for informal marketing participants. Participation in the formal channel was attributed to its capacity to handle large milk volumes produced by individual farms. and also dairy marketing cooperative organization and private license draw milk bulking traders performed functions such as milk cooling, provision of market information, provision of loans in form of inputs such as milk cans and drugs as well as acting as saving institution for participants by paying consolidated milk revenues alters few period of time.

Distance to market The average distance travelled to the nearest urban milk market was highest 17 households who had access to formal market system (1-3 km) market outlet and lowest to 3 households that had access to formal market system (than less 1km) market outlets.

The average distance travelled to the nearest urban milk market was highest 10 households who had access to informal market system (4-6 km) market outlet and lowest to 2 households that had access to informal market system (above 6km) market outlets

The majority of urban milk producers, who delivered milk to formal market system , transported milk by **public transport**; the informal market system dairy producers deliver their milk usually using **Head carrying** . The estimated average costs of transportation, was Birr(**0.25-0.50 birr**) /liter, for the market channels out lets identified.

4.3.2. Cafeterias Characteristics of study participant in Jimma Town

In the study area number population of cafeterias were 70. For our research 24 sample cafeteria were selected. The marketing character of cafeterias in jimma town as shown in table 13

No	Variables	Overall sampled cafeteria n=24	Percent
1	Type dairy product do you sell	Frequency cafeteria owners	Percent
	Raw Milk	21	87.5
	Fermented Milk (Irgo)	3	12.5
2	supplier of Milk for your cafeteria	Frequency cafeteria owners	
	Private Producers	13	54
	Dairy cooperative	5	20.83
	Itinerant	2	8.33
	Own farm	4	16.7
3	volume of milk supplied per day	Frequency cafeteria owners	
	less than 20	10	41.7
	21-30 litres	8	33.3
	31-40 L	6	25.0
4	Purchasing price per litre of milk from supplier	Frequency cafeteria owners	
	15-20 birr	9	37.5
	21-25 birr	15	62.5
5	selling price of milk	Frequency cafeteria owners	
	20-25 birr	1	4.2
	26-30 birr	5	20.8
	31-35 birr	9	37.5
	above 35	9	37.5
6	to whom do you sell	Frequency cafeteria owners	
	Customer	14	58.3
	Household	10	41.7
7	criteria on selecting marketing channel(outlet	Frequency cafeteria owners	
	Price	10	41.7
	Distance	3	12.5
	Reliability	3	12.5
	Others	8	33.3

Table 3 Cafeteria Characteristics

From the above table the dairy product sold in Jimma town by the cafeteria in study

areas was Fermented Milk (Irgo) produced 3(12.5 %), Raw Milk 21(87.5%), Others like so that the researcher understand the study the least fermented (urgo) and major rawmilk cause of dairy supplier and demand of customer. Regarding to supplier in table 7 supplier of Milk for cafeteria in study area were, accessed three milk market channels and combinations thereof: Itinerant, Private Producers and cooperatives. So that Itinerant 2 (8.33%), Own farm 4(16.7%), dairy cooperative 5 (20.83 %) Private Producers 13 (54 %) responses were orderly supplier for cafeteria.Regarding to study major sources of market supplier of Milk for cafeteria was Private Producers Regarding to volumes of milk products to cafeterias per days in table 11 showsthat10 (41 %) %of the respondents supplied per daylessthan20 liters of milk per day 8(33 %) of the respondents supplied between 20 and 30litres, 6(25%) of the respondentswasbetween31-40 liters. In terms of purchasing and selling prices shown in tables majority of the respondents cafeterias) 15(62.5%) indicated that their purchasing price range that they had buying milk was 21-25birr. 9(37.5%) respondents between 15 and 20 birr per liters.

Majority oftherespondents14(cafeterias)(58.3%)indicated that their selling price range that they had sold milk was above 35 birr. 7(29.16%) sold between 31 and 35 liters per birr .the rest 3(12%), sold between 28 and 30 birr per liters of the respondents indicated their selling price to be less than 20 birr per liter , the rest 3(4.8%)oftherespondentsindicatedtheirsellingpricetobebetween26and30birrper liter the case of .t big difference between purchasing and selling price in cafeteria was the adding of some cost and value adding and sold the customers. In terms selection criteria's shown in table 4 Average of 10(41.7%) %, 3(12.5%) and 8(33.3%) of the sampled milk traders, respectively reported that price, distance from milk market and reliability , others (quality ,payment models, season , demand and supply) were their primary criteria in selecting marketing channels or outlets

4.3.3. Characteristics Dairy Cooperative Association On Jimma Town

Theoretically, a common form of collective action to address access problem to market is assumed to be participatory, producer-led cooperative that handles input purchasing and distribution and output marketing usually after some of bulking or processing. Producers gain benefit of assured supplies of the right inputs at the right time,

frequently, credit against output deliveries, and assured market for the output at a price that is not always known in advance, but applied equally to all producers in a given locations and time period. Dairy producers' cooperative societies operational during the survey period in the milk shed were:

The cooperative is located at the center of jimma town. It was informally established in 1997 E.C having 27 members with sole aim of feed supply for the cooperative members at reasonable price. After few years, members of cooperative reached to 75. Their aim at the time of formally establishment comprised forming reliable milk sale outlet, supply of animal feed at reasonable prices, facilitating AI services and necessary medicament for the members' dairy farm owners. During the early period of establishment, the cooperative had increased its sale outlets to three. The informal discussion made with chairperson of the cooperative revealed that soon after its establishment, it was purchasing and selling 1302.5 liters of milk per day or 3551.5 liters of milk per month. However, during the survey period, the cooperative was found to purchase only 1009 liters per day or 30270 liters per month. The purchasing and selling price of the cooperative was revealed to be **22** Birr and **24** Birr, respectively during the survey period. The number of cooperative members was dramatically decreased from 75 members during its establishment to 23 members during the survey period.

The reason for decrease in the number of cooperative members and sale volume per day was due to availability of a number of alternative milk marketing channels/outlets for the milk producers in the town, lack of technical support through intensive training and advisory services; and the cut off purchase volume of milk from the members during fasting period due to considerable decrease in milk

demand/consumption level in the area. However, information obtained from the members revealed that the reason for decreasing the work dimension of the cooperative was mainly due to un comfortable rule and regulation of the cooperative. Further, informal discussion conformed that the cooperative seems to collapse in its near future if it is to continue in its current pace.

According to the respondents made with the chair person of the Jimma cooperative ,raw milk processing into butter and cheese, which was more occasionally done during intense fasting period, was found to be unprofitable. The cooperative was found to purchase raw milk from the members only at **20ETB**per litter and sale it for **22ETB** per litter on wholesale and retail basis to catering shops, hotels and restaurants, kiosks, individual consumers in the town. The cooperative was also selling skim milk, which is mainly produced during the big fasting period when raw milk is in excess of demand. However, selling of skim milk was not the routine undertaking of the cooperative but except fasting period. selling of skim milk was not the continual under takings for the cooperative due to lack of knowledge in line with business and technique. In relative terms, the cooperative seems to be progressively competing with local informal traders. Provision of input services at reasonable price kept the members' loyalty, maintain milk yield, and gave the cooperative economies of scale. In addition, loans/credit service, information of markets, provision of concentrated animals feeds with considerable price, sometimes provision training for producers and thus is prepared to accept lower milk prices from the cooperative than elsewhere.

The members felt the sense of ownership and consider cooperative as their own and it was reliable year round out lets for their produce. Nevertheless, the informal discussion highlighted that some producers were found to be not trustful to deliver the milk volume that they were committed to bring in to cooperative as they could have alternative milk sale outlets with better price particularly during peak demand period.

4.3.4 . The mean household characteristics by milk market outlets

Table 8. The Mean Household Characteristics By Milk Market

Independent variable	Consumers (n=21)		Dairy cooperative(n=19)		cafterias/hotels (n=13)		wholesales/retail or (n=8)		Total
	Mean	StdDev	Mean	StdDev	Mean	StdDe v	Mean	StdDe v	Mea n
VOLMEOF	2.49	.79	2.35	.69	2.69	.7	3.3	.61	2.6
SELLINGP	2.06	.55	2.02	.39	1.98	.46	1.67	.39	1.88
DISTANCE	2.81	.77	2.93	.41	2.26	.79	2.43	.79	2.52
ACCESSCR	1.77	.38	1.75	.26	1.50	.79	1.50	1.00	1.56
INSTITUS	1.23	.45	2.23	.53	2.24	.51	2.44	.28	2.14

The mean household characteristics by milk market outlets are provided in Table 8.

The mean household size by **volume of milk Produced and sold** per day in milk market outlets was **2.49,2.35, 2.69 and 3.3**,with individual consumer, cooperative hotel/restaurant, and wholesales/retailers respectively.

The **average price of milk liter/birr** offered **2.06, 2.04, 1.98 and 1.67** with individual consumer, cooperative, hotel/restaurant and wholesales/retailers respectively. the price offered by consumer market outlet was higher than price offered by other market outlets.

The **average distance travelled** to the nearest urban milk market was **2.81, 2.93, 2.26 and 2.43** accessed by individual consumer, cooperative, hotel/restaurant and

wholesales/retailers market outlets, respectively. The highest to households who had access to cooperative (2.93 km) milk market outlet and lowest to households that had access to hotel/restaurant (2.26 km) milk market outlets.

The mean households **access to credit** was **1.77, 1.75, 1.5 and 1.5** accessed by individual consumer, cooperative, hotel/restaurant and wholesales/retailers market outlets, respectively. This indicates that households who had access to cooperative milk market outlet were the highest to accessed to credit milk market outlet and lowest to households that had access to hotel/restaurant (2.26 km) milk market outlets.

The mean households(dairy producers) **Access to Institutional Support** was **1.23,2.23,2.24 and 2,44** accessed by individual consumer, cooperative, hotel/restaurant and wholesales/retailers market outlets, respectively. This indicates that households who had access to wholesales/retailers milk market outlet were the highest to accessed to institutional supports.

4.4. Factors influencing dairy producer's choice/participation in milk marketing channel

Factors influencing milk market channels choice were estimated to determine how smallholder dairy farmers behave in making decision for multi- milk market outlets choice in marketing milk. The estimation of factors influencing dairy farmers' of milk market channels was conducted in order to test the first hypothesis which states that *'household socio-economic characteristics do not influence choices of milk market channels among smallholder dairy farmers'*.

In order to determine significant factors that influence dairy households in deciding which milk market outlet to use amongst the available options in the study areas, a multinomial logit model was adopted. The MNL accommodated the multi- milk market channels that were available in the study areas to represent the categorical dependent variable.

The MNL equation that was developed for this study accommodated four milk market categories which were polytomized as neighbors, milk vendors, milk collection center and processing plants. These four milk market categories were later dichotomized into the formal market (sale to processing plant) and the informal market that squeezed the four different milk market outlets as mention earlier to suit the intent of the study. The explanatory variables that were accommodated in the MNL equation included; Age of household head (AGE), Sex of the household head (SEX), Family

size of household (FSHH), Education Level of the Household Head (ELHH), Volume of milk output (VMP), Price per litre offered at the market (PRICE), Family size (FSHH), Experience in dairy production and marketing (EXPP), and Access to credit (ACCR).

THE RESULT OF MULTINOMINAL MODELS CHOICE MARKET CHANNELS

Variables	Consumers n=21		Dairy cooperative n=19		cafeterias/hotels n=13	
	B	Sig.	B	Sig.	B	Sig.
Intercept	36.026	.986	11.460	.997	14.223	.106
ACCESSCRDIT	3.291	.049	2.584	.089	3.060	.060
DISTANCEMKT	.541	.628	.661	.526	.333	.765
INSTITUSUPPORT	-6.394	.024	-4.688	.086	-6.315	.025
SELLINGPRICE	1.166	.474	1.360	.353	.914	.558
VOLMEOFPRODU CT	-3.255	.017	-2.253	.088	-2.432	.072
AGE	.004	.997	.017	.989	.134	.917
EXPERIE	-.110	.895	.594	.445	.553	.524
EDULEVEL	.701	.359	.988	.146	1.229	.092
FSIZE	-1.307	.184	-.586	.520	-.422	.669
SEX	-10.287	.000	5.439	.999	-10.195	.106
MSTATUS	-7.272	.997	-9.206	.996	6.516	.060

Table The reference category is: wholesales/retailer

Table 13 : Factors determining marketing channel choices of Dairy farmers

Determinants of farmers' choice of formal milk marketing channel were estimated using a probit model as presented in Table 13. . Household size , total milk produced, distance to the Dairy cooperative, raw milk price, payment period and source of market information were significant factors that influenced farmers choice of the formal milk marketing channel

4.4. 1. Age of the household

Age of the household has negative and significant effect on the preference of farmers for formal markets and compared to informal local markets; meaning, an increase in age of the household declines the preference of formal market and brokers as they opted to use informal markets which do corroborate with the hypothesized sign. This research finding supports the results of Vijay *et al*, (2009) who noted that, household head age is negatively related to participation of an old farmer in modern channels and statistically significant in

private dairy channels. This is because a one year increase in age is predicted to raise the probability of being in the traditional channel and reduces the chances of being in other channels

4.4.2. Dairy farming experiences of the household head

Number of years a household has been in dairy farming positively and significantly affected accessing cooperative milk market outlet as compared with accessing individual consumer milk market outlet. The marginal effect indicates that the likelihood of accessing cooperative milk market outlet increases as compared with accessing individual consumer milk market outlet for an increase in dairy farming experiences by a year.

4.4.3. Volume of milk produced and sold

The amount of milk produced by the farmer has negative and significantly influenced the choice of milk marketing channel ($P=0.05$). This implies that farmers who produce huge volumes of milk prefer selling their milk to the channel which is capable of absorbing the all amounts of milk at a go and this was reported to be common with formal marketing channel. Contrarily, dairy farmers who produce fewer liters of milk could simply sell to vendors at the gate to avoid transport costs, sampled farmers reported. This research finding corresponds to the results of Vijay et al, (2009) who noted that both modern private dairy plants and traditional channels prefer suppliers from large farmers who can supply large quantities of milk.

4.4.4. Milk price by market outlets

Price offered by milk market outlet per liter of milk significantly and negatively affected accessing cooperative milk market outlet as compared with accessing individual consumer milk market outlet. The marginal effect shows that the likelihood of accessing cooperative milk market outlet decreases by 8.4% for a birr increase per liter of milk as compared with accessing individual consumer milk market outlet.

4.4.5. Form of Payments

Dairy producers choice of the milk marketing channel was positively influenced by the form of payments ($P=0.01$) (that is cash or monthly payments). Cash payment is important to the farmers as it helps them meet urgent financial obligations. Availability of market for the milk in the evening was reported to be important to the farmers as they could milk their cows twice a day and increase revenues. These two market features were found common in informal marketing channel. Credit arrangements make farmers feel financially unsecure particularly when the channel does not provide them with advanced payments. This research finding does not support the results of Steal et al, (2006) who revealed that households were less likely to select channels that paid cash or took milk on informal credit compared to channels that offered monthly payments or provided formalized credit terms (written contracts) which were more likely to be selected.

Results show that a change from instant cash (short periods) to fortnight payment period would increase farmers' choice of the formal marketing channel. This finding was in agreement with Staal et al. (2006) whose study noted that households were less likely to select channels that paid cash or took milk on informal credit

4.4.6. Gender household head

This is a dummy independent variable that takes the value 1 if the head of a household is male and 0 otherwise. Female contribute more labor in the area of feeding, cleaning of pens, milking, butter and cottage cheese making and sale of dairy products. However, such constraints as lack of capital and poor access to institutional credit and extension service, may affect female participation in dairy production and markets (Tanga et al., 2000).

4.4.7. Membership to cooperative (MEMB)

This is a dummy independent variable that takes the value 1 if a household has a membership cooperative and 0 otherwise. Farmers who are supposed to sell milk to milk processing cooperative rather than selling to individual consumer and hotel/restaurant. Therefore, membership to cooperative is hypothesized to affect accessing cooperative market. The observed milk collection centers in the study area were owned by dairy farmers' cooperatives. Being members to these, farmers were getting loans that could assist them in expanding their scale of operation. However, milk collection centers were not restricting non members to supply milk.

These findings are in harmony with that of (Luogaet al., 2010; Freshwater, 1989) which asserted that access to credit enables dairy farmers to use improved inputs such as commercial feed supplements and veterinary services and paying hired labour, which in turn have a direct positive impact on dairy performance.

4.4.8. Access to Credit

Access to credit (ACCR) in milk marketing was expected to have a positive influence on the dependent variable. During the survey it was established that dairy farmers who were channeling milk through milk collection centres had access to credit, hence the probability of selling milk to milk collection centres was high

4.4.9. Market information

Dairy cooperative as a source of marketing information was significant and positively related to formal milk marketing choice. Suggesting that access to market information through Dairy cooperative would increase farmers' participation in the formal marketing channel. This was because; offering marketing information to farmers was one of the functions of Dairy cooperative in addition to farmers' education and offering inputs at subsidized prices. Formal channel had streamlined market information structure that was exhibited by the Dairy cooperative that were on the ground for every participant to access the necessary information

4.5. Overall Test Of Relationship

The first thing in MLR for any choice analyst is to describe the overall test of a relationship, in this case a relationship between the dependent and independent variables.

Some predictor variables influence milk market channel choices significantly. Of the 9 independent variables used in the model, five, three and three variables in consumer, cafeterias/hotels and dairy cooperative milk market choices, are statistically significant at 1% significance level respectively. In all but one of the cases, the signs of the estimated coefficients are consistent with the *a priori* expectations.

The results suggest that the probability of the choice of consumer households as one of the market outlets is significantly and positively influenced by the family size of the household of a dairy farmer (FSHH) and price per litre offered at the market (PRICE), which is consistent with the *a priori* expectations. A credible explanation behind the observed relationships is that the positive and significant coefficient of

household size (FSHH) reflects that the larger the household size, the more volume of milk is supplied to the market per day. The coefficient of the variable confirms that as the dairy household size increases by one adult equivalent, volume of marketable milk surplus rises by 3.6 liters per day.

Contrary to the prior expectation, the coefficient that was attached to the volume of milk produced (VMP) revealed a negative impact on dairy farmers' decision to use consumers as a milk market channel and was significant at 1% probability level. The result of the informal survey confirms those dairy households having a larger volume of milk were unable to channel through consumer because consumers demanded small volume of milk to meet their family consumption.

Education (primary and secondary level) (EDLHH) has a negative effect and statistically significant effect (less than 1% probability) on the choice of consumers as an outlet for milk which is contrary to the prior expectation.

The MNL results further indicate a negative and significant (0.058) relationship between the choice of consumers milk market outlet and the access to credit (ACCR/no=0). The relationship implies that with no access to credit a dairy farmer is unlikely to sell milk via consumers market channel. Unfortunately, the negative relationship is not significant at the 5% level but is at the 10% level. This relationship is most likely due to the influence of credits in expanding the scale of operation of the dairy farmers. The value of the odds ratio (0.000) supports the zero probability of the variable influence on the consumers milk market choice.

The probability of choosing to sell to cafeterias/hotels is positively influenced by the price paid per litre (PRICE) and a possibility of dairy farmer being a female (SEX female=0) than a male.

The estimated significant values for price and sex are 0.000 and 0.094 respectively. However, the positive relationship between a female sex and cafeterias/hotels is not significant at the 5% level but is significant at the 10% level. As it was revealed in the choice of consumer households milk market outlet, education level (EDLHH) had negatively and significantly influences the dairy farmers' choice to sell to milk vendors.

A positive coefficient for PRICE and its influence on the dairy farmers' decision to sell milk to cafeterias/hotels is consistent with the prior expectation. A possible

explanation is that cafeterias/hotels offer relatively higher price for milk as it was revealed for consumer

Therefore, cafeterias/hotels who offer better price are likely to increase dairy farmers' willingness to market their milk produce through the cafeterias/hotels market outlet, which are more rewarding than dairy cooperative and processing plant.

The revealed positive and significant relationship between being a female dairy farmer and the likelihood to choose vendors as milk market outlet mean that, female-headed dairy household would increase the probability for marketing milk to milk vendors.

A conceivable explanation that can be given for this relationship is that females as head of the household are confronted with the household roles and therefore they choose not to opt other market outlets because it requires moving out of the homestead to the point of buyers. Additionally, most , cafeterias/hotels particularly hawkers tend to move from one farmer to another searching for milk, this attracts more female dairy farmers to contract with hawkers for the supply of milk.

According to the results of the multinomial logit, the probability of choosing to sell to a milk collection center is negatively influenced by the household size (FSHH) and the price of milk (PRICE). It was expected that the family size (FSHH) and the price of milk (PRICE) (significance value 0.000) could have a positive influence on alternative milk market choices. However, the *priori* expectations hold true for the neighbor and milk vendor market outlets choice but only for the price of milk per litre (PRICE), and FSHH for the sell to the neighbor households market choice only.

There is sufficient evidence (significance value of 0.002) to support that large family size (FSHH) is unlikely to encourage households to market their milk produce through dairy cooperative market channel. With dairy cooperative as one of the milk market outlets choice, large family size is not important for dairy farmers, as they supply their milk produce in bulk once milked an activity that can possibly be performed by a single family member.

Family under consumer milk market outlet revealed a positive influence because large family size supplies more labour that can be well utilized in distributing milk to consumer households who offer a relatively better price unlike MCC.

Access to credit (ACCR) in milk marketing was expected to have a positive influence on the dependent variable. During the survey it was established that dairy farmers who were channeling milk through dairy cooperative had access to credit, hence the probability of selling milk to dairy cooperative was high.

The observed milk collection centers in the study area were owned by dairy farmers' cooperatives. Being members to these, farmers were getting loans that could assist them in expanding their scale of operation. However, dairy cooperative were not restricting non members to supply milk.

These findings are in harmony with that of (Luogaet al., 2010; Freshwater, 1989) which asserted that access to credit enables dairy farmers to use improved inputs such as commercial feed supplements and veterinary services and paying hired labour, which in turn have a direct positive impact on dairy performance. Philip (2001) reported similar findings for Turiani dairy farmers who had access to credit facilities. Therefore, it can be concluded that credit is important in the produce market, regardless of the choice of the market being used.

For all market outlets (formal and informal market choices in principle), there is enough evidence to support that when households access credits, there is a higher chance of participating in either formal or informal markets. Thus, access to credit encourages dairy production and market penetration among smallholder farmers who find it difficult to increase production and market milk without access to credit to gain market access. With access to credit dairy farmers are able to expand their production size and meet the demand deficit.

4.6. Problems Constraining Constraints dairy farmers face when supplying milk to formal marketing channel

4.5.1. Milk Marketing Constraints

Problems and constraints that were identified to be hampering informal milk chain participants to integrate into a formal value chain were in jimma City. These problems and/or constraints are:

- I. Low price offered per litre of milk** Low price offered per litre of milk was listed by the majority of smallholder dairy farmers to be the main obstacle hampering them from channeling their milk to processors either through MCC or selling directly to processing plants. Due to low price, farmers were readily willing to channel their milk produce via informal channel which was seen to be more rewarding than the formal channel.

- II. Inability to adhere to standards and quality** Through observation and discussion with farmers and workers at MCC, it was discovered that majority of dairy farmers were unable to comply with standards and quality that were attached to milk by processors in study areas. An observation during the survey has shown that milk passing through milk collection centers and processing plants were subject to quality and standard tests using different instruments. One of the common quality tests was a lactometer which was used to measure water content in order to avoid purchasing adulterated milk.

- III. Low volume of milk produced** Dairy farmers who were producing little milk had no motive to sell via formal channel since little milk was easily to be absorbed by the informal channel particularly via selling to neighbor households.

- IV. Absence of milk collection centers** During the survey, there were no milk collection centers which would have encouraged dairy farmers and hawkers to channel milk via formal channel.

- V. Inadequate knowledge** The study has established many smallholder dairy farmers had little knowledge on the importance of formal channel as well as the value of processed milk owing to the high hygienic state and its preference to customers especially those attaching awareness of diseases such tuberculosis.

VI. Other problems and /or challenges that were hindering dairy farmers to channel milk through formal channel were; high demand of milk within the informal channel, Poor payment mechanism was reported by some farmers as one of the obstacles that were restricting them to sell their milk in the formal channel. In generally a number of integrated problems that had contributed to adulteration were consumer preference based on source of milk rather than quality, lack of consumer skill to test milk products quality, and presence of large number of unlicensed local traders were the most obstacle of mlk channeling via formal channels

4.5.2. Constraints of milk production Face Dairy Producers In Jimma Town.

Which Markets System	lack of animal feeds	Animal diseases and lack of Animal drugs	poor animal breeds	limited working capitals	small land holding	all	Total
Formal Market System	27	3	0	2	2	0	34
Informal Market System	15	2	1	2	2	5	27
Total	42	5	1	4	4	5	61

Table 16 Constraints of milk production Face Dairy Producers In Jimma Town.

From the data dairy producers responded 42(68.85%) Inadequate supply of quality feeds and cost of feeds major factors limiting dairy productivity in the study areas, 5(8.2%) Animal diseases and lack of Animal drugs 4(6.56%) limited working capitals 4(6.56%) small land holding poor animal breeds and 5(8.2%) dairy producers faced the above mention problem is hinders his production. Feed, usually based on fodder and grass, were either not available in sufficient quantities due to fluctuating weather conditions or when available were of poor nutritional quality. These constraints result in low milk, high mortality of young stock, longer parturition intervals, and low animal weights. Limited and unsafe medical and Artificial Insemination services and poor dairy cattle management system were vital problems that were exhibiting negative impact on dairy production system of the areas.

This finding is similar to the study by Asfaw, et. al. 2011, that revealed, high population growth and density are causing the shortage of grazing land on which livestock production by small holders depends

CHAPTER FIVE

5. Summary, Conclusions And Recommendations

5.1. Summary

The study was undertaken with the objective of assessing factors affecting Marketing distribution channels dairy product on jimma town, Ethiopia. The data was collected 92(from 62 dairy farmers, 24 milk traders /cafeterias/, 4 head of dairy cooperatives and 2 expert of livestock and fishery management jimma town smallholder and private producers farmers. Binary logistic regression model were used to analyze factors that determines marketing distribution channels of dairy products.

The objectives of the study were to characterize dairy producers participating in formal and informal milk marketing channels, determine factors that influence dairy farmers' choice of milk marketing channel and find out the constraints dairy farmers face when supplying milk to formal marketing channel..A Sample of 92 respondents was selected for the study and interviews were conducted using a structured questionnaire .Data analysis was done using Statistical Package for Social scientists (SPSS).In addition, models were run using STATA. Mean, frequencies were used to examine statistical differences between dairy farmers in the different marketing channels and the marketing channel characteristics. Regressions using binary logistic models were used to estimate factors that influence formal milk marketing channel choice and the proportions of milk sold by dairy farmers respectively.

The result shows that, 21(34.63%) of dairy producers was sold to consumers 19(31.15%) cooperatives,13(21.31%)% sold to cafeterias/hotels and 8(13.14%)% was sold to wholesales/retailers . On other hands, 34(55.7%) of respondents used formal milk market system and 27(44.3%), of respondents used informal market system of milk.

Dairy producers were raising different reasons for the choosing of market outlet they sold for. The survey shows dairy cooperative, mass media, discussion with friends and extension services are the main source of market information for the study areas.

Research findings showed that, there was not significant difference in channel participation where formal marketing channel had 34(55.7%) and informal marketing channel participants were 27(44.3%).The results showed that dairy farmers participating informal and informal milk marketing channels were statistically different in various aspects ranging from socio-economic characteristics to marketing characteristics. Farmers experience, age of household head, payment models and volume of milk produced were significantly higher in the formal channel. In terms of marketing channel characteristics, farmers in the formal milk marketing channel sold large volumes of milk at a higher price that earned them high

milk revenues. They travelled long distances to milk collection centers resulting into high transportation costs compared to those who participated in the informal channel. Other characteristics where the farmers who participated in the formal channel were significantly different from those in the informal channel included the mode of selling milk where farmers in the formal milk marketing channel sold most of their milk on credit, belonged to cooperative unions and received the market information from milk collection centers. Farmers in the formal marketing channels were motivated by the channel reliability that is being available all the time, trustworthiness of the formal channel trader that could not default on their money and channel's ability to handle big milk volumes. Results from the binary logistic model indicate that the Age of household head, Gender of household head, Marital status household head, experience of dairy farmers, total volume of milk produced and access to credit had negatively and significantly influenced dairy farmer's choice of formal milk marketing channel, and payment period and Membership of dairy cooperatives positively and significantly influenced dairy farmers' choice of formal milk marketing channel. As a result, access to milk market outlets of households can be segmented by socioeconomic and demographic characteristics, physical capital, market access, institutional support services and attributes of alternative milk market outlet.

Research results revealed a number of constraints faced dairy producers who participated in formal marketing channel namely, limited volume of market output, low price and limited price. Lack of collection centre, poor means transport, Poor Payment system and adulteration of milk products and lack of finance and delay in daily supply of milk were the main problems of dairy producers and milk traders when participating in milk marketing in the town,

5.2. Conclusion

Descriptive statistics used to analyse the data collected from the study sites.

These analytical methods were meant to identify differences in choices of milk channels among smallholder dairy farmers. A multinomial logit model was adopted to test statistically whether choices of milk channels were different. This model was estimated using SPSS 20 software.

Available evidences from literature and the survey indicate that dairy farming and milk marketing in particular involve many actors including smallholder farmers and intermediaries such as wholesalers and retailers. Results from the analysis show that actors were different both individually and group wise. For example it was found that actors differed with respect to age (young, middle and elder age), education levels and sex. A detailed discussion of these and other variables hypothesized to influence participation in the milk value chain and choices of channels/outlets is provided in chapter four. The observed differences in socio-economic characteristics among actors in the milk value chain were found to have implication on milk marketing behaviors.

➤ **Problems constraining marketing of milk via formal channel**

The study has found several problems that hinder smallholder dairy farmers to market milk through the formal channel including low milk price (per litre) offered by processors(milk traders). Low price was observed to be the main obstacle among smallholder dairy farmers that hampered them from channeling their milk to processors either through milk collection center or selling direct to processing plants. However, it should not be overlooked that price was the only factors limiting dairy farmers to sell milk through formal market channel. Reasons beside price that were identified included; inability to adhere to standards and quality that were attached to milk by processors in the regions, low volume of milk produced that could easily be absorbed by the informal channel particularly neighbors. Other reasons included inadequate knowledge on the importance of processed milk owing to high hygienic state and its preference, especially with regard to risks of diseases such as tuberculosis

➤ **The binary logistic model regression analysis** results showed that Age Of The Dairy Producers ($P=0.05$), member of dairy cooperative, institutional support, access to credits , Form Of Payment ($P=0.01$), Volume Of Milk Sold ($P=0.05$), and experience of dairy producers greatly influenced the choice of milk marketing channel. Price of milk per litre, distance to market family household size, marital status ,genders and source of information affected the choice of the marketing channel in the study area. It can be concluded that there was a significant difference in the socio-economic characteristics between dairy producers in formal marketing and those in informal marketing channel. The choice of marketing channel was influenced by this difference. Furthermore, many dairy producers still practice informal/traditional milk marketing channel. From the study ,it canbeconcludedthat55.74% milk from in jimma town is sold through the formal channel. The rest was 44.26% informal marketing .This finding conclude that much of the milk is marketed through the informal marketing channel. Whereas more milk in jimma town is marketed through the formal channel, the informal channel remains the most profitable channel in the short run. The formalmarketingchannelwasmorepreferredbymajorityfarmersnotbecauseoftheprofitear nedbutitsreliabilitythroughprovisionofconstantmarketfor milk both in dry and wet season. In addition, formal marketing channel had the capacity to handle large volumes from farmers, an as set that was beneficial for large milk producers especially in wet season. Therefore, formal channel is more relevanttotheeconomybybeingasourceofrevenuesincetradersaretaxedandto final consumers by supplying quality milk for consumption. As a result, access to milk market outlets of households can be segmented by socioeconomic and demographic characteristics, physical capital, market access, institutional support services and attributes of alternative milk market outlet

5.3. Recommendations

Based on the findings of the study the following recommendations are made for increasing milk supply in the formal channel;

➤ **Dairy plants/processors should offer reasonable prices**

To manage the supply-side constraints, the dairy plants should offer reasonable prices to the milk producers and a fair share in consumers' currency. Offering reasonable price per litre can inspire dairy farmers to sell milk through the formal channel (plants). In the survey areas, producers were observed preferring selling milk to the informal channel because their milk fetches a better price than the price offered by dairy plants. Price is the key factor for producers to opt for the supplying outlet.

➤ **Formation of smallholder dairy organizations**

Smallholder dairy farmers should be encouraged to form farmers' groups/organizations such as cooperatives that can possibly amplify their bargaining power through collective mechanism. Collective bargaining mechanism can make associations being able to increase negotiation power in setting price.

➤ **Establish adequate MCCs to cutter for surplus raw milk from producers**

Where milk collection centers are unavailable Jimma they should be established to enhance milk marketing through the formal channel. This method helps to decrease the street sale of milk. As such, MCCs could be affiliated to the private sector, producer cooperatives or unions and other non-governmental organizations.

Another important function of the MCCs is to provide quality and safe raw milk by enabling cold chain in the period of passing from the milking stage to the arrival at the dairy plant, because this is one of the problematic areas for

food safety conditions in raw milk marketing and sustainable market chain for milk in Ethiopia and other developing countries.

➤ **Provision of non-price incentives**

Besides monetary/price incentives, the provision of non-price incentives by the dairy plants, in the form of supply of quality feed inputs, regular veterinary medi-care services, artificial insemination (AI) facilities, extension services, training to the milk producers, etc. are instrumental in ensuring higher supply of milk to the plants.

➤ **Revisit of dairy development policy guidelines**

Policy on dairy development needs to be revised to create conducive environment for small holder dairy development. Farmers need support to meet market, registration and certification standards that can link them to sustainable markets. Dairy services need to cover milk producing areas more and provide the regulatory services to the small holder farmers who are ignorant of the possibilities of formalizing their milk sales. This will contribute to the inclusion of the small holder in the formal chain.

➤ **Adoption of best upgrading practices by farmers**

Dairy farmers need to adopt best upgrading practices in order to enhance their competitiveness and increase the volume of milk channeled through the formal chain. Such as(product upgrading, functional upgrading, process upgrading, vertical coordination and inter – chain upgrading

➤ **The government should empower small and medium scale processors**

The governments in collaboration with NGOs need to empower small and medium scale processors to enter in the milk processing business with the aim of creating competitiveness within the dairy processing industry via new investments. In nutshell, instead of piecemeal efforts, a holistic approach is required for boosting the formal milk processing sector in the study areas and effectively linking the milk producers in the value chain.

➤ **Recommendation for Further Research**

In regard with the findings from this study, the researcher recommends further studies to focus on assessing the potential benefits of adopting best upgrading practices by the poor actors participating in milk channels and poverty reduction chain with a view to drawing lessons for pro-poor growth and poverty reduction among chain participants.

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Appendix 4. Dairy population Distribution

Table.- Dairy population distribution according to sub-city, Jimma city, 2016

No	Name of the sub-city	No of dairy producers	No of cows dairy	% out of total	Rank
1	Sub-city one	35	1167	22	3
2	Sub-city two	21	689	13	4
3	Sub-city three	61	2067	38	1
4	Sub-city four	43	1431	27	2
	Total	160	5354	100	

Source: Jimma city office of urban Agricultur .a



Figure 5 Jimma town multipurpose dairy cooperative heads during discussion

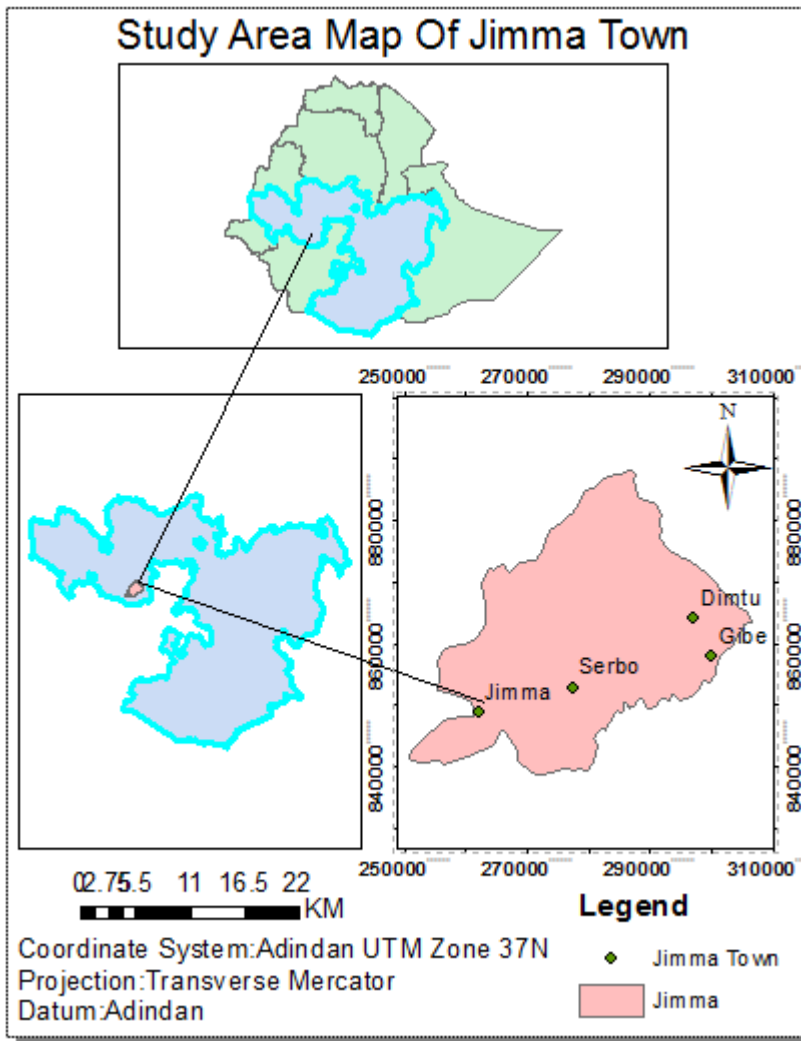


Figure 6 map of study area



Figure 7 milk processing equipment of dairy cooperative



Figure 8 milk handling material

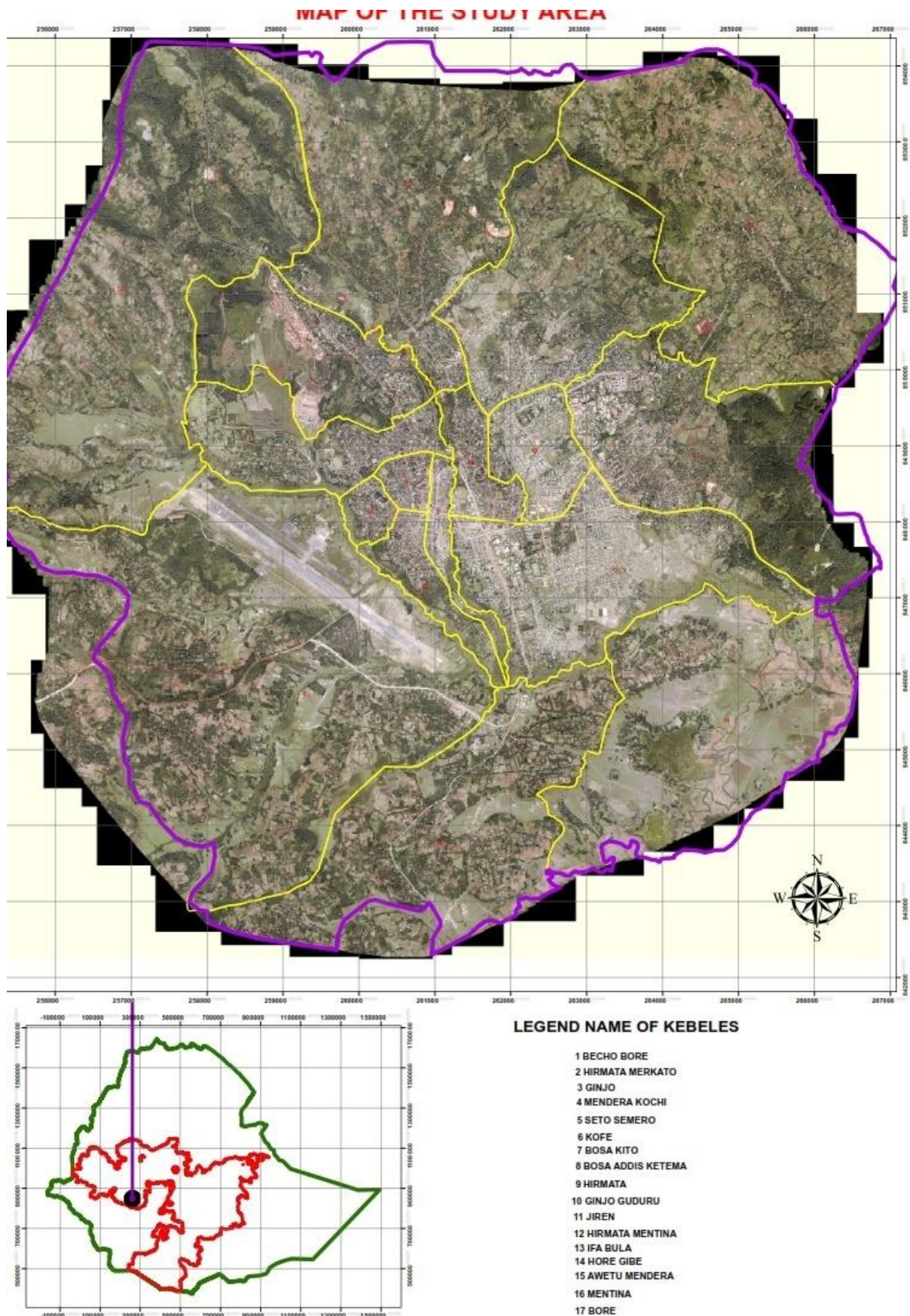


Figure 9 map of jimma town by kebele

APPENDIX I

Jimma University

College of Business and Economics

Department of management

MBA Program

Appendix 1: Questionnaires Administered For dairy producer In Jimma Town

TITLE: FACTORS AFFECTING MARKETING DISTRIBUTION CHANNEL OF DAIRY PRODUCTS OF JIMMA TOWN.

Dear respondents

Thanks for taking the time to talk with us, my name is ReshadAbafita. I am currently undertaking a Masters Degree in masters of business administration at the University of jimma I am researching on title ‘factors affecting marketing distribution channel of dairy product in case of Jimma town. The information which will help the researcher to fulfil partial requirement for Masters Degree in masters of business administration at Jimma university .Your response is vital to the outcome of the study and you are request to completely and objectively answer all question. The is going to be carried out based on your response and other relevant data that could support it. Your cooperation to respond genuinely is very important to this study because it represents hundreds of other dairy producer and milk trader who are not including in the sample. Please answer all questions. I would promise that all information you provide would be strictly confidential.

Please circle provide your answers where applicable

Thanks you in advance for your indispensable cooperation to spare invaluable time and energy to complete these questionnaires.

Name :ReshadAbafitaMBA Student at Juemail-reshadabafita29@gmail.comTelephone-0917562352

Appendix I: A Questionnaire Administered To Urban Dairy Producer In Jimma Town

- Name of respondent (optional).....Date of Interview.....
- Address..... subcityKebele -----

SECTION I. Personal Information Of Dairy Producers

1. Age (years) 1 = below 18 years; 2 = 18 – 30; 3 = 31 – 45; 4 = 46 – 60; 5 = over 60
2. Sex 1=Male 0= Female
3. Marital status 0= Single 1= Married

- 4.
5. Family size 1 = 1 – 3; 2 = 4 – 6; 3 = 7 – 10; 4 = over 10
6. What is your experience in years?
1=Less than 5years () 2=5-10years () 3=10-15years () 4=over 15years

SECTION II .Volume Of Dairy Products

7. Where do you sell your milk?
1=Consumer 2=Cooperative 3=Cafeteria/Hotels 4= Wholesaler/Retailer
8. Which markets do you usually use for channeling your milk produce?
1=Formal markets 0 =Informal markets
9. What is the average amount of milk production (in liters) per day ?
1=less than20 2=20-30 litres 3=31-40 litres 4=41-50 5=above 50 litres
10. Which milk product do you sale?
1=Raw Milk 2= fermented (Irgo) 3=Cheese (Ayib) 4=Butter
11. What equipment do you use for handling milk or milk products ?
1=Jerrican, 2= Milk cans (tasakorkoro) 3=Cooling tanks 4=others

SECTION III. VOLUME of SALES AND SALES PRICE of MILK PRODUCTS

12. What is your average sale of milk per day in litres?
1=less than20 2=20-30 litres 3=31-40 litres 4=41-50 litres 5=above 50 litres
13. Who sets the price of milk?
1= Producer...2= Buyer 3= Negotiated... 4=cooperative
14. How much the selling price a liter of milk in birr?
1=below20 birr 2= 20-25 birr 3= 26-30birr 4= above 30birr
15. Whatisthepaymentmodelofthemilkmarketingchannelyouusemost?1=Cash, 0=Credit
16. If credit, how long doesittakeyou to be paid?
1= Every week days
2=Every 10 days
3=Every 15 days
4=every months
5= over a months
17. Whatisthesourceofmarketinformationonyourfarm?
1=cooperatives(dairyfarmerorganization)
2 = Extension workers,
3=buyers
4=Massmedia,
5=others (specify)

SECTION IV. DISTANCES TO THE MARKET

18. What is the distance from your farm to the main market outlet you use.....km?
1=Less than 1km () 2=1km-3km () 3=4km-6 km () 5= 6km above
19. How do you transport raw milk and milk products to the market?
1=Head carrying () 2= vehicle () 3=Public transport () 4= traditional transport ()

20. What is the estimated cost of transportation of milk and its products per litre / per day to market places?

1=Birr = Less than 0.25 2= 0.25- 0.50 Birr 3= 0.50-0.75 birr,
4=0.75 -1.00 birr 5=above 1 birr

SECTION V ACCESS TO CREDIT?

21. Do You Have Access To Credit? 1=YES 0=NO

22. If yes, what is your major source of credit?

1= local community and credit organization

2= commercial bank

3= dairy cooperative

4= Others

23. IF No, Why? 1= Not Available 2= High Interest Rates 3= Lack Of Collateral Security 4= Others (Specify.....

SECTION VI. INSTITUTIONAL SUPPORT

24. Do you belong to any dairy producer marketing organization? 1=Yes 2=No

25. If no, why not?

1=No dairy producer groups/cooperatives available, 2=Do not see the benefit of being a member

3=Lack of resources to join farmer groups, 4=I don't trust Such organization 5=others (Specify)

26. If yes, what benefits do you enjoy as a member?

1=Provision of market for milk

2=Market information

3=Loans/credit services

4=Milk transportation

5= All

27. Do you receive any support from the government or any Agencies ?

1=yes 0= No

28. If yes, state the type of support

1= financial support 2= Health service

3=Animal breeding and Training service 4= land for expansion 5=all

29. How you can Rate services offered by government officers on dairy production on your farm?

1=very Good 2= good 3= fair 4=Poor

30. What production constraints do you face on your dairy production?

1=Lack of animal feeds,

2= Animal Diseases And Lack Of Animal Drugs,

3= Poor animal breeds

4=Limited working capital,

5=Small landholdings

6=All,

31. What you consider to be the major problem you face in channeling your milk via formal marketing system?

1= Limitedvolumeofmarketoutput,

2=, Lowprices and limited

3=poor payment system

4= lack of collection centres

5=Poormeansof transport,

6=All

Thanks for your cooperation!!

Appendix II: Questionnaires Administered For Cafeteria/Hotels/In Jimma Town

SECTION A. GENERAL INFORMATION

Name of respondent (optional).....

Date of Interview.....

Address.....subcitykebele

SECTION I. PERSONAL HOUSEHOLD'S CHARACTERISTICS

SECTION II. MILK MARKETING INFORMATION

What type of dairy product Most Sold in your business organization ?

1=Raw Milk 2=Fermented Milk (Irgo) 3= Cheese (Ayib) 4=Butter

The Source Of Your Supplier Of Dairy Products ?

1=Private Producers 2=Dairy cooperative 3=Retailer 4=Itinerant 5= Own farm

What is the volume of milk in litter supplied to your cafeteria per day?

1=lessthan30 2= 31-40litres, 3=41-50 litres 4=above 50liter

How much purchasing price per liter of milk from supplier?

1=15-20birr () 2= 21-25birr () 3=26-30birr 4= above 30

How much selling price of milk per liter in birr in your cafeteria?

1=20-25, 2=26-30 3=31-35 4=Above 35

To whom do you sell the dairy products?

1=customer 2=wholesalers/retailer 3=households 4= Supermarket 5=institutions

Do you have contractual arrangements with suppliers? 1=Yes 0=No

If yes what are the form of contract? 1= written contract 2= verbal contract

What you consider to be the major problems constraining you in channelling milk market?

1=Limited volume of market output

2=Delay in daily supply of milk

3=Poor means of transport

4= lack of contractual arrangements with suppliers

5= Fluctuation in prices

6=Adulteration of milk products

7= others

Thanks for your cooperation!!

Appendix III: Questionnaires **Administered** For Urban dairy cooperative association Jimma Town

TITLE: Factors Affecting Marketing Distribution Channel Of Dairy Products Of Jimma Town.

GENERAL INFORMATION

Name of respondent.....title.....Date of Interview ...

Address..... kebele.....

When cooperative association founded?

How many members are registered in your cooperative association? -----

SECTION I . PERSONAL INFORMATION ABOUT RESPONDENT

Age (years) 1 = below 18 years; 2 = 18 – 30; 3 = 31 – 45; 4 = 46 – 60; 5 = over 60

Gender : 1=Male, 2=Female

Marital status : 1=Single, 2=Married,

Education level 1 = Primary 2 =Secondary 3 =certificate 4=Diploma 5=BA &Above

What is your experience in years?

1=1-5years () 2=5-10years () 3=10-15years () 4=over 15years

SECTION II. Information About Market

Do all farmers have to be a member of the cooperative to deliver milk to you? 1= yes 2=no

Do You Set The Price Of Milk Product To Your Member?

1= YES 2=NO

Do you receive any support from the government or any agencies ? 1=yes 2= No

If yes, state the type of support

1= financial support

2= Health service

3=Animal breeding and Training service

4= land for expansion

5= marketing linkages

6= others

What are problems encountered in respect of marketing of milk by the members of Dairy Co-operatives ?

1=Market Related Problems

2=Distance Related Problems

3=Feed Related Problems

4=Finance Related Problems

5 =Adulteration Of Milk Products From Supplier

Appendix IV : Questionnaires For Urban livestock and fishing officer Jimma Town

TITLE: Factors Affecting Marketing Distribution Channel Of Dairy Products Of Jimma Town.

SECTION III. GENERAL INFORMATION

Name of respondent (optional)..... Date of Interview

Address.....kebele----- phone number-----

1. Age (years) 1 = below 18 years; 2 = 18 – 30; 3 = 31 – 45; 4 = 46 – 60; 5 = over 60
2. Gender : 1=Male, 2=Female
3. Marital status : 1=Single, 2=Married
4. Education level 1= certificate 2=Diploma 3 =BSC/ BA 4= MSC and above
5. your experience in years?
1= 1-5years () 2=5-10years () 3= 10-15years () 4= over 15years
6. How is the trend in the supply of milk during the last three years?
1= Increasing 2= Decreasing 3=Constant
7. How is the trend in the demand of milk during the last three years?
1= Increasing 2= Decreasing 3=Constant
8. How is the trend in the price of milk during the last three years?
1= Increasing 2= Decreasing 3=Constant
9. What are the major milk production constraints you have observed?
1=Feed shortage (both concentrate and roughage)
2=Lack of health service
3=Lack of breeding (AI) service
4=Lack of land for expansion
5=Low production
6=Lack of training and Advisory service
7= all of the above mentioned
10. What are the major dairy product marketing constraints you have observed?
1=Fluctuation in the quantity of milk obtained from cows
2=Lack of getting adequate market and information
3=Inadequacy of labour in the household to transport milk
4=Spoilage of milk during transportation
5=Credit services
6=all of them