2016

Motivating factors for dairy cooperative membership in Kenya: a case of small holder dairy farmers in Kiambu County

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MOTIVATING FACTORS FOR DAIRY COOPERATIVE MEMBERSHIP IN KENYA: A CASE OF SMALL HOLDER DAIRY FARMERS IN KIAMBU COUNTY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF MASTER OF BUSINESS ADMINISTRATION AT STRATHMORE BUSINESS SCHOOL

March, 2016

DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the project contains no material previously published or written by another person except where due reference is made in the project itself.

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ABSTRACT

Dairy cooperatives dominate the marketing of milk in Kenya on behalf of their members who are mainly small – scale farmers. These cooperatives serve farmers by collecting milk from them, bulking it and then distributing it as raw or pasteurized to various places or as dairy products such as yoghurt, ghee, butter and cheese. But despite the significance of membership to farmers, some farmers are still reluctant to join the cooperatives. The purpose of this study was to determine the factors that motivate and contribute to membership in dairy cooperatives in Kenya. The study employed a descriptive research design. The target population included all the 59,635 dairy farmers registered as members of the seven cooperatives societies in Kiambu County. The study adopted a stratified random sampling method to arrive at a representative sample of 398 respondents. The study collected primary data using a questionnaire which was analyzed using descriptive statistics and regression analysis. The study found that there was a strong relationship between the three factors and cooperative membership but market access had the highest influence on the decision to membership. The second was social factors, while the third was economic factors. From the findings, the study recommends that managers of cooperatives must have clear policy on fund management. This policy should indicate transparency and accountability of members' funds. The second recommendation was that the dairy cooperatives must always have unallocated equity capital. They should invest the funds well so as to reap good returns for the benefit of the farmers. This will help to retain the farmers who are members as well as attract more members. They should always ensure that whatever obligations they have are met as and when they ought to without disrupting with the farmers' borrowings. Thirdly, the study recommends that managers of dairy cooperatives must involve farmers when making marketing decisions especially concerning prices, products, market and promotion. As organizational stakeholders, their involvement is vital in determining the ability of the dairy to achieve its goals. The fourth recommendation was that management of a dairy cooperative must position collection points in the most proximate location to the farmers in order to get as many members as possible. The fifth recommendation is that the dairy cooperative must be able to add value to the milk to enable them access wider markets and maximize returns to members. The study finally recommends that private processors should give more benefits than the cooperatives give to the farmers so as to attract them to supply milk to them. The milk from the farmers directly would be cheaper for them than buying from the cooperatives. This they could do by offering a higher price for the milk than the cooperatives. The study recommends that the Government should subsidize taxes on the dairy equipment used in the milk processing plants in order to encourage private processors. These may help especially those farmers who have no access to cooperatives due to distance. It could also widen the market for milk and milk products on behalf of the farmers and improve their income greatly. Resulting from the discussions, the study concluded that economic factors, social factors and market access all had significant positive effect on the dairy cooperatives membership among farmers in Kiambu County. Out of the three, market access was the greatest motivator for dairy cooperative membership. The study faced a few limitations including the following: due to the limited literacy levels of most respondents, the use of interview method was applied in administering the questionnaire which led to low response rate. Some of farmers were reluctant to give information despite reassurance that the study was confidential.

Key words: *Cooperatives, Smallholder Dairy Farmers, membership, market access, social factors, economic factors, motivation*

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ABBREVIATIONS AND ACRONYMS

A.I	-	Artificial Insemination
ANOVA	-	Analysis Of Variance
FAO	-	Food and Agricultural Organization
IFAD	-	International Fund for Agricultural Development
ILRI	-	international livestock research institute
IYC	-	International Year of Cooperatives
KARI	-	Kenya agriculture research institute
KCC	-	Kenya Cooperative Creameries
KDB	-	Kenya Dairy Board
MOA	-	ministry of agriculture
SPSS	-	Statistical Package for Social Sciences
UN	-	United Nations
US	-	United States
WFP	-	World Food Programme

ACKNOWLEDGEMENT

I wish to take this opportunity to thank the Strathmore Business School administration team for their great support towards the designing of this project. I specifically thank Professor Ruth Kiraka who taught the Research Methods course and her demand for quality in the students' research projects. May her contribution towards research educate many people who will contribute immensely in various institutions.

I would like to thank my husband Joseph Kigathi, for his great support in my entire course and allowing me time off the business to carry out this study. I also wish to thank Dr. Everlyn Makhanu for her immense support, guidance and promptness in responding to the emails during the entire period of designing this project. I also wish to thank my colleagues Jane Otieno and Bryson Amatete for their moral and technical support whenever I needed it throughout this project. I thank my manager Sammy Kimathi for the technical support in typing and editing the work in good time.

DEDICATION

This work is dedicated to my husband Joseph Kigathi for his great support and encouragement throughout this study.

Special dedication goes to my parents Charles and Nancy who always encouraged and prayed for me. I also dedicate this work to all my friends and family: Damaris, Sam, John, Diana and Lenny.

DEFINITION OF TERMS

The following are relevant terms used in this study since the general background of the study has already been established.

Artificial Insemination – is the process of collecting sperm cells from a male animal and manually depositing them into the reproductive tract of a female for reproduction purposes.

KCC – Kenya Cooperative Creameries was the first and only cooperative in Kenya which processed and marketed milk and milk products on behalf of dairy farmers.

KDB – Kenya Dairy Board was the organization that the Kenya Government established in order to regulate dairy marketing.

Cooperatives – These are an autonomous association of people united voluntarily to meet their common economic, social and cultural needs as well as aspirations through a jointly-owned and democratically controlled enterprise.

Transaction costs – These are the costs farmers incur due to the highly perishable nature of milk such as looking for markets to sell the product, negotiating with the potential buyer, the modes of delivery of the product and all manner of agreements that need to be documented.

Milk Quality – This is basically the hygiene in milking and handling of the milk which has an impact on the shelf life of the milk and milk products.

Unallocated equity capital – This is the portion of the earnings of a cooperative that is not allocated to the members but is held as unallocated additions to the cooperatives permanent capital base. It is used to cover for taxes, cash flow and any contingencies that may occur without affecting members' contributions in case of any losses.

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter gives a brief introduction of the research study by looking into the concept of membership in cooperatives and factors motivating membership. The chapter details the problem at hand and explores the objectives of this study while stating the research questions which this study hopes to have answers to. The chapter justifies why the research should be conducted while giving the scope of the study and the significance of the study.

1.2 Background to the Study

Dairy farming in Kenya is mainly dominated by smallholders who contribute approximately 56% and 70% of total and marketed milk production respectively (Peeler & Omore, 1997). These are typically farmers with 2 to 3 cows on farms of about 1 ha. in intensively farmed areas and 2.5 ha in the extensively farmed areas (Staal et.al.,1998; MOA/KARI/ILRI,1998). The estimated total population of 2.5m of dairy cattle in approximately 625,000 smallholdings (MOA, 1996; Peeler & Omore, 1997) indicates that this sub-sector provides many Kenyans with a source of income and nutrition.

According to Conelly (1998) and Omore et al. (1999), market oriented dairy farming with exotic cattle in Kenya started when European settlers introduced dairy cattle breeds from their native countries in the agriculturally productive highland areas in central parts of Rift Valley and Central provinces. The Swynnerton Plan of 1954, allowed Africans to practice cross – breeding of dairy cattle and allowed them to engage in commercial agriculture. They also initiated the Veterinary Research Laboratories in Kabete and the Animal Husbandry Research Station in Naivasha in order to support the expanding dairy production. The Kenya Cooperative Creameries (KCC) was founded in 1925 to process and market dairy products mainly butter and cheese both locally and abroad. In 1958 the Kenya Dairy Board (KDB) was established through an Act of Parliament to regulate dairy marketing. The smallholder dairy cooperatives collected milk from farmers on behalf of KCC which dominated the industry until 1992 when liberalization of milk marketing was allowed by the government.

This gave KDB broad powers over the organization of the dairy marketing system in Kenya. KDB was also to ensure stable prices, improvement of milk quality, promotion of marketing research & private enterprise in production, processing & marketing of dairy produce.

However, after several years, KDB concentrated its operations on the regulation of businesses involved in milk processing and distribution of dairy products (Mburu, 2002). Dairy cooperatives dominate the marketing of milk in Kenya on behalf of their members who are mainly small – scale farmers. These cooperatives serve these farmers by collecting milk from them bulking it and then distributing it as raw or pasteurized to various places or as dairy products such as yoghurt, ghee, butter and cheese. Cooperatives have the potential to improve productivity in the smallholder sector as well as enhance market participation by farmers (Birthal, Joshi & Gulati, 2005). In addition to this services, they assist farmers to acquire credit facilities, farm inputs and Artificial Insemination (A.I.) services at relatively low costs (Omitiet.al., 2000). Cooperatives can help smallholder farmers to overcome the various constraints such as limited access to financial resources which limit their chances of increasing scale of production due to high transaction costs (Kruijssen, Keizer & Giuiliani, 2006). Cooperatives have the potential to improve farmer productivity in the dairy sector as well as enhance market participation by farmers (Birthal, Joshi & Gulati, 2005).

Encouraging farmers to act collectively has been seen as a strategy for addressing these constraints in the smallholder sector (Shiferaw, Obare&Muricho, 2006; Sinja, Njoroge, Mbaya, Magara, Mwangi, Baltenweck, Romney &Omore, 2006). Cooperatives have the potential of linking farmers to markets by reducing the transaction costs (Develtere, Pollet&Wanyama, 2008) so as to improve their income and expand their markets (Markelova, Meinzen – Dick, Hellin & Dorhn, 2009). If farmers are not able to access the market, their access to income generating opportunities is limited and can result to subsistence rather than market – oriented dairy production systems. Organizing farmers through cooperatives is better than individual farming because it facilitates access to market information, minimal costs of marketing, increased opportunities to access technology, extension and related services hence they become efficient in production and marketing of milk and other dairy products (Lapar, Trong Son, Tiongco, Jabbar, &Staal, 2006).

In Kiambu County, which is close to Nairobi, there is a highly competitive market for milk according to Kariuki and Place (2005). Farmers rely on purchased feed and fodder and a competitive market for livestock services. Farmers are willing to take lower prices of milk from cooperatives than they can get elsewhere if only they would get monthly payments that they can budget for livestock and other expenses as well as short term loans that can help them access feeds and A.I. services (Abdulai and Birachi, 2008). Farmers like the idea of cooperatives but they feel poorly informed and unable to participate in them due to their

bureaucracies. There are many factors that influence cooperative membership but this study will only focus on three factors mainly; economic factors; social factors; market access. These factors therefore, will help the researcher to gather information on how these factors influence cooperative membership on smallholder farmers in Kiambu County of Kenya.

1.2.1 Background of Cooperatives

The International Cooperative Association (1995) defines a cooperative as an autonomous association of people united voluntarily to meet their common economic, social and cultural needs as well as aspirations through a jointly- owned and democratically controlled enterprise. This definition implies cooperatives that are formed freely by groups of people who share a need and contribute to its assets. It is formed and governed democratically, owned and controlled by its members to meet their needs.

According to Galor (2003), cooperatives are purely economic started by their members and owned entirely by them. Cooperatives are formed with the intention of providing its members with the best possible service at the lowest possible cost which other markets may not match. Cooperatives can be formed in any sector of the economy, with different sizes depending on the functions they perform (Rondot & Collion, 2001) and at village, regional or national levels. Cooperatives are guided universally by certain principles set out by the Rochdale Society of Equitable pioneers in 1844 (Ortmann & King, 2007; Rheingold, 2008).Profit earned by cooperatives is returned as benefits depending on the type and structure of the cooperative (Suber, 2005). Members' benefits depend on their utilization of the services provided by the cooperative. These benefits include discount rates, increased marked power, and a share of the earnings depending on the performance of the cooperative in a particular period.

Dairy cooperatives were established in the United States of America shortly after the beginning of the nineteenth century. At that time they would not have qualified as the modern cooperative but they were cooperative in character where small production of milk by individual famers encouraged them to join hands. The milk produced by one farmer alone could not produce Swiss Cheese of the wheel or drum style hence the need to form a cooperative so that they could obtain large quantities of dairy products at standardized quality. By 1867, dairy farmers set examples in early cooperative activity establishing over 400 local cooperative dairy processing plants due to the success of the cheese, butter plants

and creameries. In 1913, representatives of cheese factories in Sheboygan County, Wisconsin started the first federation of cheese factories and later federated into an interstate unit in 1921. This federation preceded the land O'lakes Creameries, Inc., which was a federation in 1924.

Besides the milk being used for city consumption purposes, the cooperative helped in a number of ways including: first, to start retail distribution in 1822. This was done purely by farmers adjacent to the small cities who wished to sell their milk directly to consumers, later cooperative milk distributing companies with fewer members operated in large cities such as Cincinnati, Milwaukee, and Oklahoma City; second, to start cooperative wholesale distribution of milk which began in 1899 and third, to collectively bargain between farmers and private distributors which began in 1909. Collective bargaining were of two types, those that bargained for a price and those that in addition to bargaining also operated processing plants for butter, cheese, evaporated milk, or other manufactured dairy products using the "excess milk" that was not used for consumption.

In 1916, dairy cooperative societies in the U.S.A became politically active and organized the National Milk Producers Federation (NMPF). In Washington D.C. for the purpose of representing the political interests of dairy farmers and their dairy cooperatives (Cropp & Graf, 2001). This operates up to the present time. The dairy cooperatives increased their facilitation of disposal of surplus milk to manufacturing facilities operated by other marketing agencies. They had full-supply contracts with milk handlers. Under the contract the milk handler obtained milk supplies through the cooperative with volumes that depended on their operations (Cropp & Graf, 2001).Mergers and consolidations among dairy cooperatives reduced from the 1970s to mid 1980s but increased in the 1990s. Joint ventures and strategic alliances among dairy cooperatives became common in the 1990s. Dairy cooperative societies are becoming larger and successful. These are mostly in cheese markets that carry a high value while others have entered the niche market for organic dairy products.

In Africa, cooperative movement began in the 1960s after most of the countries were freed from colonial rule. By 1969 the cooperative societies in African countries were 3.5miliion, from 332,000 in 1937. The cooperative movement is advanced in East Africa (Tanzania, Kenya, Uganda); West Africa (Nigeria, Ghana, Sierra Leone, Cameroon, Ivory Coast); North Africa (Egypt) but much slower in Central Africa (Peeler and Omore 1997).

1.2.2 Background of Cooperatives in Kiambu County in Kenya

The small scale dairy farmers (smallholders)in KiambuCounty market their milk to Cooperative Societies, hawkers, "middlemen" (larger-scale traders in raw milk), hotels (small hotels/restaurants in market areas), milk-bars and kiosks, and to neighbours. A study by Morton and Miheso (2000) indicates that private dairies in Kiambu have begun to buy directly from smallholders. The smallholders tend to prefer the private dairies for a number of reason including; they pay in a monthly lump sum so farmers can plan expenditure, they offer an assured permanent market, offer inputs, AI, food, tractor hire on credit, they give cash loans, collect close to the farm, have no limit to amount farmer can supply, assure farmers that their cash is safe, they exert quality control over milk, farmers have a sense of ownership and allow farmers to invest in cooperative assets.

Dairy Farmers in Kiambu observe that neighbours, hotels and institutions represent a limited market, and in the one area where a private dairy was buying milk, distrust of it was quite striking. The major competitors to the cooperatives are the hawkers. The clear advantage of hawkers is price as they pay daily, and their clear disadvantage is their unreliability; both in not guaranteeing to buy every day and in sometimes running off with money. Staal et al. (1997) observed that currently hawkers pay daily; though it seems increasingly that some will offer weekly or monthly lump-sum payment that would be valued by farmers, their perceived unreliability prevents farmers from taking this up. The problem with daily payment is that it is evaluated ambiguously: most farmers see it as a disadvantage but in some circumstances it is very useful. The other demerit of selling to hawkers was identified as the possibility of them disappearing with farmers' money as there is no written agreement between them and the farmers.

In Kiambu County, the practice of selling some milk to the cooperatives and some to hawkers is known to be widespread, and some groups were explicit about this as a strategy for meeting short-term and medium-term budgeting needs. There was also a comment that farmers prefer to have various marketing channels to strengthen price competition. The advantages of selling to private dairy cooperatives were identifies as including; better prices,

reliable market, prompt monthly payments, that they gave true weight of the milk and as well as bearing the cost of spoilage once milk is received.

1.2.3 Factors Motivating CooperativeMembership

In defining membership, Jones, Jussila and Kalmi (2009), observed that an open member is one who is willing to pay the membership fee to join a cooperative. Where a cooperative is a private business owned and controlled by users and operated principally to provide benefits to users. These users can be viewed as customers of the business. In another definition, the International Cooperative Alliance (2005)define cooperatives as autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs through jointly owned and democratically controlled enterprise. Bartoon (2000) identifies some of the benefits of membership as including; the ability of the member to engage in business transactions with the cooperative and ability to benefit from profits earned by the cooperative following business transactions. For a person to become a member they have to apply for admission which an assembly meets to approve. Gasana (2011) notes that one must be at least sixteen years and does not do other businesses that compete with the cooperative. They must also pay up their shares as per the by-laws. The person must also be committed to the cooperative as an organization.

Several reasons have been identified in explaining why farmers seek membership in cooperatives. According to Xiang and Sumelius (2010), there are external and internal factors that affect motivation of farmers to join cooperatives. These include personal characteristics (age, gender, level of education, level of income and debts); family characteristics (number of children in the family, number of cows and the land size); attitudes (the level of confidence in the management of the cooperative and how they are running it); trust factors (level of trust between the members themselves and the members and the management of the cooperative); needs of members (members' vision of their cooperative).

According to Gasana (2011), lack of ease of markets to sell milk motivates farmers to join cooperatives so that they may find market for their milk. Some farmers join cooperatives because they believe that working with others could help in sharing ideas on how to improve their dairy farming activities. They also joined due to access of credit facilities for farm inputs and artificial insemination services. In regions like Ethiopia, farmers joined because they want to take advantage of the visits to other farms and hence get the exposure of learning in the process while others simply want to serve the community (Nugussie,2010). In

a study by Chibanda (2009), some farmers join to cooperatives to enhance community development and create employment especially to widows and orphans so as to ensure they have food for their family members. A study in Egypt, by Saleh (2012) identified three social economic factors likely to motivate membership to dairy cooperatives as including; ability of the cooperative to increase farmers' annual sales, increase market opportunities and give technical support. The determinants of commitment to membership of cooperatives are identified by Mensah, Karantininis, Adegbidi and Okello (2012) as comprising; assessment of prices offered by the marketing channels, the farmer's preferences for the specific attributes of the channels, the total farm size, and some psycho-sociological factors. This study will focus on three factors that stimulate membership owing to their recurrences in several empirical reviews. The four will be; social factors, economic factors, and market access.

1.3Problem Definition

A lot of advantages accrue to farmers who choose to be members of a cooperative society. But despite the significance of membership to farmers, some farmers are still reluctant to join the cooperatives. In theory, membership to dairy cooperatives has not been well defined in the past and this has equally affected cooperatives to a great extent.

The resurgence of cooperatives in developed countries has been associated with a number of changes including; the abandonment of planned economies in favour of economic liberalization, globalization of production and democratization (US Overseas Cooperative Development Council, 2007), but despite identifying the drivers of growth of cooperatives the paper fails to explain the motivators of growth in membership of the cooperatives. In a study by Feng, Nilsson, Ollila and Karanthinis (2011), human elements that result in cooperative membership loyalty are identified as including; shared values, trust, cooperative ideology and similar social capital issues. The study by Feng et al. (2011) focused on the motivators of loyalty to cooperatives in Cyprus leaving out what initially attracted the members. In Italy, Pascucci and Gardebroek (2010) discussed five factors that led to farmer cooperative relationship as encompassing; farmers' location, social context, geographic characteristics, networking and farmers' asset base. Unlike Pascucci and Gardebroek (2010) who sought to determine which between membership and delivery of farm output affect the farmer cooperative relationship; this study will focus on motivators of membership.

A few studies on cooperative membership in Africa exist. A paper by Mugabekazi (2014) identifies the following as having a significant effect on the membership decision; age of household, household size, distance to cooperative center, farmer experience, access to credit and quantity of output. The study by Mugabekazi (2014) focused on membership to coffee cooperatives, while this paper will examine dairy cooperative membership. In Kenya a study by Njiru, Bett and Mutai (2015) identified the key factors that significantly influence membership to dairy cooperatives as including; gender of the farmer, age, herd size and distance to the market, which refers more to demographic factors unlike the factors considered in this study. While Njiru et al (2015) observe that these factors affect the decision of smallholder farmers to participate in dairy cooperatives in Embu County, they tend to concentrate on social factors. A study of membership characteristics, led Ollila, Nilsson and Bromssen (2012) to deduce that there are two motivators to membership of cooperatives mainly ideological motives and economic motives. In their critique, Ollila et al. (2012) observe that there are weak signs to show that age and farm size motivate membership. This position contradicts other empirical findings like Njiru et al (2015) who also observed that membership of Githunguri dairy started with 31 dairy farmers in 1961 who came together and formed a dairy co-operative to collect and market members' produce and today (2015) has over 17,000 members. A study Mbugu, Njonge, Muchemi, Waiyaki and Ngaruiya (2010) traced the origins of Lari Dairy Cooperative to four cooperatives and three self-help groups that pooled milk together and today (2016) Lari has 13,000 members. The resulting academic debate leaves knowledge gaps as to what motivates membership of cooperatives. This study therefore sought to determine the factors that motivate farmers to join cooperative societies to a great extent.

1.4 Research Objectives

The general objective of this study was to determine the factors that motivate smallholder dairy farmers and contribute to membership in dairy cooperatives in Kiambu County, Kenya. The specific research objectives were:

i. To establish the extent to which economic factors influence cooperative membership of smallholder dairy farmers in Kiambu County.
ii. To determine the extent to which social factors influence cooperative membership of smallholder dairy farmers in Kiambu County.

iii. To examine the role of market access on cooperative membership of smallholder dairy farmers in Kiambu County.

1.5Research Questions

i. To what extent do economic factors influence cooperative membership of smallholder dairy farmers in Kiambu County?
ii. To what extent do social factors influence cooperative membership of smallholder dairy farmers in Kiambu County?
iii. What is the role of market access on cooperative membership of smallholder dairy farmers in Kiambu County?

1.6 Scope of the Study

The study mainly focused on smallholder dairy farmers in Kiambu County, Kenya. Kiambu County is a wet area suitable for most agricultural activities including dairy farming. This county has a concentration of small holder dairy farmers. The general infrastructure of the area is highly developed and the transportation network is good. It borders Nairobi and so its proximity makes it a huge supplier of milk to Nairobi. Most of the dairy farmers in this area are mainly smallholder farmers due to the small sizes of the available land especially now that most of the land has been used for construction of both residential and commercial houses. The main concept under investigation was the motivators to cooperative membership.

1.7 Significance of the study

Dairy production is an important source of income for people in Kiambu County and it contributes immensely to the country's nutrition. The study will provide useful information to the following:

The Cooperatives. Resulting from this study, cooperatives are able understand what motivates the farmers and hence value addition to milk. This makes cooperatives competitive locally and in international markets. The study explains the need for cooperatives to hire experts who have skills in production of various milk products, which subsequently helps in widening the market as well as lead to increased income of the farmers.

Milk Processors. The study explains the benefits that cooperatives give to the farmers so as to attract them to supply milk to them. The processors for instance can offer higher prices for the milk than the cooperatives and hence attract the farmers.

Scholars. The review of literature in this study brings out several variables that motivate cooperative membership. Out of the many variables, this study identified three variables that it demonstrated as critical in motivating cooperative membership as including: economic factors, social factors and market access.

Government. The study demonstrates the importance of government subsidy to dairy farmers. It shows that by subsidizing taxes on the dairy equipment used in the milk processing plants, the government is able to encourage private processors. This helps farmers who have no access to cooperatives owing long distances. It widens the market for milk and milk products on behalf of the farmers and improves their income greatly.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents literature related to the motivating factors that contribute to the membership of dairy cooperatives. The literature covers theoretical framework on motivation factors, empirical review, research gaps and conceptual framework.

2.2Theoretical Framework

The interaction between human needs and incentives is what results to motivation. A person may be saidto be motivated when their needs or wants are satisfied. The process of motivation begins with awareness of the need. This then directs the motives to certain goals, which in turn leads to a certain behavior (Kumar, Poornima, Abraham and Jayashree, 2003). In this study, the review focused on economic theory of cooperatives, Emelianoff"s theory and Maslow's theory.

2.2.1Economic Theory of Cooperatives

The first theory considered by the study is the economic theory of cooperatives by Nourse (1922) and Emelianoff (1942). Nourse's economic philosophy of cooperation is summed as by Ling (2010) as cooperatives make it feasible for farmers to jointly market their products. The cooperatives evolve to a scale large enough to effectively bargain with other market participants and or to avail it of scale economies in processing and marketing operations. Subject to the same market discipline and supply-demand price dynamics as any business, the presence of the cooperative challenges other market participants to operate efficiently and thus strengthen the market mechanism. The theory further states that when the market for members' products has become truly competitive the cooperative may want to assume only a stand by position (to preserve members' capital, time and efforts for use on the farm) but maintain the legal institutions and organizational capacity to reenter the field, if necessary.

Nourse's economic philosophy of cooperation relates to the current studies because dairy farmers can jointly sell their milk and milk products through a cooperative and enjoy the economies of their joint effort. The dairy cooperatives help to sell in large volumes hence make it possible to sell in large markets. The large scale capacity make it possible for the cooperatives to hold their products when the market price is not favorable and wait to sell when the situation changes.

2.2.2Emelianoff's Theory

Emelianoff's theory on the other hand, was for economic analysis of cooperatives which he said that the economic structure of these organizations should be defined clearly taking into consideration all ethical issues. According to Emelianoff (1942), the cooperatives represent the farms which are economic units.

Cooperation of farmers and cooperatives in marketing milk is an enduring business model in full accord with economic theory. Cooperatives like all other businesses require some capital to market milk on behalf of the farmers. Equities of cooperatives are usually provided by members who earn dividends in return.

2.2.3 Maslow's Theory of Motivation

Kumar, Poornima, Abraham and Jayashree (2003) present Maslow's motivation theory. Maslow classifies needs from the lowest to the highest and the lowest need must be satisfied before the next one is satisfied. The five hierarchies of needs are: psychological needs, safety and security needs, social needs, esteem needs and self – actualization. The psychological needs are the basic needs to human such as food, clothing and shelter. As a human being, a farmer could be motivated to join a dairy cooperative because in return to supplying milk to the cooperatives, they receive payment to satisfy their basic needs. The safety and security needs address protection from any kind of danger. A farmer may want to earn more money from his sales of milk to satisfy his safety and security needs. Social needs satisfy the sense of belonging. Farmers like other human beings would like to be identified with others and even to be recognized by them. This therefore, may lead farmers to want to be part of a cooperative so other people recognize them as members. Esteem needs are the status needs where a person is respected for who he/she is and what they may have achieved. Farmers may be motivated to join a cooperative for recognition of their status and to boost their ego. Self - Actualization is the highest and last in the order of needs and it refers to self - fulfillment. At this stage a person is deemed successful. A farmer may be motivated to supply more and more milk in order to satisfy this level of needs more.

2.5 Empirical Review

In this section, studies by other scholars shall be reviewed guided by the research objectives. This shall include a review of literature on social factors, economic factors, market access and networking.

2.5.1 Economic Factors and Cooperative Membership

In a study of economic factors that influence membership of cooperatives, Arayesh (2011), argues that the amount of agricultural land has a positive effect on the participation of members of cooperatives. Arayesh (2011) also included annual income of the members and economical features as key economic determinants to membership. Studies by Vahidzadeh (2004), showed that the members' economical features have a direct impact on their participation in cooperatives. Mugabekazi (2014) identified credit access as economic features that can increase the likelihood of joining a cooperative. Access to credit through cooperative membership facilitate access to reliable and cheaper credit compared to that from formal lending institutions like banks and their associated collateral. Another study reports that the members' ideological and traditional view of cooperatives explains their preference for unallocated equity capital (Fahlbeck, 2007). The unallocated funds help in payment of taxes, provide for cash flow and also cover for any contingencies that may occur in the cooperative. They help to protect members' contributions when losses arise. Bhuyan (2007), focuses on members' view of their influence in the cooperative. He observed that the likelihood of cooperative abandonment is higher if members perceived that their input was not valued by the management in making decisions, and that member dissatisfaction with their ability to have a voice in their cooperative's decision making process and that older members are more likely to be dissatisfied.

In examining economic value derived by members of a cooperative, Asratie (2014) identified that members benefited in various ways including; being able to access credit in short period, without any collateral request, access to weekly and monthly savings, being able to generate monthly income and employment opportunities, access to patronage dividend, health insurances and training. The study also observed that cooperative members acquired assets as a result of membership.

In South Africa, Antwi and Oladele (2013) noted that services provided by cooperatives such as financial services, training services, extension services, transport services and the

government services play a significant role in influencing farmers' participation in cooperatives. The author also discovered that majority of participants joined cooperatives to improve their profits. Webster et al. (2012) associates membership to co-operatives to their abilities to create jobs and to train members on modern skills.

2.5.2 Social Factors and Cooperative Membership

Bhuyan (2007), observed that there are "people" factors that are significant in determining whether farmers join cooperatives or not. In his study, he found that beliefs and knowledge of members of a cooperative may determine their attitudes and behavior. According to Hakelius (1999), young and old farmers join cooperatives for different reasons. The young farmers join for economic gains while the old farmers join so as to associate and network with their peers. The attitude and behavior of these farmers is therefore, crucial to the survival of the cooperative since they are the suppliers of the raw materials and capital (Bhuyan, 2007).

The UN Food and Agricultural Organization (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) on the launch of the International Year of Cooperatives 2012 (IYC), noted that cooperatives could help farmers gain a lot by acting collectively than individually. They could benefit from cooperatives due to bargaining power and sharing of resources which could help reduce poverty and enhance food security. Cooperatives could also help farmers to negotiate for better prices of inputs and provide better opportunities in the market as well as provide employment to the marginalized people (Press release No.: IFAD 76/2011).

Cooperatives help members to collectively manage their resources by investing jointly (Knox and Meinzen – Dick 1999; Gebremedhin, Pender & Tesfay, 2002). Kariuki and Place (2005) further state that, socio – cultural issues determine human behavior in the cooperatives (Knox &Meinzen – Dick, 1999). Women for instance, may be a good source of labour but limited on decision making on how to use and dispose the natural resources. The traditions, beliefs and practices guide them on how to use the resources, control them and resolve their differences. The cooperatives also help their members in times of distress by supporting them emotionally and financially.

Scholars have identified networking as a key social factor that drives cooperative membership. In a study by Pascucci and Gardebroek (2010), there were three aspects that determine farmers' joining cooperatives mainly: location specificity; asset specificity; and

relational specificity. Location of the farmer is highly related to the structure of the local market which is key in determining if a farmer will join a cooperative or not (Karantininis & Zago, 2011). Farmers can join a cooperative if there are few choices of where to deliver their product.

Farmers may also consider the presence of social norms such as trust, reciprocity, and attitude to cooperate within a certain social context (Karantininis, 2007). Presence of the social norms would determine the degree of farmers' commitment and loyalty to the cooperative. Cultural, ideology, political and religious beliefs are also determinants of farmers joining cooperatives. The laws that regulate the participation of farmers plays a big role in determining whether farmers join cooperatives or not (Van Bekkum, 2001). The geographical location of a farm determines whether a farmer joins a cooperative or not. In remote places, it is difficult to find a cooperative.

Still other studies find that the farmer's age has no importance for their relation to cooperatives (Burt & Wirth, 1990; Wadsworth 1991). Also socio-psychological variables are found in the prior studies. Robinson and Lifton (1993) mention lack of social cohesion and commitment. Siebert (1994) identifies conservatism and individualism as inhibiting factors to cooperative development.

2.5.3 Market Access and Cooperative Membership

In a study by Gasana (2011), she observed that cooperatives helped to enhance the income of the farmers through collective marketing of their products at a much lower cost than if they did it individually. According to Markelova, Meinzen-Dick, Hellin and Dohm (2009), acting collectively minimizes costs and increases market access. The farmers are able to access market information and hence improve on the product quality through the cooperatives.

Cooperatives assist farmers to overcome difficulties in accessing information, services, input and output markets. Hovhannisyan, Urutyan and Dunn (2005), noted that Armenian farmers who were members of cooperatives, were able to work collectively thus having high quality products that helped them access large scale markets. They were then better placed to access distant markets which led to a wider market for their products (Ortmann & King, 2007). The farmers achieved economies of scale because of the collectiveness and were able to cope with market changes (Clegg, 2006). Traders found it easy to access farmers through the

cooperatives hence reducing costs on market research (Holloway, Nicholson, Delgado &Staal, 1999). Businesses prefer to deal with larger farmers due to reliability of their high quality and large volumes which the cooperatives have enabled (Holloway, 1999). This has helped to increase the market opportunities for farmers.

The study of Kariuki and Place (2005), highlights the collective action of farmers as being beneficial to them in terms of innovation and marketing. Innovation helps the people to access new technologies using collective resources and at the same time learning from one another. They further state that, collective marketing facilitates economies of scale thus reducing costs of accessing the market due long distances and at the same time improve farmers' bargaining power. Access to the markets contributes to the welfare of the farmers by enabling them to generate higher incomes and opportunities for employment through value addition of their products. Cooperatives therefore, become a source of market information for many people thus increasing business opportunities.

The study of Sinja, Njoroge, Mbaya, Magara, Mwangi, Baltenweck, Romney and Omore (2006), states that smallholder farmers have difficulties accessing markets due to high transaction costs (Staal et al., 1997). Milk is highly perishable and the transportation to the market by individual farmers may be very expensive compared to the cooperatives. Cooperatives help reduce spoilages of milk as they able to collect and handle it in the safest way possible. These high costs then prevent the farmers from marketing their milk individually (Holloway et al., 2000). According to Place et al. (2002), the only way to minimize these risks of high costs and spoilage is by joining cooperatives.

Sinja et al (2006) further notes that cooperatives in Africa have had a bad reputation in the past due to mismanagement and embezzlement of members' funds and at times over-ambitious and invested in projects beyond their capabilities (Akwabi-Ameyaw, 1997). This has led to farmers' lack of access to markets.

2.6 Research Gap

The preceding review points at the existence of a research gap. In terms of context, little evidence exists of studies on motivators to membership of cooperatives in Kiambu. The factors affecting members also remain debatable amongst scholars. In view of these developments, this study seeks to determine the motivating factors that contribute to the membership of dairy cooperatives in Kiambu County Kenya. The study will also catapult the researcher to make recommendations on other areas that may require further investigations.

2.7 Conceptual Framework

Figure 2.1 shows conceptual framework which highlights the influence of the independent variables namely; economic factors; social factors; market access on the dependent variable this case cooperative membership. The framework demonstrates the contribution of these factors to cooperative membership by smallholder farmers.

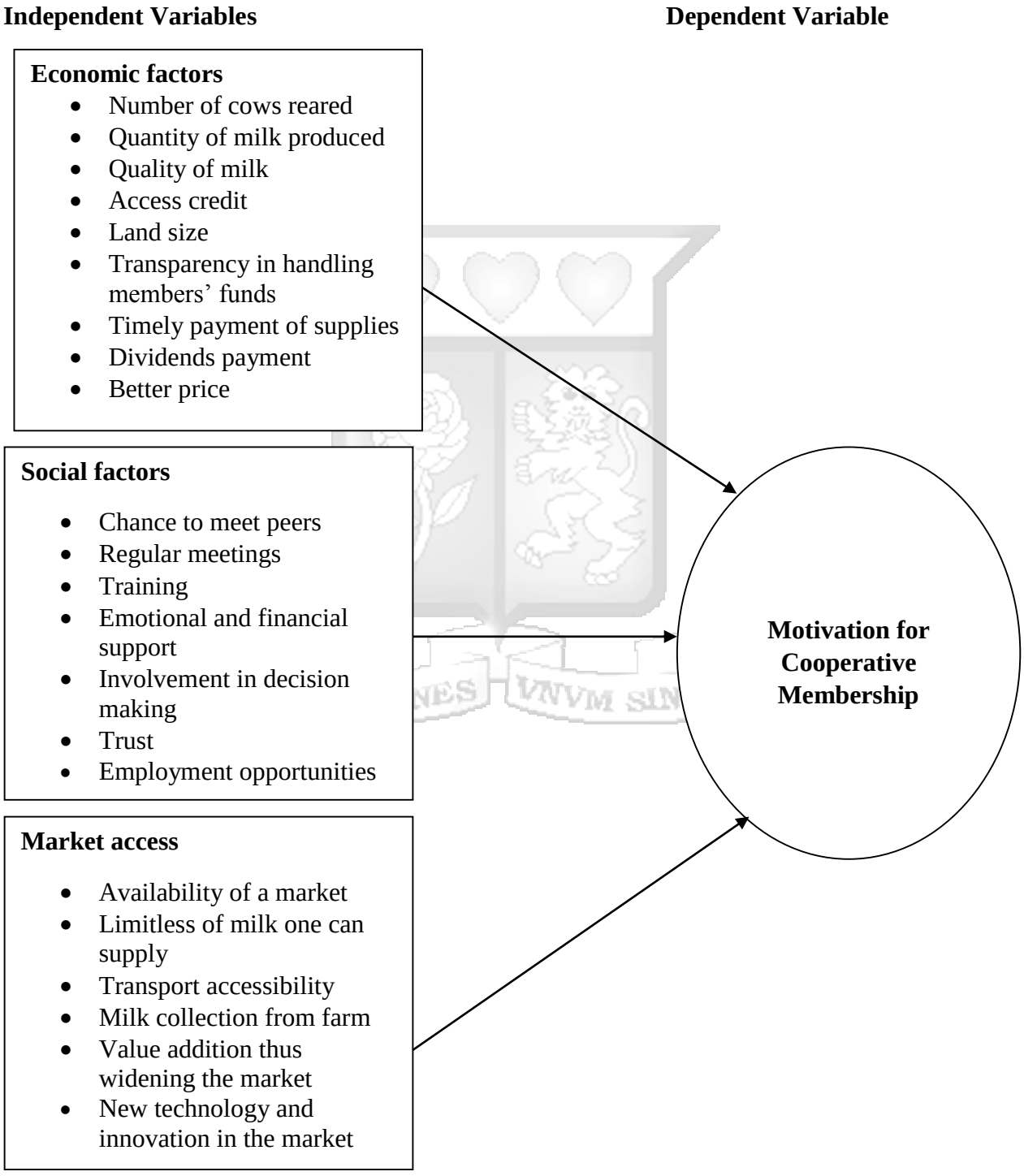

Figure 2.1: Conceptual Framework

The economic factors include the number of cows reared, quantity of milk produced, quality of milk, access credit, land size, transparency in members' funds handling, timely payment of supplies, better price and dividends payment. The social factors affecting smallholder farmers included a chance to meet peers, regular meetings, training, emotional and financial support, involvement in decision making process, trust and employment opportunities. Finally, the market access was operationalized into availability of a market, limitless of milk one can supply, accessibility, milk collection from farm, cooperative doing value addition thus widening the market and also the farmers are informed of any new technology or innovation in the market immediately it is advised to the cooperative.

2.8 Research Hypotheses

From the relationship of variables in the conceptual framework the following null hypotheses were tested.

H_{01}: Economic factors have no significant influence on cooperative membership

H_{02}: Social factors have no significant influence on cooperative membership

H_{03}: Market access has no significant influence on cooperative membership

2.9 Chapter Summary

Cooperatives in Africa generally are known to face many challenges despite the fact that they have a great potential to develop the small-holder sector. They are known to help in alleviating poverty since these farmers have a steady source of income and other extension services. Governments should therefore, support cooperatives so that they have the right infrastructure and human capital with the technical know how to make cooperatives accessible to all farmers.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research methodology presented here covers; the research design, population and sampling techniques, data collection methods, data analysis, research quality and ethical considerations.

3.2 The Research Design

The study employed a descriptive research design. Saunders et al., (2012) define descriptive research design as a research for which the purpose is to produce an accurate representation of persons, events or situations. Descriptive research design includes surveys and fact finding enquiries of different kinds. This design allowed for description of factors that motivate small dairy farmers to join cooperatives.

Descriptive research was preferred in this study for several reasons. First, it allows for description of the state of affairs as it exists at present (Kothari, 2004). The design allows for collection of data from a large number of dairy farmers. A survey was preferred because; it permits accurate estimation of the population parameters and subsequent generalization (Churchill and Brown, 2007).A descriptive research was further preferred because; it is versatile, allows for use of research instruments like questionnaires and can be employed in collection of data from the sample in a relatively short period (Longnecker, 2008). This design allowed for quantitative description of the influence of economic factors; social factors; and market access on cooperative membership by farmers so as to benefit from marketing of milk and milk products by the cooperatives on their behalf.

3.3 Study Area

The area of study was Kiambu County which consistsof the following 12 constituencies:- Githunguri, Kiambaa, Kabete, Limuru, Lari, Gatundu North, Gatundu South, Ruiru, Kikuyu, Juja, Thika, and Kiambu (Kenya National Bureau of Statistics, 2013). The choice of this area was due to the fact that a majority of the people in this constituency own small parcels of land due to the high population in the area that has a close proximity to Nairobi and most of the people engage in smallholder dairy farming. Kiambu County is located in the Central highlands of Kenya in the former Central Province, close to Kenya's Capital, Nairobi.

Cooperatives in Kiambu County include Githunguri Dairy Farmers Cooperative Society, Ndumberi Dairy, Kiambaa Dairy, Limuru Dairy, Kabete, Uplands,Kiriita and Lari Dairy.

3.4 Population and Sampling

3.4.1 Target Population

A population is defined as a complete set of individuals, cases or objects with some common observable characteristics and has some characteristics that differentiate it from other populations (Mugenda and Mugenda, 1999). In this study as per the statistics of the Ministry of Agriculture, the population of smallholder farmers in Kiambu County was approximately 600,000 by the year 2015. The dairy cooperative societies in the County were seven (7) by the year 2015 with 59,635 members as at October 2015. The distribution of the target population included all the dairy farmers registered as members of the cooperatives as per the Table 3.1.Githunguri Dairy Cooperative was the largest owing to a number of factors including; they are the only cooperative in Githunguri that is accessible to the farmers, it has good management practices and pays farmers promptly.

Table 3.1: Population of Dairy Farmers in Kiambu County

Dairy Farmers Cooperative Society	Number of Members
Githunguri Dairy Farmers'	17,000
Ndumberi Dairy	5235
Kiambaa Dairy	4000
Limuru Dairy	9600
Kabete Dairy	9600
Uplands Dairy	600
Lari Dairy	13000
Kiriita Dairy	600
Total	59,635

Source: Various Dairies Offices

3.4.2 Sampling Procedure and Sample Size

Saunders et al., (2012)describes sampling as the procedure whereby some of the cases in a population are selected to represent the entire population in order to answer the research

questions. The study adopted a stratified random sampling method to arrive at a representative sample. This sampling technique was preferred because it gives everyone in the population an equal chance of being selected consequently minimizing bias. The basis of stratification was the dairy cooperatives and the sampling unit was a registered member of the cooperative. A sample is a part of the entire population (Saunders et al., 2012). The formula provided by Israel (2009) was used in sample size determination. A sample size of 398 of the dairy cooperative members was drawn.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = the desired sample size

N = the population size (59,635 in this case)

e = level of precision (0.05 in this case)

$$n = \frac{59,635}{1 + 59,635\ (0.05)^2}$$

$$= 398$$

Table 3.2: Sample Size of Dairy Farmers of Cooperatives in Kiambu County

Dairy Farmers Cooperative Society	**Number of Members**	Sample size	Proportion of Sample
Githunguri Dairy Farmers'	17,000	114	29%
Ndumberi Dairy	5,235	35	9%
Kiambaa Dairy	4,000	27	7%
Limuru Dairy	9,600	66	17%
Kabete Dairy	9,600	65	16%
Uplands Dairy	600	4	1%
Lari Dairy	13,000	87	22%
Total	**59,635**	**398**	**100%**

3.5 Data Collection Methods

The studycollected primary using a questionnaire (Appendix 1). Questionnaires were appropriate for the study since they help in collection of a lot of data from many farmers in a short period of time. The questionnaires were self -administered by the researcher. The

selected farmers were visited in person and after getting their consent, the researcher read out the questions and options available, and the response given was captured in the questionnaire.

The study used a questionnaire as the research instrument. The questionnaire was preferred as the most suitable instrument for the data collection because it allowed the researcher to reach many respondents within a limited time (Mugenda & Mugenda, 2003). It also ensured confidentiality and thus helped gather more candid and objective answers. According to Peil (1995), questionnaires assist in the collection of wide variety of data from a large group of people.

The questionnaires contained both closed and open ended questions (Appendix 1). Structured questionnaires are techniques of data collection in which each person is asked to respond to the same set of questions in a predetermined order Saunders et al., (2012). The questionnaire was developed to address the research objectives. The questionnaire was divided into four parts; Part A provided information on the farmers' personal profile, Part B covered economic factors, Part C asked questions on social factors and Part D covered market access issues. The questionnaire adopted a 5 point Likert type scale, where 1 was very little extent, 2 was little extent, 3 was not at all, 4 was great extent and 5 was set for very great extent (Appendix 1).

3.6 Data Analysis

The data collected from the field was assessed and comparison made so as to select the most accurate and quality information from the feedback given by various respondents. Data analysis was preceded by data preparation. Preparation involved checking the questionnaire for completeness, editing, coding, keying and cleaning the data.

The organised data was analysed in concurrence to the research objectives using two computer packages; Statistical Package for Social Sciences (SPSS) and Microsoft Excel. Two statistical tests were performed; descriptive statistics analysis and regression analysis. Using descriptive analysis, the data was grouped into frequency distribution to indicate variable values and number of occurrences in terms of frequency. Frequency distribution tables were used to summarize the data from respondents. Regression analysis was then used to

determine the existence of significant relationship between the factors and the decision to be a member of a cooperative. The study adopted the model proposed below;

$$MM = \beta_0+\beta_1 EF+ \beta_2 SF + \beta_3 MA+ \varepsilon_i$$

Where

MM =Motivation to membership

β_0 = Constant term showing willingness to be a member in the absence of the factors

EF =Economic factors

SF =Social factors

MA =Market Access

β_1, β_2 and β_3, are beta coefficients of MM, EF and SF respectively

ε_i = Error Term

3.7 Research Quality

In this research, the quality of the study was based on the three pillars of research quality namely reliability, internal validity and external validity (Saunders et al., 2012). Since the study was quantitative, the researcher adopted a positivist philosophy in quality control and to ensure that the research process and findings were dependable, credible and transferable (Saunders et al., 2012). To ensure that the research findings were dependable, the researcher selected respondents randomly to eliminate bias in responses and at the same time ensure and guarantee anonymity especially false responses from the respondents (Saunders et al., 2012).

3.7.1 Reliability of the Instrument

The instrument was also tested for reliability. Reliability is a measure of degree to which research instruments yields consistent results or data after repeated trials (Fairchild, 2002). Field (2005) observes that a Cronbach's $\alpha > 0.7$ implies the instrument provides a relatively good measurement tool hence reliable. The instrument in Appendix 1 was subjected to Cronbach's alpha test and alpha values greater than 0.7 were inferred to mean the tool was reliable.

3.7.2 Validity of the Instrument

The pilot test was done to check for questionnaires face validity. The validity test was to show the extent to which a measure or a set of measures correctly represented the concept of the study. According to Fairchild (2002), face validity is a non - statistical assessment of whether or not a test appears to be valid. The face validity test was undertaken by administering the questionnaire to 5 registered farmers who were excluded from the final survey. Their feedback was used to remove vague questions, double barreled questions and to improve the questionnaire.

3.8 Ethical Issues in Research

The researcher sought a written permission from the Dean of Strathmore Business School to conduct research on the smallholder farmers (Appendix 2). The names of the respondents were not required on the questionnaires in order to ensure anonymity and they were assured of confidentiality. The respondents were assured that the study was purely for academic purposes and that their responses were to be treated as confidential. The farmers' consent was sought before the questionnaire was administered to assure of informed consent.

CHAPTER FOUR: PRESENTATIONOFRESEARCH FINDINGS

4.1 Introduction

This chapter presents the results of data analysis in the form of tables, pie charts and histograms and subsequently provides explanation and interpretation of the findings. To address the research objectives two statistical tests; descriptive statistical analysis and inferential statistics specifically regression analysis were performed using MS-Excel and SPSS computer programmes. Descriptive statistics was performed to determine factors that lead to membership while regression analysis was employed in determining the relationship between these factors and the decision to be a member of a dairy cooperative. Out of the 398 questionnaires administered, 237 were returned resulting in a response rate of 60 percent, which was considered adequate for data analysis.

4.2 Response Rate

A total of 398 questionnaires were administered to the respondents, out of which 236 were returned and found usable resulting in a sample size of n = 236 and a 60 percent response rate which was considered adequate for data analysis. According to Mugenda and Mugenda (2003) a 50% response rate is adequate, 60% good and above 70% rated very good. This implied that the response rate in this case of 60% was adequate.

4.3 Personal Profile

The sample profile of the respondents presented in Table 4.1, shows that 66.7 percent of the farmers were of the male gender while 33.3 percent were of the female gender. In developing countries, dairy farming is still labour intensive and this observation could provide reason for the wide gender disparity in the sector. The resulting age analysis shows that most of the dairy farmers (32.9 percent) fell in the age bracket of 30-39 years, followed by a 31.2 percent in the age bracket of 40-49 years. This meant that the dairy farmers were mature adults who engaged in the trade as a profession, with many more (24.5%) holding to the trade even at their later years in life (50-59 years).

Table 4.1: Dairy Farmers Profile

Variable	Frequency	Percent	Cumulative Percent
Gender			
Male	158	66.7	66.7
Female	79	33.3	100.0
Which of the following age groups do you belong?			
18 – 29	18	7.6	7.6
30 – 39	78	32.9	40.5
40 – 49	74	31.2	71.7
50 – 59	58	24.5	96.2
60 and above	9	3.8	100.0
What is the size of your farm?			
1/8 acre	17	7.2	7.2
¼ acre	66	27.8	35.0
½ acre	57	24.1	59.1
1 acre	56	23.6	82.7
2 acres and above	41	17.3	100.0
How many cows do you keep in your farm?			
1-2	66	27.8	27.8
3-4	75	31.6	59.5
5-6	50	21.1	80.6
7 and above	46	19.4	100.0
What is your production in litres per day?			
1-5	26	11.0	11.0
6-10	50	21.1	32.1
11-15	60	25.3	57.4
16-20	65	27.4	84.8
Above 20	36	15.2	100.0
Is there a dairy cooperative in this area?			
Yes	223	94.1	94.1
No	14	5.9	100.0
Are you a member of this cooperative?			
Yes	164	69.2	69.2
No	73	30.8	100.0
Total	**237**	**100.0**	

Source: Author

From Table 4.1, most of the farmers (28 percent) had a quarter of an acre, with a further 24 percent holding either half an acre or one acre at most. This meant the farmers were small scale farmers whose membership to a cooperative was ultimately critical for survival.An examination of number of cows kept by the farmers' shows that most of the farmers (31.6 percent) had between 3-4 cows, while 27.8 percent of them had 1-2 cows and 21.1 percent of them had 5-6 cows. Compared to farmers in the rest of the world, these numbers of cows serve as proof that the farmers were small scale farmers. The farmers' milk production capacity is presented in Table 4.1 shows that most of the farmers (27.4 percent) produced between 16-20 litres per day; while 25.3 percent of the farmers produced 11-15 litres a day and 21.1 percent produced 6-10 litres daily. This meant the production capacity of the individual farmers was low. The pooling of the milk produced by a dairy cooperative was the only way by which the farmers produce would be acceptable at a commercial scale.

The study sought to determine the existence of a correlation between farm size, number of cows and milk production and Pearson correlation coefficient (r) was used. The correlation coefficient (r) = ±1.00 was interpreted to mean a perfect (positive or negative) correlation between bivarite variables. When r was zero (0) there was no relationship between the variables, r = 0.01 showed a very weak relationship and r = 0.9 meant the relationship was very strong. A correlation was considered significant when the probability value was below 0.05 (p-value ≤ 0.05).

Table 4.2: Correlation of Farm Size, Number of Cows and Milk Production Capacity

Variable	Statistic	What is the size of your farm?	How many cows do you keep in your farm?	What is your production in litres per day?
What is the size of your farm?	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	237		
How many cows do you keep in your farm?	Pearson Correlation	.526**	1	
	Sig. (2-tailed)	.000		
	N	237	237	
What is your production in litres per day?	Pearson Correlation	.214**	.521**	1
	Sig. (2-tailed)	.001	.000	
	N	237	237	237

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author

In Table 4.2, the number of cows kept had a significant strong positive relationship (p=0.000, r= 0.526) with farm size at 0.01 level in a two tailed test. This meant that farmers with small farm acreage kept fewer cows and those with larger acreage could keep more cows. The correlation analysis confirmed the existence of a significant weak positive relationship (p=0.001, r= 0.214) between the farm size and amount of milk produced at 0.01 level in a two tailed test. This provided further evidence that smaller farms resulted in low milk yield and hence the need for the farmers to be members of cooperatives.

From Table 4.1, it is evident that most of the farmers (94.1 percent) acknowledged the existence of a cooperative in their neighbourhood and 69.2 percent indicated that they were members of the cooperative. While 30.8 percent of the farmers indicated they were not members, most of them gave the explanation that; they get more money by retailing their milk than by selling it through a dairy cooperative, the cooperatives were poorly managed, there was a lot of politics in the cooperatives and that the cooperatives gave low prices.

4.4 Analysis of Motivating Factors to Dairy Cooperative Membership

In this section, a descriptive analysis of the motivator (economic, social and market access) to dairy cooperatives was performed.

4.4.1 Economic Factors and Cooperative Membership

The study sought to establish the extent to which economic factors influence cooperative membership among dairy farmers in Kiambu County. A mean and standard deviation analysis was performed as shown in Table 4.4. The mean was used to determine the level of agreement while the standard deviation was a measure of dispersion of the opinion. A small standard deviation meant close agreement and large deviation meant a wide disparity of agreement. A mean of 1-1.9was strongly disagree, 2-2.9disagree, 3-3.9neither agree/disagree, 4-4.9agree, over 5 strongly agree. Table 4.3 shows the responses of the participants when asked to comment on the selection criteria. The economic variable with the highest mean score (4.43) and hence that explained membership decision to a great extent was the ability of a cooperative to be transparent about their use of the members' funds. Implying members were keen to ensure their investments in a cooperative were safe. This variable also had the least standard deviation (0.671), meaning it was a stable variable compared to the others. The second economic variable with the highest mean score (4.42) was the ability of a cooperative to have unallocated equity capital. The farmers were encouraged to join cooperatives that had

large unallocated equity capital as it cushioned them against adverse economic volatility, helped pay their taxes, and assured them of a steady income.

Table 4.4 shows that the third variable with the highest mean score (4.38) was the ability of a cooperative to pay for the milk supplied as agreed. This meant the farmers would have more confidence and hence willingness to join a cooperative if it assured them of regular pay for supplies. The fourth variable with the highest mean score (4.37) was the quantity of milk produced by a farmer. This meant that farmers who produced more milk would look for ways of selling their produce and to minimize on likely economic risks they joined cooperatives.

Table 4.3:Mean and Standard Deviation of Economic Factors

Economic Variables	N	Minimum	Maximum	Mean	Std. Deviation
The number of cows	237	1	5	3.26	1.594
The quantity of milk I produce	237	2	5	4.37	.816
The quality of milk	237	2	5	4.35	.712
Members are able to access credit	237	2	5	4.38	.683
My land size influenced me to be a member	237	1	5	3.50	1.437
The cooperative has unallocated equity capital	237	2	5	4.42	.718
Transparency about use of the members' funds	237	2	5	4.43	.671
I am paid the milk supplied as agreed	237	2	5	4.38	.770
I get dividends at the end of the year	237	2	5	4.35	.786
Valid N (listwise)	237				

Source: Author

Resulting from Table 4.5, most of the respondent agreed to a great extent (32.9 percent)and to a very great extent (28.3 percent) that the number of cows they kept influenced them to be members of a cooperative. This meant that the more the cows a farmer kept, the higher the possibility that they would end up as members of a cooperative. Most of the respondents agreed to a very great extent (51.5 percent) and to a great extent (41.4 percent) that the quantity of milk produced influenced their decision to be cooperative members. Incremental capacity to produce more milk would motivate a farmer to seek ways of selling the produce and hence cooperative membership. Access to credit explained the decision to join cooperative membership by 50.2 percent of the farmer to a great extent and 46.0 percent to a great extent. This meant that membership to cooperative either allowed the members to

access credit at low interest or access credit without any collateral requirement. The land size of the farmers influenced the decision to be a member to a great extent (32.1 percent) or to a very great extent (31.6 percent). Members with bigger land sizes had more production capacity and hence the need to join cooperatives to collectively market their produce.

Table 4.4: Extent of Influence of Economic Variables

Variable	Frequency	Percent	Cumulative Percent
The number of cows			
Very little extent	59	24.9	24.9
Little extent	33	13.9	38.8
Great extent	78	32.9	71.7
Very great extent	67	28.3	100.0
The quantity of milk I produce			
Little extent	17	7.2	7.2
Great extent	98	41.4	48.5
Very great extent	122	51.5	100.0
Members are able to access credit			
Little extent	9	3.8	3.8
Great extent	119	50.2	54.0
Very great extent	109	46.0	100.0
My land size influenced me to be a member			
Very little extent	31	13.1	13.1
Little extent	46	19.4	32.5
Not at all	9	3.8	36.3
Great extent	76	32.1	68.4
Very great extent	75	31.6	100.0
The cooperative has unallocated equity capital			
Little extent	10	4.2	4.2
Not at all	2	.8	5.1
Great extent	103	43.5	48.5
Very great extent	122	51.5	100.0
The cooperative is transparent about their use of the members' funds			
Little extent	8	3.4	3.4
Great extent	110	46.4	49.8
Very great extent	119	50.2	100.0
I am paid the milk supplied as agreed			
Little extent	14	5.9	5.9
Great extent	105	44.3	50.2
Very great extent	118	49.8	100.0
I get dividends at the end of the year			
Little extent	15	6.3	6.3
Not at all	1	.4	6.8
Great extent	107	45.1	51.9
Very great extent	114	48.1	100.0
Total	**237**	**100.0**	

Source: Author

The existence of unallocated equity capital attracted farmers to join cooperative to a very great extent (51.5 percent) and to a great extent (43.5 percent). This meant that cooperative which had larger unallocated equity capital were able to get more members who sought to benefit from these funds. Table 4.5 shows that a cooperative which is transparent about their use of the members' funds attracted membership to a very great extent (50.2 percent) and to a great extent (49.8 percent). This indicated that farmers were very sensitive to the way their investment was managed and any indication to the contrary would drive membership away to a great extent. This position is corroborated by the observation that 49.8 percent of the farmers agreed that their decision to be a cooperative member was influenced to a very great extent (49.8 percent) and 44.3 percent to a great extent by the ability of the cooperative to pay for the milk as agreed. This meant that cooperatives are supposed to be reliable in their promise to pay and honour the promise if they are to attract more members. Table 4.5 shows that a majority of the members (48 percent) agreed to a very great extent and 45 percent agreed to a great extent that they join a cooperative because it pays dividends to members. This shows that membership is also motivated by the existence of a financial reward to farmers who invest in the cooperative and that cooperatives that pay better dividends are likely to attract more members as compared to those who pay poorly or fail to pay.

While the previous descriptive analysis described the variables in terms of their frequencies, a determination of the magnitude of their impact was sought using regression analysis. Preceding the regression analysis, the data was subjected to assumptions of regression analysis. First the data set was tested for normality using graphical method. The resulting distribution table was normally distributed. Second the independent variables were correlated in a test of existence of multicollinearity, resulting in a significant relationship with Pearson ($r \leq 0.276$). The weak relationship meant the data did not suffer from multicollinearity. Third the data was tested for linearity. The test for linearity using scatter plot revealed that the independent variables had linear relationship with the dependent variable. The fourth assumption tested was that of equal variance (homoscedasticity). The residual plots showed that the error term (ε_i) was normally and identically independently distributed with mean zero and constant variance. This meant the error variance in cooperative membership was constant along the three factors. Hence the data did not suffer from heteroscedasticity and instead was homoscedastic. The study proceeded with regression analysis.

The first research hypothesis was:

H_{01}: Economic factors have no significant influence on cooperative membership

The ANOVA Table 4.10 shows that model 1 was significant ($p \leq 0.05$) in explaining the relationship between economic factors and motivation to cooperative membership.

Table 4.5: ANOVA Results of Economic Factors

Model		Sum of	df	Mean Square	F	Sig.
1	Regression	.445	1	865.058	12.58	.000[b]
	Residual	80.475	235	68.766		
	Total	80.920	236			

a. Dependent Variable: Motivation to membership

b. Predictors: (Constant), Economic factors

Source: Author

Table 4.11 shows the model summary of economic factors and motivation to membership. It indicates that the coefficient of determination (R^2) under model one was 0.407. Implying on a simple model, economic factors could explain 40.7 percent of the decision to be a member of a cooperative.

Table 4.6: Model Summary of Economic Factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.407[a]	.166	.149	.54111

a. Predictors: (Constant), Economic factors

Source: Author

The coefficient of economic factors in Table 4.12 was used to examine the significance of economic factors on motivating the farmers to join cooperatives. Under model one economic factors had a p-value of 0.046. This value was less than 0.05 and the null hypothesis (H_{01}) was rejected as 95 percent confidence level and therefore economic factors had a significant influence on motivation to membership.

Table 4. 7: Coefficients of Economic Factors

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5.156	.490		10.520	.000	4.191	6.122
	Economic factors	0.186	0.091	0.278	2.046	0.046	0.003	0.368

a. Dependent Variable: Motivation to membership

Source: Author

4.4.2 Social Factors and Cooperative Membership

An examination of the mean and standard deviation of the social factors that influenced cooperative membership is presented in Table 4.6. The social variable with the highest mean score (4.47) and hence that explained membership decision to a great extent was involving the members in the process of making decision concerning; prices, products, market and organization. This meant involving members in the cooperative decision making mechanism increased the sense of trust and hence reason for membership. This variable had a relatively low standard deviation (0.680) hence showing large extent of agreement between the respondents. The second social variable with a high mean score (4.42) was the ability of the farmers to get better prices for milk supplied to cooperatives than when they sell individually. This meant some of the respondents held the opinion that cooperative membership allowed them to sell at an increased price. The third social variable with highest mean score (4.41) was the benefit the members get from the training offered. The farmers indicated that membership allowed them access to training that was otherwise not available to non - members. Table 4.6 shows other variables that explained the motivation to be a member from social view point to as including; I have joined because I believe I will get some economic gain (mean score=4.38) and in times of distress the members will give me both emotional and financial support (mean score=4.36).

Table 4.8: Mean and Standard Deviation Analysis of Social Factors

Social Variable	N	Minimum	Maximum	Mean	Std. Deviation
I have joined so I can have a chance to meet my peers	237	1	5	4.29	0.800
I have joined because I believe I will get some economic gain	237	2	5	4.38	.724
We are called regularly for meetings	237	2	5	4.35	.731
I will benefit from the training offered	237	2	5	4.41	.588
In times of distress the members will give me both emotional and financial support	237	2	5	4.36	0.665
I get a better price for my milk than when I sell individually	237	0	5	3.42	1.605
I am part of the decision making process concerning prices, products, market and organization	237	2	5	4.47	.680
Trust, a spirit of solidarity and equity exists	237	1	5	4.33	.783
Some members are employed to represent the rest of us in the organization	237	2	5	4.28	.808
Valid N (listwise)	237				

Source Author

A descriptive analysis of the social factors in Table 4.7, shows most of the respondents agreed to a great extent (48.5 percent) and a very great extent (43.5 percent) that they joined cooperatives to have a chance of meeting their peers. They explained that during such meetings they shared knowledge and experiences that enhanced their production capacity. Most of the respondents indicated that they held regular meetings to a great extent (48.1) and with 46.0 percent agreeing to a very great extent. This meant that the member had a chance of collectively making decisions on matters that affected their cooperative and this practice had the influence of attracting membership. From Table 4.7, training offered by a cooperative influenced the farmers to become members to a great extent (53.6 percent) and to a very great extent (44.7 percent). This indicates that the knowledge transmitted during training programmes was vital to the farmers. Table 4.7 shows that 51 percent of the respondents agreed to a great extent and 44 percent agreed to a great extent that they were motivated to be members because in times of distress the other members give both emotional and financial support. Cooperative membership gave the farmers a chance to belong, as explained by the Maslow's theory of motivation. In table 4.7, a majority of the respondent agreed to a great extent (35.9 percent) and to a very great extent (32.1) that they joined cooperatives because they get a better price for the milk supplied to a cooperative as compared to when they sell individually. This meant that collectiveness of the milk supplied to a cooperative would give members a better bargaining power and the produce would fetch better prices in the market. Hence members were likely to get better returns compared to non-members.

Resulting from Table 4.7, giving members the opportunity to take part in the decision making process concerning prices, products, market and organization influenced the farmers to be members to a very great extent (54.9 percent) and to a great extent (40.5 percent). This meant involving the farmers in making decisions that affect their operations was considered very vital. The ability of a cooperative to inspire trust, a spirit of solidarity and demonstrate equity influenced farmers to be members to a very great extent (46.8 percent) and great extent (45.1 percent). This indicated that the farmers were cautious with the type of services they were offered by a cooperative, to the extent that good service quality would inspire membership. It was observed that the cooperatives provide employment to some of the farmers who are elected to represent the other members. Such employment opportunities inspired the respondents to a very great extent (45.1 percent) and to a great extent (43.5 percent). This meant that cooperative was a major employer of the farmers and their families and for this reason, farmers would choose to be members.

Table4.9: The Extent of Influence of Social Variables

Variable	Frequency	Percent	Cumulative Percent
I have joined so I can have a chance to meet my peers			
Little extent	13	5.4	6.3
Not at all	6	2.5	8.0
Great extent	115	48.5	56.5
Very great extent	103	43.5	100.0
I have joined because I believe I will get some economic gain			
Little extent	10	4.2	4.2
Not at all	4	1.7	5.9
Great extent	109	46.0	51.9
Very great extent	114	48.1	100.0
We are called regularly for meetings			
Little extent	11	4.6	4.6
Not at all	3	1.3	5.9
Great extent	114	48.1	54.0
Very great extent	109	46.0	100.0
I will benefit from the training offered			
Little extent	4	1.7	1.7
Great extent	127	53.6	55.3
Very great extent	106	44.7	100.0
In times of distress the members will give me both emotional and financial support			
Little extent	6	2.5	2.5
Not at all	7	3.0	5.5
Great extent	120	50.6	56.1
Very great extent	104	43.9	100.0
I get a better price for my milk than when I sell individually			
Very little extent	59	24.9	25.3
Little extent	16	6.8	32.1
Great extent	85	35.9	67.9
Very great extent	76	32.1	100.0
I am part of the decision making process concerning prices, products, market and organization			
Little extent	7	3.0	3.0
Not at all	4	1.7	4.6
Great extent	96	40.5	45.1
Very great extent	130	54.9	100.0
Trust, a spirit of solidarity and equity exists			
Very little extent	1	.4	.4
Little extent	11	4.6	5.1
Not at all	7	3.0	8.0
Great extent	107	45.1	53.2
Very great extent	111	46.8	100.0
Some members are employed to represent the rest of us in the organization			
Little extent	13	5.5	5.5
Not at all	14	5.9	11.4
Great extent	103	43.5	54.9
Very great extent	107	45.1	100.0
Total	237	100.0	

Source: Author

To explain the influence of economic factors on cooperative membership, a simple regression analysis was performed and the study tested the second research hypothesis which stated that:

H_{02}: Social factors have no significant influence on cooperative membership

Using the OLS method of estimation and a linear regression analysis, hypothesis two was tested. An ANOVA output related to the regression analysis presented in Table 4.13 shows the model had a sig. value of 0.008 which was less than 0.05 and hence the model was statistically significant.

Table 4.10: ANOVA Statistics of Social Factors

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.002	1	7.002	7.772	.008[b]
	Residual	42.345	47	.901		
	Total	49.347	48			

a. Dependent Variable: Motivation to membership

b. Predictors: (Constant), Social Factors

Source: Author

The model summary of social factors and motivation to membership in Table 4.14 was examined. The coefficient of determination (R^2) under model one was 0.142. This meant on a simple regression model, social factors could explain 14.2 percent of the decision to be a member of a cooperative.

Table 4.11: Model Summary of Social Factors

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.377[a]	0.142	0.124	0.94918

a. Predictors: (Constant), Social Factors

b. Dependent Variable: Motivation to membership

Source: Author

An examination of the coefficients of social factors in Table 4.15 shows that under model one social factor had a p-value of 0.003. This value was less than 0.05 and the null hypothesis

(H_{02}) was rejected as 95 percent confidence level; implying social factors had a significant influence on motivation to membership.

Table 4.12: Coefficients of Social Factors

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0.375	0.587		4.048	0	1.2	3.549
	Social factors	0.721	0.234	0.386	3.076	0.003	0.251	1.189

a. Dependent Variable: Motivation to membership

Source: Author

4.4.3Market Access Factors and Cooperative Membership

The study used mean and standard deviation analysis to examine the influence of market access on membership. The variable with the highest mean score (4.49) and hence that explained membership decision to a great extent the proximity of a cooperative to the farmer. Milk farmers handle a highly perishable product and the more proximate the cooperative, the higher the possibility that the farmers will join it as members. The second market related variable with a high mean score (4.46) was the availability of a ready market for the milk. This meant the farmers did not have proper storage facilities to keep the milk for longer hours, hence if cooperative would market their products faster, the more the reason for joining them.

The third market related variable with a high mean score (4.43) was the ability of a cooperative to add value to the milk and widen the market. This indicated that the farmers expected that with added value, their produce would give better returns and would be sold to a variety of consumers. A member of a cooperative was more likely to enjoy these benefits as compared to a non - member. From Table 4.8, the other market access variables with high mean score included; I have no spoilages of my milk (mean score = 4.42) and the milk is collected from my farm (mean score = 4.40).

Table 4.13: Mean and Standard Deviation Analysis of Market Access Factors

Market Access variable	N	Minimum	Maximum	Mean	Std. Deviation
There is a ready market for my milk	237	2	5	4.46	.614
There is no limit as to how much milk I can supply to the cooperative	237	1	5	4.24	.861
The cooperative is near my farm	237	2	5	4.49	.668
The milk is collected from my farm	237	2	5	4.40	.728
The cooperative is doing value addition thus widening the market	237	2	5	4.43	.617
I am informed of any new technology or innovation in the market immediately it is advised to the cooperative	237	1	5	4.35	.769
I have no spoilages of my milk	237	2	5	4.42	.735
Valid N (listwise)	237				

To determine the extent to which market access related variable affected the decision to be a member a descriptive analysis was performed and the outcome presented in Table 4.9. A majority of the respondent agreed to a very great extent (50.6 percent)and to a great extent (46.4 percent) that the availability of a ready market to cooperative members attracted them to join a cooperative. This shows that cooperatives are able to access commercial markets faster than an individual farmer would. Most of the farmers surveyed agreed to a great extent (43.5 percent) and to a very great extent (43.5 percent) that there is no limit as to how much milk they can supply to the cooperative. The limitlessness therefore would encourage the members to work hard and increase production to maximize returns, while it would attract non - members to be members. How proximate the cooperative was to farmers influenced 56.1 percent of the respondents to be members to a very great extent while it influenced 40.1 percent to be members to a great extent. The perishability of milk explains why farmers would prefer to be members of a cooperative that is in their immediate neighborhood. This position is consistent with the observation that a majority of the respondents agreed to a very great extent (50.2 percent) and some to a great extent (43.9 percent) that the milk was collected from their farms by the cooperative. This ease of distribution also gave reason why farmers would prefer to be members of a cooperative.

Table 4.14: The Extent of Influence of Market Access Variables

Market Related Variable	Frequency	Percent	Cumulative Percent
There is a ready market for my milk			
Little extent	4	1.7	1.7
Not at all	3	1.3	3.0
Great extent	110	46.4	49.4
Very great extent	120	50.6	100.0
There is no limit as to how much milk I can supply to the cooperative			
Very little extent	3	1.3	1.3
Little extent	10	4.2	5.5
Not at all	18	7.6	13.1
Great extent	103	43.5	56.5
Very great extent	103	43.5	100.0
The cooperative is near my farm			
Little extent	7	3.0	3.0
Not at all	2	.8	3.8
Great extent	95	40.1	43.9
Very great extent	133	56.1	100.0
The milk is collected from my farm			
Little extent	10	4.2	4.2
Not at all	4	1.7	5.9
Great extent	104	43.9	49.8
Very great extent	119	50.2	100.0
The cooperative is doing value addition thus widening the market			
Little extent	4	1.7	1.7
Not at all	4	1.7	3.4
Great extent	116	48.9	52.3
Very great extent	113	47.7	100.0
I am informed of any new technology or innovation in the market immediately it is advised to the cooperative			
Very little extent	1	.4	.4
Little extent	9	3.8	4.2
Not at all	10	4.2	8.4
Great extent	104	43.9	52.3
Very great extent	113	47.7	100.0
I have no spoilages of my milk			
Little extent	10	4.2	4.2
Not at all	5	2.1	6.3
Great extent	98	41.4	47.7
Very great extent	124	52.3	100.0
Total	237	100.0	

Source: Author

From Table 4.9, it was evident that membership to a cooperative was motivated by the ability of a cooperative to add value to the product to a very great extent (48.9 percent) and to a very great extent (47.7 percent). Value addition meant increasing the longevity of the milk before expiry, repacking the product, and also selling the product in different forms and hence getting the members more value for their produce. Such expected outcomes encouraged farmers to be members of a cooperative.

According to Table 4.9, most of the farmers agreed to a very great extent (47.7 percent) and to a great extent (43.9 percent) that they were informed of new technology or innovations by the cooperatives immediately. This meant a member of a cooperative at any time has more information and skills and could be more competitive compared to non - members. From Table 4.9, the study observed that a majority of the respondents agreed to a very great extent (52.3 percent) and 41.4 percent agreed to a great extent that they do not experience milk spoilage. This meant being a member of a cooperative assured the farmers who were members that their produce would be collected on a daily basis; hence they were not exposed to milk spoilage risks. Such observation would motivate a farmer to seek membership.

A determination of the contribution of market access to the motivation to cooperative membership was sought using a simple regression model. The study tested the third research hypothesis which stated that:

H_{03}: Market access has no significant influence on cooperative membership

The ANOVA test results in Table 4.16 shows model 1 was significant with a p-value = 0.034 (which was less than 0.05) in explaining the linear relationship between market access and motivation to membership.

Table 4. 15: ANOVA Statistics of Market Access

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.762	4	0.941	2.808	.034[b]
	Residual	18.421	55	0.335		
	Total	22.183	59			

a. Dependent Variable: Motivation to membership

b. Predictors: (Constant), Market Accessibility

Source: Author

Resulting from model 1 in Table 4.17, the coefficient of determination was equal to 0.17, this meant that market access could explain 17 percent of the variations in membership motivation given a simple regression model.

Table 4.16:Model Summary of Market Access

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.412[d]	0.17	0.109	0.57873

a. Predictors: (Constant), Market Accessibility

b. Dependent Variable: Motivation to membership

Source: Author

The coefficients Table 4.18 show that under model one, the effect of market access had a p-value of 0.002. The study therefore rejected H_{03}at 5% level, implying that a significant relationship existed between market access and motivation to membership.

Table 4.17: Coefficients of Market Access

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	0.588	0.918		0.641	0.524	-1.251	2.428
	Market Access	0.737	0.23	0.396	3.204	0.002	0.276	1.198

a. Dependent Variable: Motivation to membership

Source: Author

4.5 Relationship between the Three Motivators and Membership to Dairy Cooperatives

Using an open ended question, the study sought to determine what motivates he farmers to be members. The reasons they gave were classified into four categories; economic reasons, social reasons, market access reasons and other reasons. Table 4.3 shows most of the farmers gave economic factors as the motivator to be member of a cooperative, with the most recurring reasons including; access to loans from a cooperative, assurance of pay by the cooperative as compared to selling through a hawker, getting animal feeds, getting artificial insemination services, opportunity to save with the cooperative and security of income from the cooperative.

The second factor identified as critical for membership by 31.2 percent of the respondents was defined as social factor. Social factor was explained by reasons like, joining a cooperative because of; trust between members, they are able to share information as cooperative members and that they benefit from training organized by the cooperative. Table 4.3 displays the third factor identified by 11.4 percent of the respondents as market access. Market access was explained by the following; the collective pooling of milk would assure farmers of marketability of the product and that by joining a cooperative, the farmer did not have to struggle to get buyers.

Table 4.18: Motivation to Membership

Variable	Frequency	Percent	Cumulative Percent
Economic	133	56.1	56.1
Social	74	31.2	87.3
Marketing	27	11.4	98.7
other	3	1.3	100.0
Total	237	100.0	

Following the descriptive analysis, the study sought to a model with a good fit in explaining what motivates dairy cooperatives membership. To achieve this goal, a multiple regression analysis was performed. Assuming a linear relationship between factors and cooperative membership, the study used the Ordinary Least Square (OLS) method of estimation. Using OLS, a regression line of best fit was determined. The study proceeded to test the hypothesized model below.

$$MM = \beta_0+\beta_1 EF+ \beta_2 SF + \beta_3 MA+ \varepsilon_i$$

From this equation, MM stood for motivation to membership, β_0 was a constant related to the regression function, EF were economic factors, SF were social factors, MA was market access, β_1, β_2, and β_3, are beta coefficients of MM, EF and SF respectively and ε_i error term. Using OLS method of estimation testing, the relationship between the factors and cooperative membership was examined by testing the research hypotheses.

An evaluation of model relating all the factors to motivation to cooperative membership was examined by integrating the three research hypothesis in a multiple regression model. The three regression models tested stated as follows:

H_{01}: Economic factors have no significant influence on cooperative membership

H_{02}: Social factors have no significant influence on cooperative membership

H_{03}: Market access has no significant influence on cooperative membership

The level of influence of the factors on dairy cooperative membership was explained by the use of the coefficient of determination as highlighted by the R square in Table 4.19. The model summary resulted in model one (1) reflective of the three predictors. TheR^2= 0.130 shows the model predicted by the three factors provided a relatively a weak fit in explaining what motivates cooperative membership. The coefficient of determination R square = 13% meant that the model explained 13% of the influence.

Table 4.19: Model Summary of Motivators to Cooperative Membership

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.361[a]	.130	.119	.54966

a. Predictors: (Constant), Market access reasons motivated me, Social reasons motivated me, Economic reasons motivated me

Source: Author

The overall significance of the regression model was assessed using the ANOVA Table 4.20. From this table three factors (market access reasons motivated me, social reasons motivated me and economic reasons motivated me) resulted in a significant model (p value of = 0.000) in explaining the linear relationship between the factors and cooperative membership.

Table 4.20: ANOVA Analysis of Motivators to Cooperative Membership

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.525	3	3.508	11.612	.000[b]
	Residual	70.395	233	.302		
	Total	80.920	236			

a. Dependent Variable: Motivation to membership

b. Predictors: (Constant), Market access reasons motivated me, Social reasons motivated me, Economic reasons motivated me

Source: Author

Using the output in Table 4.21 the study examined the significance of the coefficients of the predictors. From model 1; the economic reasons had a p-value of 0.070, social reasons had a p-value of 0.026 and market access had a p value of 0.024. All three variables had a p-value

of less than 0.05 there by indicating that they were all significant. The study therefore failed to accept the null hypotheses H_{01}, H_{02}, and H_{03} at 5% level and inferred that the three factors had significant influence on the decision to be a member of a dairy cooperative.

Table 4.21: Coefficients Motivators to Cooperative Membership

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.981	.473		4.193	.000
	Economic reasons motivated me	.187	.103	.157	1.821	.040
	Social reasons motivated me	.191	.085	.160	2.233	.026
	Market access reasons motivated me	.220	.097	.179	2.268	.024

a. Dependent Variable: Motivation to membership

Source: Author

The coefficients of the factors in Table 4.21 led to the derivation of the fitted model below.

$$MM = 1.981+0.187EF+ 0.191SF + 0.220MA$$

The results indicate that market access had the highest impact on the decision to be a member of a dairy cooperative, with a unit change of market access resulting in a 22.0 percent increase in motivation to membership. The second variable with the greatest influence was social factors. A unit change in social factors would lead to a19.1 percent improvement in the decision to be a member. The third variable with significant influence on membership was economic factor. A unit change economic factor would result in18.7% improvement in the decision to be a dairy cooperative member.

4.6Summary of the Chapter

From the findings, the farmers gave economic factors as the motivator to be member of a cooperative, with the most recurring reasons including; access to loans from a cooperative, assurance of pay by the cooperative as compared to selling through a hawker, getting animal feeds, getting artificial insemination services, opportunity to save with the cooperative and security of income from the cooperative.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a study summary, conclusions and recommendations on the research findings resulting from the data analysis process and summarizes the key findings. The business implications from the findings are presented. The study was guided by the three key objectives and the discussion centers on their level of attainment.

5.2 Summary of Findings

A summary of the key study findings are presented in this section.

5.2.1 Demographic Profile

The demographic profile showed that a majority of the farmers were of the male gender mainly because of the fact that dairy farming is labour intensive so more male are likely to do so than the female. The age of the farmers showed that more farmers fell in the age bracket of 30 – 39 years, followed by those between 40 – 49 years and a few in the bracket of 50 – 59 years. This meant that dairy farming was done by mature adults who have young families and they mainly did it for survival. Again, the majority of the farmers had small parcels of land (a quarter of an acre) and this meant that they could not keep very many cows so they needed the cooperatives to help them access the benefits that they offered.

5.2.2 Discussion on Economic Factors and Cooperative Membership

The first research objective was to establish the extent to which economic factors influenced cooperative membership. The study established four economic factors that influenced cooperative membership in order of preference. These included: the ability of a cooperative to be transparent about their use of the members' funds; the ability of a cooperative to have unallocated equity capital; the ability of a cooperative to pay for the milk supplied as agreed; the number of cows a farmer kept.

Ability of a cooperative to be transparent about their use of members' funds emerged as the top factor meaning that farmers were interested in knowing how their money was spent and how safe their money was. This also showed that trust and safety were key factors that were considered by farmers before joining cooperatives. This was also an indicator of the fact that

farmers needed to have their funds safe so that they could borrow loans whenever they needed to without fear of non – availability of the funds.

The ability of a cooperative to have unallocated equity was crucial to farmers since they were assured that the cooperative had funds that could help in running and cover for any contingencies that may occur. This meant that since the cooperative had these funds, they were able to pay for their taxes, meet the payments for their members' milk supplied to them and generally protect the members' contributions if any losses were incurred. This therefore, was a motivating factor for farmers to want to join cooperatives (Fahlbeck, 2007).

The ability of a cooperative to pay for the milk supplied as agreed was another economic factor that motivated farmers to join cooperatives. Having a steady income was a key determinant to membership (Arayesh, 2011). This is what the farmers depend on to feed their families and so if they are assured of regular pay for their supplies, they have confidence in the cooperatives and are therefore, willing to join.

The findings show that the number of cows the farmers kept influenced them to be members of a cooperative which meant that the more the cows a farmer kept, the higher the possibility that they would end up as members of a cooperative. This was consistent with an observation by Staal et al. (1998), who classified the farmers according to number of cows owned. It was also clear that the quantity of milk produced influenced their decision to be cooperative members and therefore an incremental capacity to produce more milk would motivate a farmer to seek ways of selling the produce and hence cooperative membership. It was also deduced that membership to cooperative either allowed the members to access credit at a low interest or access credit without any collateral requirement.

The study also revealed that members with bigger land sizes had more production capacity and hence the need for them to join cooperatives to collectively market their produce. It was found that cooperatives which had larger unallocated equity capital were able to get more members who sought to benefit from these funds. Again, the farmers are very sensitive to the way their investment was managed and any indication to the contrary would drive membership away to a great extent. This position is corroborated by the observation that cooperatives are supposed to be reliable in their promise to pay and honour the promise if they are to attract more members.

5.2.3 Social Factors

The second research objective was to determine the extent to which social factors influence cooperative membership. The study established three social factors that influenced membership in order of preference. These included: involving members in the process of making decisions concerning prices, products, market and organization; the ability of the farmers to get better prices for milk supplied to the cooperative than when they sell individually; the benefit the members get from the training offered by the cooperative.

Involving the members in the decision making process emerged as the top social factor meaning that the farmers want to work in trust and feel that they are part and parcel of what goes on in the cooperative. The cooperative has to be transparent and involve these farmers in the decision making process since they are the suppliers of the raw material and capital (Bhuyan, 2007). To achieve this, the cooperative has to call farmers regularly for meetings something which they seem to like as it gives them a chance to interact and share experiences.

The second social factor was the ability of the farmers to get better prices for milk supplied to the cooperatives than when they sell individually. This is because of the fact that with bulk supplies there are economies of scale hence a high bargaining power and collective sharing of the costs. This in turn reduces the costs incurred by an individual farmer.

The third social factor was the benefit the members got from the training offered by the cooperatives. This meant that the farmers valued the knowledge on how to improve their production hence increase their income. Antwi and Oladele (2013) noted that a majority of farmers joined cooperatives to improve their profits. This could be achieved through training on how to increase production and probably increase the number of cows.

The findings imply that most of the daily farmers joined cooperatives to have a chance of meeting their peers since during such meetings they shared knowledge and experiences that enhanced their production capacity. The member had a chance of collectively making decisions on matters that affected their cooperative and this practice had the influence of attracting membership. It is also evident that the knowledge transmitted during training programmes was vital to the farmers and would encourage membership and also cooperative membership gave the farmers a chance to belong, as explained by the Maslow's theory of motivation. The findings also depicted that collectiveness of the milk supplied to a cooperative would give members a better bargaining power and the produce would fetch

better prices in the market. Hence members were likely to get better returns compared to nonmembers.

It was also clear that involving the farmers in making decisions that affect their operations was considered very vital and significantly influenced their membership decision. In addition, the farmers were cautious with the type of services they were offered by a cooperative, to the extent that good service quality would inspire membership. It was observed that the cooperatives provide employment to some of the farmers who are elected to represent the other members in the cooperative. In addition, the cooperatives were a major employer of the farmers and their families and for this reason, farmers would choose to be members.

5.2.4 Market Access Factors

The third research objective was to examine the role of market access on cooperative membership. The study established three market related factors namely: proximity of a farmer to the cooperative; the availability of a ready market for the milk; the ability of a cooperative to add value to the milk and widen the market.

The proximity of a farmer to the cooperative emerged as the top market access factor. This shows that since milk is highly perishable, it is important for it to get to the cooperative very fast where there are chilling facilities. This also shows that if the cooperative is very far from the farmers they would prefer to sell it individually to avoid losses of spoilage before it reaches the cooperative.

The second market access factor was the availability of a ready market for the milk. A farmer felt at ease knowing that he does not have to hawk his milk looking for buyers hence motivated to sell to a cooperative. This therefore, encourages them to join cooperatives as they have no worries of the availability of a market as well as they do not have spoilages of their milk.

The third market access factor was the ability of a cooperative to add value to the milk and widen the market. This shows that when value addition is done to the milk, the returns of the farmers increase since they are sold widely to different consumers of the various products. This could also be a source of employment for some of their relatives and friends. Cooperatives are also able to access faster than individuals hence the reason to join cooperatives. Value addition increased the shelf life of the milk so issues of spoilages were rare and so returns to the farmers were high.

The findings show that cooperatives are able to access commercial markets faster than an individual farmer would. It was clear that the limitlessness as to how much milk they can supply to the cooperative encourage the members to work hard and increase production to maximize returns, while it would attract non - members to be members. The perishability of milk explains why farmers would prefer to be members of a cooperative that is in their immediate neighborhood. This position is consistent with the observation that the milk was collected from their farms by the cooperative. This ease of distribution also gave reason why farmers would prefer to be members of a cooperative.

It was also evident that membership to a cooperative was motivated by the ability of a cooperative to add value to the product. Value addition meant increasing the longevity of the milk before expiry, repacking the product, and also selling the product in different forms and hence getting the members more value for their produce. Such expected outcomes encouraged farmers to be members of a cooperative.

The findings also show that farmers were informed of new technology or innovations by the cooperatives immediately. This meant a member of a cooperative at any time has more information and skills and could be more competitive compared to non - members. Further, being a member of a cooperative assured the farmers who were members that their produce would be collected on a daily basis; hence they were not exposed to milk spoilage risks. Such observation would motivate a farmer to seek membership.

5.3 Conclusions

Resulting from the preceding discussions, the study concluded that economic factors, social factors and market access all had significant positive effect on the dairy cooperatives membership among farmers in Kiambu County. Out of the three, market access was the greatest motivator for dairy cooperative membership.

The economic factors analysis led to the conclusion that farmers were very much concerned about the transparency of the cooperative and specifically how their funds were managed. The other key economic motivators were identified as: ability of a cooperative to have unallocated equity capital; the ability of a cooperative to pay for the milk supplied as agreed; the number of cows a farmer kept. Based on these results, the first null hypotheses was rejected and a conclusion drawn that economic factors had a significant influence on cooperative membership.

From the analysis of social factors, it was concluded that involving members in the process of making decisions concerning prices, products, market and organization greatly affected their decision to join a dairy cooperatives in Kiambu County. The other significant social factors were identified as; the ability of the farmers to get better prices for milk supplied to the cooperative than when they sell individually and the benefit the members get from the training offered by the cooperative. The second null hypothesis was subsequently rejected and the conclusion that social factors have a significant influence on cooperative membership adopted.

The results of market access analysis led the study to conclude that dairy farmers considered proximity of the cooperative to the farm before joining a cooperative. It was observed that availability of a ready market for the milk and the ability of a cooperative to add value to the milk and widen the market equally motivated the farmers to join dairy cooperatives. The null hypotheses three was rejected and a conclusion drawn that market access has no significant influence on cooperative membership.

5.4 Recommendations

Anchored on the study findings, theoretical literature and empirical review, the following recommendations were made:

5.4.1 Managerial and Policy Recommendations

The study recommends that managers of cooperatives must have clear policy on fund management. This policy should indicate transparency and accountability of members' funds. During the Annual General Meetings, the revenue and expenditure flows should be clearly explained and the funds available for borrowing declared.

The second recommendation is that the dairy cooperatives must always have unallocated equity capital. They should invest the funds well so as to reap good returns for the benefit of the farmers. This will help to retain the farmers who are members as well as attract more members. They should always ensure that whatever obligations they have are met as and when they ought to without disrupting with the farmers' borrowings.

Third, the study recommends that managers of dairy cooperatives must involve farmers when making marketing decisions especially concerning prices, products, market and promotion. As organizational stakeholders, their involvement is vital in determining the ability of the dairy to achieve its goals.

The fourth recommendation was that management of a cooperative dairy must position collection points in the most proximate location to the farmers in order to get as many members as possible. The fifth recommendation is that the dairy cooperative must be able to add value to the milk to enable them access wider markets and maximize returns to members.

The study finally recommends that private processors should also try to give more benefits than the cooperatives give to the farmers so as to attract them to supply milk to them. The milk from the farmers directly would be cheaper for them than buying from the cooperatives. This they could do by offering a higher price for the milk than the cooperatives.

5.4.2 The Government

The study recommends that the Government should subsidize taxes on the dairy equipment's used in the milk processing plants in order to encourage private processors. These may help especially those farmers who have no access to cooperatives due to long distances. It could also widen the market for milk and milk products on behalf of the farmers and improve their income greatly.

5.5 Limitations of the Study

The study faced a few limitations including the following: Due to the limited literacy levels of most respondents, the use of interview method was applied in administering the questionnaire which led to low response rate. Some of farmers were reluctant to give information despite reassurance that the study was confidential. Some farmers refused to participate absolutely arguing that how they sold their milk was their private business and they need not disclose to others.

5.5 Suggestions for Further Study

This study focused on three factors that motivate cooperative membership, and recommends that future studies can seek to establish other variables with significant relationship with the motivation to dairy cooperative membership. The study was conducted in Kiambu County, Kenya but further studies can be undertaken in other counties in Kenya.

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APPENDICES

APPENDIX 1: INTRODUCTION LETTER

APPENDIX 2: QUESTIONNAIRE FOR DAIRY FARMERS

This research is meant for academic purpose. It will try to find out the motivating factors that contribute to membership in dairy cooperatives in Kiambu County of Kenya. You are kindly requested to provide answers to these questions as honestly and as precisely as possible. Responses to these questions will be treated as confidential. Please do not write your name anywhere on this questionnaire. Please tick (√) where appropriate or fill in the required information on the spaces provided.

Part A: Personal Profile

1. Gender

   □Male

   □Female

2. Which of the following age groups do you belong?

   □18 – 29

   □30 – 39

   □40 – 49

   □50 – 59

   □60 and above

3. What is the highest level of education you attained?

   □Primary
   □Secondary
   □Certificate
   □Diploma
   □Degree and above

4. What is the size of your farm?

   □1/8 acre

   □¼ acre

   □½ acre

   □1 acre

   □ 2 acres and above

5. How many cows do you keep in your farm?

   □ 1-2

   □3-4

□5-6

□7 and above

6. What is your production in litres per day?

□ 1-5
□6-10
□11-15
□16-20
□Above 20

7. Is there a dairy cooperative in this area?

□Yes

□No

8. Are you a member of this cooperative?

□Yes

□No

9. What motivated you the most to be a member of the cooperative?
□ Social reasons
□Economic reasons
□Market Access

Part B: Economic Factors

Please indicate by ticking the extent to which the following statement influenced your decision to be a member of a cooperative society. Where 5 = Very Great Extent (VGE), 4 = Great Extent (GE), 3 = Not AT All (NAA), 2= Little Extent (LE) and 1 =Very Little Extent (VLE).

	To what extent did the following influence your decision to be a member of a cooperative society	VLE	LE	NAA	GE	VGE
		1	2	3	4	5
10.	The number of cows					
11.	The quantity of milk I produce					
12.	The quality of milk					
13.	Members are able to access credit					
14.	My land size influenced me to be a member					
15.	The cooperative has unallocated equity capital					
16.	The cooperative is transparent about their use of the members' funds					
17.	I am paid the milk supplied as agreed					
18.	I get dividends at the end of the year					

Part C: Social Factors

	To what extent did the following influence your decision to be a member of a cooperative society	VLE	LE	NAA	GE	VGE
		1	2	3	4	5
19.	I have joined so I can have a chance to meet my peers					
20.	I have joined because I believe I will get some economic gain					
21.	We are called regularly for meetings					
22.	I will benefit from the training offered					
23.	In times of distress the members will give me both emotional and financial support					
24.	I get a better price for my milk than when I sell individually					
25.	I am part of the decision making process concerning prices, products, market and organization					
26.	Trust, a spirit of solidarity and equity exists					
27.	Some members are employed to represent the rest of us in the organization					

Part D: Market Access

	To what extent did the following influence your decision to be a member of a cooperative society	VLE	LE	NAA	GE	VGE
		1	2	3	4	5
28.	There is a ready market for my milk					
29.	There is no limit as to how much milk I can supply to the cooperative					
30.	The cooperative is near my farm					
31.	The milk is collected from my farm					
32.	The cooperative is doing value addition thus widening the market					
33.	I am informed of any new technology or innovation in the market immediately it is advised to the cooperative					
34.	I have no spoilages of my milk					

Thank you for your support.