AN ASSESSMENT OF FACTORS INFLUENCING PERFORMANCE OF MILK MARKETING COOPERATIVES IN NAKURU COUNTY

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DECLARATION

Declaration by the Candidate

This thesis is my original work and has not been presented in any other university or institution for a degree or any other award.

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Declaration by University Supervisors

This thesis has been submitted for examination with our approval as university supervisors.

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DEDICATION

I dedicate this thesis to my beloved wife Anne Cherotich Malel, my beloved daughter Purity Jasmine Chebet Ng'eno, my beloved son Victor Kibet Ng'eno and my beloved parents Christine Chepkemoi Rugut and Paul Kipng'eno Rugut for their encouragement, patience, unquestionable devotion and love.

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To God i give all the Glory for the gift of life, good health and all the blessings he has bestowed upon me. He has been my source of strength this far.

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ABSTRACT

Nakuru County annual report indicates that over 70% of the dairy cooperatives societies in the County are either dormant or have collapsed. The purpose of this study was to determine the factors that have contributed to the poor performance of milk marketing cooperatives in Nakuru County. Specific objectives of this study were to investigate the influence of transaction costs, management, policies, competitors and infrastructure on the performance of milk marketing cooperatives. Research hypotheses to be tested were that all the independent variables had no effect on cooperative performance. This study was guided by the theory of cooperatives. Target population for this study was the managers of the milk marketing cooperatives and the dairy farmers. Since the target population was small, a census of active cooperatives was taken hence the selection of 16 cooperative managers and a sample of 140 active cooperative farmers. Structured questionnaires were used to collect data. Data collected was coded and systematically organized so as to facilitate data processing using Statistical Package for Social Sciences (SPSS). Data was analyzed using multiple regression analysis where dependent variable was regressed on independent variables. The study found out that independent variables account for 65.4 percent variations in dependent variable. The F value of 22.08 indicated that joint contribution of all the independent variables was significant in predicting the dependent variable. However, the independent variables which affected significantly the performance of milk cooperatives were management ($\beta_2 = 0.96$), policies ($\beta_3 = 0.97$), competition ($\beta_4 = 0.787$) and infrastructure ($\beta_5 = 0.728$). These findings may help in strengthening the performance of the cooperatives and the researcher is recommending the creation of a favourable working environment for the cooperative farmers so as to enable them earn profits and thus improve their living standards.

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LIST OF ABBREVIATIONS

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
ANOVA	Analysis of Variance
DDP	District Development Plan
GOK	Government of Kenya
IOF	Investor-Oriented Firms
K.C.C	Kenya Cooperative Creameries
KDB	Kenya Dairy Board
NDP	National Development Plan
NIE	New Institutional Economics
OLS	Ordinary Least Squares
SACCOS	Savings and Credit Cooperative Societies
SDCP	Smallholder Dairy Commercialization Programme
SPSS	Statistical Package for Social Scientists
TCE	Transaction Cost Economics
USA	United States of America

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter discusses background of the study, statement of the problem, objectives of the study and research questions. It goes further to discuss the significance and the scope of the study.

1.1 Background of the Study

Formal cooperatives were first introduced in Sub-Saharan Africa (SSA) by colonial governments, often for the purpose of promoting production of cash crops by peasant farmers. After independence, many SSA governments adopted policies that further accentuated the role of cooperatives and other rural organizations in the agricultural sector. They became important channels for government sponsored credit input supply and marketing programmes and often had to operate under close guidance and control by the state (Hussi 1994).

The promotion of cooperatives is looked upon as a method whereby farmers may obtain the benefit of economies of scale through coming together in an enterprise. Moreover, of major importance to the cooperative member is the potential for obtaining higher prices for his/her produce. The cooperative movement offers a prospect of redressing inequalities of bargaining power by collective action. Quite apart from the field of marketing, cooperatives are regarded as useful institutions for rural development (Andreou 1997).

By 1999, over 9,000 cooperative societies had been registered in Kenya. Out of these 46% were agricultural cooperatives while 38% were savings and credit cooperatives (SACCOS) and the rest 16% were housing cooperatives supporting over 2.5 million people (National Dev. Plan 2002-2008). Most of the agricultural cooperatives deal in the marketing of agricultural commodities like coffee, pyrethrum, milk and horticultural produce for farmers. Cooperative marketing is made up of several specialized areas of activities. There are the functions of providing inputs for farming such as animal feeds, veterinary services and farm equipment. Another part of cooperative marketing involves the movement of commodities to consumers or to first processors who, in turn sell to consumers. Cooperation by producers or consumers to provide needed marketing services is an approach to marketing improvement that has aroused wide interest. Generally it is stimulated by the feeling that established intermediaries are either providing inadequate services or are charging very high for these services. Cooperative marketing aims at assisting the farmer/producer in his efforts to dispose of his produce by providing an efficient marketing system in areas in which suitable marketing facilities do not exist, or an alternative marketing outlet to an existing marketing system, which, due to inefficiency or deliberate extortion, does not meet the requirements of the farmer/producer. The use of outdated trading practices, too many narrow outlets, big trade margins, unfair weighing practices, speculation causing excessive price fluctuation, are all examples of failed marketing systems. Cooperative marketing also aims at improving the producer's income by assuring a better return for his produce through

combined bargaining power, price stabilization, lower trade margins, and the search for better markets.

Most cooperative societies and particularly the milk marketing cooperatives are based at the county level where farming activities take place. Nakuru County which forms largely the main area of this study has a sizeable number of cooperatives given its size, population and the diverse natural resource endowment. The County has over 614 registered cooperative societies with a total membership of over 82,504. The milk marketing cooperatives constitute about 11% of the total registered cooperatives. However, 76.5% of the dairy cooperatives are dormant. Despite this grim picture, 16 dairy cooperatives representing 23.5% of the total milk cooperatives were active in 2009.

1.2 Statement of the Problem

Two major factors that have shaped the development or performance of co-operative sector in Kenya in the recent past include liberalization and globalization. Until the liberalization of the Kenyan economy, cooperatives were heavily controlled by the government that determined the scope of operations and regulations within which they operated. Government withdrew from supporting and supervising co-operatives in 1997 when the new cooperative societies Act and sessional paper No.6 of 1997 on *cooperatives in a liberalized economy* became effective (NDP 2002-2008). This caught the co-operative leadership inadequately prepared to effectively steer their organizations for growth or face the stiff competition occasioned by liberalization/ globalization. Cases

of inadequate management skills, corruption, leadership wrangles, misappropriation of society assets and general mismanagement started creeping in.

Coupled with low sales most marketing co-operative found themselves dormant, collapsing or struggling to survive. In addition to these challenges are political interference, unfavorable government policies, legal constraints, social and cultural dynamics and rapid technological advancement. The adverse operating environment characterized by increasing input prices, dwindling consumer purchasing power hence producer prices, poor member contribution, inadequate external (financial) support have not spared Kenya co-operatives that have resulted into loss of or dwindling profitability and inability to fund development projects. Thus, prior to the re-establishment of the Ministry of cooperative development and marketing in 2003, the co-operative movement was faced with a lot of challenges with many societies almost collapsing due to mismanagement, anarchy and leadership wrangles.

According to the Nakuru County annual report, over 50% of the registered cooperatives in the county were dormant. The sad issue is that over 70% of the dairy cooperatives in the county were either dormant or had collapsed. The dormancy in the milk marketing cooperatives was largely contributed by the collapse of the Kenya Cooperative Creameries (K.C.C) which was the sole purchaser of the cooperatives' milk in the country. Its collapse was followed by the collapse of many milk marketing cooperatives since they did not have the capacity to compete in the new environment due to poor management. This study therefore addresses itself to the performance of those

cooperatives that are still functional and how they are coping with the new challenges in the market.

1.3 Main Objective

The purpose of this study is therefore to investigate how the market and the associated factors have contributed to the performance of the milk marketing cooperatives in Nakuru County.

1.4 Specific Objectives

  i. To determine the effect of transaction cost on performance of milk marketing cooperatives in Nakuru County

 ii. To investigate the influence of management on performance of milk marketing cooperatives in Nakuru County

iii. To establish the role of cooperative policies on performance of milk marketing cooperatives in Nakuru County

iv. To determine out the role of competitors on performance of milk marketing cooperatives in Nakuru County

 v. To determine the effects of infrastructure on performance of milk marketing cooperatives in Nakuru County

1.5 Research Hypotheses

    i.   The transaction costs have no effect on the performance of milk marketing cooperatives in Nakuru County

    ii.   Management does not influence the performance of milk marketing cooperatives in Nakuru County

    iii.   Cooperative policies have no impact on the performance of milk marketing cooperatives in Nakuru County

    iv.   Ccompetitors have no effect on the performance of milk marketing cooperatives in Nakuru County

    v.   Infrastructure does not affect performance of milk marketing cooperatives in Nakuru County

1.6 Significance of the Study

The marketing of milk is more problematic than most other agricultural products. Milk is perishable and transportation from the rural producer to the urban consumer requires considerable organization and capital investment in transport facilities, chilling and processing plant. For this reason dairying is frequently promoted through collective marketing arrangements in developed and developing countries alike (George and Rogers 1987).

Collective marketing arrangements or cooperatives can help small – scale farmers to overcome the financial barriers to innovation, through the pooling of funds for mutual lending and by serving as an intermediary between small farmers and financial

institutions and government agencies. Cooperatives make lending to small farmers possible by taking upon itself the efforts and expense of administering many small loans. In the market, pooling of purchases and sales makes it possible for typical small farmers to achieve a number of commercial gains; for example, the achievement of bulk buying discounts in the purchase of supplies, and ability to have strong bargaining power.

The success of a milk marketing cooperative society leads to improved standard of living for the dairy farmer. The dairy subsector in the County involves many farmers majority of who are smallholders who form the bulk of the milk marketing cooperatives. These are the same farmers who stand to lose whenever cooperative societies collapse as they did immediately after the liberalization of the milk market in 1992; leading to extreme poverty for many of them.

This study brought out the factors that led to their collapse and why some of them have once again formed or joined new cooperatives. It is also important to note that the subsector, if well managed can play a key role in the fight against poverty among small-scale dairy farmers who are collectively the majority milk producers. The study results may help in strengthening the current cooperatives given that the Government is in the fore front in trying to promote the dairy subsector in order to boost the fight against poverty. This research is also an attempt to investigate how some of the milk marketing cooperatives have managed to survive in a liberalized milk market.

1.7 Scope of the Study

This study was conducted in Nakuru County and it mainly focused on the milk marketing cooperatives as the sampling unit. The study targeted costs incurred by the cooperatives, milk prices and incomes accruing to the cooperatives. The study further looked at how these cooperatives are organized and managed, the type of facilities used by the cooperative societies and the challenges they face.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This study reviewed similar research studies done by other researchers in the past. The review was undertaken on the studies which were considered relevant in their approach to the current research. General research works on agricultural marketing cooperatives and particularly research on milk marketing cooperatives were considered. The chapter develops a conceptual framework and identifies research gaps and areas recommended for further research.

2.1 Theoretical Review

This study was informed by a number of theories as discussed below:

2.1.1 Theory of Cooperatives

Helmberger *et al* (1962) can be regarded as having developed the first complete mathematical model of behaviour of an agricultural cooperative. Sexton, (1995) provides a brief overview of developments in the economic theory of cooperatives in the US prior to Helmberger's paper. Ortmann (1962) used the neo-classical theory of the firm to develop short-run and long run models of a cooperative (including behavioural relations and positions of equilibrium for a cooperative and its members under different sets of assumptions) using traditional marginal analysis. In their model, the cooperative's optimization objective is to maximize benefits to members by maximizing "per unit value or average price by distributing all earnings back to members in proportion to their patronage volume or use" (Torgerson *et al.*, 1998).

Sexton (1995) regards this "landmark" paper so highly because (1) the correct analysis of cooperative and member behaviour is based on a clear set of assumptions; (2) the model clearly distinguishes between short and long-run behaviour in a cooperative; and (3) based on these characteristics, the model set the stage for further advances in cooperative theory in the 1970s and 1980s. Torgerson *et al*. (1998) contend that Emelianoff (1942) made a major contribution to understanding the internal economics of cooperatives with his conception of the cooperative as a form of vertical integration, and focused on the structural and functional relationships of members (the principals) to their cooperative marketing organization (the agent). There have been various debates on whether a cooperative enterprise should be treated as a firm (a decision-making entity), as Helmberger *et al* (1962) did, or as an organization (aggregation) of economic units (members), as treated by Emelianoff (1942), Robotka (1947), and Phillips (1953), for example. Rhodes (1995) presents an overview of the debate on the Helmberger-Hoos and Phillips models, with the former initially having the greatest support among economists, although their contribution has also been criticized (Levay, 1983; Lopez and spreen, 1985; Sexton, 1986). Sexton (1995) views this debate as "primarily one of semantics," and considers the issue not important to understanding cooperatives. He sees the development of alternative models as application of advances in economic theory of cooperatives reflecting "the richness of the environments in which cooperatives operate and the need to have alternative models that apply in different settings". Staatz *et al* (1994), Royer *et al* (1994) and Torgerson *et al*. (1998) also contribute to this debate.

Over the past few decades, the rapidly changing economic environment, reflected in increasing globalization and agricultural industrialization, has led many agricultural

cooperatives to undertake substantial structural changes in order to adapt to the new situation. Royer (1999), for example, mentions that in addition to mergers, consolidations and acquisitions (horizontal and vertical restructuring), cooperatives have become increasingly involved in fundamental institutional changes (e.g., conversion to IOFs, and joint ventures with corporations). These developments raise the question whether there are "fundamental features intrinsic to the cooperative organizational form that restrict cooperatives from being able to compete effectively in an increasingly complex economy and that ultimately threaten their long-term survival" (Royer, 1999).

2.1.2 Transaction cost Theory

Coase (1937) first described the concept of transaction costs in his seminal paper on the nature of the firm. Transaction costs - the costs of organizing and transacting exchanges - include search and information costs, bargaining and decision costs, and policing and enforcement costs (Williamson, 1985: 18-22). As Sykuta (1999) has pointed out, every exchange involves each of these costs to a greater or lesser extent, with each transaction cost item being influenced by social institutions (norms of behaviour), legal institutions (definition and enforcement of property rights), political institutions (mechanisms by which property rights are allocated), and economic institutions (availability and efficiency of markets).

Major contributions in examining the role of transaction costs in explaining the existence and boundaries of firms have been made by Cheung (1969, 1983), Alchian *et al* (1972), Williamson (1981, 1985) and Klein *et al.* (1978). Williamson was the first to introduce

the term "transaction cost economics" and it has since been associated with the new institutional economics (Sykuta and Chaddad, 1999). According to Coase (1937), the reason why so much economic activity occurs in formal organizations (firms) and not on spot markets, is due to the inefficiencies of transacting in a world of imperfect information. Thus, it may be less costly to coordinate production within a firm instead of a market when the transaction costs of market exchange are high (Royer, 1999). Due to the possibility of opportunistic behaviour by one or more parties in a transaction (i.e., to seek private gain at the expense of the group), contracts play a crucial role because they enable the parties to fulfill their obligations by protecting them from opportunistic behaviour, thus decreasing the costs of transacting.

However, as Royer (1999: 46) points out, not all contracts are equally effective, and the "ability of a contract to facilitate exchange depends on the 'completeness' of the contract and the relevant body of contract law." Incomplete contracts, caused mainly by bounded rationality (i.e., limits on the capacity of individuals to process information, deal with complex issues and consider all possible contingencies), difficulties in specifying or measuring performance, and asymmetric information (i.e., when the parties do not have equal access to all information relevant to the contract), "will inevitably result in opportunism and transaction costs" (Royer, 1999: 47). Sykuta (1999: 73) contend that in the TCE framework "the incompleteness of contracts is a result (to one degree or another) of both transaction costs and bounded rationality." Transaction costs may make it too expensive to write a more complete contract that will better specify the foreseeable

contingencies and resultant obligations of each party involved. The optimal completeness of a contract depends on the trade-off between marginal benefits and costs.

Opportunism and the related transaction costs can also be associated with asset specificity, i.e., assets that are acquired to support specific transactions (Klein *et al.*, 1978; Williamson, 1981; Royer, 1999). Owners of such relationship specific assets cannot use these assets in other transactions without some loss in productivity or incurring costs in adapting them to other uses. Hence, once investments in relationship-specific assets have been made the trading parties involved may have few or no alternative trading parties, which eliminates competitive trading (i.e., the asset's opportunity cost will fall). This creates quasi-rents (i.e., a specific asset's earnings in excess of the minimum required to keep the owner from exiting the relationship), which can lead to opportunistic behaviour. Sykuta and Chaddad (1999: 73) contend that an asset's specificity is determined more by its value outside the specific relationship than by the motivation for its purchase. "An asset is said to be relationship-specific if its value in any other use is significantly lower." This decrease in value creates the quasi-rents that attract opportunistic behaviour.

Royer (1999) mentions four different forms of asset specificity, namely: (1) site specificity (where assets are located nearby to reduce transport or inventory costs); (2) physical asset specificity (assets with physical properties specifically tailored to a particular transaction; e.g., a cheese factory or ethanol plant); (3) dedicated assets (investments based on a promise of a particular customer's business which would make it

profitable); and (4) human asset specificity (acquired skills and knowledge of certain workers which are more valuable within a particular relationship than outside it). Sykuta (1999) add another form of specificity of importance to agricultural transactions, namely temporal specificity.

This is due to the time-sensitive value of agricultural products and production processes which creates another margin which may entice opportunistic behaviour by trading parties. Thus, a *holdup problem* arises "when one party in a contractual relationship seeks to exploit the other party's vulnerability due to relationship-specific assets" (Royer, 1999: 49).

In general, TCE can help to identify the important dimensions of a transaction and thus assist with the design of the most efficient institutional arrangement for conducting the transaction. "Essentially, a firm should select the institutional arrangement that minimizes the sum of its production and transaction costs" (Royer, 1999). According to Williamson (1985), frequency, uncertainty, and asset specificity are three characteristics of a transaction that are critical in designing the optimal institutional arrangement.

2.1.3 Agency Theory

Agency relationships exist whenever an individual or organization (the agent) acts on behalf of another (the principal). Principal-agent problems arise because the objectives of the agent are usually not the same as those of the principal, and thus the agent may not always best represent the interests of the principal (Royer, 1999; Sykuta 1999). The terms of an agency relationship are typically defined in a contract between the agent and the

principal (which could bind the agent to act in the principal's interests, for example). Because contracts are generally incomplete, "there are opportunities for shirking due to moral hazard and imperfect observability" (Royer, 1999). Hence, the main focus of agency theory is on incentive and measurement problems, but the risk-sharing implications of incentive contracts are also crucial. As Sykuta (1999) point out, "most applications of agency theory focus on the incentive vs. risk sharing trade-off of contracts aimed at aligning the interests of the agent with those of the principal." Agency theory is thus very relevant to the institutional structure of cooperatives because employed agents (managers) may not act in the best interests of cooperative owner-members (principal).

The challenge, therefore, is which ownership and capital structures can be developed to lower agency costs (Fama, 1980; Fama and Jensen, 1983). Principal-agent problems in a cooperative are likely to give rise to member dissatisfaction. Richards *et al*. (1998) point to various studies which argue that cooperatives experience greater principal-agent problems than proprietary firms due to "the lack of capital market discipline, a clear profit motive, and the transitive nature of ownership." Because cooperatives have no market for their equity (as opposed to IOFs), there is less incentive for members to monitor the actions of their managers.

Cooperatives may also have greater difficulty of designing incentive schemes for managers that will align their personal objectives with those of the cooperative. Using data from a survey of cooperative members in Alberta, Canada, Richards *et al*. (1998) compared members' objectives (expectations) with those they perceived were held by

their managers. Younger farmers and large producers, for example, felt that managers focused too much on the social role of cooperatives and not enough on profit issues such as higher prices, return on equity and quality of service. These two groups seemed to be least satisfied with their cooperatives' (managers') performance.

2.1.4 Property Rights Theory

Demsetz (1967) defines property rights as the capacity to use or to control the use of an asset or resource. He maintains that for any form of human cooperation to be workable, especially a form involving agreement, it requires clearly defined and enforced property rights. The neoclassical model specifies that property is privately held and property rights are exclusive and transferable on a voluntary basis. Since transaction costs are assumed to be zero, these property rights can be fully defined, allocated, and enforced, and will be allocated to those uses where they yield the highest return (Royer, 1999).

Property rights theory, also referred to as the incomplete contracting theory of the firm, was developed by Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995). It is based on the assumption that contracts are necessarily incomplete e.g., due to asymmetric information between trading parties and bounded rationality, and thus do not "fully specify the division of value in an exchange relationship for every contingency" (Sykuta and Chaddad, 1999). Hence, ownership (the right of residual control) of the assets involved in a transaction becomes critical in deciding how value is divided when a (none covered) contingency arises. Since transaction costs are positive, "the allocation (and possible non-transferability) of property rights may have significant consequences

for economic organization, behavior, and performance" (Sykuta and Chaddad, 1999: 73). Iliopoulos and Cook (1999) also refer to the distinction between the "traditional" property rights approach, in which ownership is synonymous with the possession of residual claims, and the property rights - incomplete contracts theory discussed above. Cook (1995) contends that property rights are vital for cooperatives to be sustainable, producer-controlled organizations. Before a cooperative can achieve improved market performance ("correcting market failures"), internal stability in a cooperative needs to be achieved with clearly defined property rights.

2.2. Conceptual Framework

This is a presentation on how the independent and dependent variables are related. It, therefore, specifies the working definition of variables and enables a simple explanation of the flow of theoretical framework used by the study (Mugenda and Mugenda, 2003). Reichel and Ramey (1997) define a conceptual framework as a set of broad ideas and principles taken from the relevant fields of enquiry and used to prepare a subsequent presentation. Mugenda (2008) defines conceptual framework as a concise description of the phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. Figure 2.1 shows the conceptual framework of this study.

Independent Variables   Dependent Variable
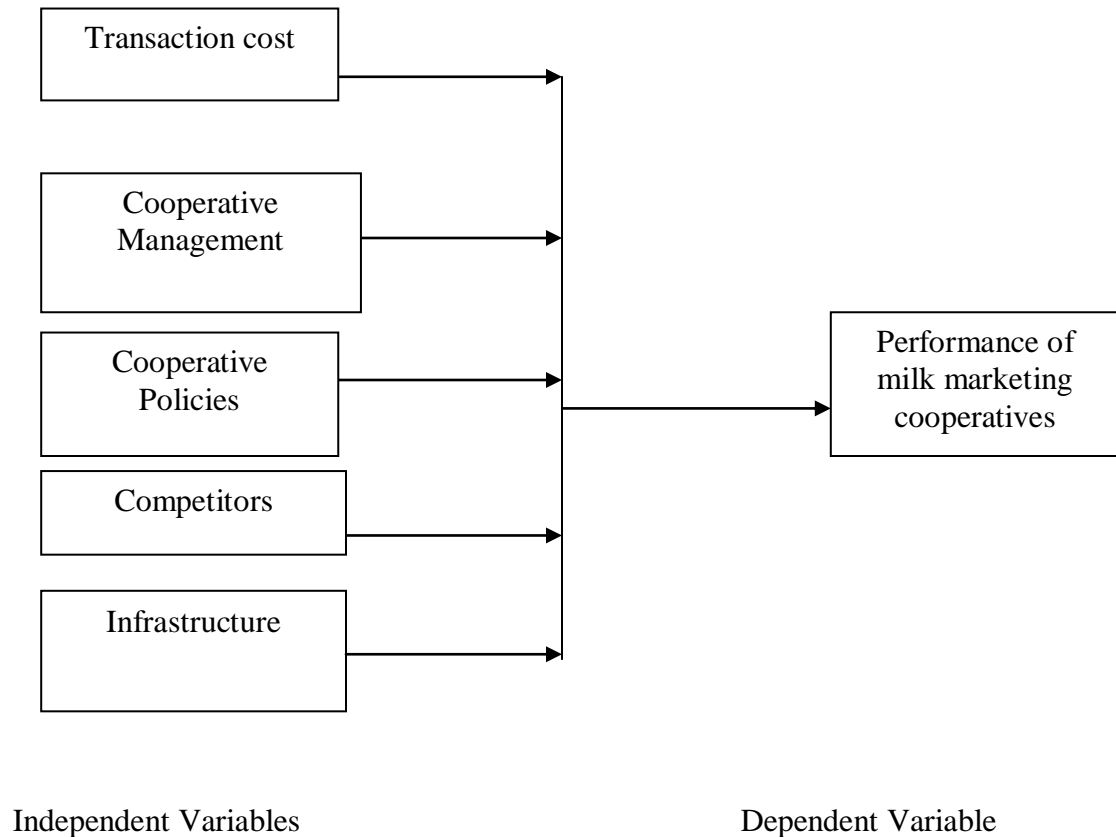
Figure 2.1: Conceptual Framework
Source: Designed by the researcher, 2012

2.2.1 Management

There has been a tendency to argue that a major cause of co-operative failure is the constraint imposed on the exercise of management skills and authority by the democratic nature of the enterprise. Given this scenario, it is suggested that the authority of the General Meeting ought to be curtailed, leaving committees and managers to get on with the job of management. However, to do so would deny the purpose of the enterprise; that is to enable people to run their own business. The solution lies in increasing and

improving the level of member participation, not restricting it. Moreover, the standard of management within co-operatives is often inherently poor. As has already been said, co-operatives often come into being in markets and geographical areas considered as marginal in terms of profit potential by most other forms of commercial business enterprise. This being the case, the salaries they offer, working conditions and work location fail to attract top quality managers.

2.2.2 Policies

Kenya's dairy industry is regulated through the Dairy Industry Act, Chapter 336 of the Laws of Kenya, as enacted in 1958. Under the Act, the Kenya Dairy Board (KDB) was established in order to "organize, regulate, and develop efficient production, marketing, distribution and supply of dairy produce in Kenya". Hence the KDB has broad powers over the organization of the dairy marketing system in Kenya. However, over the years, the KDB has limited its operations primarily to the regulation of businesses involved in the processing and distribution of dairy products, at the risk of leaving the industry in the hands of a nationwide cooperative dairy processing and marketing cooperative called the Kenya cooperative Creameries Limited (the KCC), at least up to 1992 when the "Winds of Change" in the name of marketing liberalization began to sweep across the industry.

The policies distorts the basis for sound business management in the participating cooperatives as negotiations with the government on cost compensation, rather than successful business operations, is the most important factor in determining business income. The policies can further contribute to shortcomings in the agricultural marketing

sector e.g. government can opt to give farmers subsidies which might delay in payment leading to inefficiency in working of the cooperatives.

2.2.3 Competition

Marketing liberalization aims at improving efficiency in resource allocation by facilitating more or less automatic price adjustments in response to market competition through the forces of supply and demand. The rationale is that market competition, over time, should lead to stability in production and consumption. The result is thus expected to be beneficial to the society as a whole. The most critical step in the liberalization of Kenya's dairy industry was the decontrol of both producer and consumer prices of milk in May 1992, followed by an explicit policy statement that any party interested in getting into dairy processing and marketing business could be licensed, provided that the business premises met the minimum hygiene standard requirements.

2.2.4 Infrastructure

The transport function is chiefly one of making the product available where it is needed, without adding unreasonably to the overall cost of the produce. Adequate performance of this function requires consideration of alternative routes and types of transportation, with a view to achieving timeliness, maintaining produce quality and minimizing shipping costs.

Effective transport management is critical to efficient marketing. Whether operating a single vehicle or a fleet of vehicles, transportation has to be carefully managed, including cost monitoring - operations on different road types, fuel and lubrication consumption

and scheduled and remedial maintenance and repair. Skillful management of all aspects of vehicle operations

can also make a substantial contribution to efficient marketing especially with respect to optimum routing, scheduling and loading and off-loading; maximization of shift hours available, maintaining the vehicle fleet at an optimum size, taking account of time constraints on delivery, and collection times and judicious management of vehicle replacement and depreciation. Transport managers also have to weigh the advantages and disadvantages of owning, hiring or leasing transport.

2.2.5 Transaction Costs

Transaction costs are the embodiment of barriers to access to market participation by resource poor small-holders. They include the costs of searching for a partner with whom to exchange, screening potential trading partners to ascertain their trustworthiness, bargaining with potential trading partners (and officials) to reach an agreement, transferring the product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement.

The nature of milk and its derivatives in part explains the high transactions costs associated with exchanges of fluid milk. Raw milk is highly perishable and, thus, requires rapid transportation to consumption centers or for processing into less perishable forms. Further, bulking of milk from multiple suppliers increases the potential level of losses due to spoilage. These losses limit marketing options for small and remote dairy producers, raise transport costs, and imply greater losses due to spoilage than for

commodities such as grains. Because milk production typically is a year-round activity, dairy producers often must be concerned with maintaining outlets for their production.

2.3 Empirical Review

Misra *et al* (1993) used the ordered probit model to analyze the factors influencing farmers' degree of satisfaction with the overall performance of milk marketing cooperatives. As satisfaction level of dairy farmers is a discrete qualitative variable, they used this model instead of the Ordinary Least Squares (OLS) as the latter would result in biased and inefficient estimates. This study, just like the current study measured the performance of milk marketing cooperatives by trying to analyze the factors influencing farmers' degree of satisfaction and the results of this study indicated that dairy farmers perceive cooperatives' ability to hold down operating and marketing costs, to provide higher prices and competent field services and the assurance of a market for their milk as important attributes of dairy marketing cooperatives. However the study was done immediately after liberalization of the milk market unlike the current study which was done long after the market liberalization hence the results may not be the same but the ultimate aim of the two studies was the performance of the milk cooperatives.

A Logit regression analysis was used by Trechter (1999) to analyze the factors associated with diversification on agricultural cooperatives in Wisconsin. He found out that the impact of diversification upon measures of cooperative performance (profitability, patronage refund and equity redemption) was relatively minor i.e. diversification on agricultural cooperatives was not statistically associated with profitability, increases in

patronage dividends or increases in equity evolvement. The results also showed that diversification on agricultural cooperatives were an important factor in determining membership size i.e. diversified cooperatives enjoyed larger membership. Like the current study albeit indirectly, this study measured cooperative performance by showing that diversifications on agricultural cooperatives was an important factor in determining membership size, that is, diversified cooperatives enjoyed larger membership implying that such cooperatives must perform well before they could diversify and hence attract more members

The technical efficiency and scale economies of the dairy marketing cooperatives were estimated by Ellene and Schreiner (1996) in Kenya. They used the maximum likelihood technique to estimate a stochastic cost frontier function and determined technical efficiency and scale economies. The estimated long–run average cost curve indicated scale economies, but most of the scale economies are exhausted for the average size of cooperatives in the sample. In general, the result indicated that the dairy marketing cooperatives were technically efficient for the observed technology. They also suggested that cooperatives can reduce unit costs by expanding volume of milk handled, either through existing members or new members, including merging with other cooperatives. The conclusion of this study implied that performance was key to cooperatives' expansion or increase in volume of milk handled in order for them to enjoy the economies of scale. Here again performance, like in the current study, is being measured using a different approach.

The role of dairy marketing co-operatives in the Ethiopian dairy Innovation system was studied by Beekman (2007), using sample dairy cooperatives in Alamata and Fogera woreda. Results of this study revealed that dairy cooperatives can play a significant role in promoting technological, organizational and institutional innovations, promoting linkages for access to services and marketing and in knowledge and information sharing. The outcomes of the study again revealed that dairy cooperatives are used to improve the livelihood of members, promote gender equity and help in changing the attitudes and behaviors of members of the cooperatives. The implied performance of the dairy cooperatives in this case is the driving force behind the improvement of the livelihoods and other benefits to cooperative members. From its conclusions, this study like the current study is concerned about performance.

Impact assessment household survey at regional levels on both members and nonmembers of different cooperatives was undertaken by ACDI/VOCA (2005). The assessment findings indicated that cooperatives have made a significant impact in assisting smallholder farmers through the provision of timely agricultural inputs at reasonable prices and the creation of market outlets for their products at the prevailing market prices to their members. Equally important, the findings put the significant role played by the sampled cooperatives in the provision of credit, income generation, technical assistance, value added services, consumer goods retailing, tractor service and transportation facility. This conclusion implies that cooperative performance is central to the enumerated benefits and this study like the current study was also measuring performance albeit indirectly.

Loren W.T *et al* (1984) measured technical efficiency of New York dairy farms using corrected ordinary least squares method for a Cobb -Douglas form. Their results indicated that the actual output of a farmer and frontier output were different indicating that inefficiency existed. Getu Hailu *et al* (2005) wrote a paper on measuring efficiency in fruit and vegetable marketing cooperatives in Canada. They used Trans log cost function to approximate the efficiency of the fruit cooperatives. In this case, labour, capital and materials used were classified as inputs and output; output was basically the value addition to the fruits. Cost of production was regressed on inputs and outputs in order to measure efficiency and maximum likelihood method was used to estimate the parameters. The results indicated that there may be some potential for cost reduction through improved efficiency that would in turn add value to cooperative members' outputs. This study indicated that the conclusion was indirectly   talking about performance when it recommended cost reduction through improved efficiency that would in turn add value to cooperative members' outputs.

Mburu L.M *et al* (2007) did a research on determinants of small holder dairy farmers' adoption of various milk marketing channels in Kenya. The econometric model used was the Logit and Probit models. They found out that households in lower highlands were likely to market their milk through the cooperatives than those in upper midlands probably due to lack of alternative competitive informal markets. They also found out that the probability of milk marketing through the dairy cooperatives increased if household head worked off-farm. They further concluded that farmers selling milk to cooperatives are likely to have excess milk. The additional milk produced required a

reliable market outlet that was only offered by the cooperatives. Further, their results indicated that marketing milk through cooperatives increased with decrease in milk price. Perhaps unlike other channels that imposed milk delivery quotas during times of glut, cooperatives did not but offered lower prices. Additionally, the results showed that adoption of milk marketing through the cooperative channel was influenced positively by credit availability suggesting that the probability of milk marketing through the cooperatives increased with ease of credit availability. This again indicates performance as an indirect result of this particular study meaning that a performing cooperative should be able to provide credit to its members.

Research on small holder dairy farmers in the central Ethiopian highlands was done by Nega Wubeneh and Simeon Ehui (2006.) Their objective was to measure the technical efficiency of small holder dairy farmers in the central Ethiopian highlands. They applied stochastic production frontier technique to measure the efficiency of the dairy farms. They used the maximum likelihood method to estimate the parameters of the stochastic production function and those of the inefficiency model. The model took into consideration many variables which were deemed to affect the efficiency of the dairy farms and the results were that very few farmers were efficient and the gamma statistic was highly significant indicating the presence of a high systematic inefficiency. The efficiency in production of individual farmers can be improved by training farmers in proper feeding, calving, milking, cleaning of cows, storing milk, marketing as well as other management skills. This implies that improved performance will lead to efficiency for the dairy farmers. In its conclusion, the study is stressing on the need to improve

performance thus bringing out the issues of performance just like the current study even though the variables are different.

Measurement of economic efficiency for small holder dairy cattle in the marginal zones of Kenya was done by Kavoi M.M. *et al* (2010). The study adopted a stochastic cost frontier based on the Battese and Coeli (1996) model. The approach was stochastic and the observations might have been off the frontier because they were inefficient or because of random shocks or measurement errors. They then adopted an econometric model which they used to estimate the empirical model. Translog cost function which is a second order approximation of the output, input prices and fixed factors was applied. The stochastic frontier cost model was estimated using maximum likelihood estimation. The results of the study were that a high percentage of variation in the model is explained by inefficiency; implying high level of inefficiencies existing in dairy farming.

Research on determinants of small holder dairy farmers adoption of various milk marketing channels in Kenya indicated that milk farmers do supply milk to cooperatives depending on their circumstances but a significant outcome showed that adoption of milk marketing through the cooperative channel was influenced positively by credit availability suggesting that the probability of milk marketing through the cooperatives increased with ease of credit availability. This again indicates performance as an indirect result of this particular study meaning that a performing cooperative should be able to provide credit to its members.

Still another study investigated on the economies of scale in dairy marketing cooperatives in Kenya and its conclusion was that the estimated total cost frontier function showed that cooperatives are technically efficient but road access and average distance to cooling centres have significant impact on cost of service and the researchers added a rider to their results stating that with the then government policy of privatization, cooperatives must be competitive or they would be replaced by private firms that can provide the same service and that as the cooperatives strive to become efficient and competitive, there is need to know the cost effectiveness of their operations. The study concluded by urging cooperatives to improve their performance by becoming well-organized, aggressive and cost effective in their operations.

This study has applied multiple regression analysis method to analyse its data just like some other studies done in Zambia on Econometric analysis of the socio-economic factors affecting the profitability of smallholder dairy farming in Zambia (C.Mumba *et al* 2010). The study used multiple regression analysis and the findings of the multiple regression analysis indicated that level of education, dairy cow herd size and distance to the market significantly affected the profitability of smallholder dairy farming in Zambia. An increase in level of education and dairy cow herd size, with a unit decrease in distance to the market, led to an increase in profitability of smallholder dairy enterprise. The study was basically addressing factors affecting profitability while the current study is addressing the factors affecting performance of milk marketing cooperatives. Improved performance can lead to profitability hence these two studies are addressing the same issue but from different approaches. Another study that applied multiple regression

analysis was entitled milk production profitability – multiple regression analysis (Juszczyk S. 2005.) The aim of this research was to analyze the factors which contribute to the economic and organizational conditions of milk production profitability. The factors under analysis in this case were costs, average purchase price in the particular years of research,complexity of technology used, milk productivity per cow per year, replacement cow factor, value of milk sold, value of cattle production (without milk), milk cooler ownership, and summer pasture availability. Statistical and mathematical methods were used to analyze the data; statistical methods used were simple and multiple regression and correlation analysis. The study, like the current study is measuring performance though the approaches are different but their aim is on improved productivity. Winsten *et al* (2000) did a profitabiliy analysis of dairy feeding systems. The study analysed the use and profitability of three distinct feeding systems; confinement feeding, traditional grazing, and management-intensive grazing from a randomly selected sample of dairy farms in northeastern USA. The confinement feeding farms were significantly larger and produced more milk per cow, while the farms using management-intensive grazing incurred the lowest production costs. Both confinement feeding and management-intensive grazing generated significantly higher rates of return to farm assets relative to farms using a mixed system. Multiple regression analysis confirmed the critical importance of herd size, milk production per cow, debt level and veterinary expenses to farm profitability in all production systems. Sagwe (2012) did a study on the influence of smallholder dairy commercialization programme on milk marketing in Borabu District, Nyamira County. The study sought to establish the effects of SDCP on market-oriented dairy production, particularly milk marketing in Borabu.

The overall objective of the study was to assess the influence of SDCP on milk marketing in Borabu district. The study tested the hypotheses to determine the variables which are significantly related to, and have significant effect on milk marketing. The variables associated with milk marketing included level of project funding, capacity building, adoption of new technologies, and participation of grass-root institutions and creation of linkages with private sector. Multiple regression analysis technique was used to identify real determinants of milk marketing and the strength of each determinant. A multiple regression analysis confirmed that the five predictors are significant determinants of milk marketing. The study concluded that level of funding, capacity building, adoption of new technologies, participation of Grass-root institutions and creation of linkages with private sector are all determinants of milk marketing.

In the current study, the main focus of the study is the performance of milk marketing cooperatives where variables such as transaction costs, management, competition, infrastructure and policies are measured to determine the performance of the cooperatives.

The reviewed literature provided crucial information for the design and development of the current study. The initial plan was to determine the efficiency of the milk marketing cooperatives but the reviewed literature indicated that determining efficiency of the cooperatives involves a lot of complicated assessment of data which was beyond the capacity of the current study. Some of the reviewed literature investigated technical efficiency of the dairy farming while others dwelt on technical, economic and allocative

efficiencies of other agricultural products. Most of them used complex data involving many variables which required appropriate analytical tools to process.

The current study is different because it is trying to gauge the continued existence of milk marketing cooperatives in an increasingly competitive milk market long after market liberalization. The study adopted an econometric model just like many of the reviewed literature hence the use of regression analysis. The econometric model adopted was the regression model and it was preferred because it is easy to manipulate and its results are easy to interpret.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter discusses the research design, the features of the study area where the research was conducted, and the target population. It also presents the sampling method, the sample size, the data collection instruments, and the methods of data analysis and presentation.

3.1 Research Design

The study adapted the descriptive research approach. Creswell (2002) observes that a descriptive research is used when data are collected to describe persons, organizations, settings, or phenomena. The study used the questionnaires as the instruments of data collection and the questionnaires were self-administered. Data on management, infrastructure, policies, competition and transaction cost was collected to be used to determine the performance of the milk marketing cooperatives in Nakuru County. The study aimed at observing and describing the performance of milk marketing cooperatives under study without influencing them in any way and therefore considers the descriptive research design to be the most appropriate for this study. Descriptive statistics and analytical models were used to analyse the data. Descriptive statistics involved use of means, frequency tables, percentages, ranges, standard deviation and averages. Statistical package for social scientists (SPSS) was used to do regression analysis and other data analysis to generate the statistics.

3.2 Area of Study

The study was undertaken in Nakuru County because the county has the highest number of active milk marketing cooperatives in Rift valley region. The County is divided into nine Sub-Counties with a total population of 1,603,325 as per the 2009 population census. It is an agricultural County with most of the population depending on agriculture and livestock for income and employment generation. Most industries within the County are those, which mainly process agricultural products. Thus about 85% of the total population depends on agriculture and livestock for their livelihood. The County is also a leading producer of milk and beef. Hence, the majority of the people in the rural areas are engaged in agricultural activities either growing crops for consumption or for sale. While others rear livestock like dairy animals, beef cattle, poultry and pigs in order to earn incomes for their livelihoods. This scenario is indicated by the fact that agricultural sector is the largest employer accounting for about 61% of the economically active population (DDP 1995-1997 and 1997-2001).

3.3 Target Population

The target populations for this research were the managers of the milk marketing cooperatives and some dairy farmers who sell their milk through the cooperative in the County registered as members of the cooperatives. The county has a total of sixty milk marketing cooperatives of which sixteen were active while forty four were dormant as a result of market liberalization. According to the cooperatives membership record, there were 1400 active dairy farmers who sell their products to the cooperatives in Nakuru

County. Table 3.1shows data on the number of cooperative managers and active dairy farmers registered with the cooperative societies.

Table 3.1 Target Population

Population names	Size of population
Cooperative Managers	16
Active registered dairy farmers	1400
Total	**1416**

Source: County Cooperative Office Nakuru, 2012

3.4 Sampling Method

In view of the fact that the number of active milk marketing cooperative societies were only sixteen, the researcher decided to do a survey on the managers of these active milk marketing cooperative societies and use the record of the registered cooperative farmers to randomly select the number of cooperative farmers to be included in the study.

3.5 Sample Size

From the liberalization of the milk market, the sample of the study was sixteen active milk marketing cooperatives from the total population of sixty. Given that the number of active milk marketing cooperatives was sixteen, an equivalent number of sixteen managers were taken. For the farmers, the study used a record of all the registered cooperative farmers to randomly sample 140 farmers out of the 1400 farmers which is 10% of the target population. The study sampled 10% because Neuman (2000)

recognizes 10% as an adequate sample size in a survey study. After determining the
sample size of the dairy farmers, the researcher sent the questionnaires to them via their
cooperative societies. Table 3.2 shows the sample size of the active cooperative farmers
and the number of the cooperative managers

Table 3.2 Sample Size

Sample names	Size of sample
Cooperatives Managers	16
Active registered dairy farmers	140
Total	**156**

Source: Author's Calculations, 2012

3.6 Data Collection Instruments

Questionnaires were the main instruments for data collection. A questionnaire is a
research instrument consisting of a series of questions and other prompts for the purpose
of gathering information from respondents. Questionnaires were considered given that
they are cheap and do not require as much effort as for the verbal and telephone
interviews and it is easier to classify the data given in the closed ended questions making
it easier to compile data. The questionnaires had both open and closed ended questions.
The researcher developed two sets of questionnaires both for the dairy farmers and for the
cooperative managers. Considering that simple farmers from Nakuru County are the
respondents, the questionnaires were made simple and comprehensive.

3.7 Pilot Testing

The purpose of pilot testing is to determine the reliability and validity of the data collection instrument. Reliability is the extent to which results are consistent over time and an accurate representation of the total population and if the results can be reproduced under a similar methodology while validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe, 2000). To ensure that the research instrument is valid and reliable the study undertook a pretesting study where the questionnaires were administered to some executive committee members of the cooperatives.

According to Trochim, (2005) reliability has to do with the quality of measurement. Reliability refers to the consistency of measurement and is assessed using the internal consistency reliability test. This test was preferred due to the fact that it does not require either splitting of a scale or the subject retaking the test for a given construct. It requires a single administration and provides a unique quantitative estimate of the internal consistency of a scale. Cronbach's Alpha is the most commonly used measure of co-efficient of internal consistency. Reliability of the study was to investigate the relationship between: transaction cost, management, competitors, policies in use and the infrastructure which were measured using the Cronbach's Alpha.

$$\textbf{Alpha} = \textbf{Nr}/\left(1 + \textbf{r}\,(\textbf{N} - 1)\right)$$

r is the mean inter-item correlation

N = Number of items in the scale

A co-efficient of 0.80 or more implies that there is a high reliability of data (Mugenda, 2008). The study used 0.80 as a bench mark to determine the reliability of questionnaire used.

Validity is the degree by which the sample of the test items represents the content the test is designed to measure (Rousson, *et al* 2002). To establish the validity of the study Construct Validity test were used. Construct is concerned with the extent to which a particular measure relates to other measures in a way that is consistent with theoretically derived hypotheses concerning the concept. Construct validity defines how well a test or experiment measures up to its claims (Mugenda, 2008).

3.8 Data Collection Procedure

The questionnaire in this study was self-administered by the respondents. This is because self-administration of questionnaires enables the respondents to ask for clarification and it is easier to administer the questionnaires to a large number of people as in the case of the dairy farmers. Self-administration increases the odds for a greater number of respondents since there will be no error of wrong postage. It is considered cheaper than interviewing and it also reduces interviewer biasness and social desirability (Trochim and William, 2006).

3.9 Data Analysis and Presentation

Based on the questionnaire, both quantitative and qualitative data were generated. Qualitative data is concerned with meaning rather than drawing statistical inferences. While quantitative data involves the variables that can be measured in quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity (Kothari, 2009).

The study used the Likert-Scale. Likert Scales are preferred because they minimize subjectivity and make it possible to carry out quantitative analysis (Nordin, 2009). The data collected was cleaned, coded and systematically organized in a manner that facilitated analysis using the Statistical Package for Social Sciences (SPSS), which offers extensive data handling capabilities and numerous statistical analysis routines that can analyze small and large data (Muijis, 2004).

The first step in data analysis was to describe or summarize the data using descriptive statistics. The purpose of descriptive statistics is to enable the researcher to meaningfully describe a distribution of scores or measurements using a few indices or statistics. This study used descriptive statistics such as the mode, median and the mean. The study further used frequency distribution, percentages, and inferential statistics such as correlation analysis, regression analysis and analysis of variance (ANOVA). The empirical literature on dairy economics reflects the investigation into the relationship between socio-economic variables and profitability by means of multiple regression methods (Olubiyo *et al* 2009). Studies conducted by Nchinda and Mendi (2008), Otieno

et al (2009), and Chagunda *et al* (2006) have demonstrated the impact of age, gender, marital status, education level, household size and distance on relative profitability of smallholder dairy enterprise by use of multiple regression models. This approach informed the decision to use multiple regression analysis in this study but with different explanatory variables. Performance of the milk marketing cooperatives was used as a dependent variable (Y) while five factors of the respondents namely management, infrastructure, competition, policies, and transaction costs were used as explanatory variables (X).These independent variables were determined using information from this study, and current literature on this subject matter . The implicit model of the regression was as indicated in the equation 1 below:

$Y = \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + e$................Equation 1

Where;

   Y = Performance

   X_1 = Transaction cost

   X_2 = Management

   X_3 = Policies

   X_4 = Competition

   X_5 = Infrastructure

e = Error Term; where the error terms are assumed to be *independent* and *normally* distributed with mean zero and constant variance.

The null (default) hypothesis was that each independent variable (management, infrastructure, competition, policies and transaction cost was having absolutely no effect

and the study was looking for a reason to reject this theory. The F-ratio was used to test the joint hypothesis to show whether the included variables exerted any significant influence on the dependent variable, performance of milk marketing cooperatives. It tested the null hypothesis that all the estimated coefficients are zero. The hypotheses are explicitly represented as follows:

Ho: β_1 to $\beta_5 = 0$…………………………Equation 2

Against the alternative hypothesis that at least one of the coefficients are not zero

H_A: β_1 to $\beta_5 \neq 0$…………………………Equation 3

Before running a multiple regression analysis, the following preliminary tests were carried to establish linearity, normality, homogeneity of the variance, independence and multicolinearity and the results indicated that the relationships between the predictors and the outcome variables were linear, the errors were normally distributed, the error variance was found to be constant, the errors associated with one observation were not correlated with the errors of any other observation and, predictors were not highly collinear, that is linearly related.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

This chapter reports the findings of the study based on the methods discussed in the previous chapter. Its purpose is to analyze the variables involved in the study. Data from the respondents was collected and analyzed to assess factors influencing performance of milk marketing cooperatives in Nakuru County. Data collected was both qualitative and quantitative which involved the use of frequencies, percentages and means. Data was presented by use of tables, pie charts and bar graphs as shown below.

4.1 Return Rate

A total of 140 questionnaires were given out to dairy farmers while 16 were given out to cooperative managers who were the unit of analysis. Out of the 140 questionnaires, 128 were returned by dairy farmers while 16 were returned by cooperative managers. This gives a response rate of 91% and 100% respectively. The return rate in the case of the managers was impressive but in the case of the farmers, some farmers did not receive the questionnaires because some were sent through their neighbours and could not reach the intended farmers and others misplaced their questionnaires. This information is shown in table 4.0.

Table 4.0 Return Rate

Category of Respondents	Questionnaires issued	Returned	Return rate
Dairy farmers	140	128	91.4%
Cooperative managers	16	16	100%
Total	156	144	92.3%

Source: Author's Calculation, 2012

According to Mugenda *et al* (1999), a 50% response rate is adequate, 60% good and above 70% rated very good. This implies that basing on this assertion; the response rate in this case of 92.3% is very good.

4.2 Reliability of Research Instruments

Table 4.1 shows the results of the reliability analysis where the Cronbach's alpha statistic was calculated. The value of the Cronbach's alpha coefficient ranges from zero to one and is used to describe the reliability of factors extracted from questions with two possible answers and/or multi-point formatted questionnaires or scales. A higher value; close to one, shows a more reliable generated scale. Nunnaly (1978) indicated 0.6 while Cooper and Schindler (2008) indicate 0.7 as an acceptable reliability coefficient. The analysis involved questionnaires from seven respondents and the Alpha coefficients were all greater than 0.7 indicating an acceptable reliability of the instruments. The instrument therefore was appropriate for the study.

Table 4.1 Results of Reliability Analysis

Variable	Cronbach's alpha	No of items
Influence of transaction cost on milk marketing cooperatives.	.7221	22
Influence of management on milk marketing cooperatives	.7145	19
Influence of competition on milk marketing cooperatives.	.7021	14
Influence of policy on milk marketing cooperatives	.7123	17
Influence of Infrastructure on milk marketing cooperatives	0.7011	23

Source: Author's Calculations, 2012

4.3 Validity Results

Validity of qualitative research is determining whether the research truly measures that which it was intended to measure or how truthful the results are (Joppe, 2000). It is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study. Content validity of this study was determined by first discussing the items in the instrument with the supervisor, one other lecturer and a research expert- they indicated against items (with a rating scale of 1-4) in the questionnaire whether it measured what it was meant to measure or not in relation to the research objectives. Content validity index of 0.802 was computed.

4.4 General Information

4.4.1 Demographic Information of Respondents

In order to achieve the main purpose of this study, the researcher found it paramount to find out the demographic information of the respondents. The demographic information of the dairy farmers included: gender, age, membership period, alternative market, reasons of alternative markets and dairy farming experience. The study findings indicate that majority 90 (70.3%) of the dairy farmers were male as tabulated in table 4.2.

Table 4.2 Demographic Information of Dairy Farmers

Demographic Information	Frequency	Percent
Gender		
Female	38	29.7%
Male	90	70.3%
Total	128	100.0%
Age		
$21 \leq yrs \leq 30$	8	6.3%
$31 \leq yrs \leq 40$	12	9.4%
$41 \leq yrs \leq 50$	16	12.5%
$51 \leq yrs \leq 60$	30	23.4%
More than 60 yrs	62	48.4%
Total	128	100%
Membership period		
Less than one year	30	23.4%
$1 \leq yrs \leq 5$	56	43.8%
$5 \leq yrs \leq 10$	36	28.1%
More than 10 yrs	6	4.7%
Total	128	100.0%

Experience in Dairy farming		
Less than 1 year	8	6.3%
$1 \leq yrs \leq 5$	18	14.1%
$5 \leq yrs \leq 10$	32	25%
More than 10 years	70	54.6%
Total	128	100%
The alternative selling points apart from marketing cooperatives		
Brokers	3	2.3%
Neighbors	72	56.2%
Nearest market	40	31.3%
Own use	13	10.2%
Total	**128**	100%

Source: Author's Calculations, 2012

Further, the demographic analysis indicates that 62 (48.4%) of the dairy farmers are aged over 60 years. Regarding membership period, the study findings show that majority 56(43.8%) of the dairy farmers range between 1-5 years. The researcher also went ahead and identified that majority of dairy farmers 70(54.6%) had experience of more than 10 years in dairy farming. Furthermore the findings indicated that apart from cooperatives, members also sold milk to other points with majority 72(56.2%) selling to village neighbors.

The researcher understood that poverty alleviation is not a 'quick fix' scenario but involves laying down strategies for sustainable endowment of the locals. This approach

requires engagement in income generating activities on the ground. As such, the study sought to find out how experienced the members were in the dairy farming and their familiarization with the situation at hand. The study findings indicated that quite a significant 70 (54.6%) of the cooperative members had over 10 years experience in the field of dairy farming. This implied that the cooperatives then were composed of experienced dairy farmers that were able to increase milk production through proper management of dairy related risks for success and sustainability in the long term.

The background information of cooperatives and cooperative managers is vital for planning for development of the said group of people. As such, the researcher found it vital to find out the demographic information of the cooperative managers in order to form the basis under which management problems can be tackled. The results from the study findings are as shown in table 4.3 below.

Table 4.3 Statistical Information of Cooperatives and their Managers

Information	Frequency	Percent
Gender of cooperative managers		
Female	4	25%
Male	12	75%
Total	**16**	**100**%
Age of the cooperative		
Less than 1 years	0	0.0%
1-3 years	1	6.3%
4-5 years	4	25%
More than 5 years	11	68.7%
Total	16	**100**%

Membership		
Below 100	**6**	37.5%
Between 101-250	**7**	43.75%
Between 251-400	**2**	12.50%
More than 400	**1**	6.25%
Total	**16**	**100%**
Average Monthly Income in Kshs **of cooperative societies**		
Less than 40,000	1	6.25%
40,000 – 80,000	1	6.25%
80,000 – 160,000	6	37.5%
160,000 – 320,000	7	43.75%
More than 320,000	1	6.25
Total	**16**	**100%**

Source: Author's Calculations, 2012

The study findings indicate that 12 (75%) of the cooperative managers were male. It is important to note that 7 (43.8%) of the cooperatives have membership ranging from 101-250. This stresses the need to empower such a population since they do not fully participate in cooperative activities. This situation is further aggravated by the fact that most of the cooperatives earn low income per month but it is encouraging to note that 7 (43.7%) of the cooperatives earn between kshs160, 000 and Kshs 320,000 per month. This translates to substantial amount in a year. Bearing in mind the current inflation rates, this income is not adequate to sustain the operations of the cooperatives however what is needed is to increase the membership of the cooperatives. This reason gave the researcher

impetus to find out factors influencing performance of milk marketing cooperative in Nakuru County.

4.5 Transaction Cost on the Performance of Milk marketing Cooperative Society.

4.5.1 Market Price Information

The researcher sought to analyze the market price information in order to determine the transaction cost on milk cooperatives performance. The findings are indicated in table 4.4.

Table 4.4 Market Price Information

Knowledge of Market price information	Cooperative managers		Cooperative farmers	
	Frequency	Percent	Frequency	Percent
Yes	16	100%	50	39.1%
No	0	0.0%	78	60.9%

Source: Author's Calculations, 2012

The analysis above indicates contradicting interpretation of the actual knowledge about the market price. This researcher interprets this to mean that cooperative managers are much informed about the market price as compared to cooperative farmers. This may imply lack of cooperation and information flow between the cooperative managers and cooperative farmers.

4.5.2 Source of Market Information

The source of market information was vital to this study for the researcher to determine the level to which it contributes to the transaction cost on milk marketing cooperatives performance. The results are indicated in table 4.5.

Table 4.5 Source of Market Information

Source of information	Cooperative managers		Cooperative farmers	
	Frequency	Percent	Frequency	Percent
Radio	16	100%	60	50%
Newspaper	16	100%	30	23.4%
Television	16	100%	26	20.3%
Internet	16	100%	4	3.1%
Other farmers	16	100%	110	86%
Buyers	16	100%	80	62.5%

Source: Author's Calculations, 2012

From the findings in the table above, most 16 (100%) of the cooperative managers access source of market information from all modern means, that is, radio, television, newspapers and internet whereas most farmers access their knowledge from other farmers and buyers. This implies inefficiency in information flow due illiteracy levels or lack of access to modern information systems therefore the need to educate farmers on how to obtain current information,

4.5.3 Cost of Market Information

The researcher further sought to establish the cost of market information in determining how the process of market information search contributed to the transaction cost of the milk marketing cooperatives. Figure 4.1 shows the amount of money incurred by the cooperative farmers and the cooperative managers while searching for market information.
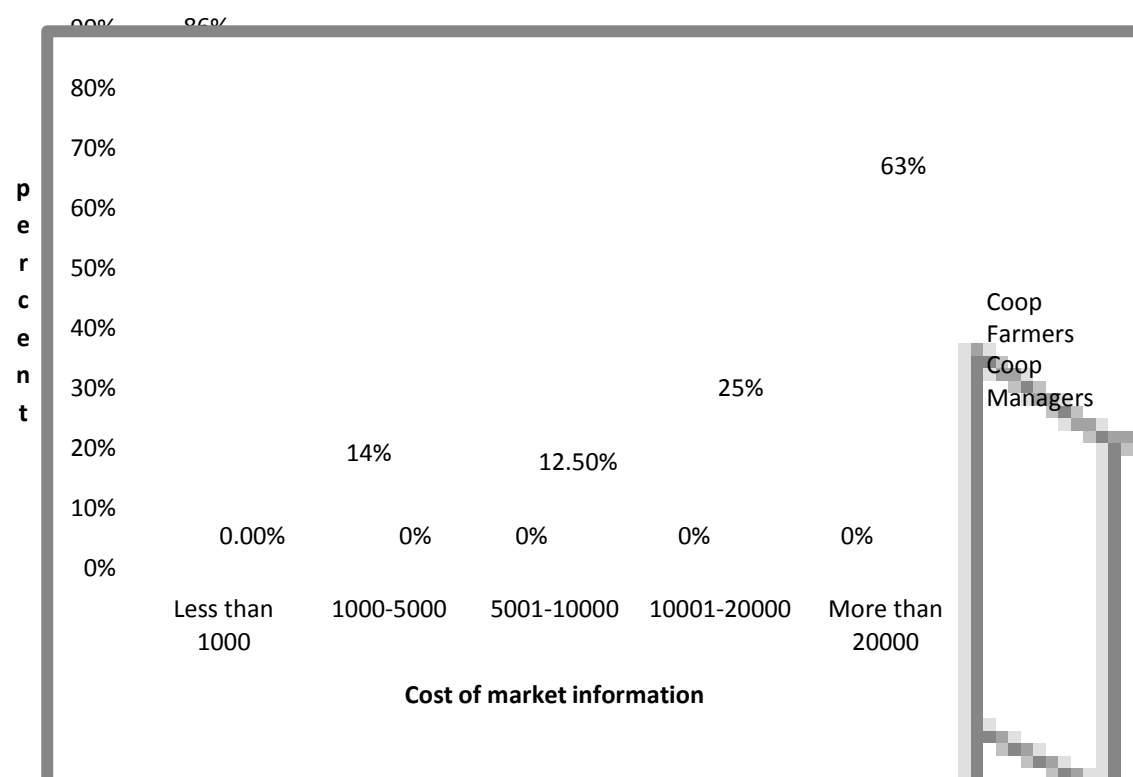
Figure 4.1 Cost of Market Information
Source: Author's Calculations, 2012

From the findings above, it is evidenced that majority of cooperative managers incur much cost in searching for market information (63%) and they use more than Kshs 20,000 as compared to cooperative farmers whose majority (86%) use less than Kshs

1000 to search for information. The Kshs 20,000 spent by the cooperative managers include the costs of searching for a partner with whom to exchange, screening potential trading partners to ascertain their trustworthiness, bargaining with potential trading partners (and officials) to reach an agreement, transferring the product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement. This indicates that most cooperative farmers rely on their cooperative societies for market information. This explains the important role that cooperatives play in information search. It may also explain the illiteracy levels of cooperative farmers about the market information. This calls for urgent education to farmers on the importance of market information search

4.5.4 Availability of Preservative Facilities

In order to achieve the main purpose of this study which was to find out the factors influencing performance of milk marketing cooperative societies the study found it important to consider   the challenges experienced by both cooperative managers and cooperative farmers in influencing the transaction cost, so that a way forward can be given. One of the challenges is availability of milk preservative facilities. The study findings are indicated in figure 4.2.
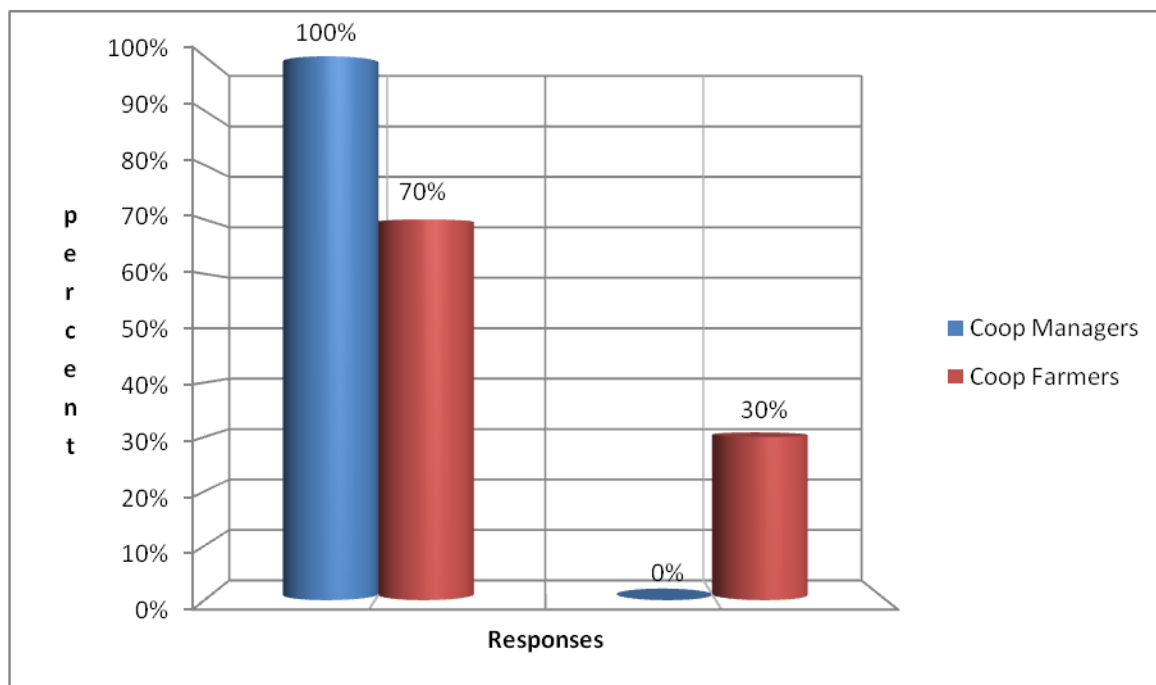
Figure 4.2 Availability of Preservative Facilities
Source: Author's Calculations, 2012

From this it can be deduced that (100%) of cooperative managers have milk preservative facilities while only 70% of the cooperative farmers are accessible to such facilities and 30% and are not accessible. This explains the importance of the cooperative societies to cooperative farmers in provision of preservative facilities. This also is explained by Misra *et al* (1993) who used the ordered probit model to analyze the factors influencing farmers' degree of satisfaction with the overall performance of milk marketing cooperatives.

4.5.5 Adequacy of Preservative Facilities

The adequacy of preservative facilities was determined in order to evaluate the farmers and the milk marketing cooperatives' ability to preserve milk to reduce spoilage risks. This is explained by the percentage responses as indicated by figure 4.3 with cooperative managers indicating 70% of the facilities' adequacy while cooperative farmers only indicating 30%.

The findings are indicated in figure 4.3.

Figure 4.3 Adequacy of Preservative Facilities
Source: Author's Calculations, 2012

4.5.6 Loss from Inadequate Preservative Facilities Per Annum

Milk is a perishable product which requires careful handling. Therefore due to inadequacy of these facilities, the researcher found it important to investigate the value

of loss incured so as to find the best solution of avoiding some losses in future.The findings are shown in figure 4.4.
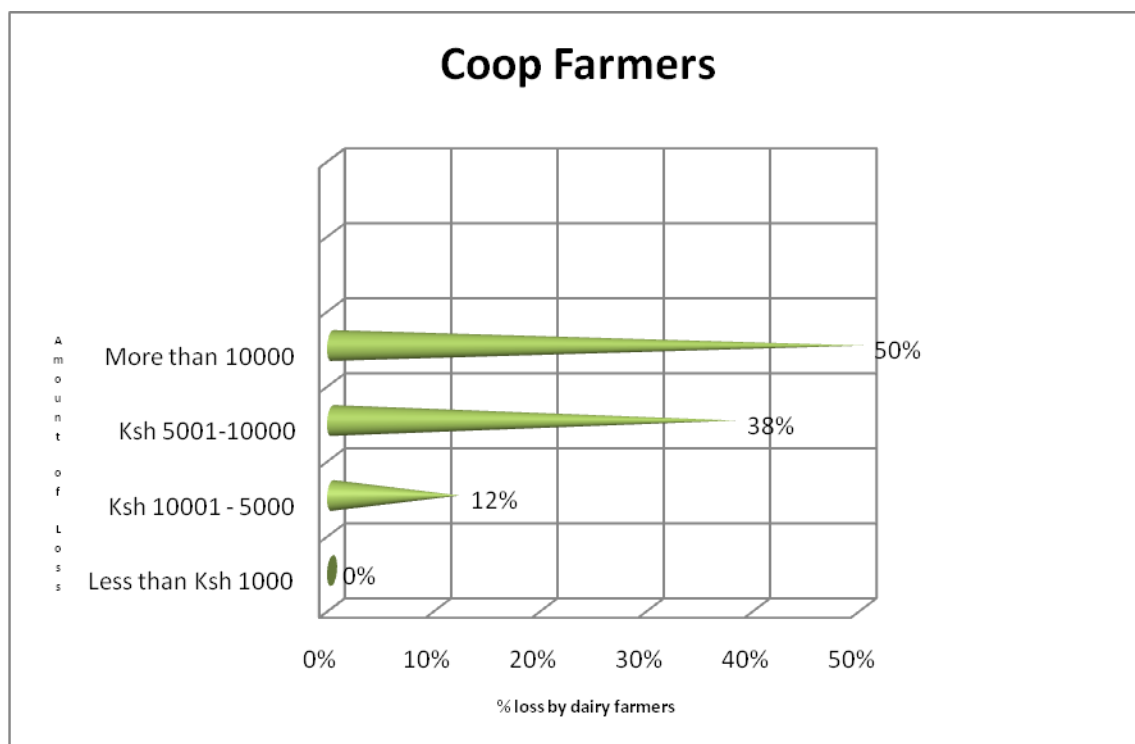
Figure 4.4 Loss from Inadequate Preservative Facilities Per Annum
Source: Author's Calculations, 2012

From figure 4.4 it can be concluded that 50% of the dairy farmers incure a loss of more than ksh 10,000 per annum. This happens particularly if the farmer is not a member of a coperative society because many of them use poor methods of preserving milk. However, once a farmer becomes a member of a cooperative society, the milk is safe due to the fact that cooperatives have modern and adequate preservative facilities.

4.5.7 Facilities Possessed by the Cooperatives

The researcher sought to establish the facilities possessed by the milk marketing cooperatives in order to evaluate their performance and capability to carry out their functions.

The results are shown in table 4.5.

Table 4.6. Facilities Possessed by the Cooperative

Facility	Yes	No	Yes but not well utilized
Office premises	100%	0%	0%
Cold store	78%	22%	0%
Other stores	32%	50%	18%
Bulking houses	82%	12%	6%
Own transport	76%	24%	0%

Source: Survey Data, 2012

From the table above, the findings show that all cooperatives have offices. 78% of the cooperatives have cold stores, 82% bulking houses. Furthermore 76% of the cooperatives have their own means of transport. This indicates that it's important for milk cooperatives to possess essential facilities to avoid risks of loss since it's a highly perishable product.

4.5.8 Cooperative Cold Storage Facilities

Milk being a highly perishable commodity, the researcher found the need to establish the availability and adequacy of the milk marketing cooperative cold storage facilities. The results are indicated in figure 4.5
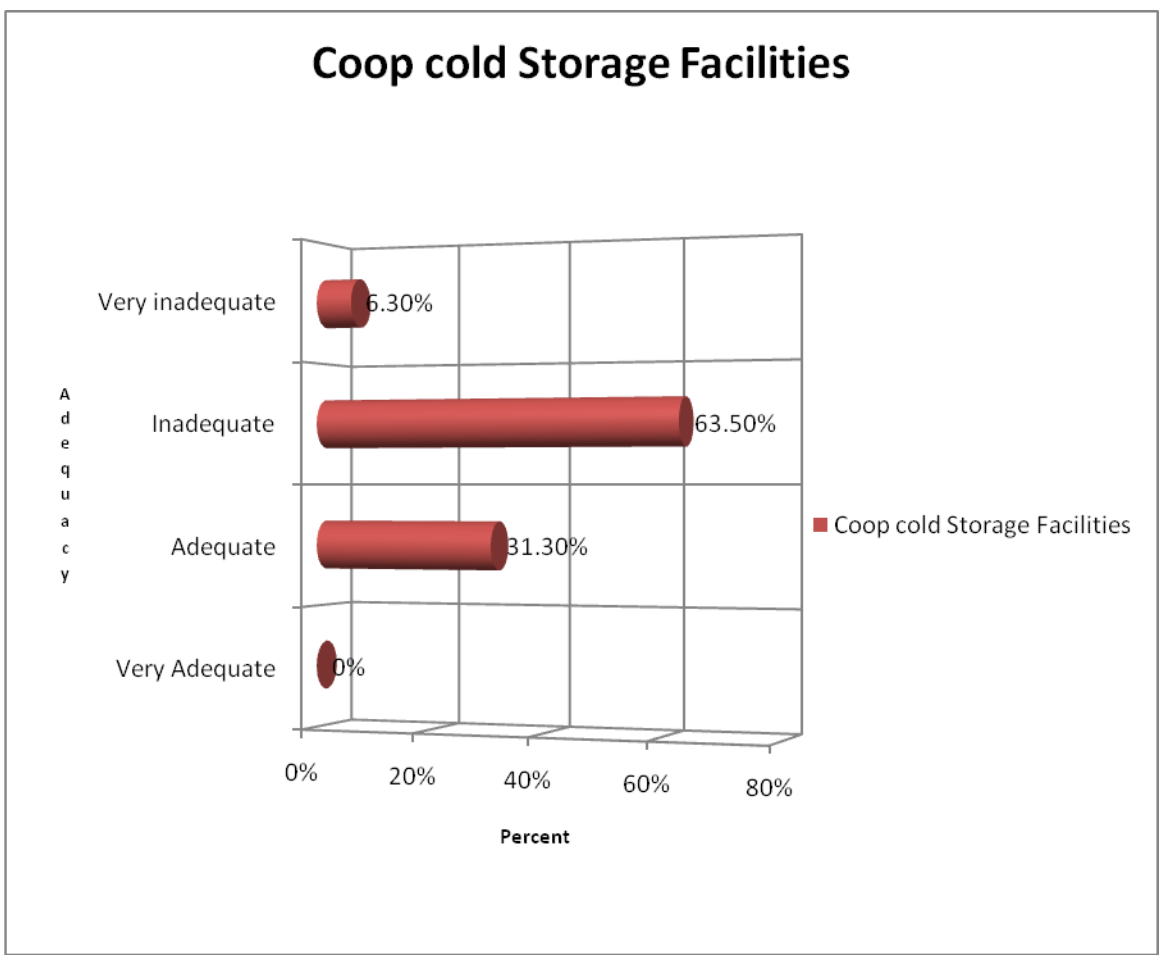
Figure 4.5 Cooperative Cold Storage Facilities
Source: Author's Calculations, 2012

From the above findings, majority of milk marketing cooperatives lack adequate cold storage facilities (63.5%). From this it can be deduced that cooperative farmers can only supply amount not exceeding a certain level.

4.5.9 Plans to Expand Cooperative Storage Facilities

To prevent the risks of milk spoilage, to be able to expand the market and to ensure steady supply to the market, the researcher sought to establish the management plans to expand cold storage facilities. The results are indicated in figure 4.6
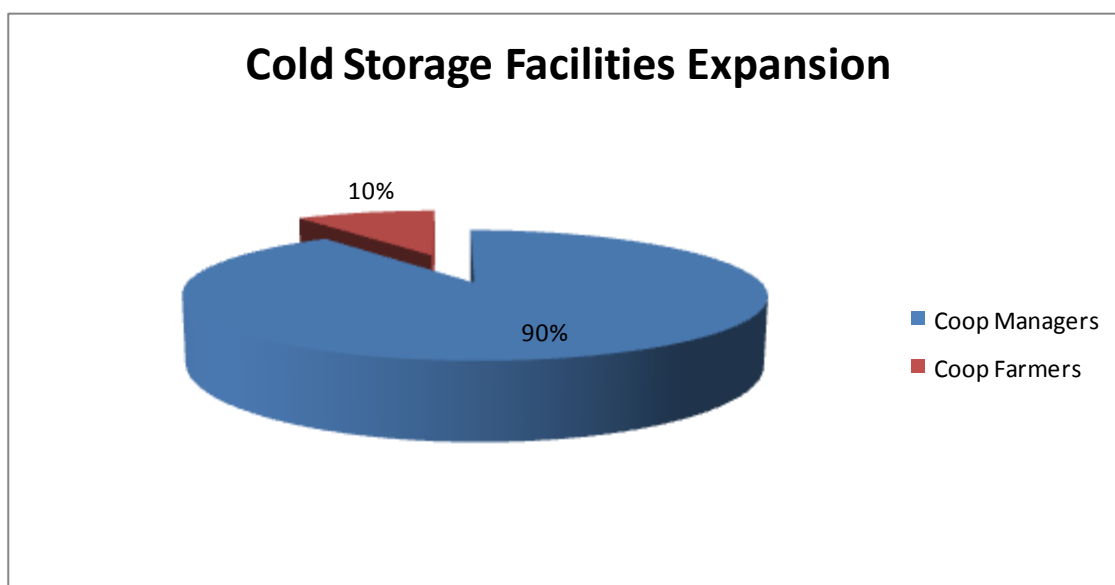
Figure 4.6 Plans to Expand Cooperative Cold Storage Facilities
Source: Author's Calculations, 2012

From the findings, 90% of the cooperative managers have plans to expand cold storage facilities while 10% of farmers think it is not necessary to expand cooperative cold storage facilities. The managers are cognisant of the fact that during the time of milk glut,

milk being a perishable product can easily get spoilt hence the need to expand the cold storage facilities. However, the farmers do not see the need to expand the cold storage facilities since most of them are smallholders producing only a few litres of milk.

4.5.10 Changes in Price of Milk after Storage

The important concept behind storage is to stabilize the price, therefore the researcher sort to establish whether there is any value addition through price change after storage. The findings are indicated in the figure 4.7.
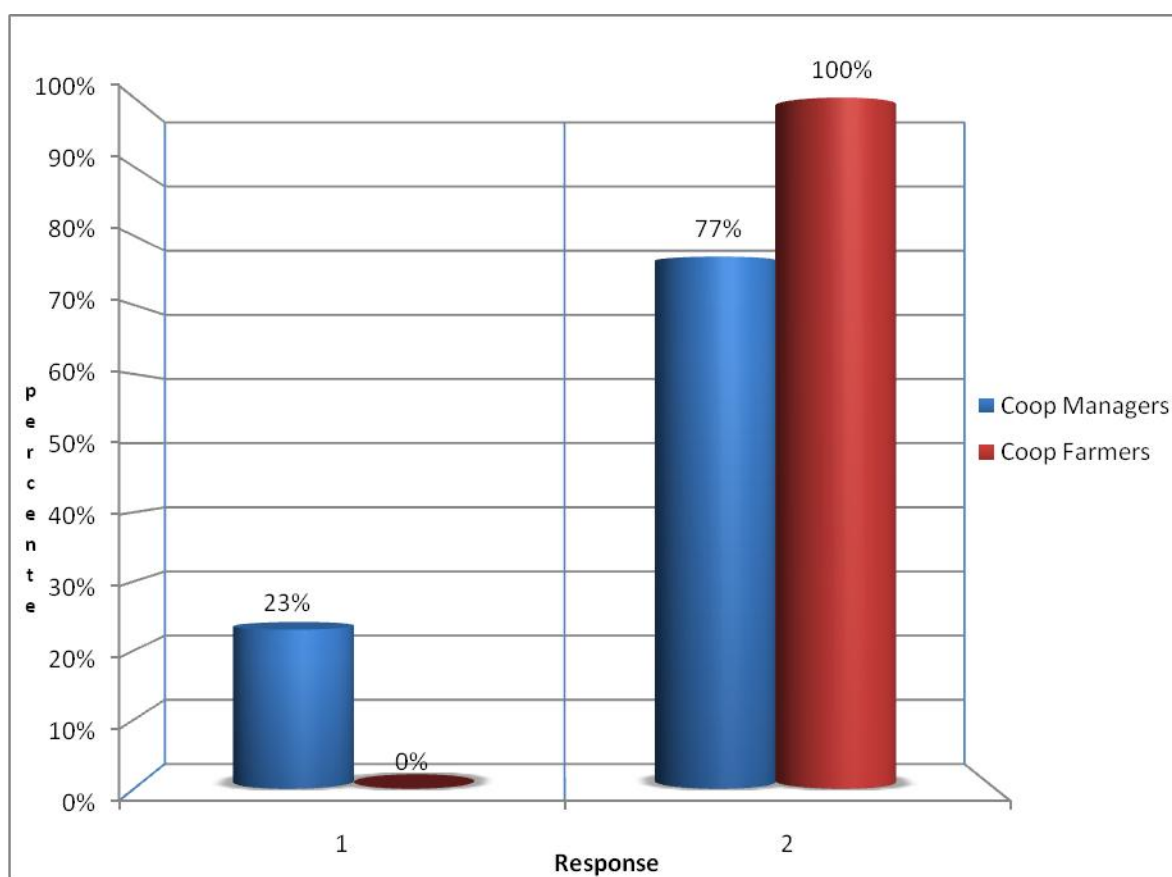
Figure 4.7 Changes in Price of Milk after Storage

Source: Author's Calculations, 2012

From figure 4.7, the findings show that majority (100%) of the cooperative farmers are sure that the price of milk does not change even after storage while 77% of the cooperative managers are also of the same opinion. This deduces that milk storage is basically meant to keep the milk fresh so that it does not lose its value or form.

4.6 Management of Milk Marketing Cooperative

4.6.1Cooperative Managers View on Management

The researcher was quite aware that management problems can only be alleviated by tackling root issues regarding management rather than mere endowment and empowerment of the cooperative managers and farmers. As such, one of the objectives of this study was to find out the effects of management activities in the cooperative operation. According to the findings majority of the managers agreed that their management has improved cooperative functions as shown in table 4.7. This implies that from the opinion of the managers, everything pertaining to management is okay and is going on as per the policies and objectives. Further, the analysis indicates that 10 (62.5%) of the management strongly agreed that they are supportive towards the performance and improvement of marketing channels hence improving sales and income of the cooperative farmers and thus raising their living standards as well as enhancing their endowment.

Table 4.7 Cooperative Managers View on Cooperative Management

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
The management is supportive towards the performance and improvement of marketing channels	10 62.5%	6 37.5%	0 0%	0 0%	0 0%	16 100%
The management misuse their power in handling their work in the society	0 0%	0 0%	0 0%	4 25%	11 68.75%	15 93.75%
The system of voting in managers is open and fair	2 12.5%	2 12.5%	12 75%	0 0%	0 0%	16 100%
The members are comfortable with the way the management lead them	4 25%	2 12.5%	8 50%	0 0%	0 0%	14 87.5%
The managers are politically influenced	0 0%	0 0%	6 37.5%	6 37.5%	4 25%	16 100%
All the decisions are made in the general meeting	1 6.3%	4 24.6%	8 50%	0 0%	0 0%	13 80.9%
All decisions are made by the managing committee	1 6.25%	3 18.75%	9 56.25%	2 12.5%	1 6.25%	16 100%
The management is composed of highly qualified personnel	12 75%	2 12.5%	1 6.25%	1 6.25%	0 0%	16 100%

Source: Author's Calculations, 2012

Having established the effect of cooperative managers on cooperative functioning, the researcher sought to find out the same from the beneficiaries of the cooperative/cooperative farmers. The study findings indicate that 64 (50%) of the cooperative farmers respondents disagreed with the statement that the management is supportive towards the performance and improvement of marketing channels as shown in table 4.8.

Table 4.8 Cooperative Farmers view on Cooperative Management

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
The management is supportive towards the performance and improvement of marketing channels	0 0%	48 37.5%	16 12.5%	64 50%	0 0%	128 100%
The management misuse their power in handling their work in the society	0 0%	23 18.8%	48 36.7%	39 30.3%	16 12.8%	126 98.6%
The system of voting in managers is open and fair	48 37.5%	64 50%	8 6.3%	8 6.3%	0 0%	128 100%
The members are comfortable with the way the management lead them	47 35.5%	31 25%	31 25%	16 11.9%	0 0%	125 96.9%
The managers are politically influenced	48 37.5%	40 31.3%	24 18.8%	16 12.5%	0 0%	128 100%
All the decisions are made in the general meeting	64 50%	40 31.3%	16 12.5%	8 6.3%	0 0%	128 100%
All decisions are made by the managing committee	0 0%	24 18.8%	71 55.3%	32 25%	0 0%	127 99.2%
The management is composed of highly qualified personnel	16 12.5%	56 43.8%	16 12.5%	32 25%	8 6.3%	128 100%

Source: Author's Calculations, 2012

Though the majority of the respondents did agree, it is important to also focus on the minority who felt otherwise; that the members are comfortable with the way the management lead them. During the research process, the researcher found out that some of the members especially those who were involved or served as representatives had benefited to a large extent compared to the common small dairy members who always felt left out. To further probe the issue, the researcher went ahead and conducted a one sample statistics test with a test value of 3 in the lickert scale which indicates indecisiveness of items which all the respondents significantly agree with $P<0.05$ if the mean is higher than 3 or disagree if the mean is less than 3. In order to find out the general perception of the cooperative farmers, the results of one sample statistics for management of cooperatives are shown in table 4.9.

Table 4.9 One-Sample Statistics for Management of Cooperatives

Management of cooperatives	Views of farmers			Views of managers		
	N	Mean	SD	N	Mean	SD
The management is supportive towards the performance and improvement of marketing channels	128	2.0037	1.0310	16	4.2001	1.9005
The management misuse their power in handling their work in the society	126	1.0267	1.0409	16	4.6541	1.9432
The system of voting in managers is open and fair	128	2.6283	1.2045	15	3.5674	1.8673
The members are comfortable with the way the management lead them	128	3.9522 7	1.1334	15	3.7893	1.8934
The managers are politically influenced	128	2.6977	1.0296	16	4.3562	1.9322
All the decisions are made in the general meeting	128	2.7917	0.8219	16	4.7830	1.9643
All decisions are made by the managing committee	127	2.4561	1.6783	15	3.2400	1.6934
The management is composed of highly qualified personnel	128	2.6543	1.6112	16	4.456	1.9943

Source: Author's Calculations, 2012

A closer look at the analysis above indicates that there is a contradictory pattern in most of the issues relating to the very fundamental functions of the management with the cooperative managers being of the opinion that everything is being met as planned while cooperative farmers feel that the management have not gained as much as is being perceived. This led the study to find out in general, the perception of the respondents

(both the cooperative managers and the cooperative farmers) regarding the contribution of management activities to the cooperative development in quantifiable terms. This is concurred by the Contingency Approach.

The scenario depicted in table 4.9 indicates that in general the farmers are not happy with the way the managers handle the affairs of the society. It is only in one occasion (mean = 3.95) where the farmers think they are comfortable with the way the management lead them. However another situation indicates that the farmers believe that the management is misusing their power in handling their work in the society as clearly shown by a mean of (1.03). Given that the managers are the ones under scrutiny, they are generally biased in their assessment of their performance. Despite their feelings towards the managers, the farmers strongly agree that it is better to sell their milk through the cooperatives than selling it as individuals and they pointed out that with closer supervision and good governance by the management committee the managers can perform better.

4.7 Policies on Milk Marketing Cooperative Performance

4.7.1 The Views of Farmers on Effects of Policies on Cooperative Society

The researcher also found it paramount to get the views of farmers on effects of policies on milk marketing cooperative societies in order to establish the significance of such policies to farmers. The findings are indicated in table 4.10.

Table 4.10 The Views of Farmers on Effects Of Policies on Cooperative Societies

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Consistency of application of the cooperative laws improves the performance of your cooperative society	0 0%	64 50%	16 12.5%	48 37.5%	0 0%	128 100%
The government supports the cooperative societies policies and strategies	0 0%	39 30.3%	48 36.7%	23 18.8%	16 12.8%	125 97.6%
Your cooperative carries its milk marketing according to its policies and objectives	8 6.3%	48 37.5%	8 6.3%	64 50%	0 0%	128 100%
The cooperative members understand the policies/procedures of the society.	16 11.9%	31 25%	31 25%	47 34.9%	0 0%	126 97.9%
The societies legal framework laws are consistent	16 12.5%	40 31.3%	24 18.8%	48 37.5%	0 0%	128 100%
The society vision is clear to all	63 49.8%	40 31.3%	16 12.5%	9 6.9%	0 0%	127 99.2%
The objectives/policies laid out by your society are achievable	0 0%	71 55.3%	32 25.2%	24 18.8%	0 0%	128 100%

Source: Author's Calculations, 2012

From the findings in table 4.10, majority of farmers (50%) view that Consistency of application of the cooperative laws improves the performance of their cooperative society and what is more interesting is that 49.8% strongly agree that the society vision is clear to all; meaning that the members were involved in the process of developing the society's vision. This then sets the pace for strengthening the society understands and appreciation

of the policies that govern the operation of their society. Another crucial indicator of the member's awareness and appreciation of the importance of the policies is that 55.3% of them agree that the objectives/policies laid out by their society are achievable.

4.7.2 The Views of Cooperative Managers on Effects of Policies on Cooperative Societies

The researcher also found it necessary to establish the views of cooperative managers on effects of policies on milk marketing cooperative societies. The results are indicated in table 4.11.

Table 4.11 The Views of Cooperative Managers on Effects of Policies on Cooperative Society

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Total
Consistency of application of the cooperative laws improves the performance of your cooperative society	4 25%	8 50%	2 12.5%	1 6.25%	1 6.25%	16 100%
The government supports the cooperative societies policies and strategies	1 6.25%	4 25%	1 6.25%	6 37.5%	4 25%	16 100%
Your cooperative carries its milk marketing according to its policies and objectives	4 25%	8 50%	0 0%	2 12.5%	0 0%	16 100%
The cooperative members understand the policies/procedures of the society.	2 12.5%	8 50%	4 25%	1 6.25%	1 6.25%	16 100%
The societies legal framework laws are consistent	10 62.5%	4 25%	2 12.5%	0 0%	0 0%	16 100%
The society vision is clear to all	10 62.5%	4 25%	2 12.5%	0 0%	0 0%	16 100%
The objectives/policies laid out by your society are achievable	4 25%	10 62.5%	2 12.5%	0 0%	0 0%	16 100%

Source: Author's Calculations, 2012

From the findings in table 4.11, majority of cooperative managers (62.5%) strongly agree that the society's vision is clear to all. However a paltry (6.25%) of the managers strongly agree that the government supports the cooperative societies policies and strategies. This response may mean that their interaction with the government is minimal or whenever government is involved it is only to do with disciplinary issues. It is also imperative to note that the managers have strong conviction that that the objectives/policies laid out by

their society is achievable as shown by their response of (62.5%). Such a strong belief in their society's ability to achieve its objectives is good because it helps to propel their society ahead and to greater heights of development.

4.7.3 One Sample Statistics for The Effects of Policies on Cooperatives

In order to establish the overall view of cooperative managers and farmers on policies governing their milk marketing cooperatives, the one sample statistics was used which is indicated in table 4.12.

Table 4.12 One Sample Statistics for the Effects of Policies on Cooperatives

Effects of Policies	Views of Farmers			Views of Managers		
	N	Mean	SD	N	Mean	SD
Consistency of application of the cooperative laws improves the performance of your cooperative	128	4.0037	1.0310	16	4.2001	1.9005
The government supports the cooperative societies policies and strategies	127	2.0267	0.0409	16	4.6541	1.9432
Your cooperative carries its milk marketing according to its policies and objectives	128	4.6283	1.2045	16	4.5674	1.8673
The cooperative members understand the policies/procedures of the society.	126	2.95227	1.1334	16	4.7893	1.8934
The societies legal framework laws are consistent	128	2.7917	0.8219	16	4.7830	1.9643
The society vision is clear to all	128	4.4561	1.6783	16	4.2400	1.6934

Source: Author's calculations, 2012

From table 4.12 analysis, it is clear that both cooperative managers and cooperative farmers agree (mean = 4.0) with the fact that the policies are well applied in the sector, they strongly agree that the cooperatives carry their marketing functions in line with the policies and regulation, and they also agree that the persistent application of cooperative laws improves the performance of the cooperative. However, the cooperative farmers seem not to be of the opinion that legal framework is consistent and that the government supports the societal policies and strategies as indicated by the means of (2.7) and (2.02) respectively. Further, the same items had the lowest dispersion rate (SD= 0.80 and 0.04 respectively). This can be interpreted to mean that the cooperative farmers are of the opinion that not all the aspects of the policies have improved the functioning of the society.

4.7.4 Legal and Policy Framework Satisfaction

After establishing the overall importance of the policies in the functioning of the marketing cooperatives, the researcher sought to establish the satisfaction of the legal and policy framework. The results are shown in figure 4.8.
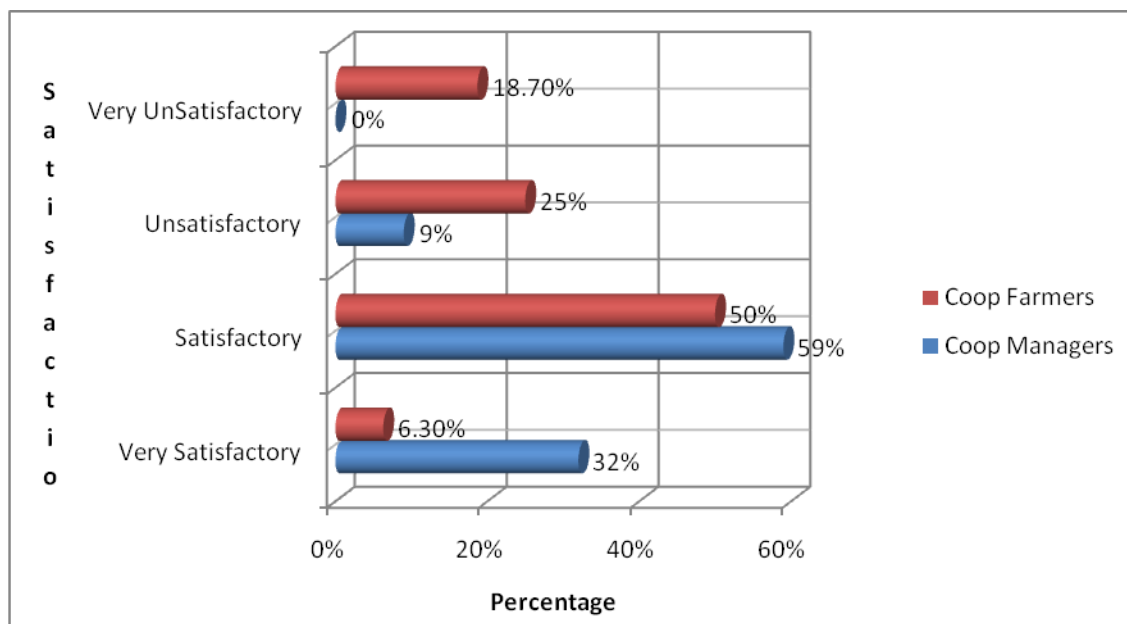
Figure 4.8 Legal and Policy Framework Satisfaction
Source: Author's Calculations, 2012

From this particular finding, it is concluded that majority are satisfied with the application of legal and framework laws. This can be attributed to the fact that they are formulated and enforced by the cooperative act of Kenya and supported by the government.

4.8 Competition on Milk Marketing Cooperative Performance

4.8.1 Effect of Competition on Market Share

Competition in the industry is aimed at improving quality of goods and services by eliminating traders with inadequate operational capital to meet the market requirements. This is supported with the fact that marketing liberalization aims at improving efficiency in resource allocation by facilitating more or less automatic price adjustments in response

to market competition through the forces of supply and demand. The rationale is that market competition, over time, should lead to stability in production and consumption. The result is thus expected to be beneficial to the society as a whole. The most critical step in the liberalization of Kenya's dairy industry was the decontrol of both producer and consumer prices of milk in May 1992, followed by an explicit policy statement that any party interested in getting into dairy processing and marketing business could be licensed, provided that the business premises met the minimum hygiene standard requirements. This information is shown in figure 4.9
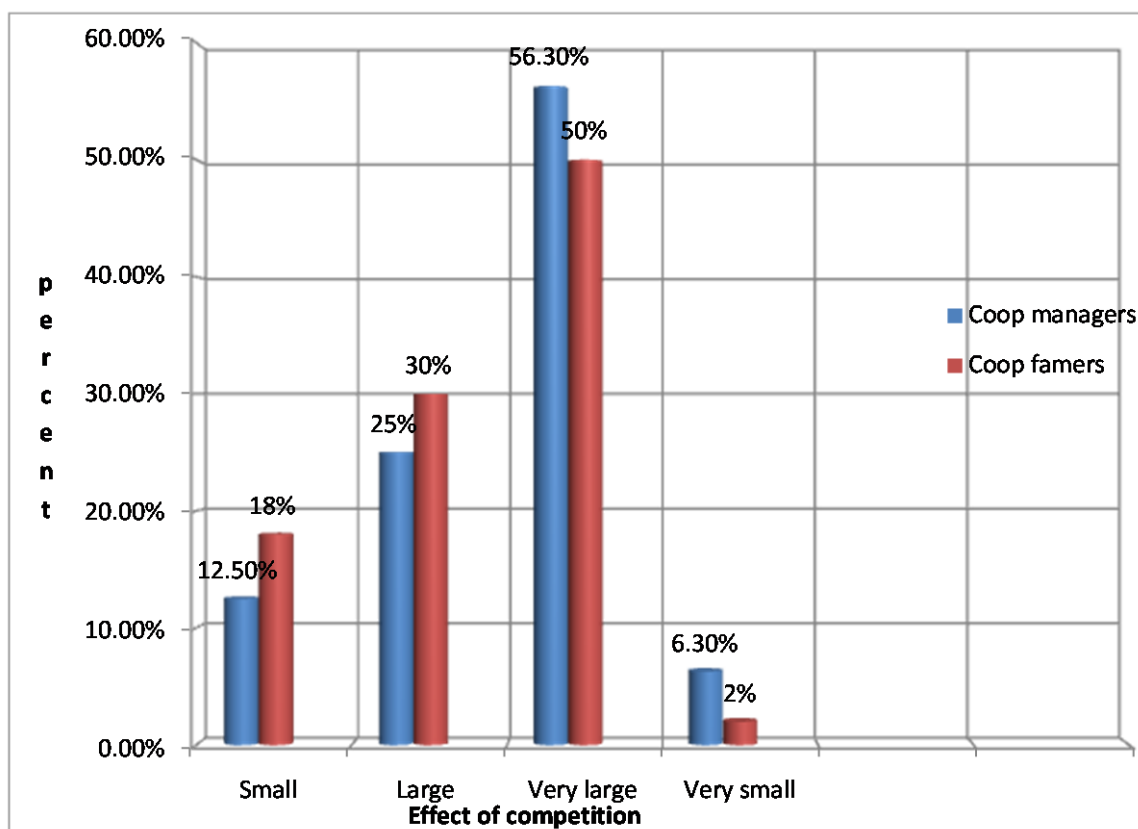
Figure 4.9 Effect of Competition to Milk Marketing Cooperatives

Source: Author's Calculations, 2012

From the above findings majority (56.3%) of the cooperative managers and (50%) of the cooperative farmers indicate that they are largely affected by competition. This may imply that there is too little supply of milk in Nakuru County; it may also imply that the cooperatives do not have necessary resources as compared to potential competitors. It may also mean that other potential competitors are willing to enter the market due to the bigger size of the remaining market.

4.8.2 Cooperatives and other Buyers of Milk from the Area

The researcher also sought to study the proportion of the market covered by the competitors and the results are shown in figure 4.10.
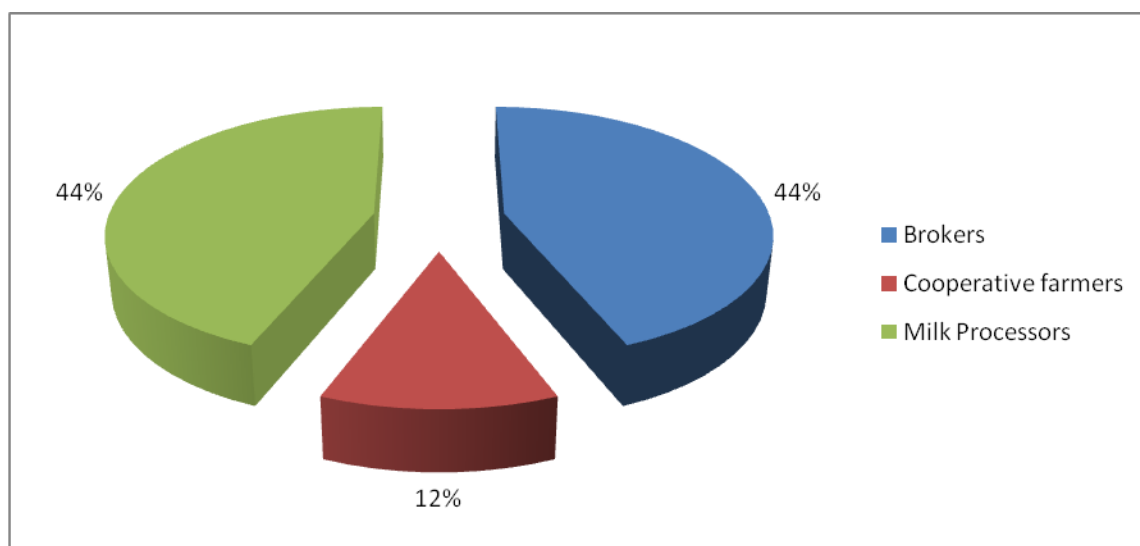
Figure 4.10 Cooperatives and other Buyers of Milk from the Area
Source: Author's Calculations, 2012

From the above diagram both brokers and other bigger processing firms cover a total of (88%) market share followed by cooperative farmers at (12%). This deduces the nature

of the competition faced by the cooperative society. It is a fact that the most critical step in the liberalization of Kenya's dairy industry was the decontrol of both producer and consumer prices of milk in May 1992, followed by an explicit policy statement that any party interested in getting into dairy processing and marketing business could be licensed, provided that the business premises met the minimum hygiene standard requirements. This move may have opened the gate for other buyers to enter and influence the market.

4.8.3 Effect of other Buyers to the Cooperatives

The researchers also sought to establish the effect of other buyers to the cooperatives in order to identify the likely source of competition to the milk marketing cooperatives. The results are indicated in figure 4.11
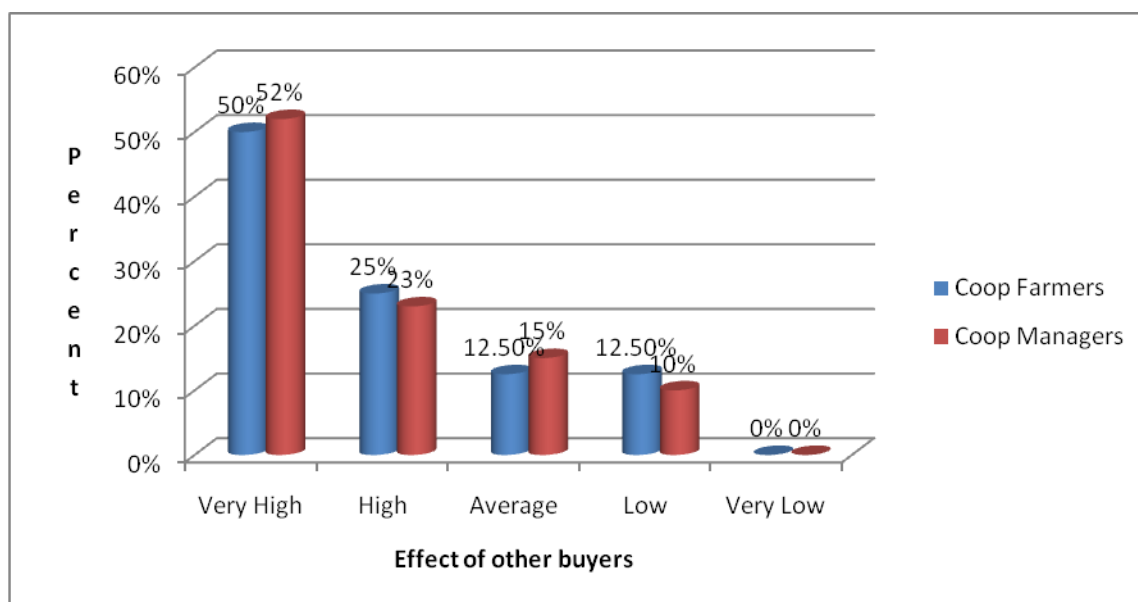
Figure 4.11 Effect of other Buyers on the Cooperatives
Source: Author's Calculations, 2012

Figure 4.11 indicates that majority of respondents; 52% of cooperative managers and 50% of cooperative farmers indicate that they are highly affected by other buyers in the market. This may mean other buyers hinder new farmers from entering the cooperatives. It may also mean that other buyers may influence their prices in the market.

4.9 Infrastructure on Milk Marketing Cooperative Performance

4.9.1 Mode of Transport used

Due to the importance of infrastructure in value addition to any produced product, the researcher sought to establish the type of transportation mostly used by the respondents. The results were as shown in figure 4.12.
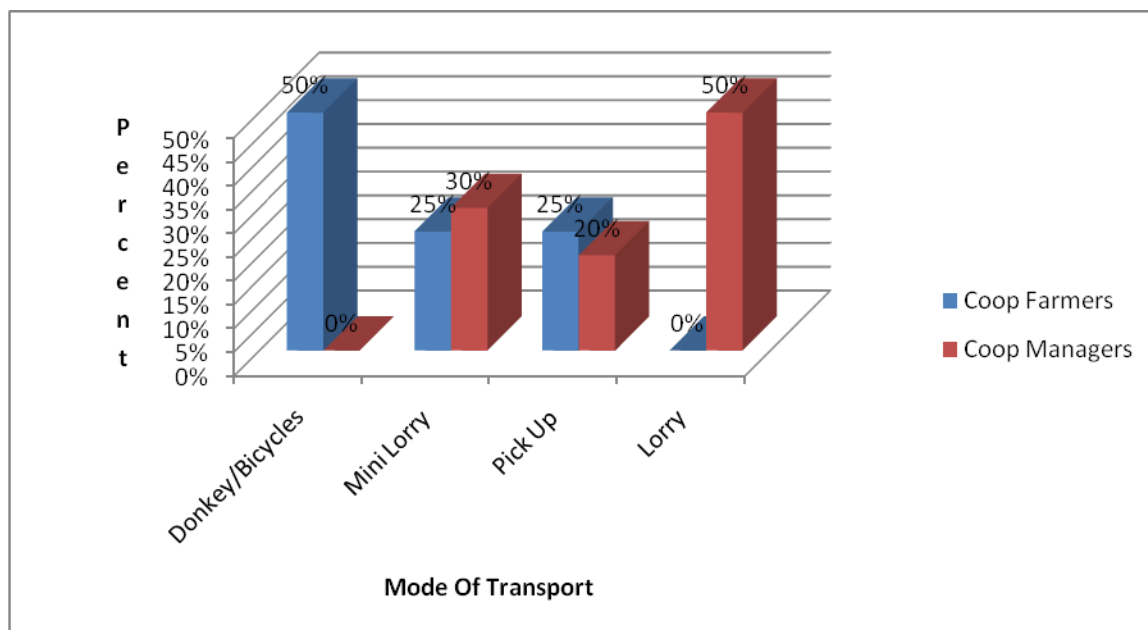
Figure 4.12 Mode of Transport used
Source: Author's Calculations, 2012

From the findings in table 4.12, majority of farmers (50%) used donkeys/bicycles as a means of transportation. This deduces unaffordability of faster and convient mode of transport to farmers due to low incomes from their sales. On the one hand the farmers run the risk of incurring losses due to the perishability of the product and on the other hand majority of cooperative managers (50%) use lorries, which are superior to donkeys/bicycles in terms of bulk transportation and speed implying convenient transport to milk plants and markets. However, this comes at increased operational costs.

4.9.2 The State of the Roads

The researcher further sought to investigate the state of the roads used for transportation of the milk to deduce the possible effects. The results were as shown in the figure 4.13.

	Good	Moderate	Poor	Very poor
Coop Farmers	8%	20%	60%	12%
Coop Managers	26%	30%	40%	4%
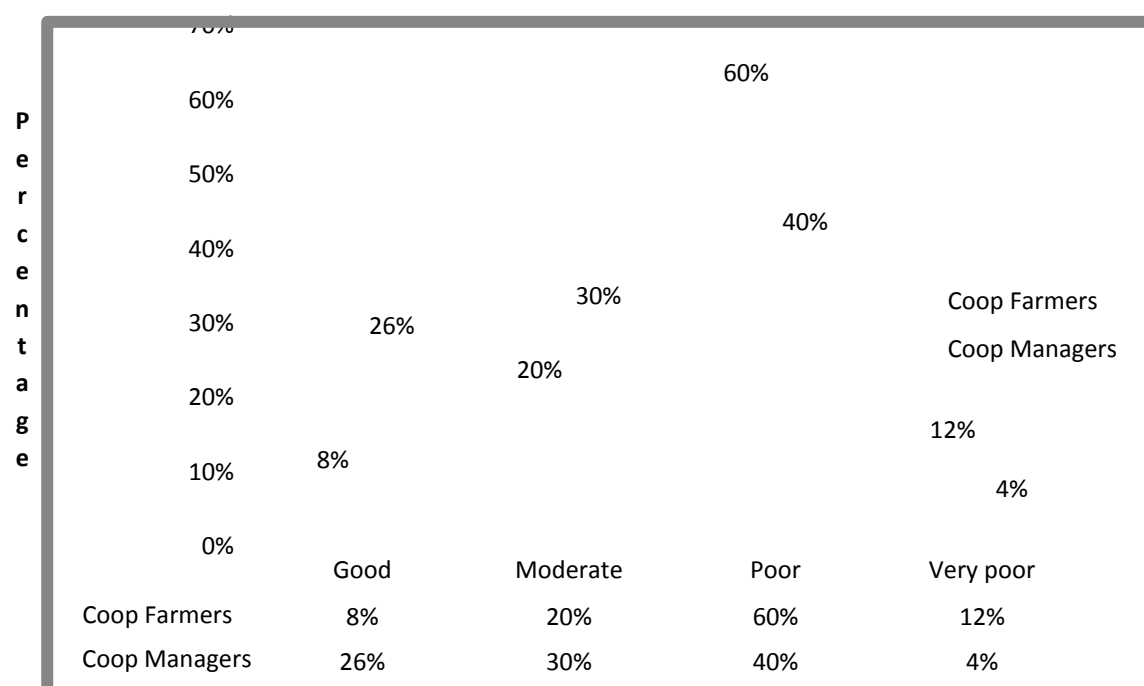
Figure 4.13 The State of the Roads

Source: Author's Calculations, 2012

From the findings,majority (60%) of cooperative farmers and (40%) of cooperative managers indicated that the roads were poor. This shows that most farmers and cooperative societies are found in rural areas where means of transport is not well established as compared to urban centers. This poses a real challenge to the farmers and the managers especially during the rainy seasons because these roads are rendered impassable leading to delayed deliveries of milk hence spoilage of the same due to its perishablity nature.

4.9.3 The Effect of the State of Roads on the Transportation Process

The transport function is chiefly one of making the product available where it is needed, without adding unreasonably to the overall cost of the produce. Adequate performance of this function requires consideration of alternative routes and types of transportation, with a view to achieving timeliness, maintaining product quality and minimizing shipping costs. Due to these reasons the researcher sought to investigate the extent to which the state of the roads affects the transportation process. The findings were shown in figure 4.14.
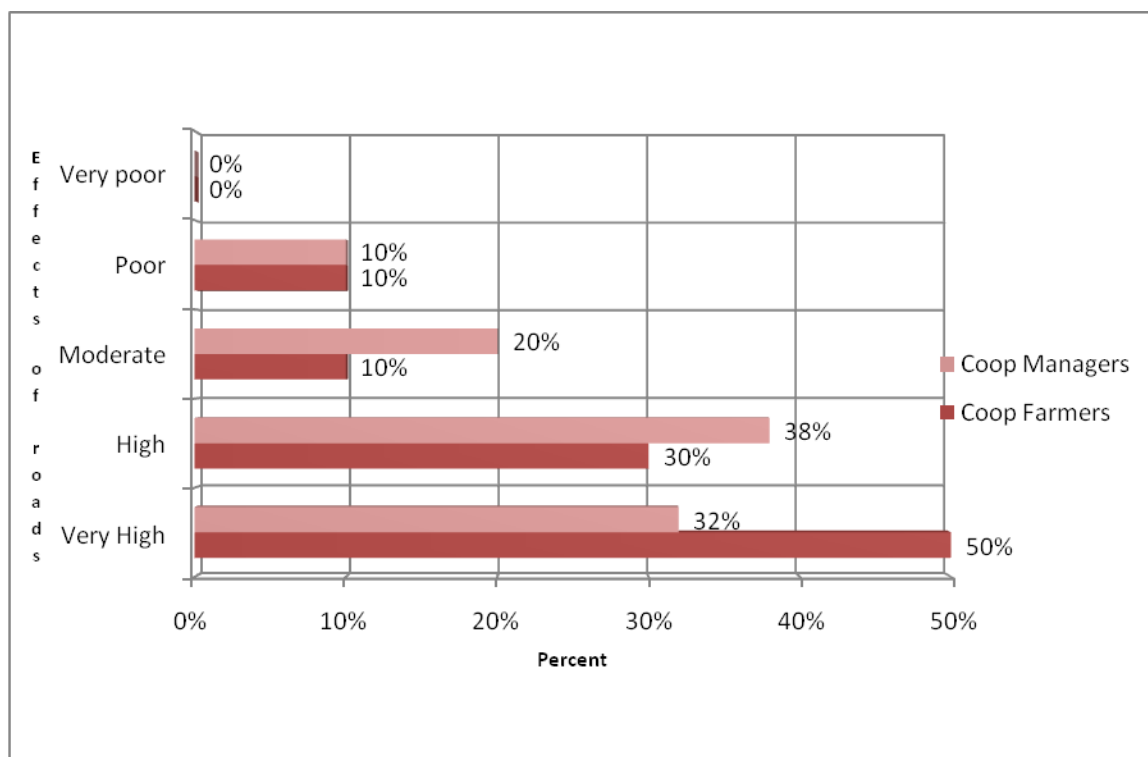
Figure 4.14. The Effect of the State of Roads on the Transportation Process.
Source: Author's Calculations, 2012

From the findings in figure 4.14, majority (50%) of cooperative farmers show that their transportation process is highly affected by the state of the roads and 38% (majority) of cooperative managers show that they are highly affected by the poor state of the roads. This deduces the fact that milk being a commodity to be handled carefully in terms of storage and transportation, any delay can lead to spoilage and also high storage costs may be incured due to poor state of the roads.

4.9.4 Frequency of Cooperatives Buying Milk from the Farmers

The researchers also sought to establish the frequency of milk marketing cooperatives

buying milk from the farmers. The results are indicated in figure 4.15.
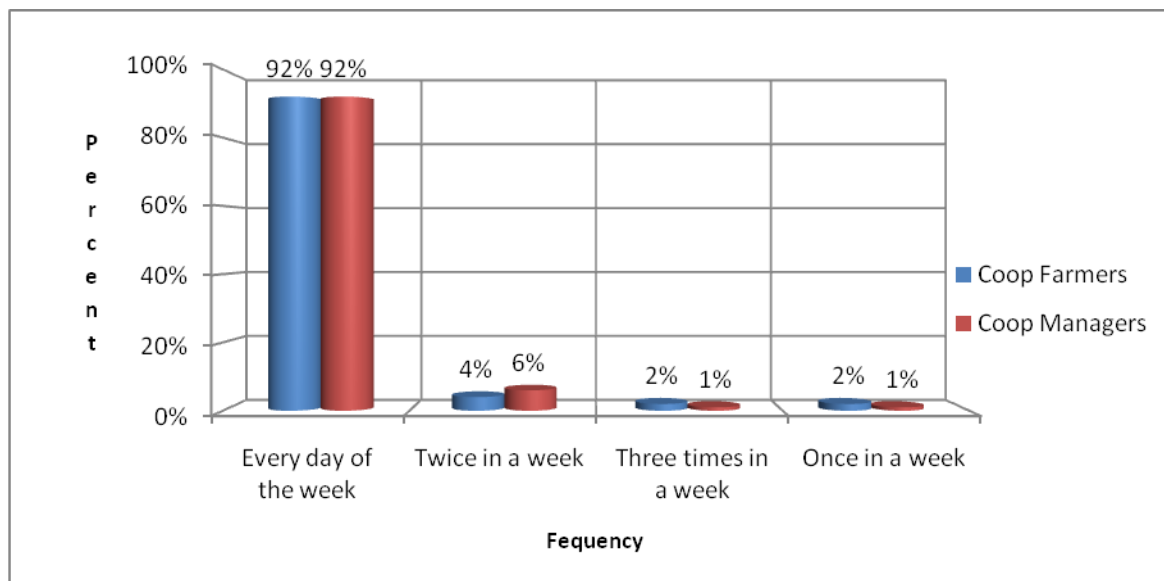
Figure 4.15.Frequency of Cooperative Buying Milk from the Farmers
Source: Author's Calculations, 2012

From the findings in figure 4.15, majority of the respondents (92%) indicated that

cooperatives buy milk every day of the week.

4.9.5 Milk Marketing Cooperative Performance

In order to evaluate the performance of the studied cooperatives, the researcher first saw

the need of describing the trends in variable distribution and dispersion. The findings are

as shown in table 4.13.

Table 4.13 Cooperative performance

Variable	Minimum	Maximum	Mean	Std. Deviation
Sales turnover	120,000	1,876,236	530,777.25	368,017.885
Profits	46,936	914,000	284,613.21	209,754.843

Source: Author's Calculations, 2012

As indicated on table 4.13, there are two variables under consideration sales turnover and profits. Table 4.13 further indicates each variable's minimum, maximum, mean and standard deviation.

4.9.6 Sales Turnover of each Cooperative

Sales being the important final function of any given commodity, product or service, the study sought to establish the performance of sales revenue of each cooperative. The findings were tabulated in table 4.14

Table 4.14 Sales Turnover of each Cooperative

Variable	Mean	Std. Deviation	Minimum	Maximum
cooperative 1	213,200.00	116,624.183	120,000	400,000
cooperative 2	241,200.00	169,744.514	122,000	530,000
cooperative 3	241,320.00	148,956.074	130,000	502,000
cooperative 4	285,125.20	96,416.972	186,920	413,926
cooperative 5	421,497.20	108,388.303	290,826	540,680
cooperative 6	420,737.60	258,714.748	176,280	820,986
cooperative 7	604,722.80	264,994.160	190,200	820,600
cooperative 8	323,217.80	124,860.051	170,200	480,963
cooperative 9	501,437.60	247,845.079	345,928	940,820
cooperative 10	437,471.60	173,340.194	314,200	740,926
cooperative 11	1,012,472.20	330,308.728	830,000	1,600,000
cooperative 12	804,086.80	125,969.000	640,000	926,400
cooperative 13	821,528.00	221,986.895	436,914	980,926
cooperative 14	307,352.40	78,332.985	218,300	386,400
cooperative 15	474,604.40	236,872.354	330,926	896,100
cooperative 16	1,382,462.40	364,186.936	936,000	1,876,236

Source: Author's Calculations, 2012

From the findings, it is established that cooperative 16 registered a high sales turnover average of Kshs 1,382,462.40. This may be due to large market covered, better and skilled marketing department or brand name. Cooperative 1 had the least sales turnover with an average of Kshs 213,200. This may be due to lack of skilled marketing department and low area of market covered

4.9.7 Profits Registered by each Cooperative

In order to establish the profitability of each cooperative, the study sought to determine the best and the least profitable cooperative. The results were tabulated in table 4.15.

Table 4.15 Profits Registered by each Cooperative

Variable	Mean	Std. Deviation	Minimum	Maximum
cooperative 1	111,922.20	63,360.783	62,940	214,789
cooperative 2	106,212.60	69,912.893	51,920	218,400
cooperative 3	134,846.80	133,806.231	46,936	370,216
cooperative 4	195,471.20	93,710.812	96,230	301,700
cooperative 5	257,560.00	74,854.482	176,342	341,628
cooperative 6	222,930.40	139,582.826	94,876	426,980
cooperative 7	461,755.60	76,466.423	376,900	552,300
cooperative 8	175,060.00	177,014.542	71,500	490,000
cooperative 9	266,542.60	148,151.141	186,500	530,813
cooperative 10	232,769.40	87,213.637	176,400	386,800
cooperative 11	530,505.20	153,769.981	436,400	800,000
cooperative 12	377,940.00	52,193.084	296,000	421,600
cooperative 13	352,543.40	107,377.196	180,900	434,300
cooperative 14	97,146.80	67,914.901	51,800	213,314
cooperative 15	229,325.20	110,237.540	118,600	414,600
cooperative 16	801,280.00	185,756.270	480,000	914,000

Source: Author's Calculations, 2012

From the findings, the most profitable cooperative was found to be cooperative 16 with an average profit of Kshs 801,280. This may be attributed to high sales and low costs incurred due to large economies of scale. The least profitable cooperative is cooperative 14. This may be as a result of low sales due to small market covered, low economies of scale or large operational and transaction costs.

4.10. Model Estimation

This section presents the results of inferential statistics specified in Chapter 3. These include multiple regression and correlation analysis**.**

4.10.1 Correlation and Multiple Regression Analysis

4.10.2 Correlation Analysis

The variables to be correlated here are Transaction cost, Management, Policies, Competition, infrastructure and Performance. The results of this correlation are shown in table 4.16

Table 4.16 Correlation Analysis

Correlations						
Variables	Transaction cost	Management	Policies	Competition	Infrastructure	Performance
Transaction cost	1					
Management	.654*	1				
Policies	.823*	.852*	1			
Competition	.553*	.681*	.750*	1		
Infrastructure	.517*	.505*	.665*	0.771*	1	
Performance	.743*	.532*	.643*	.732*	.432*	1

Source: Author's Calculations, 2012

The correlation matrix in table 4.16 indicates that transaction cost is positively correlated with management .654, policies .823, competition .553, infrastructure .517 and cooperative performance as indicated with a correlation coefficient of .743. Furthermore the correlation matrix indicates that management is positively and strongly correlated with policies .852, competition .681, infrastructure .505 and cooperative performance as indicated by a correlation coefficient of .532. Policies is also positively and strongly correlated with competition as indicated by a strong correlation coefficient of (.750), infrastructure (.665) and cooperative performance .643. Further competition is positively correlated with infrastructure with a strong correlation coefficient of .771 and cooperative performance as indicated with a correlation coefficient of .732. Finally the matrix indicates that the infrastructure has a moderately weak correlation with the cooperative performance as indicated by a correlation coefficient of .432

4.10.3 Multiple Regression Analysis

Regression analysis is concerned with relations among variables. It is actually supposed to predict the effect of one variable on another. In this particular study, the researcher regressed the predictors which are basically the independent variables on the cooperative performance variable and the results are shown in table 4.17

Table 4.17: Multiple Regression Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.686	0.624	0.654	0.314

Source: Author's Calculations, 2012

➢ Predictors: (Constant), transaction cost, management, policies, competition and infrastructure.

From the results shown in table 4.17, the model shows a goodness of fit as indicated by the adjusted (R^2) with a value of 0.654. In this way ($R^2 = 0.654$) measures the proportion of variations in the dependent variable that is explained by the independent variables. This implies that the independent variables transaction cost, management, policies, competition and infrastructure explain the dependent variable, that is cooperative performance by 65.4% while 34.5% variations in the cooperative performance is explained by other factors which were not captured by the model. The results further

indicate that any changes in independent variables leads to predictable changes in the dependent variable.

4.10.4 Analysis of Variance (ANOVA)

ANOVA is a technique used to investigate any number of factors which are hypothesized or said to influence the dependent variable. In this study, ANOVA is used to determine the influence of independent variables transaction cost, management, policies, competition and infrastructure on the dependent variable which in this case is cooperative performance

Table 4.18: Analysis of Variance (ANOVA) Results

Statistic	Sum of Squares	Df	Mean Square	F	Significance
Regression	69.82	4	19.95	22.08	0.00
Residual	4.364	23	6.321		
Total	71.19	27			

Source: Author's Calculations, 2012

The F value of 22.08 in table 4.18 indicates that the overall regression model is significant hence it has some explanatory power. This indicates that there is a significant relationship between the predictor variables transaction cost, management, policies, competition and infrastructure (taken together) and the cooperative performance.

4.10.5 Multiple Regression Analysis Results

The results of the regression analysis which indicates the relationship between the independent variables transaction cost, management, policies, competition and infrastructure and the dependent variable cooperative performance are shown in table 4.19

Table 4.19: Multiple Regression Analysis Results

Variable	Unstandardized Coefficients		Standardized Coefficients	T	p-value
	Beta	Std. Error	Beta		
(Constant)	5.492	6.02		0.912	0.37
Transaction cost	1.32	0.930	0.365	1.420	0.16
Management	1.86	0.498	0.96*	3.736	0.00
Policies	1.82	0.489	0.97*	3.722	0.00
Competition	1.5	0.659	0.787*	2.275	0.03
Infrastructure	1.49	0.679	0.728*	2.196	0.04

Source: Author's Calculations, 2012   ***Significant at P < 0.05**

From table 4.19 the variable management has the most statistically significant coefficient as indicated by a t-ratio of 3.736. This implies that management has more influence in cooperative performance as compared with the other variables meaning that any change in the way the managers of a cooperative run the cooperatives is bound to spur a significant change in cooperative performance. There is also a significant impact on the cooperative performance due to the influence brought about by the policies as indicated

by a t-ratio of 3.722 meaning that any change in policies can lead to a significant change in cooperative performance. Competition is also statistically significant as indicated by a t-ratio of 2.275. This means that a change in competition can lead to an equivalent change in the cooperative performance. The influence of infrastructure on cooperative performance is also significant as shown by t-ratio of 2.196 implying that a change in infrastructure will have an effect on the cooperative performance. It is only transaction costs which have no impact on cooperative performance according to the results of this study.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This section presents a summary, conclusions and recommendations of the study and it concludes by suggesting recommendations for adoption to improve the performance of the milk marketing cooperative societies.

5.1 Summary

Perusing through the literature review, the study found out that liberalization of the economy exposed the serious inadequacies of the cooperative leadership and management leading to collapse of many milk marketing cooperatives. The objectives of the study were to assess the factors which influence the performance of milk marketing cooperatives in Nakuru County. The performance of the cooperative society was considered to be affected by management, policies, competition, infrastructure and transaction cost and this formed the basis for investigating their influence on the same. The study focused on the smallholder milk suppliers as an important group of farmers who gain immensely from the economies of scale when they come together in a cooperative society.

Descriptive survey was adopted and questionnaires were prepared and used by the researcher to collect the requisite data. The questionnaires were self-administered and the population of interest consisted of cooperative managers and the members of the

cooperative society who sold their milk through the cooperative society. The composition of the population was 16 cooperative managers and a sample of 140 cooperative farmers. Data was analysed using descriptive statistics such as frequencies, percentages, mean scores and standard deviation and the findings were presented in tables and charts.

The study results indicated that the cooperatives were performing well in terms of sales turnover and profits. Some of the cooperatives had large sales turnovers which translated to huge profits for the cooperative societies hence good incomes to cooperative farmers. The model identified for data analysis in this study was the multiple regression analysis which was performed on the data using statistical package for social scientists (SPSS). The study established that management, policies, competition and infrastructure affected the performance of the milk cooperative societies and the recommendation was that the policy makers as well as the cooperative society should address these variables in order to improve cooperative performance hence the livelihood of the cooperative farmers.

5.2 Conclusion

The results seem to suggest that policies, management, competition and infrastructure significantly affected the performance of milk marketing cooperatives in Nakuru County. Formulation of good policies, improved management approach, fair competition and overall improvement in infrastructure, can lead to improved performance of the milk marketing cooperatives hence improved profitability of the same, other factors held constant. Transaction costs had no significant impact on performance of the milk marketing cooperatives.

5.3 Recommendation

Recommended policy actions are to develop strategies that promote knowledge transfer through provision of extension services in order to educate the farmers on milk production and cooperative management. Cooperatives to promote professional management of cooperatives by ensuring that the cooperatives are made to become more business oriented. The Government should encourage and promote participatory approach in policy formulation so as to afford the stakeholders opportunities to contribute towards policies which affect their cooperative societies. Cooperatives should increase lobby and advocacy on policies that affect them and advocate for policies that improve marketing and service arrangements and reduce constraints to market access, technologies, credit and inputs to benefit cooperatives. The government to formulate policies that can create conducive environment that will attract more dairy farmers to join cooperatives so that they can be strong enough to compete effectively in a liberalized market. The cooperative societies can develop policies whose objective is geared towards adding value to their product in order to fetch better prices hence becoming more competitive in the market. Another policy recommendation should be directed towards the improvement of feeder roads in the rural areas with the community offering labour services, strengthening of routine maintenance of the existing roads and opening up new roads in inaccessible areas. The private sector should assist in infrastructure development by partnering with cooperative in different initiatives and the NGOs should facilitate trainings for cooperatives in understanding trade policy, lobby and advocacy, policy engagement, negotiation and marketing.

APPENDICES

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LETTER OF TRANSMITTAL.

Moi University

P.o box 3900

Eldoret

Manager,

………………….

Cooperative Society,

P.o Box. ……………,

……………………..,

Nakuru County

Re: Research Permission.

I am a postgraduate student from *Moi University* wishing to carry out research in your organization towards the fulfillment of my award of a master of philosophy degree in economics.

I sincerely assure you that the data collected will serve the purposes stated above and all information obtained will be treated with utmost confidentiality.

Thanking you in advance.

Yours sincerely,

Linus K Ng'eno.
Student

QUESTIONNAIRE FOR COOPERATIVE MANAGERS

Answer the given questions correctly by reading the instructions for each question before giving responses. The information given will be treated with confidentiality as it is only required for educational research. Tick where applicable []

SECTION A: GENERAL INFORMATION

1. Name of Cooperative…………………………………………

2. Age of the cooperative?

   Less than I year ☐

   1-3 years ☐

   4-5 years ☐

   More than five years ☐

3. Location of the cooperative……………………………………

4. What is the number of present members in your society

   Below 100 ☐   Between 101-250 ☐

   Between 251-500 ☐   Between 501-750 ☐

   Between 751-1000 ☐   Above 1000 ☐

5. What is the annual revenue your cooperative society earns from the milk processing

   ....

6. Has the cooperative grown since its inception?

   Yes ☐   No ☐

7. Does the cooperative transact within the larger Nakuru County?

Yes ☐   No ☐

SECTION B: TRANSACTION COST

8. Do you know the market price of milk before selling?

Yes ☐   No ☐

9. If Yes, what is your source of market information? (you may tick more than one where applicable)

Radio ☐   Newspapers ☐   other farmers ☐

Buyers ☐   Others (specify) ☐

……………………………………………………………………………………………

……………………………………………………………………………………………

10. How much do you incur per annum in searching market information?

Less than kshs 1000   ☐

Kshs 1000- 5000   ☐

Kshs 5001-10000   ☐

Kshs 10001-20000   ☐

More than kshs 20000   ☐

11. What was your farm gate price of milk per liter last season (2011)?

Below kshs 10   ☐

Between shs 11 and shs 20   ☐

Between shs 21 and shs 30   ☐

Between shs 31 and shs 40   ☐

Above shs 40 (please specify)   ☐

12. Does your marketing cooperative society have the following

	Yes	No	Yes but not well utilized
Offices in which it run on			
Cold store			
Other stores			
Packing houses			
Own transport			

13. If the cooperative owns a storage facility please answer the following

Type	
When built	
Capital cost	
Running cost (annual)	
Capacity	
Peak months of use	

14. How do you consider your storage facilities?

Very adequate ☐   Adequate ☐   Inadequate ☐   Very ☐

inadequate

15. If inadequate do you have plans to expand it?

Yes   ☐   No   ☐

16. Does the price of milk remain the same after storage?

Yes ☐   No ☐

SECTION C: MANAGEMENT

17. Below are the areas in which the society needs to be capacitated in order to effectively carry out its marketing of milk, according to you, what is the your opinion on the statements;   Please indicate by using 1-Strongly agree 2-Agree 3- Neutral 4- Disagree 5- Strongly disagree

Statement	1	2	3	4	5
The management is supportive towards the performance and improvement of marketing channels					
The management misuse their power in handling their work in the society					
The system of voting in managers is open and fair					
The members are comfortable with the way the management lead them					
The managers are politically influenced					
All decisions are made in the general meeting					
All decisions are made by the managing committee					
The management is composed of highly qualified personnel					

18. What can be done to improve the quality of management of the milk marketing cooperatives?

……………………………………………………………………………………

……………………………………………………………………………………

SECTION D: POLICIES

19. According to you, what is your opinion on the following statements on the policies/procedures of your SOCIETY? Strongly agree [1] Agree [   ] Not sure [3] Disagree [4] Strongly disagree [5]

Statement	1	2	3	4	5
Consistency of application of the cooperative laws improves the performance of your cooperative society					
The government supports the cooperative society policies and strategies					
Your cooperative society carries its milk marketing according to its policies and objectives					
The cooperative members understand the policies/procedures of the society					
The society legal framework laws are consistent					
The society vision is clear to all					
The objectives/policies laid out by your society are achievable					

20. According to you, how satisfactory is the legal and policy framework governing societies in Nakuru region?

Very satisfactory ☐   Satisfactory ☐   Unsatisfactory ☐

Very unsatisfactory ☐

21. What other policies, procedures can be put in place in order to improve marketing of milk by the society?

i……………………………………………………………………………………………

ii……………………………………………………………………………………………

SECTION E: COMPETITION

22. According to your opinion, what percentage of the market does your cooperative society control in Nakuru County?

25 percent and below ☐   Between 26 and 50 percent ☐

Between 51 and 75 percent ☐   above 76 percent ☐

23. Who are your major competitors in the marketing of milk in Nakuru County?

Other farmers ☐   Brokers ☐

Other bigger cooperatives ☐   others (specify) ☐

…………………………………………………………………………………………

24. According to your opinion, how has the buying price of competitors affected your marketing strategies?

Very high ☐   high ☐   average ☐   Low ☐

Very low ☐

25. How often is the cooperative able to buy milk from farmers in a week as compared to other buyers?

Every day in a week ☐   Three times a week ☐

Twice in a week ☐   Once in a week ☐

26. In your own opinion how can the cooperative improve buying of milk from

farmers more than others?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

SECTION F: INFRASTRUCTURE

27. How do you transport your milk from the farmers to the cooperative and then

to the market and what is the distance covered? (Use the table below)

Source	Mode of transport	Distance from source
From farmers to the cooperative		
From the cooperative to the market		

28. What costs do you incur from the source where you buy/collect milk to the market

where you sell the milk per trip? (Use the table below)

Type of cost	Volume per trip	Cost per trip	Total cost
Milk transport			
Labour for loading			
Labour for offloading			

29. What mode of transport do you use?

a) Donkey/oxen ☐

b) Pick- up ☐

c) Mini- lorry ☐

d) Lorry ☐

e) Others (specify)……………………………………………..

30. If a motor vehicle is mentioned, then do you operate your own vehicle?

Yes ☐   No ☐

31. If No, what is the cost of hiring the vehicle per year?

……………………………………………………………………………………

32. In your opinion, in what state are the roads from the farmers to cooperative and from the cooperative to the market?

Good ☐   moderate ☐   poor ☐   Very poor ☐

33. Does your milk reach the market at the right time?

Yes ☐   No ☐

If No, what are the likely effects, please specify

……………………………………………………………………………………

34. To what level does the state of roads in those areas affect your transportation process?

Very high ☐   High ☐   Moderate ☐   Low ☐   Very low ☐

35. In your opinion, what can be done to improve your cooperative marketing operations?

……………………………………………………………………………………

……………………………………………………………………………………

SECTION G: COOPERATIVE PERFORMANCE

1. What can you say about the membership of your cooperative society?

      (a).Increasing   (b). Decreasing   (c). Constant (d). Don't know

2. State reasons for your answer to 1 above

3. If you consider your society to be a successful one, what are the reasons?

4. What can you say about sales turnover of your cooperative?

      (a). Increasing (b). Decreasing (c). Constant (d). Don't know

5. State reasons for your answer to 4 above

6. Does your society make loans to members?

Yes   ☐   No   ☐

  If yes, what is the average rate of interest charged? ………………………….

7. Auditing

Yes   ☐   No   ☐

Are the accounts of your society regularly audited?

If yes how often?

………………………………………………………………..

If no why not?

……………………………………………………………………………….

8. What can you say about the performance of your cooperative?

a) Very poor (b) poor (c) fair (d) good (e) very good

9. State reason for your answer to 6 above.

QUESTIONNAIRE FOR COOPERATIVE FARMERS

Answer the given questions correctly by reading the instructions for each question before giving responses. The information given will be treated with confidentiality as it is only required for educational research. Tick where applicable []

SECTION A: GENERAL INFORMATION

28. What is your sex?   Male ☐   Female ☐

29. How old are you?

21-30 years ☐

31-40 years ☐

41-50 years ☐

51-60 years ☐

More than 60 years ☐

30. How long have you been in dairy farming?

Less than 1 year ☐

1-5 years ☐

5-10 years ☐

More than 10 years ☐

4. Where else apart from cooperative do you sell your milk?

Brokers ☐   Nearest market ☐

Neighbors ☐   Own use ☐

Others (specify……………………………………………….

5. How long have been selling your milk to the cooperative?

Less than 1 year ☐

1-5 years ☐

5-10 years ☐

More than 10 years ☐

6. If you don't sell your milk in the cooperative, why did you choose the other market?

Better prices ☐

Cooperative is far away ☐

Delayed payments by cooperative ☐

Cooperatives are poorly managed ☐

Others (please specify) …………………………………..

SECTION B: TRANSACTION COST

7. Do you know the market price of milk before selling?

Yes ☐   No ☐

8. If Yes, what is your source of market information? (you may tick more than one where applicable)

Radio ☐   Newspapers ☐   other farmers ☐

Buyers ☐   Others (specify) ☐

……………………………………………………………………………………

……………………………………………………………………………………

9.   How much do you incur per annum in searching market information?

Less than kshs 1000   ☐

Kshs 1000- 5000   ☐

Kshs 5001-10000   ☐

Kshs 10001-20000   ☐

More than kshs 20000   ☐

10. What was your farm gate price of milk per liter last season (2011)?

Below kshs 10   ☐

Between shs 11 and shs 20   ☐

Between shs 21 and shs 30   ☐

Between shs 31 and shs 40   ☐

Above shs 40 (please specify)   ☐

…………………………………………………………………………………………

11. Do you have preservative facilities for your milk?

    Yes   ☐   No   ☐

12. If Yes, is it adequate?

    Yes   ☐   No   ☐

13. If no, how do you preserve your milk?

    All milk is sold on time   ☐

    Traditional method e.g boiling   ☐

    Excess milk get spoiled   ☐

    Excess milk is cultured for own use ☐

Others (please specify……………………………….

14. If excess milk get spoiled, approximately how much loss do you incur per annum?

Less than ksh 1000 ☐

Ksh 1001-5000 ☐

Ksh 5001-10000 ☐

More than 10000 ☐

SECTION C: MANAGEMENT OF THE COOPERATIVE

15. Below are the areas in which the society needs to be capacitated in order to effectively carry out its marketing of milk, according to you, what is the your opinion on the statements;   Please indicate by using 1-Strongly agree 2-Agree 3- Neutral 4- Disagree 5- Strongly disagree

Statement	1	2	3	4	5
The management is supportive towards the performance and improvement of marketing channels					
The management misuse their power in handling their work in the society					
The system of voting in managers is open and fair					
The members are comfortable with the way the management lead them					
The managers are politically influenced					
All decisions are made in the general meeting					
All decisions are made by the managing committee					
The management is composed of highly qualified personnel					

16. What can be done to improve the quality of management in marketing your milk?

………………………………………………………………………………………

………………………………………………………………………………………

SECTION D: POLICIES GOVERNING COOPERATIVES

17. According to you, what is your opinion on the following statements on the policies/procedures of your SOCIETY? Strongly agree [1] Agree [ ] Not sure [3] Disagree [4] Strongly disagree [5]

Statement	1	2	3	4	5
Consistency of application of the cooperative laws improves the performance of your cooperative society					
The government supports the cooperative society policies and strategies					
Your cooperative society carries its milk marketing according to its policies and objectives					
The cooperative members understand the policies/procedures of the society					
The society legal framework laws are consistent					
The society vision is clear to all					
The objectives/policies laid out by your society are achievable					

18. According to you, how satisfactory is the legal and policy framework governing societies in Nakuru region?

Very satisfactory [ ]   Satisfactory [ ]   Unsatisfactory [ ]   Very unsatisfactory [ ]

19. What other policies, procedures can be put in place in order to improve marketing of milk by the society?

   i.………………………………………………………………………………………

   ii.………………………………………………………………………………………

SECTION E: COMPETITION

20. According to your opinion, what proportion of the market does your cooperative society control in Nakuru County?

   Very large ☐   Large ☐

   Small ☐   Very small ☐

21. Who are the other major buyers of your milk in your area?

   Other farmers ☐   Brokers ☐

   Other bigger cooperatives ☐   others (specify) ☐

   ………………………………………………………………………………

22. According to your opinion, how has the buying price of other major buyers affected your cooperative market?

   Very high ☐   high ☐   average ☐   Low ☐

   Very low ☐

23. How often is the cooperative able to buy milk from farmers in a week as compared to other buyers?

   Every day in a week ☐   Three times a week ☐

   Twice in a week ☐   Once in a week ☐

24. In your own opinion how can the cooperative improve buying of milk from farmers more than others?

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

SECTION F: INFRASTRUCTURE

25. How do you transport your milk to the cooperative and what is the distance covered?

(Use the table below)

Source	Mode of transport	Distance from source
From farmers to the cooperative		

26. What costs do you incur while transporting your milk to the cooperative per trip?

(Use the table below)

Type of cost	Volume per trip	Cost per trip	Total cost
Milk transport			
Labour for loading			
Labour for offloading			

27. What mode of transport do you use?

f) Donkey/oxen ☐   b) Pick- up ☐

c) Mini- lorry ☐   d) Lorry ☐

e) Others (specify)…………………………………………..

28. If a motor vehicle is mentioned, then do you operate your own vehicle?

Yes ☐   No ☐

If No, what is the cost of hiring the vehicle per year?

……………………………………………………………………………………

29. In your opinion, in what state are the roads from the farm to the cooperative?

Good ☐   moderate ☐   poor ☐   Very poor ☐

30. Does your milk reach the cooperative at the right time?

Yes ☐   No ☐

If No, what are the likely effects, please specify

……………………………………………………………………………………

31. To what level does the state of roads in your area affect your transportation process?

Very high ☐   High ☐   Moderate ☐   Low ☐

Very low ☐

32. In your opinion, what can be done to improve marketing of your milk by the cooperative?

……………………………………………………………………………………

SECTION G: COOPERATIVE PERFORMANCE

1. What can you say about the membership of your cooperative society?

(a).Increasing   (b). Decreasing   (c). Constant (d). don't know

2. State reasons for your answer to 1 above

3. If you consider your society to be a successful one, what are the reasons?

4. What can you say about sales turnover of your cooperative?

      (a). increasing (b). Decreasing (c). Constant (d). don't know

5. State reasons for your answer to 4 above

6. Does your society make loans to members?

Yes   ☐   No   ☐

If yes, what is the average rate of interest charged? ………………………….

7. Auditing

Yes   ☐   No   ☐

Are the accounts of your society regularly audited?

If yes how often?

…………………………

If no why not?

…………………………

8. What can you say about the performance of your cooperative?

    a) Very poor (b) poor (c) fair (d) good (e) very good

9. State reason for your answer to 6 above.

Thank You