ANALYSIS OF COFFEE MARKETING SYSTEM IN ARUMERU DISTRICT OF TANZANIA

BY

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ABSTRACT

This study assesses the capacity of co-operatives in reducing the transaction costs in Arumeru district, Arusha region. The objectives were to describe the coffee marketing system in the study area in particular, to assess the perception of farmers toward co-operatives, to asses the factors for adopting coffee marketing channels and to compare transaction costs between users and non users of co-operatives and to recommend the appropriate marketing system. Data were collected using structured questionnaire, which was supplemented by field observations. A total of 279 farmers from five villages namely Nkoaranga, Poli, Imbaseni, Ndatu and Ngyani were interviewed. Snowball sampling technique was adopted to get the respondents. Descriptive statistics, logistic regression analyses and independent sample t-test were used to analyse the data. Results of the study showed that 50% of respondents have negative perception on co-operatives and 48% have positive perception while 2% do not know if co-operatives are beneficial or not. Level of education was found to be the most important factor that influences farmers' perception. In logistic regression analysis only information on market price and traders' trustworthy was found to influence adoption of various market channels significantly. From independent sample t-test, the results revealed that the transaction costs incurred by members and non-members of co-operatives do not differ significantly. Based on the findings of the study, the following recommendations were put forward: Policies formulated need monitoring and evaluation to insure good performance of coffee production and marketing. Further reform and changes need to be done in co-operative organizational and institutional to take advantage of the challenges and opportunities

opened up by globalization and technological changes. Lastly, the new research on analysis and comparison of transaction costs between co-operative and private traders is recommended.

DECLARATION

I, MIRAU MBISE, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work and that it has never been submitted for a degree in any other University.

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The above declaration confirmed

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DEDICATION

This work is dedicated to my God, under whose care I did my studies safely and successfully, to my parents the late father Ndetaulwa Kinaa Mbise, mother Eliavinga Kasindei Mungure, to my dear wife Happiness Ndetaiywa Nnko, sisters and brothers.

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AC's	International Co-operative Alliance
ACU	Arusha Cooperative Union
ANOVA	Analysis of Variance
CDP	Co-operative Development Policy
CRDB	Co-operative and Rural Development Bank
CU	Co-operative Unions
GDP	Gross Domestic Product
HESLB	Higher Education Students Loan Board
IFPRI	International Food Policy Research Institute
ILO	International Larbour Organization
IOF	Investors-Owned Firms
MCM	Ministry of Cooperative and Marketing
NIE	New Institutional Economics
OLS	Ordinary Least Square
PCB	Private Coffee Buyers
PCs	Primary Cooperative Societies
RCU	Regional Cooperative Union
SPSS	Statistical Package for Social Sciences
TCB	Tanzania Coffee Board
TCCCO	Tanganyika Coffee Curing Company
TCE	Transaction Costs Economics
THA	Tanzania Harbour Authority
TRDB	Tanzania Rural Development Bank

TZS	Tanzanian Shillings
USA	United State of America

CHAPTER ONE

INTRODUCTION

1.1 Background

Co-operatives as one of the marketing channels are of paramount importance to smallholder farmers in articulating farmer's demand and facilitating collective actions in overcoming problems in agricultural and capital markets. These may influence success or performance of small-scale farmers in relation to their objectives.

Worldwide co-operatives are playing an increasingly important role in facilitating job creation, economic growth and social development. Ranging from small-scale to multi-million dollar businesses across the globe, co-operatives are estimated to employ more than 100 million women and men, and have more than 800 million individual members. Co-operatives mainly operate in agricultural marketing and supply, finance, wholesale and retailing, health care, housing and insurance (Repetto and Cavalcanti, 1995).

In Tanzania, farmers' co-operatives were predominant organizations developed to facilitate assembly and ensure reliable market for agricultural produce. They are essentially, a horizontal integration of small-scale producers who market their produce in a specific marketing chain. Co-operatives were viewed as institutions that could stimulate economic growth and meet the needs of rural people, especially the poor. Karantininis (2001) argued that due to the consolidation in the industries upstream and downstream to the agricultural sector, co-operatives are regarded as

one possible way to enhance welfare for small-scale producers. Either in the form of common facilities or through collective bargaining, co-operatives have the potential to improve the terms of trade for their members and contribute to better livelihood in rural areas.

However, co-operatives are also facing new difficulties due to the globalization of markets and the competition with Investors-Owned Firms (IOF). In many countries, ideology is no longer a strong enough reason for farmers to join co-operatives, and more competitive markets imply that this decision must be based mainly on economic terms. Given this new thinking some members may find it more convenient to look for other opportunities and market outlets for their commodities rather than co-operatives.

In view of the bad experience with agricultural co-operatives in the country, marketing reforms have been implemented through reforming crop marketing and institutional set-up as part of broader macro-economic changes beginning in 1984. These reforms have affected the functioning of marketing co-operatives and have opened room for private sector activity in the markets (Kilima *et al.*, 1999).

In particular, Tanzania coffee is one of the top three crops in terms of monetary value, cotton and sisal being the two, which form the backbone of Tanzania's domestic exports (Kimario, 1992). Tanzania coffee marketing undergoes changes, which occurred due to liberalization. Multi channel marketing system started in 1994/95 when private buyers were permitted to compete with the co-operatives.

Given this reform, the concern of this study is to analyse and compare the transaction costs of different channels in coffee marketing. The section below presents the problem statement highlighting the gap from the previous researches on transaction costs.

1.2 Problem statement and study justification

In transition economies, agricultural supply chains are still suffering from missing or embryonic market institutions. This creates severe informational barriers for trade, involving price discovery without public reporting systems, searching for potential buyers who have just emerged and not yet established a reputation, facing hold-ups when products are not immediately paid for in cash, negotiating transactions in the absence of enforceable commercial laws and trading. All these factors lead to high information and transaction costs and exacerbate the effort required to co-ordinate transactions (Boger, 2001). A number of studies have investigated the effects of various factors on agricultural output markets. However, only few have dealt with the effect of these transaction costs on output market.

Specifically, in developing countries including Tanzania, smallholder farmers find it difficult to participate in markets because of a range of constraints and barriers including those transaction costs mentioned earlier that reduces incentives for participation. Also these transaction costs may be reflected in hidden costs that make access to markets and productive assets difficult. Transaction costs, that is, observable and non observable costs associated with exchange are the embodimen

of access barriers to market participation by resource poor smallholders (Coase, 1960; Delgado, 1999; Halloway *et al.*, 2000 in Makhura, 2001).

Most of the previous studies reviewed concentrated in comparing the performance of co-operatives before and after trade liberalization. There are no studies that have attempted to compare the transaction costs incurred by users and non-users of co-operatives. This study intends to extend the previous researches to get more insight on aspects of transaction costs and compare them in different marketing channels. It is hoped that the findings from this study will provide information that would enable policy makers to formulate and modify the policies in order to improve the coffee marketing system.

1.3 Objectives of the study

1.3.1 General objective

The general objective of this study is to characterize coffee marketing system that can effectively reduce transaction costs and give enough incentive to farmers to participate in production and marketing of coffee.

1.3.2 Specific objectives

The specific objectives of this study are

(i) To describe the coffee marketing system in the study area.

(ii) To assess the perception of farmers toward coffee marketing system and factors for adopting coffee marketing channels.

(iii) To compare transaction costs between co-operatives users and non co-operatives users.

(iv) To recommend appropriate marketing system that would enhance performance and sustainability of coffee industry.

1.4 Research hypotheses

The research was guided by two hypotheses:

(i) Coffee farmers have negative attitude towards co-operative marketing

(ii) There is no significance difference in transaction costs between the members and non members of co-operatives.

1.5 Organization of the study

The study is organized in five chapters. The second chapter presents a review of the existing literatures on co-operatives and New Institutional Economics highlighting the different issues including key definitions, origin and principles of co-operatives, co-operative experience from different countries, theoretical framework, conceptual framework, marketing organizations and institutions and analytical methods in related studies. The third chapter presents the research methodology highlighting the location and characteristics of the study area, justification for selecting the study area, source and types of data, design of the survey instruments and data collection, data analysis and limitations of the data. Research results and discussions are presented in Chapter Four. Summary, Conclusion and recommendations are presented in Chapter Five.

CHAPTER TWO

LITERATURE REVIEW

2.1 Definition of some key terms

2.1.1 Co-operatives

Trewin (2004) defines the term 'co-operative' as a 'business owned and controlled by members, and formed to provide them with work or goods at reasonable prices. According to Kherallah and Kirsten (2001) co-operatives and farmer organizations are institutional arrangements, the importance of which has re-emerged recently to organize small farmers in developing countries in the wake of agricultural market liberalization. Carlson (1992) defines 'co-operative' as an association of individuals whose main objective is to improve the economic and social welfare of their members through their enterprises. Generally, a 'co-operative Society' is defined as an organized body of not less than ten people voluntarily associated on equal terms to work together for their own betterment.

In this context, "co-operative members" are those farmers who participate in collective action in marketing their crops including farmers who form farmers' groups. On the other hand "non co-operative members" are those marketing their coffee to private traders on an individual basis.

2.1.2 Transaction costs

A transaction occurs whenever "a good or service is transferred across a technologically separable interface. Transaction costs include the costs of gathering

and processing the information needed to carry out a transaction, costs of reaching decisions costs of negotiating contracts, and costs of policing and enforcing those contracts. Moreover, Jaffee and Morton (1995); Hobbs (1997) as cited by Makhura (2001) describe transaction costs as the costs of searching for a trading partner with whom to exchange, the costs of screening partners, of bargaining, monitoring, enforcement and, eventually, transferring the product to its destination.

Furthermore, transaction costs are broadly defined to include ex-ante costs of determining whether an exchange is advantageous, costs of actually carrying out the exchange (such as finding buyers or sellers and transportation costs) and where applicable ex-post costs of ensuring that all provisions of the exchange were met (Goetz, 1995). Users and non users of co-operatives are compared using the transaction costs incurred in marketing coffee. The results will enable policy makers to decide on appropriate marketing system.

2.1.3 Marketing institutions and organizations

The most commonly agreed upon definition for institutions is: a set of formal (laws, contracts, political systems, organizations, markets, etc.) and informal rules of conduct (norms, traditions, customs, value systems, religions, sociological trends, etc.) that facilitate coordination or govern relationships between individuals or groups (Menard, 2004a). Institutions provide for more certainty in human interaction (North, 1990 cited by Kherallah and Kirsten, 2001). Institutions have an influence on our behavior and therefore on outcomes such as economic performance, efficiency, economic growth and development.

Marketing organizations perform marketing functions such as collecting, transporting, processing, retailing and exporting agricultural commodities. The existence of a market depends on the institutional roles influencing exchange; Organizations undertake strategies to optimize institutional structure. An organizational can be altered internally and its boundaries redefined to minimize the cost of exchange, including negotiating, monitoring, and information costs (Temu, 1999). The transaction cost approach argues that the organizational form or "governance structure" that minimizes the sum of production and transaction costs for a given activity will have a competitive advantage and hence tend to dominate that activity (Staatz, 1987).

The New Institutional Economic theory addresses the question of the relative advantage of co-operatives over investor owned firms. In this context, it is a question of relative advantage of users and non-users of co-operatives. New Institutional Economics (NIE) paradigm, and in particular Transaction Costs Economics (TCE) asserts that market exchange does not take place in a frictionless environment and as a result all transactions are costly. Transaction costs facing smallholder farmers are generally unobservable but do inhibit possible participation in market exchange. The general view in the literature is that the presence of high transaction costs will affect the pattern and/or level of participation in the market (Makhura, 2001).

2.1.4 Marketing

According to Oxford Advanced Learner's Dictionary (2000) 'Marketing' is the activity of presenting, advertising and selling a company's products in the best

possible way. This study targets the smallholder farmers in respect to marketing of their products. So in this context, agricultural marketing is defined as all activities associated with agricultural production and assembly, processing, and distribution to final consumers, including analysis of consumer's needs, motivations and purchasing and consumption behavior. All in all marketing is intended to meet the three utilities namely form, place and time. This study is aiming at assessing the capacity of co-operatives in reducing transaction costs compared to other marketing channels.

2.2 Theory and principles of co-operatives

2.2.1 Origin of co-operatives

According to Trewin (2004) co-operatives in one form or another began centuries ago. World wide agricultural co-operatives have been formed by groups of disadvantaged farmers so that they can economically help each other. People have been co-operating to achieve objectives that they could not achieve if they acted individually.

Historically, agricultural co-operatives stemmed from European pioneers. Co-operatives emerged as early as the 1820's, if not before and flourished in the 1830's along with the industrial revolution, with consumer co-operatives starting in 1844. People were very poor when the industrial revolution was at the peak and workers (whose conditions were poor) decided to form co-operatives.

Furthermore, Kilima *et al.* (1999) stated that the rise and expansion of modern co-operatives have their roots in the credit and consumption society in Rochdale, in the

United Kingdom during 1844. In response to the depressed economic conditions brought forth by industrialization, some people began to form co-operative businesses to meet their needs. Among them was a group of 28 workers who were dissatisfied with the merchants in their community. They formed a consumer co-operative known as the Rochdale Society of Equitable Pioneers in 1844. They began by opening a co-operative store that sold items such as flour and sugar to members, and the Society quickly grew to include other enterprises. The founders also established a unique combination of written policies that governed the affairs of the co-operative. Among these rules were: democratic control of members, payment of limited interest on capital, and net margins distributed to members according to level of patronage. Based on its success, the Rochdale set of policies soon became a model for other co-operative endeavours, and became known as the general principles that make a co-operative unique from other business structures.

Ancient records show that Babylonians practiced co-operative farming and that the Chinese developed savings and loan associations similar to those in use today. In North America, clearing land in preparation for the planting of crops, threshing bees, and barn raisings all required co-operative efforts. In the United States, the first formal co-operative business is assumed to have been established in 1752, almost a quarter-century before the Declaration of Independence was signed. This co-operative, a mutual insurance company called the Philadelphia Contribution ship for the Insurance of Houses from Loss by Fire, was organized by Benjamin Franklin and others, and it is still in operation today. Since then many different cooperatives have been established in different countries.

2.2.2 Principles of co-operation

The International Co-operative Alliance (ICA's) 'principles of co-operation' are regarded as the best guide to distinguishing a co-operative from other forms of corporate organization, although some co-operatives diverge from the principles in significant ways. These principles as amended in 1995 have been outlined in O'Connor (2004) as follows.

(a) **Voluntary and open membership-** Co-operatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

(b) **Democratic member control-** Co-operatives are democratic organizations controlled by their members, who actively participate in setting policies and making decisions. In primary co-operatives members have equal voting rights (one member, one vote) and co-operatives at other levels are organized in a democratic manner.

(c) **Member economic participation-** Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative.

(d) **Autonomy and independence-** Co-operatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

(e) **Location, training and information** -Co-operative provides education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their co-operatives.

(f) **Co-operation among co-operatives** -Co-operative services their members most effectively and strengthens the co-operative movement by working through local, national, regional and international structures.

(g) **Concern for community** -Co-operatives work for the sustainable development of their communities through policies approved by their members. Other writers outlined up to nine principles to include pure goods and fair measures, selling at prevailing price principles.

2.2.3 Types of co-operatives

Any type of business can be organized as a co-operative. Co-operatives can provide services for a wide range of social needs. Below are some general variations of co-operative structure (McLeod, 2006).

2.2.3.1 Consumer Co-operatives

The membership consists of people who consume the goods and services provided by the co-operatives. These co-operatives can provide services such as energy, housing, childcare, food, health care, savings and equipment. An example would be local electric co-operative or credit union.

2.2.3.2 Producer Co-operatives

These co-operatives provide goods and services for producers and are owned by the producers. A number of producer co-operatives exist to serve the interests of food growers; two examples are Welch's Grapes and Ocean Spray, which market farm products and are owned by growers.

2.2.3.3 Worker Co-operatives

The members and owners are the employees of the business. Worker co-operatives are often small businesses and are found in areas as diverse as food processing, taxi services and crafts production.

2.2.3.4 Co-operative Organizations

These are co-operatives with organizations as members rather than individuals. Examples are Northwest Iowa Power Co-operative, Basin Electric Power Co-operative and the Iowa Association of Electric Co-operatives. Furthermore the co-operative form of business organization is utilized by a broad cross section of society. They are most often categorized by their purpose.

Some of the most common typical co-operatives in each category include: agricultural co-operatives, food co-operatives, credit unions, housing co-operatives, nursing co-operatives, utility co-operatives, worker co-operatives, retail co-operatives, energy co-operatives and shared services co-operatives. In all cases these organizations provide services to members on a "cost of doing business" basis.

2.3 Co-operative experience from different countries

2.3.1 The co-operative movement in Tanzania

The co-operative movement in Tanzania has a long history. Between 1932 and 1967 co-operatives were owned and controlled by the members on democratic principles. After 1967, co-operatives were perceived as vehicles for furtherance of socialistic policies. Since then co-operatives have been characterized by excessive political interference. The worst scenario was in 1976 when co-operative unions and agricultural marketing societies were dissolved to give way to parastatal crop authorities to handle all agriculture related functions. This had a disastrous impact on the sector. By 1980 the problems related to the new set up had become so alarming that the government decided to re-establish the co-operatives movement in 1982.

However, primary societies and unions were hastily formed, without regard for economic viability or managerial capacity while crop marketing and processing system collapsed. This chaos, coupled with external pressure from financial supporters, led to the establishment of the 1991 Co-operative Act, which provided for the formation of an independent, member-controlled, co-operative movement based on co-operative principles. The process of restructuring the movement is being carried out but at a slow pace (Gabagambi, 2003).

The former Ministry of Co-operatives and Marketing (MCM) guided by the Co-operative Development Policy (CDP) of 1997 could probably transform co-operative movement into independent, voluntary and economically viable institutions for providing and dissemination of agricultural inputs for the betterment of small-scale

farmers. In 2006 MCM was dissolved by the new government and the Co-operative Department shifted to the Ministry of Agriculture and Food Security to form the 'Ministry of Agriculture, Food Security and Co-operatives' while the Marketing Department was shifted to the Ministry of Industry, Commerce to form the 'Ministry of Industry, Commerce and Marketing'.

Kimario (1992) summarizes different periods of co-operatives evolution in Tanzania as; Pre-independence Period – 1925 – 1961, Post-Independence Period 1961-1967; Post – Arusha Declaration Period 1967 – 1976; Development of village co-operative System 1976 – 1982; Marketing co-operative after 1982. The co-operative Development Policy of 2002 established to recognise co-operation in production and not just in marketing as it used to be in the past. Based in this policy, the government has to allow the emergency of the co-operative structure that emanates from the members themselves especially on the vertical similarly amalgamation or division should be voluntary.

2.3.2 Current situation of co-operatives in Tanzania

The operations of coffee co-operatives in Tanzania are currently diminishing and most of coffee marketing is undertaken by private traders. Services like credit in terms of inputs (agrochemicals, sprayers etc) are no longer provided. The study by Banturaki (2000) highlighted that primary co-operatives had a negligible co-operative capital base, a fact which made the rural co-operatives unable to have sufficient funds to perform their activities efficiently and effectively. The Government has withdrawn from funding the co-operatives. One of the consequences

of insufficient funds is the delay of payments to the output of producers. Furthermore, the management still comprises the unskilled labour. Therefore, in general the performance of co-operatives is deteriorating especially in this era of competition.

2.3.3 Success and achievements of co-operatives

According to Staatz (1987) one of the most common justifications for farmer co-operative is that through collective action farmers are able to counterbalance the market power of their trading partners, leading to more equitable and efficient market outcomes. Although this argument arises most often with respect to co-operative associations, such as farmer bargaining associations, it applies to farmer co-operative firms as well. Co-operative associations or firms use their countervailing power to raise farm incomes in two ways: (a) through redistributing existing income in the farmers' favour and (b) through increasing the efficiency of the economic system.

According to Mwaikambo (2001) benefits obtained by co-operators who are shareholders include payment of lower fares when having a co-operative tractor for ploughing or a lorry for hauling crops at harvesting time, participating in decision making mechanism and provision of extension services to farmers. Furthermore, the study found that the formation of co-operatives is justifiable on three grounds: (a) They protect co-operators against exploitation by eliminating middlemen (b) They enable co-operators to make best use of the possible returns from economic activities undertaken, and (c) Co-operators can use scarce resources collectively for self improvement (Holmen, 1990; Carlson, 1992 cited by Mwaikambo, 2001). Due to

these benefits Tanzania like many other countries initiated the formation of primary co-operatives in various places. Other potentials for the co-operatives are that, they can help small farmers to increase their income in three ways, namely,
(a) increase land/water productivity or yield per acre, (b) reduce the cost of production, and (c) ensure remunerative prices of output (Seetharaman, 1992).

O'Connor (2004) summarises the benefits of co-operatives by explaining the motives behind the co-operatives as follows: The design and purpose of every co-operative is different, so the motives behind their establishment can not be simply stated. However, three motivations are common.

The first is to increase bargaining power. A prominent example is grain farmers in Australia and the USA in the early 20th century who needed to sell their grain to elevators. Elevator companies would obtain grain from large numbers of farmers so that they could transport and market the grain in sufficiently large quantities to keep the cost of providing these services down. Because of the distances involved, each farmer was able to sell his grain to only one or few elevators and therefore felt vulnerable to exploitation by those elevators. American farmers responded by forming local cooperatively owned elevators, while the Australians established a mixture of co-operatives and statutory organizations to store, transport and market their grains. In the subsequent decades, however, implements in transport communications and on-farm storage largely overcame the weakness in grain farmers' bargain power, and a wide range of marketing options became available.

While weaknesses in farmers' bargaining power because of storage, transport and communication issues have declined overtime, other sources of weakness have increased. In particular, in a modern economy there are more processors that have advantages based on technology or brands that make them monopoly buyers of certain farm products. An extreme example of technology-based market power is the chicken meat industry, where the major companies control the small number of bloodlines that are capable of producing meat at competitive prices.

Farmer suppliers have virtually no bargaining power except through joint action or government regulation. An example of brand- based market power is the tobacco industry, where virtually all products are sold through a few dozen brands owned by a small number of companies. In Australia, Co-operatives have been established by tobacco growers to negotiate sales to the tobacco companies.

Another important factors causing farmers to have weak bargaining power is the perishability of the products they produce. The important example is the dairy industry, where farmers must find a customer for their milk every day. In view of this extreme vulnerability, it is not surprising that co-operatives are more prominent in the dairy industry than any other.

The second common motivation for establishing co-operatives is the advantages offered by government to this form of corporate structure. In many countries co-operatives benefit from certain exemptions from competition law. They allow

members to act together in a way that is not permitted for other businesses. Also in many countries, co-operatives have privileges in taxation arrangements.

The third common motivation for establishing co-operatives has probably become more common in recent decades. This is that the members have the opportunity to pursue a particular business opportunity through acting together. They may see an opportunity to develop a business with lower costs or one producing innovative value-added products. Co-operatives of this type are entrepreneurial in nature and generally carry higher risks. They can succeed only with an innovative business model (O'Connor, 2004).

2.3.4 Factors for co-operatives success

The superiority of co-operatives over other forms of organizations in handling agricultural credits was based on close contacts which the societies maintained with their membership; thus making it possible for the movement to give credit to farms without collateral. At the same time, through a special agreement, the recovery of loans was done automatically at source when they sold their crops through their societies.

The marketing co-operatives also benefited very much from profits, which were realized from the economic activities, which they had taken over. The extra funds enabled the movement not only to offer marketing services to farmers at reduced costs (or even free of charge) but also to invest in schools and other social services for the benefit of the community at large (Kimario, 1992).

According to Mattee *et al.* (1994) group formation is a source of empowerment, and such a group may be strong enough to be capable of influencing policy decisions and promoting their own development or a self-reliance basis. In this context, and basing on the definition of a co-operative, the group of more than ten members is considered as a co-operative.

Kimario, (1992) summarises the reasons for the success of co-operatives as: co-operative education and training offered through co-operative schools, seminars and newspaper launched to explain to the members what cooperation was all about, good management and the unswerving commitment of co-operatives members that managed to weather the storm and proved themselves a force to be reckoned with.
After 1982, most development strategists are of the opinion that the bottom-up development option in the marketing co-operatives is the most suitable strategy for Tanzania. This belief arises from the fact that where this strategy has been applied, the impact of co-operatives, in terms of economic growth, democratic participation and improvement of social and economic infrastructure, has been very outstanding. Since the strategy gives people opportunities to learn by doing, it has been possible for farmers to achieve tremendous success in managing and controlling their co-operatives as well as in carrying out development programmes to improve their social and economic positions. At the same time, the fact that the strategy is result-oriented, this new approach has an in-build motivation mechanism, which always encourages co-operative members to strive to achieve the best results in their endeavours to improve their standard of living.

Other reasons for success mentioned are favourable climatic conditions, surplus labour and land (i.e. resource abundant), availability of cheap transport to enhance accessibility to local market and export. The efforts for the success explained were not free from obstacles. The section below is highlighting different obstacles for co-operatives operations.

2.3.5 Main obstacles and failures of co-operatives in Tanzania

The history of traditional co-operatives suggests that co-operatives have not always been successful at serving the needs of its members. One major problem with traditional co-operatives in developing countries was that members never had a major financial stake in the co-operative; co-operatives were supported by governments. Furthermore, co-operatives suffered from various organizational problems and a lack of clearly defined property rights assignments resulting in opportunistic behaviour (such as free-riding, moral hazard, agency problems, etc.), bureaucratic inefficiencies, and under-investment in the co-operatives (Cook, 1995; Cook and Iliopoulos, 2000 cited by Kherallah and Kirsten, 2001). As a result, the popularity of the traditional co-operatives waned in the few decades preceding the 1990s.

The period between 1982 and 1990 was characterized by more involvement of the government and the party in the affairs of the co-operatives. At the same time, the party continued to play a predominated role in the formulation of co-operatives policy and in screening the names of those who wished to be considered for positions of leadership in co-operatives. Similarly, besides the responsibilities, which were

allocated to the co-operative department in the legislation, the government played a very active role in the distribution of inputs, the disbursement of loans and in the marketing operations of various crops within country and abroad. As a result of such a policy the marketing co-operatives experienced very serious problems, including those, which were caused by poor management, misappropriation of funds, insensitivity to the needs of members and indebtedness (Kimario, 1992).

Also the research findings by Banturaki (2000) revealed that the rural co-operatives in the past had not fulfilled their role successfully because of the weakening factors which had arisen from the co-operative organizational set-up. Other factors that militated against success were from internal as well as external situations. Some of the factors are weak capital base, high level of co-operative illiteracy amongst the general membership and the co-operative leadership.

Democratic management structure in rural co-operatives is highly fictitious, practically non-existent. There is pervasive dishonesty, corruption, greed, abuse of committee powers, and irresponsibility and non- accountability amongst the co-operative leadership. There is a polarization of interests between the members and the co-operative management committees and factionalism among the committee members themselves that frustrate co-operative democratic management and operations.

Interventionist moves into co-operatives by political and government interest groups have weakened the rural co-operatives, that is, co-operatives democracy and

autonomy have been overshadowed. Where co-operatives have not become more market-oriented, financial pressures imposed by the amount of assistance required for them to survive in a non-marketed form is putting pressure on their continued existence as such. Financial pressures are also evident where co-operatives have moved beyond their initial purposes which undertake peripheral activities like retailing, travel, banking and transport, much of which are not commercial and only survive through government support. These co-operatives have become political organizations heavily aligned with the ruling liberal Democratic Party, implementing government policies (Trewin, 2004). The problem of co-operatives to be used as political institution was also highlighted by Kimario (1993) and Banturaki (2000).

Other reasons for co-operative failure mentioned are changing conditions in their business environments, poor business models, bad management and the failure of members to support them. Albaek and Schultz (1997) claimed that co-operatives are inefficient since they tend to produce too much. Many co-operatives have the rule that the individual farmers themselves decide how much to deliver to the co-operative.

The co-operative is thus not in control of its input decision. If the co-operative faces a decreasing demand curve, it will tend to overproduce. The reason is simple that although an individual farmer may realize that an increase in production will decrease the price in the final market, he/she only internalizes his/her own part of the profit loss stemming from the price decrease. The story is not much different from other countries as explained in the following sub-section.

2.3.6 Success stories and failure of co-operatives from other countries

In Kenya, co-operatives especially in the dairy sector have recently experienced a drastic change in business environment from a monopoly to liberalised markets, where they compete with the private sector. The traditional operating methods learned during the regulated environment are no longer sufficient for successful competition. Although a need for change has been recognised in most cases, transformation of internal processes and organisational culture is slow and difficult. Some co-operatives still operate in the present market situation as if nothing had happened and continue their own government- and supplier-oriented cultures, which threaten their survival in the future. Only few co-operatives have been able to transform their processes to a more customer- and shareholder-oriented direction.

The general cultural focus in the surveyed co-operatives was, on the other hand, on keeping member service costs low and maintaining an adequate quality of service, which focus is typical for supplier-oriented cultures. However, supplier-oriented co-operatives do not tend to emphasize improving the quality of member production (Repetto and Cavalcanti, 1995).

In Uganda co-operatives also handled most marketing activity, although marketing boards and private companies sometimes dealt directly with producers. Many farmers complained that co-operatives did not pay for produce until long after it had been sold. The generally low producer prices set by the government and the problem of delayed payments for produce prompted many farmers to sell produce at higher prices on illegal markets in neighbouring countries. During most of the 1980s, the

government steadily raised producer prices for export crops in order to maintain some incentive for farmers to deal with government purchasing agents, but these incentives failed to prevent widespread smuggling (Bigirwa, 2005).

Asia has been used to represent the developing countries in discussing about the ability of agricultural co-operatives to minimise the exploitation of small farmers by various market intermediaries. The discussion argued that in most developing countries, the agricultural marketing system is characterized by a highly atomistic production side and an oligopolistic marketing system (where there are only a few traders). Marketing costs are high because of an inefficient transport system, inadequate cool storage capacity and significant variations in product form, variety and quality.

Furthermore, information and locational factors potentially limit the number of intermediaries available to transact with primary producers. In Asia the introduction of agricultural co-operatives is often perceived to be an effective means of providing farmers with some countervailing market power, there is increasing evidence that most attempts to intervene in the market have failed. Without first seeking to improve the physical infrastructure, the flow of market information, technical advice and capital, or to introduce appropriate pricing policies, quality standards and to upgrade the regulatory institutions, there is not only a greater chance of failure, but a greater possibility that any benefits derived from co-operative marketing will be disproportionately allocated to those who have the highest social status and most political power. With little or no access to education, most small farmers are unable

to participate meaningfully in any organization dealing with complex development functions such as management, marketing or finance (Batt, 2004).

In rural China co-operatives started to emerge as early as the 1920s under the Khoming Tang government. The concept became widely known in China in the 1950s. As in many other countries, China agricultural co-operatives have been used as a way of organizing farmers. They were strongly favoured in mid 1950s and this led to the establishment of tens of thousands of agricultural co-operatives across the country by 1957. Areas of cooperation were chiefly in agricultural production but also in rural supply and marketing, and agricultural credit (Khou, 2004).

This massive movement of agricultural co-operatives soon evolved into the people's commune movement. As a result, agricultural production co-operatives were soon replaced by agricultural collective farming in the form of 'production teams' at the grass roots level, 'production brigades' in the middle, and 'people's communes as the highest level of rural administrative organization. The people's commune system was gradually dissolved as a consequence of China's economic reforms that started in late 1978. Individual rural households regained their autonomy to carry out production activities. However, the marketing of some of their produce was still subject to government quotas in the earlier years (Brennan, 2004). The explanations above present the general benefits of co-operatives in other countries, which don't differ much with the ones in Tanzania. The main problems mentioned is the government interference to co-operatives, which is also a common feature in Tanzania.

2.4 The theoretical framework

The concept of transaction costs was first introduced in the late 1930s by a British graduate student named Ronald Coase. At the time, Coase was in the United States studying corporate structure and trying to determine why some industries are organized into only a few large firms, while others are organized very differently. The answer he arrived at was a concept he called "marketing" costs, or what has since become known simply as transaction costs (Coase, 1937).

A range of constraints and barriers including these transaction costs limit smallholder participation in the agricultural market. As a result most of the smallholder products are wasted after harvesting or sold at very low prices. Because of the uncertainty about prices, many farmers would take any price offered by buyers when there is a chance to participate. Farmers generally do not have the required information and means to locate better markets. Thus, transaction cost economics is especially relevant for agricultural market analysis in developing countries and the changes in the agricultural sector in general. The transaction costs framework can contribute in explaining the choice of contracts among farmers and traders, and local traders and multinationals (Kherallah and Kirsten, 2001).

There is often a large amount of effort that goes into choosing, organizing, negotiating and entering into even the most mundane contracts. The costs associated with these efforts are called transaction costs, and are generally independent of the price of the contracted product or service itself. Transaction costs stem from a wide variety of sources and are believed to represent over one third of all economic

activity in the United States. In less developed economies, transaction costs are thought to make up an even higher fraction of the overall GDP. Examples of contracts that typically have high transaction costs include choosing a telecommunications provider for a small business, planning and executing a multi-national corporate merger, hiring a senior software executive or buying a new car. Furthermore, Williamson (1995) cited by Shechambo (1993) summarises determinants of transaction costs as explained in the following sections.

2.4.1 Frequencies (repetitiveness)

The rate at which transactions have to be repeated creates more costs than less frequent ones. It follows therefore, that to guarantee repetitiveness of transaction costs have to be minimized by designing or choosing an appropriate institutional arrangement (e.g. common ownership of exchange interfaces).

2.4.2 Specificity

This refers to the extent which investments in significant (non-trivial) assets and which have limited alternative uses are committed by parties to a transaction when such investments or resources are specified into a transaction (in the form of technology, human capital or other long-term investment such as good will), a situation of bilateral monopoly is created.

2.4.3 Uncertainty

This refers to the existence of unknown variables or disturbances in the transaction atmosphere, which make the transacting atmosphere more complex. An environment

of uncertainty induces vertically integrated transaction mechanisms as a result of two fundamental constraints in human behaviour. These include the following: (a) Bounded rationality: This arises from limited capability of economic agents to acquire and process adequate information before committing themselves to a decision. This constraint invites the possibility of entering into transactions without the required information base. (b) Opportunism: This is propensity of human beings to behave strategically in order to promote self interests. Apart from Shechambo, other writers have explained these sources of transaction costs. Staatz (1987) put forward the principles of asset fixity, uncertainty and externality as follows:

(a) The Asset Fixity Principle

The asset fixity principle states that as assets become more specialized or "specific," autonomous market contracting becomes a progressively less efficient means of allocating them. An asset becomes more specific to a particular use or user as the cost of transferring the asset to alternative uses increases. This cost may reflect technical characteristics of the asset itself, the spatial dispersion of production, or poorly functioning factor market. The argument that agricultural co-operative firms are needed to preserve the market options of farmers is applicable largely in terms of the asset fixity principle. Asset fixity therefore underlies the arguments that co-operatives are necessary to provide farmers with market power and to preserve their access to market.

(b) The Uncertainty Principle

The uncertainty principle states that the greater the uncertainty surrounding a transaction the less likely the transaction is to be efficiently mediated by autonomous market contracting. As uncertainty increases, so does the cost of negotiating contracts; as unforeseen contingencies arise, so does the potential for opportunistic behaviour. An increase in uncertainty therefore creates incentives to shift from institutions like the spot market to contingent contracts and vertical integration. Because farmer co-operative firms combine elements of both vertical integration and contingency contracting, they may offer more ways of dealing with uncertainty than other associations like bargaining associations.

2.5 Conceptual framework

The particular attention of the co-operatives theory is the question of their involvement in downstream activities in the agrifood chain, and to its relevance to developing countries (Bennan, 2004). Here Bennan specify agrifood chain but this theory can be applied to other agricultural products. The idea of joining people with some activities in a group is similar to the "activity theory" proposed by Luthans (1992) that explains the dynamics of group formation. This theory holds that the fact that people are involved in similar activities tends to generate spontaneous interaction and sentimentality leading to (or in search of) co-operative and problems saving (Chibehe, 2004).

Co-operative is a useful tool to analyse how to overcome the free- rider problem and come up with co-operative solutions for the management of common resources or the provision of public goods (Kherallah and Kirsten, 2001).

In particular organizational and institutional arrangements of co-operatives are important in motivating farmers to participate in production and marketing crops by effectively reducing transaction costs. Because every structure for governing transactions is facing transaction costs of some kind, transaction partners and indeed the community at large, have to tackle a real economic problem in the choice and /or design institution mechanisms that would handle these costs as efficiently and as effectively as possible (Shechambo, 1993). The idea here is that these mechanisms will solve the problems associated with determinants of transaction costs namely; market distance, asset specificity, information, frequency (repetitiveness), and uncertainty. In short marketing system can reduce the impact of aspects of transaction costs. This will improve market margin and hence income of farmers. The figure 1 is the simple presentation of the concept explained above.

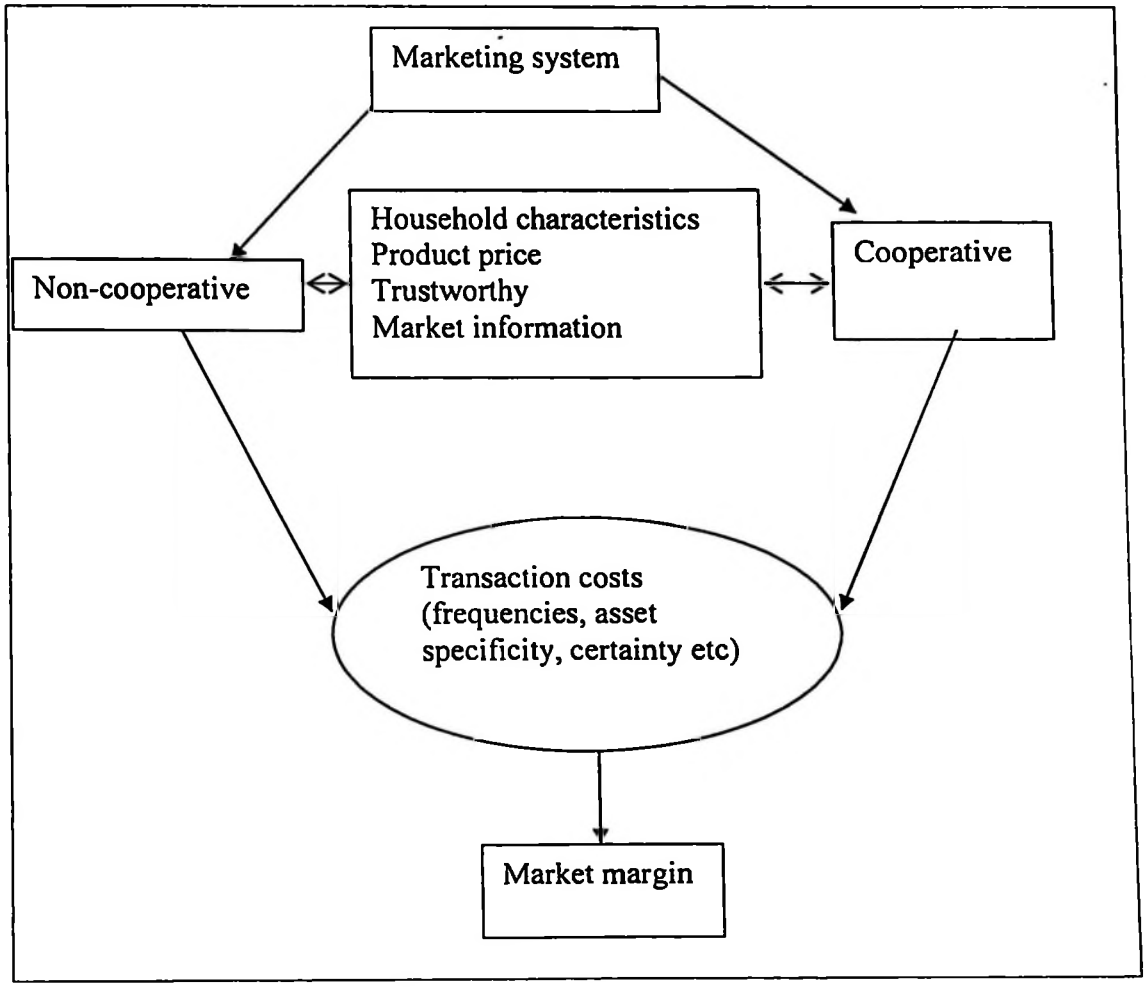

Figure 1: Conceptual framework

2.6 Review of empirical studies

Proper analysis is the key to rightful decision making in any endeavour. Analytical methods are nonetheless, a function of previous methodologies and procedures for which improvements can be made to enhance new findings and/or strengthen reliability of old ones.

Makhura (2001) employed Tobit model (procedures) to overcome sample selectivity bias problem when assessing the factors that determine market participation. Ideally, the Ordinary least squares (OLS) model is applicable when all households participate in the market. In reality not all households participate. Some households may not prefer to participate in a particular market in favour of another, while others may be excluded by market conditions. We can hypothesize that at least some households are prevented from selling because they face high transaction costs (Goetz, 1992 in Makhura, 2001). Probit and logit models have been proposed to be adequate techniques for addressing probability questions. He argued that Tobit is hybrid model between the logit or probit and the OLS. A Tobit model answers both of the following questions: (a) What factors influence the probability of selling? This question is answered by logit and probit. (b) What factors determine the level or magnitude of sales? This question is not answered by logit and probit models, but by OLS.

Goetz (1995) use Tobit model in analyzing and modelling the effects of transaction costs on an economic activity. He reviewed Tobit estimation method along with an extension of that method. Unlike the Ordinary Least Squares method, the Tobit methods yields unbiased coefficient estimates for regressions in which the dependent is censored. Also he used selectivity model to improve Tobit model in cases where the decision of an individual to carry out an activity (such as buying fertilizer) is influenced by non- random and unobservable factors such as willingness in bearing risks. If the process that switches an individual into a certain state is not a random one, but affected by both observable and unobservable variables, then ignoring

information about the switching mechanism may lead not only to less efficient but also to biased parameter estimates in the equation related to the continuous decision. Kilima *et al.* (1999) adopt cross tabulation analytical techniques to find if there was any association between respondents' marital status and membership in co-operatives.

Furthermore, Kisusu (2003) when determining the factors of farmers to adopt or not to adopt new technology (i.e. improved dairy cattle) employed the logistic model. Basing on these previous studies, this study adopts the logistic model in assessing the factors affecting the adoption of different market channels. The following chapter below explains the model adopted in the analysis and other aspects.

CHAPTER THREE

METHODOLOGY

3.1 Description of the study area

3.1.1 Location

The study was carried out at Arumeru district in Arusha region. Arumeru district lies on the slopes of mount Meru. Mount Meru, the second highest mountain in Tanzania after Kilimanjaro, rises up to 4 228 metres above sea level. Arumeru district is one of the five districts of Arusha region. The district is located north east of the region, bordering Kilimanjaro region to the east, Manyara region to the south and Monduli district to the west. It lies between longitudes 36°15′ -36°55′ east and latitudes 3°00′-3°40′ south.

3.1.2 Climate and topography

The district has bimodal type of rainfall, that is, short rains and long rains which fall in November to January and March to June respectively; thus the district has two agricultural seasons. The district is divided into three agro-ecological zones /belts:

3.1.2.1 Highland/upper belt

This is a mountainous area rising between 1 400m and 1 800m above sea level. It has an average annual rainfall of about 1 000mm. Most of the land area is covered by forests forming water catchments for most streams. The main economic activities are agriculture and zero grazing of livestock. Crops grown include coffee, pyrethrum, and bananas and round potatoes.

3.1.2.2 Middle zone/belt

This belt rises between 1 000m and 1 350m above sea level, receiving an average annual rainfall of 500mm. The major economic activities in this zone are livestock keeping and agriculture. Crops grown in this belt are coffee, banana, maize, beans, wheat/barley, rice, fruits and horticultural crops.

3.1.2.3 Lower zone/belt

This belt rises between 800m to 1 000m above sea level, receiving an average annual rainfall of about 300mm. Most of the rivers and/or streams originating from the upper belt spill their waters in this zone making irrigation the mainstay of the farmers. Agriculture is the most important activity and the major crops include rice, maize, beans, banana, cassava, sisal and horticultural crops.

3.1.3 Soils

Soils in Arumeru district are relatively new, fertile and mainly of volcanic origin. The soils are well drained dark sandy loams with moderate to high natural fertility and favourable moisture holding properties.

3.1.4 Demography

According to the 1998 census, the district population was 321 898 consisted of 164 646 females and 157 252 males. It was estimated to have 72 121 households of an average size of five (5) members. The population growth is 3.1%. According to the 2002 census, the regional average household size stands at 4.5 members and population growth rate is 4.0 (Akyoo, 2004).

3.1.5 Economic activities

The district has an area of 2 966 square kilometres (284 340 ha), which is just 3.4% of the total area of the region (Akyoo, 2004). Nyange (1993) reported the district to have a total area of 2 900 km2. Agricultural land is only about 18% of the total district land whereas 49% is used for grazing, pasture, national parks, forests and water. The remaining 33% is barren land of no major economic value. The available small agricultural land has thus to be fully utilized to meet food requirements of the district and beyond. Full utilization entails proper production management and marketing.

Agriculture is both for food and cash crop production. Although coffee has been the major cash crop in the district the current slump of coffee world market prices is threatening the future economic importance of the crop in the district. Price risk is thus a major problem to coffee farmers. Other major cash crops include pyrethrum, sugar cane and pigeon peas. Floriculture is growing fast and is currently practiced by large scale farmers. About 75 ha are under flowers in green houses. The cash crops profile in the district is as shown in Table 1.

Table 1: Cash crop production in Arumeru district

Crop	Area under cultivation (ha)	Average yield (tones/ha)	Production (tones)
Coffee	19 000	0.5	9 500
Pyrethrum	175	1.0	175
Sugar cane	420	10.0	4 200
Pigeon peas	400	1.75	700

Source: Arumeru district baseline information report (2002) in Akyoo (2004)

3.2 Justification for selecting the study area

Poli and King'ori are divisions selected in the Arumeru district. Poli lies on the upper belt while King'ori is on the middle belt. The selected villages from Poli division were Nkoaranga, Poli, Ndatu and Ngyani whereas Imbaseni village was selected from King'ori division. The villages were purposefully selected because of their accessibility, potential for coffee production in the district and presence of both primary co-operative societies (PCs) and private traders.

Coffee was selected as the main crop not only because of its strength of commercial importance in the district but also was due to the fact that the PCs established in area are mainly for coffee.

3.3 Source and type of data

The primary data were collected from small scale farmers using structured questionnaire in December, 2005. Specifically, these primary data were collected

from coffee growers who are co-operatives members and from the ones who are not co-operatives members. Also the secondary data were obtained from the village and co-operative offices. The main information which was used in the specified logistic model are age of household head, time spent to reach the market from homestead, time spent in negotiation, education of household head, accessibility of market price information, average coffee price and trustworthy of buyers.

Other information that was collected include income sources, land acquisition and ownership, inputs usage and costs, farm equipments/implements availability, credits, provision of technical assistance, crops produced, House hold expenditures. Time allocation, perception of farmers on various issues, information accessibility and cooperative/contract membership.

3.4 Design of the survey instruments and data collection

3.4.1 Primary data

The case study approach was employed in the study. The study area was selected using multistage approach. The design was chosen because the information can be gathered from any case study and enables the researcher to make estimates of the precision and generalizability of the findings. In order to address the objectives of the study, structured questionnaire was used. Questionnaire was divided into sections carrying both open and closed ended questions. In order to meet research objectives, probability and non-probability sampling techniques were applied by which both qualitative and quantitative data were collected. Multistage approach was used to select divisions, wards, villages and then farmers from which sample was drawn. The

sample size was 279 farmers. The snowball sampling technique was used to obtain interviewees. In the data collection exercise twenty enumerators were involved. Hamlet leaders introduced an enumerator to the first interviewee, and then the first interviewee introduced the enumerator to the next interviewee. The process continued until the exercise of data collection was completed.

The total of 54 farmers from Nkoaranga village, 56 from Poli, 63 from Imbaseni, 58 from Ndatu and 48 from Ngyani village were selected randomly and interviewed (see Table 2 below). The size of the sample per village depended on the availability and accessibility of respondents. Apart from the mentioned instruments, observation on various aspects was done.

Table 2: Respondents distribution

Village	Number	Percent
Nkoaranga	54	19.4
Poli	56	20.0
Imbaseni	63	22.6
Ndatu	58	20.8
Ngyani	48	17.2
Total	**279**	**100.0**

3.4.2 Secondary data

The secondary data were collected from five selected villages. A checklist was used to collect data from the village leaders. The main data collected were the population size, land size for agriculture purposes, main crop, main livestock, main income activities and the main source of power. Also the information on collective actions

was obtained from the village and co-operatives leaders. The main collective actions were co-operatives and farmers' groups.

3.5 Data analysis

3.5.1 Descriptive analysis

Several methods were used to analyse data. Descriptive and quantitative assessments were employed to meet the objectives and the hypotheses of the study. For descriptive analysis the use of means, percentage, cross tabulation were employed to describe the characteristics and trends of some of data and information. Statistical Package for Social Sciences (SPSS) was used to manage survey data and obtaining statistics required for interpretation.

3.5.2 Quantitative analysis

3.5.2.1 Logistic regression model

Principally, most farmers choose marketing channels by which they can benefit in various ways. Some aspects of transaction costs and household characteristics were taken to represent the independent variables influencing the decision of the farmers to adopt either co-operative or non-co-operative market channels. The logistic regression model was employed after reviewing various previous studies. The model was used to determine factors influencing the adoption of either market channel. The model is specified as follows:

Pro $\{p/(1-p)\} = Z = \alpha + \sum \beta n Xn + \omega$

Where:

Z	=	Vector of probabilities of adopting marketing arrangement (1= for co-operative and 0 = for non- co-operative)
Xn	=	is a vector of independent variables such as
Hsldage	=	Age of household head (years)
Tmmarket	=	Time spent to reach market place (in minutes)
Hrsbg	=	Hours spent in negotiation
Hsdyrsch	=	Education of household (number of years spent in school)
Prinform	=	Information on market price [1 = yes (i.e. if information on price is obtained), 0 =no (i.e. if information on price not obtained)]
Avpric	=	Average coffee price per kg (in TZS)
Trustwth	=	Trustworthy of traders [1 = Yes (if farmer trust buyer), 0 = no (if farmer not trust buyer)]
α	=	Intercept or constant term
β	=	regression coefficient explaining importance of variables
ω	=	standard error or disturbance term

3.5.2.2 Description of independent variables of the regression analysis

(a) Age of household head

Age is thought to be an important variable in deciding which market channel to use (Mukwenda, 2005). The more aged farmer is the more likely to opt for co-operative. It is thus expected to have a positive sign in the relationship.

(b) Time taken to reach market place

The time from homestead to marketplace has direct relation with the transfer costs. The more the time the higher the transfer costs. Farmers are expected to use a market channel, which will serve time and hence costs. Negative sign is expected since the more the time required to reach market the more the people who will diverge.

(c) Time spent in negotiation

Negotiation is a component of transaction costs. The more time used in negotiation the more the transaction costs (Boger, 2001). It is expected that the farmer will choose a marketing channel with less negotiation time hence a negative sign for the variable is expected.

(d) Education of houschold

Years spent in school were used to measure the level of education of household head. Education allows farmers to process and interpret information about market. Therefore, it is expected that more educated farmers are not interested in co-operative since they can manage to market without depending on collective actions. For that matter education is expected to have a negative sign.

(e) Market price information

Other things remaining the same, farmers with better access to information are likely to participate better in the market (Makhura, 2001). Farmers will join a marketing channel which can access information easily. The more the accessibility to

information the more the participation in the marketing channel. The positive sign is expected.

(f) Coffee average price

The rational supplier (coffee farmer in this context) opts to supply to the market with higher price. So in this a positive relationship between co-operative and price is expected.

(g) Trustworthy of buyers

Uncertainty can be reduced by trustworthy of buyers. In New institution economics literatures uncertainty has been mentioned as a source of transaction costs. Therefore, farmers will opt for the channel with a higher degree of trustworthy to reduce transaction costs. In this study the information was collected by asking respondents if they have trust in their buyers or not.

Furthermore, a t-test was employed to compare the transaction costs incurred by members and non-members of co-operatives.

3.5.2.3 Independent sample t-test

In this study Independent Sample t-test was employed to compare transaction costs incurred by members and non-members of co-operatives. These costs measured from the time used to reach the market, bargaining time, payment follow-up costs and product delivery costs. The results from this analysis assisted in concluding if co-operatives reduce transaction costs or not.

3.6 Limitations of the data

The limitations of the study were mainly in three areas. The limitations emanated in the field (during data collection), and data processing (data analysis) and lack of transparency of respondents. These components are further discussed below.

(a) Data availability and reliability

Data were collected from coffee farmers. Tanzanian farmers do not keep farm records thus their responses depended on their memories in different aspects. This is because some transactions are informal in nature. Such data can hardly be fully reliable. Farmers under this study are educationally and economically homogeneous, so it is expected to have the same shortcomings with different farmers thus reliability of the collected data does somehow have the same weakness.

To minimize the seriousness of the problem above, a two days seminar was conducted to equip enumerators with knowledge on how to assist farmers to remember issues.

(b) Inadequacy empirical work on the theme

As stated in the problem statement section, there are relatively few studies, which undertake empirical work to determine the effect of transaction costs on market participation by farmers. Specifically, there are few studies, which assess the capacity of collective action in reducing transaction costs. Analytical techniques explained in other literatures comparing the two states with appropriate modification were employed to analyze the data.

(c) Lack of transparency

Despite the effort of explaining the objectives and advantages of the survey, some farmers were not ready to disclose some information especially about the market for coffee. Some farmers lied deliberately thinking that the survey was to identify areas, which needed assistance. This problem was minimized by careful probing the interviewee. Also the way the questionnaire was set enabled the researchers to cross check the answers given before.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Overview

This chapter presents the findings of this study. The findings are both qualitative and quantitative and are governed by study objectives and hypotheses. The results from the primary data are presented first followed by those from the secondary data, which was obtained from village officials.

4.2 Description of coffee production and marketing system in the study area

This Section describes the coffee marketing system in the study area as objective number one of this study demanded. It covers the production and marketing aspects. A functional approach is used to describe the coffee marketing system in the study area.

4.2.1 Coffee production

4.2.1.1 Cropping pattern

The small-scale farmers were the sole producers of coffee in the study area. They produce cherries and process into parchment coffee. Other actors take part in the following stage of marketing. Apart from coffee production, the farmers diversified in production of food crops as described in the following paragraph.

Out of 79 households, 257 grow coffee, 15 grow Banana, 6 grow white maize and 1 grows tomatoes as major crops. This information is summarised in figure 2 below. Observation showed that there is a shift from coffee production to food crops. The

same observation was made by Temu (1999). The main reasons mentioned by farmers for the trend are low prices of coffee parchment and high prices of inputs including agrochemicals. Also the observation showed that a residential establishment is one of the factors that reduce land for coffee production. The residential establishment is increasing hand in hand with the increase in population. In order to address the objectives of the study only coffee is taken into account.

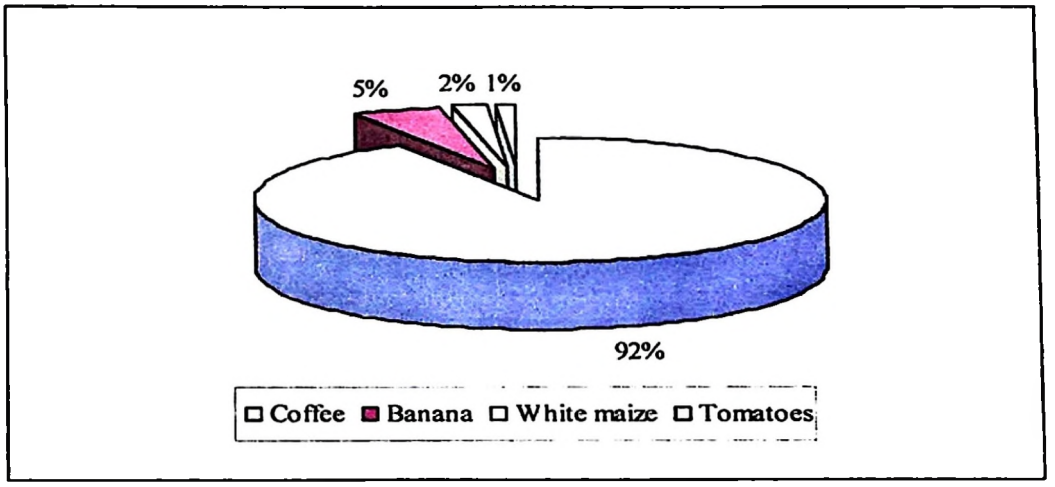

Figure 2: Crops production

4.2.1.2 Input use

In responding to the issue of inputs distribution, 100% of the farmers interviewed declared that market liberalization affected the input distribution system in the area because co-operative unions (CUs) that were major distributors of farm inputs failed to do their business effectively in the new environment. Farmers explained that before trade liberalization (i.e. over years) inputs distribution activities were done by their respective Primary Co-operative Societies (PCs). Also they mentioned the

Tanzania Farmers Association (TFA) as major importers and distributors of farm inputs before trade liberalization. The then Tanzania Rural Development Bank (TRDB) which later changed to name Co-operative and Rural Development Bank (CRDB) was mentioned as the most important source of financial services. The bank was working with co-operatives to sort out the financial requirements for input purchase. Farmers said that system was good because repayment of loans was through the deductions from output receipts. Currently farmers don't receive the services any more.

4.2.2 Coffee marketing system

4.2.2.1 Coffee harvesting and processing

Coffee is harvested by picking ripe cherries using hands. Farm level processing is done immediately after ripe cherries have been picked from the coffee trees. Coffee harvesting and on-farm processing is normally performed by the growers. Coffee processing refers to all the operations carried out on the crop from harvesting to delivery on the market. The process involves pulping (removal of the outer succulent part of the coffee cherry), fermenting, washing and drying of the coffee beans to produce parchment coffee. Wet processing method is the most common in the study area and farmers argued that the method is one way of removing poor quality fruits during floatation. The raw material for this process is ripe cherry beans and the final product is parchment coffee.

In the study area, 99% of the coffee produced by small-scale farmers is processed on-farm using hand pulpers. After pulping, the coffee is fermented to remove the

exocarp and part of the mesocarp, and then hand –washed and sun dried on mats or farmed wire mesh. Very rarely is pre-fermentation done to remove fragments of the left pulp. Then grading is done using floatation method to separate normal from light beans. At each stage of on-farm processing farmers sort coffee beans to lower impurities in order to attain a uniform quality product. Improper treatment of coffee during on-farm processing has significant impact on the quality of coffee.

Farmers said that before trade liberalization, co-operatives established centralized pulping services in some PCs to control processing in order to improve coffee quality but currently there are no such services. These activities are labour intensive and do not require any variable input from off-farm. This process is quite manageable at the household level, as farms are small and production is low. On-farm coffee is not stored for long time and so the common facilities of storage are sisal bags.

4.2.2.2 Coffee procurement

Farmers usually take coffee to an outlet, which could be a PCs or a PCB village posts, a co-operative union station or to a curing factory. The survey found that most farmers sell coffee several times in a year. This is partially a reflection of the frequency of picking coffee cherries, which follows the pattern of the ripening of coffee beans and the farmer's behaviour of selling which can be influenced by need for cash for the school fees and other daily transactions or speculation. Farmers have access to several buying posts owned by different traders. This indicates an increased fragmentation of the market, which leads to high assembling costs and transaction costs. The decision of where to market depends on many factors including distance

to the outlet, product valuation measures, measurements, price, payment arrangement, marketing risks and availability of the buyers. In general, it is uneconomic for a farmer to transport coffee to a union or a curing factory unless it is the nearest outlet.

Co-operatives compete with private traders at each stage in the marketing channel. Many farmers, when interviewed, assert that it is good for the industry to have both the co-operatives and private traders in the market for competitiveness; either one alone was considered not good for farmers. On the other hand, co-operatives have the experience and infrastructure that reduce marketing cost when used efficiently.

Before coffee is exported, it is cured, graded and classified into various quality classes. Tanganyika Coffee Curing Company (TCCCO) and private traders operate curing factories in the northern zone of Tanzania.

4.2.2.3 Auctioning of coffee

Once coffee has been cured and graded, it is prepared for auction market where licensed exporters bid for it. All suppliers are required to send samples from lots –on-sell to the Tanzania Coffee Board (TCB) liquor section for quality classification. The TCB undertakes liquor tasting before the auction to determine reserve prices and monitor quality of the coffee beans. By law, all coffee bound for export must pass through the TCB auction. Table 3 and Figure 3 below summarize the information given above. Table 3 below present the marketing functions and actors and figure 3 present the marketing channel.

Table 3: Functions and the market participants

Marketing functions	Participants
On-farming processing (pulping, fermenting, washing and drying), Packing (bags), Transporting (local) and Exchanging (grade negotiations)	Farmers
Grading, Standardizing, Packing (bags), Storing, Transporting to curing factory	PCS, PCB and CUs
Standardizing, Curing and Grading, Packing (bags) and Storing	Curing factory
Preparation for Auction and Auctioning, Collecting levies and taxes	TCB
Buying from the Auction market, Documenting, Communicating with external buyer, Transporting to the port, Arranging shipping with THA (Port and shipping charges)	Exporters

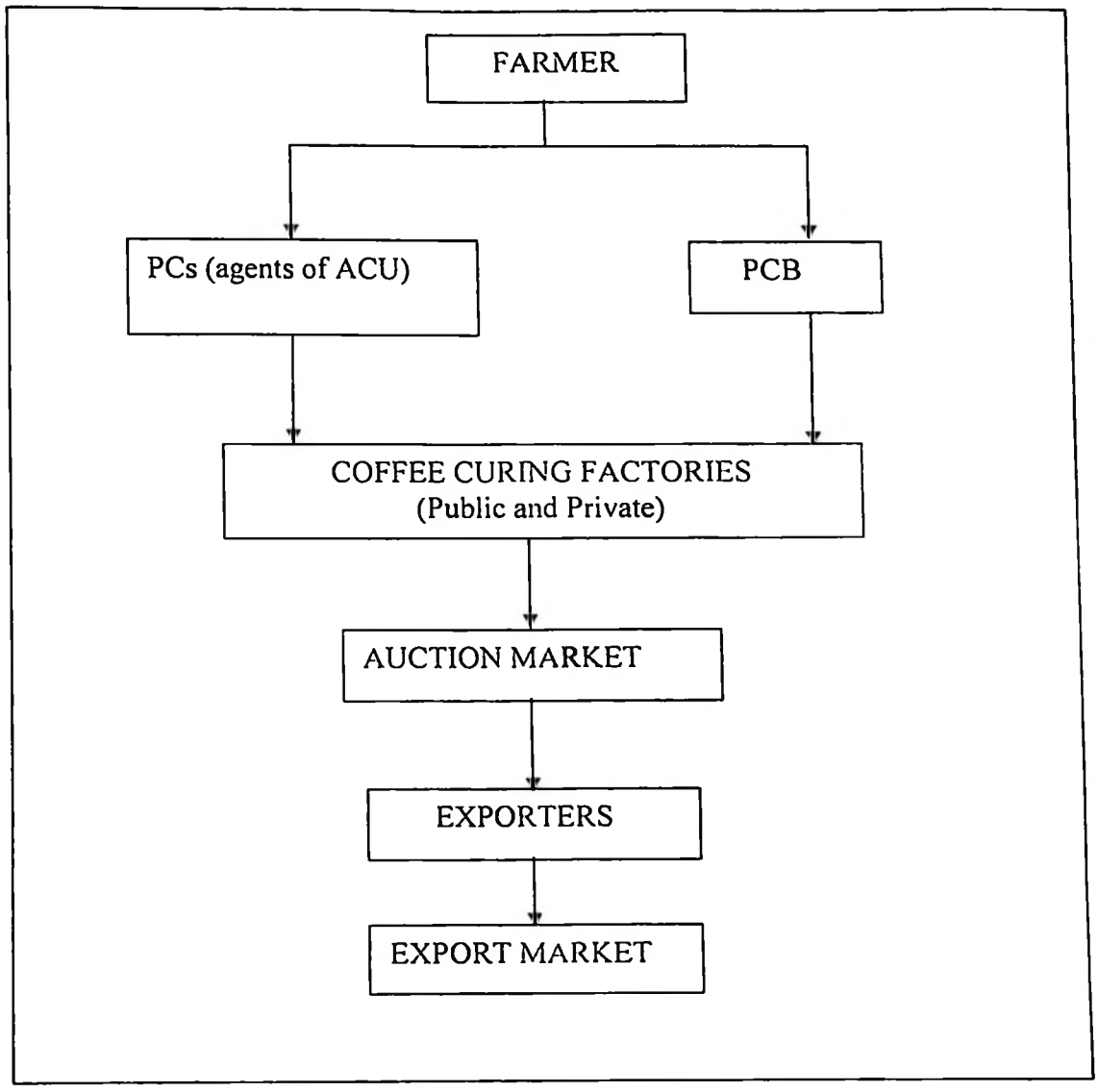

Figure 3: Coffee marketing channel

4.3 Descriptive analysis

4.3.1 Perception of the farmers towards coffee marketing system

This section describes the perception of the farmers toward the coffee marketing system as the second objective demanded. First the general perception toward the marketing system was described followed by description on the perception by villages and then by household characteristics.

4.3.1.1 General perception of farmers toward coffee marketing system

This was addressed by asking respondents whether co-operatives are beneficial to them or not. Out of 257 coffee farmers 128 (49.8%) responded that co-operatives are beneficial and 123 (47.8%) responded that co-operatives are not beneficial while 6 (2.3%) responded that they did not know whether co-operatives is beneficial or not (Figure 4).

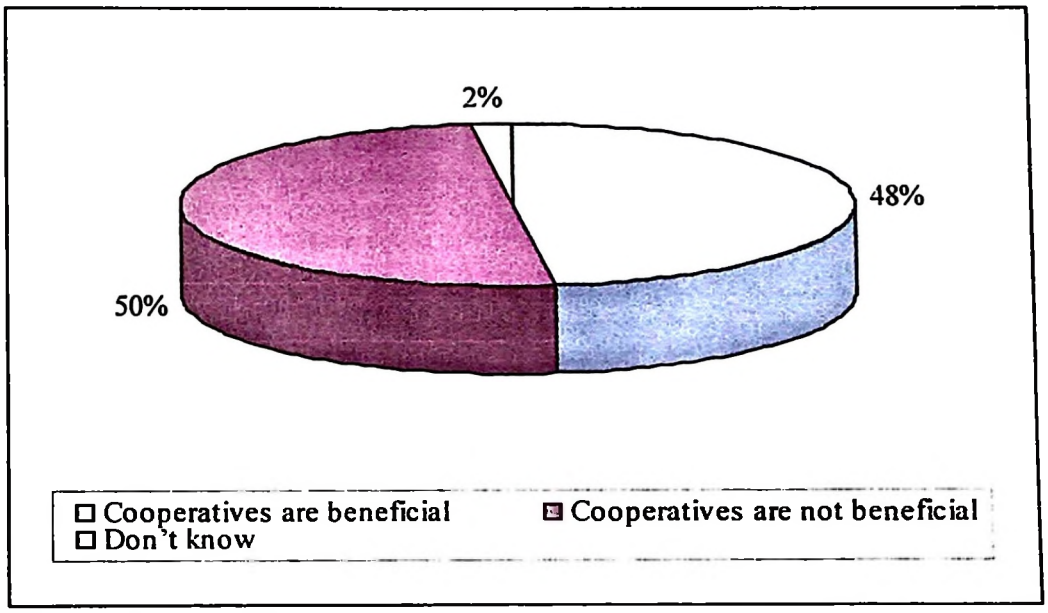

Figure 4: Coffee farmers' perception towards cooperative

4.3.1.2 Farmers perception towards the marketing system by village

This subsection describes different views of coffee farmers concerning the co-operative. The farmers were asked if the co-operative is an important marketing channel in disposing their outputs. The results showed no significant difference in perception across the villages. The result revealed that 61.5% of farmers accept co-operatives as an important channel for delivering output, 36.6% said co-operatives

are not important and 1.9% said they don't know (Table 4). The percentages also represent the attitudes of the coffee farmers towards the cooperatives.

Table 4: Farmers perception towards the co-operative (percent of respondents)

Variable	Village of farmer										Total
	Ngyani		Nkoaranga		Poli		Imbaseni		Ndatu		
	n	%	n	%	n	%	n	%	n	%	%
Not Important	14	5.4	13	5.1	22	8.6	22	8.6	23	8.9	36.6
Important	34	13.2	27	10.5	31	12.1	32	12.5	34	13.2	61.5
Don't know	0	0.0	0	0.0	1	0.3	3	1.1	1	0.3	1.9
Total	48	18.6	40	15.6	54	21	57	22.2	58	22.4	100.0

4.3.1.3 Farmers perception towards the marketing system by age

The survey established that farmers' perception towards co-operative across the ages was very positive. Overall, 61.5% of the respondents claimed co-operative to be the most important channel for the coffee marketing over the other marketing channels. The perceptions assessed across age groups whereby two groups were established. The economically active age range from 18-64years and unproductive ages ≥65 years. Perception between ages was significantly different (Table 5). The big percent of old people perceive co-operative as unimportant system. This is probably due to the fact that the old people were trying to compare the period before trade

liberalization where the credits in term of inputs and farm implements were given and period after trade liberalization where these credits are not provided.

Table 5: Farmers perception towards the marketing system by age

Variable	Age group (in years)					
	18 – 64		≥65		Total	
	n	%	n	%	n	%
Coop is not important	67	26.1	27	10.5	94	36.6
Coop is important	114	44.4	44	17.1	158	61.5
Don't know	3	1.2	2	0.7	5	1.9
Total	**184**	**71.7**	**73**	**28.3**	**257**	**100.0**

4.3.1.4 Farmers perception towards the marketing system by gender

In overall terms, the results revealed that 7.8% of respondents were females and 92.2% were males. The results revealed that perception between genders was not significantly different. In Figure 5 below, the first and last bars represented that the percentage of females who responded that co-operatives are not important or they do not know overweigh the percentage of males. This may be because females are not involved much in coffee marketing, hence they do not have enough knowledge about co-operatives.

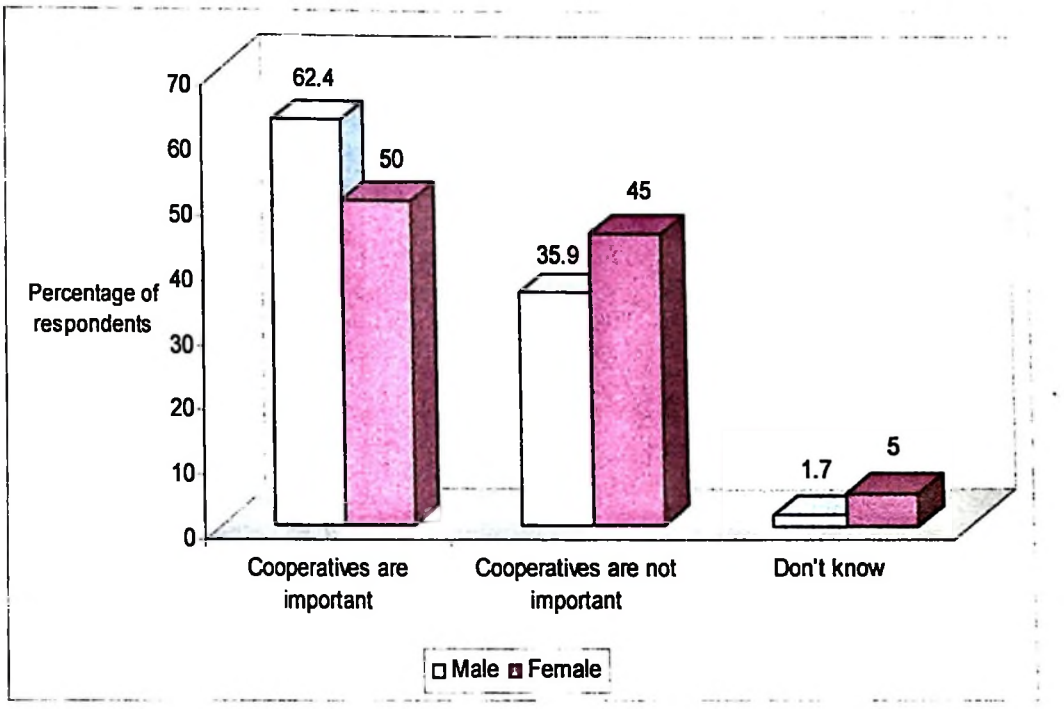

Figure 5: Farmers perception towards co-operative by gender

4.3.1.5 Farmers perception towards the marketing system by education level of respondent

The education of a household was measured in terms of number of years a respondent spent in the school. Years which equal or are below seven represent primary education level and above seven years represent secondary education and above. Out of those who spent equal or less than seven years in school, 11.3% declared that the co-operatives are not important. 15.2% they declared co-operatives to be important while out of those who spent more than seven years in school, 25.3% show negative attitude toward co-operatives, 46.3% concurs with co-operatives as good marketing channel and 1.9% claimed that they do not know. The results

showed that there is a big difference in perception of coffee farmers across the education levels (Figure 6).

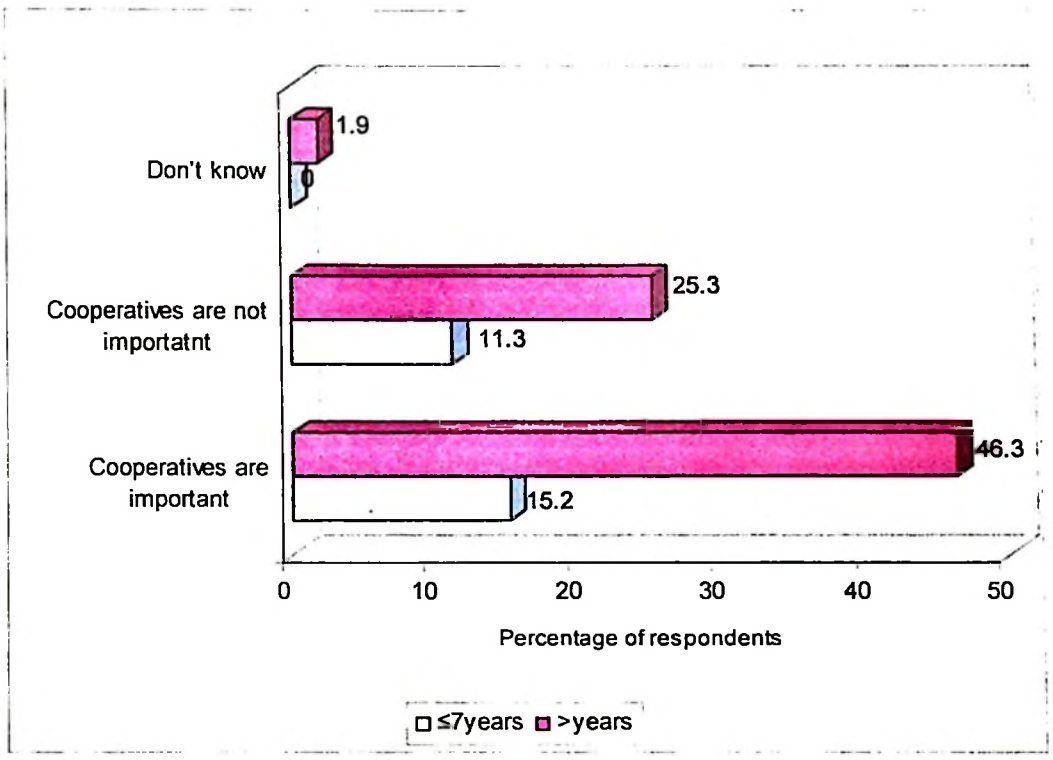

Figure 6: Farmers perception towards co-operative by education level of respondent

4.3.1.6 Reasons for perceptions towards co operatives

The farmers gave different reasons for their perception on co-operatives. Those who declare co-operatives to be beneficial to their coffee marketing mentioned the collective use of scarce resources, credits in term of inputs, remunerative price and technical assistance as the benefits from co-operatives. On the other hand those who

had negative attitude toward co-operatives gave reasons such as delayed payments, bureaucracy and lack of credit provision (Table 6).

Table 6: Reasons for farmers' perception toward co-operative

Perception	Reasons	Number of respondent	Percent of respondent
It is beneficial (N = 128)	Scarce resources can be used collectively	30	23
	Can get credits in term of inputs	50	40
	Remurative price	40	31
	Provide technical advice	8	6
	Delayed payments	60	49
It is not beneficial (123)	Bureaucracy	50	40
	No credit provided	13	11

4.3.2 Factors for adoption of marketing channel

This section describes the influence of age of household head, gender of household head, marital status, and education of household head in deciding on the market channel. Cross tabulation technique was used to asses if decision of adopting marketing channel differ between these household characteristics. According to Makhura, (2001) the head of the household is responsible for the co-ordination of the household activities. As such it is pertinent to include some attributes such as gender, age and education of the head in the specification of market participation decisions

4.3.2.1 Influence of age of household head on marketing channel choice

Age of the head of household is a crucial factor since it reflects the experience and decisions on the risk-taking attitude in market type participation. In this study the minimum age of household head is 25 years and the maximum is 87 years for members of co-operatives while for non-members of co-operatives the minimum and maximum age are 23 and 82 years old respectively. The average age for members of co-operative is about 53 years and 56 years for non-members of co-operative.

When ages are grouped, the members of co-operative of 35 years old and below comprise 8.3% (i.e. 15 out of 182 members) while for non-members of co-operative comprise 10.7% (8 out of 75 non-members). Based on the ages, non members of co-operative are relatively younger than members of co-operative. This may be the reason for new market adoption as it is believed that the younger adopt faster than elders. Also age relates to experience therefore that is why members of co-operative are older than non- members. Using experience they know the benefits of co-operatives. The result showed that the decision do not differ significantly by age (Table 7).

Table 7: Influence of age on market channel choice

Age of respondent	Non co-ops users		Co-operative users		Total	
	n	%	n	%	n	%
< 35	8	10.7	15	8.3	23	8.9
35 – 64	49	65.3	112	61.5	161	62.6
> 64	18	24.0	55	30.2	73	28.4
Total	**75**	**100.0**	**182**	**100.0**	**257**	**100.0**

4.3.2.2 Influence of gender of household head on market channel choice

The relationship between gender and market channels (i.e. co-operative and non-co-operative channel) revealed that out of the 182 households who are members of co-operative, about 92 % (168) of households are headed by men. In the case of non-members of co-operative the same results were obtained. This is a common phenomenon in Africa tradition where a husband in the most cases is a household head (Mukwenda, 2005). However, there is no significant difference in the influence of gender on deciding whether to join co-operatives or not (Table 8).

Table 8: Influence of gender on market channel choice

Market channel	Male		Female		Total	
	n	%	n	%	n	%
Non-co-operative users	69	92.0	6	8.0	75	29.2
Co-operative users	168	92.3	14	7.7	182	70.8
Total	**237**	**92.2**	**20**	**7.8**	**257**	**100.0**

4.3.2.3 Marital status of household head as factors of adopting marketing channel

Marital status determines the decision-making. The results summarized in table 9 below indicated that 88.5% of members of co-operatives and 89.3% of non-members of co-operatives were married. The 2.2% members of co-operatives and 2.7% non-members of co-operatives were never married. The 8.8% members of co-operatives and 8% non members of co-operative were widowed. The 0.5% members of co-operatives and 0% non members of co-operative were separated. The findings of this study revealed that marital status does not influence the decision of choosing market channel significantly.

Table 9: Influence of marital status on market channel choice

Marital status	Co-operative users		Non co-operative users		Total	
	n	%	n	%	n	%
Currently married	161	88.5	67	89.3	228	88.7
Never married	4	2.2	2	2.7	6	2.3
Widowed	16	8.8	6	8.0	22	8.6
Separated	1	0.5	0	0.0	1	0.4
Total	**182**	**100.0**	**75**	**100.0**	**257**	**100.0**

4.3.2.4 Contribution of education of household head on marketing channel choice

Another important attribute to decision-making in a marketing channel is the level of education attained by the heads of the household who normally are the decision-makers. Makhura (2001) argued that education enables an individual to search and interpret information. The results showed that 19 out of 257 interviewees were not formally educated, the 66.1% had primary education, the 24.1% secondary education and 2.3% had college and above education. When these were distributed in co-operatives and non-co-operatives users, the 1.6% out of 7.4% who are not educated were non co-operatives users while 5.8% were co-operatives users. For primary education, 17.9% were non co-operatives users while 48.2% were co-operatives users. For secondary education, non co-operatives users comprised 9.7% and co-operatives users 14.4%. No non co-operative users reached college and above education while co-operatives users who attended college and above education comprised 2.3% (Table 10).

Table 10: Influence of education on market channel choice

Level of education	Non-co-operatives users		Co-operatives users		Total	
	n	%	n	%	n	%
No education	4	1.6	15	5.8	19	7.4
Primary education	46	17.9	124	48.2	170	66.1
Secondary education	25	9.7	37	14.4	62	24.1
College and above	0.0	0.0	6	2.3	6	2.3
Total	**75**	**29.2**	**182**	**70.8**	**257**	**100.0**

4.3.3 Aspects of marketing transaction costs in the study area

4.3.3.1 Asset specifity

According to "Asset fixity principle" an asset become more specific to a particular use or user as the cost of transferring the asset to alternative uses increases. In this study farmers were asked if land, implements and inputs can be used for crop production other than cash crops (i.e. coffee in this context). The findings of this study revealed that 130 (about 71%) out of 182 members of co-operatives can locate inputs not only in market oriented production but also in other production. On the other hand, the 56 (75%) out of 75 non-members of co-operative are flexible in terms of the inputs use. These findings are contradicting argument that agricultural co-operatives solve the problem of asset specificity than other arrangements.

4.3.3.2 Distance to market place and mode of transportation

In this study the information on the distance from the dwellings to the marketing place as well as the modes of transportation were captured as they are considered to be important aspects of transaction costs. In his model, Boger (2001) included among other variables, the distance and means of transportation to asses to what extent the transaction costs influence the marketing channel choice.

The study revealed that about 80% of the members of co-operatives live 2.5 kilometers or less from the market place while the rest live 3 kilometers and above. About 71% walk to the market place and the rest use different means of transportation including Buses, Pick-up trucks, Ox-carts, car/carts, bicycles, motocycle/motortaxis, wheelbarrows, and others. This implies that the transportation of coffee is labour intensive and time may be an important cost aspect. On the other hand, the main characteristic of non-members of co-operatives which differentiate them from the former group is the distance travelled to reach the market place. It revealed that 6.3% of farmers walk zero distance. This implies that some sales are done at home. Private traders collect coffee at the farmers' homes. This is due to the competition among private traders themselves and also competition with primary co-operatives.

4.3.3.3 Marketing information accessibility

Information and knowledge are key factors in promoting in closer vertical co-ordination, as appropriate market institutions are a precondition for their transmission

(Boehlje and Schrader, 1998 in Boger, 2000). This section describes accessibility of information of market prices and traders

(a) Accessibility of market price information

The information on the accessibility of price was collected by asking the farmers if the current price of the products is known. The 146 out of 182 (i.e. about 80%) members of co-operatives said that they were aware of the prevailing price for their products while only 38 out of 70 (i.e. about 54%) are aware of the prevailing price (Table 11). The lesson obtained here is that, co-operatives enable their members to access information of their products' price. It is expected that receiving the information of price will easily reduce the cost of price searching. The sources of price information of the two are the (i.e. Friends, Neighbour, Collector, and gatherer, Extensionists, Radio and Announcements). From the cross tabulation results it revealed that the accessibility of market price information between the two groups differ very significantly at $p = 0.000$.

Table 11: Price information accessibility

Market channel	Number of farmers receiving or not receiving price information				Total
	Receiving price information		Not receiving Price information		
	n	%	n	%	
Co-operative	146	80	36	20	182
Non co-operative	38	54	32	46	70
Total	**184**		**68**		**252**

(b) Information on traders

About 49% of the members of co-operatives know their buyers ten years and above while only about 28% of the non-members of co-operatives have ten years and above experience about their buyers. This result was expected because primary co-operatives have a long history compared to the private buyers. It is commonly believed that long experience with buyers establishes reputation and therefore possibility of reducing screening costs (transaction costs). Therefore, it can be argued that co-operatives reduce transaction costs. Furthermore, results show that about 43% of members of co-operatives can look for other buyers if the price offered by their current buyers is not attractive. On the other hand, about 54% of the non-members of co-operatives show the possibility of switching to new buyers if price offered by their buyers is not attractive.

These results contradict the researcher's expectations because it was expected that people from co-operatives to have more information on their buyers. This may be because sources of information are the same for both groups but non-members of co-operatives are younger than those of co-operatives members and it is believed that age has influence on information searching. When cross tabulation analysis was done it showed that no significant difference between the two groups on traders information accessibility (i.e. $p = 0.778$).

4.3.3.4 Number of transactions

In this study the number of transactions is taken as frequency of sales. As it was said earlier, frequency of sales is one of the sources of transaction cost. Co-operatives

said to minimize number of transactions and hence low transaction costs. Survey data revealed that 130(i.e. 71.4%) out of 182 members of co-operatives sell their products 1 to 3 times in a year (one season) while 52 (69.3%) out of 75 non-members of co-operative sell 1 to 3 times in a year (Table 12 below). This concurred with the argument that co-operative minimizes number of transactions and hence low transaction costs. Also when crosstabulation analysis undertaken between the number of transactions and two groups, the results showed that the number of transactions between market channels (coops and non-coops) differ significantly at p = 0.000. This justify that co-operatives reduces transaction costs resulted from number of transactions.

Table 12: Number of transaction per market channel

Market channel	Number of transactions					
	>3		≤3		Total	
	n	%	n	%	n	%
Coops	52	28.6	130	71.4	182	100
Non-coops	23	30.7	52	69.3	75	100

4.3.3.5 Marketing contract

Marketing arrangements between producers and buyers has impact on transaction costs. Well enforced contract will reduce uncertainty and therefore low transaction costs. In this study the aspect of contractual arrangement was captured by asking if there was any written contract. The study revealed that about 31% of the members

of co-operative have written contract with their buyers and only 12% of the non-members of co-operative have written contract with their buyers (Table 13). Comparing the two groups it can be said that members of co-operative are likely to benefit more in marketing their products and off course less risk and transaction costs. Chi-square tests showed that members of co-operatives have more written contracts than non-members hence low transaction costs. Contractual arrangement in two channels differ significantly at $p = 0.001$.

Table 13: Market contractual arrangement

Market type	If the farmers have written contract with their buyers				
	Yes		No		Total
	n	%	n	%	
Co-operative	54	31	123	69	177
Non cooperative	8	12	58	88	66
Total	**62**	**25.5**	**181**	**74.5**	**243**

4.3.3.6 Negotiation

Negotiation is an important aspect as far as transaction costs are concerned. In this study the aspect was captured by finding out the number of buyers by whom producers were contacted. It is believed that the more contacts the more transaction costs incurred. The findings of this study revealed that about 98% of members of co-operatives contact three or fewer buyers in a season while about 96% of non-members of co-operatives contact the same number of buyers. Based on the percentages obtained it showed that members of co-operative will incur slightly less

cost in negotiating price. When chi-square tests were done the significance was at p = 0.079 implying that the two groups don't differ significantly in this aspect hence equal transaction costs that they will incur.

4.3.3.7 Trustworthy

About 77% of the members of co-operatives declared to totally trust their buyers while only about 59% of the non members of co-operatives totally trust their buyers (Table 14 below). This reflects the aspect of uncertainty. The members of co-operatives are more certain with their buyers compared to non members of co-operative. With certainty, less effort (less cost) is required in screening buyers. These findings concurred with those by Szabo (2002) that co-operatives used to be considered as organized trusts. This is also justified by chi-square tests which showed that the two groups differ significantly in that aspect at p = 0.007. Therefore, these results showed that co-operatives reduce transaction costs.

Table 14: Trust of farmers on buyers (percent of respondents)

Market type	**If the farmers have written contract with their buyers**				
	Total trust on buyers by farmers		Total distrust on buyers by farmers		Total
	n	%	n	%	
Co-operative	129	70.9	53	29.1	182
Non cooperative	40	53.3	35	46.7	75
Total	**169**	**65.8**	**88**	**34.2**	**257**

4.3.4 Access to credit

According to Mukwenda (2005) the shortage of credit is one of the limiting factors in operation and business expansion. He mentioned the reasons for not acquiring credit to be high interest rates, lack of awareness, and lack of capital. Likewise, shortage of credit may be limiting factor in Agricultural production and marketing. This study intended to find out if a co-operative minimizes the barriers for credit accessibility.

The results of this study revealed that a small number of both members and non members of co-operatives apply for credit (i.e. 3.5 and 12.3% respectively). Comparatively, a bigger number of non members of co-operative applied for credit. This may be because their buyers do not support the production activities by providing inputs. The 100% of the members of co-operatives who applied for credit received it while only about 83% of non members of co-operatives who applied received credit. The major barrier which was mentioned is lack of necessary documents. Therefore, co-operatives may be used as security for acquiring credit. The chi-square tests showed no significant difference on credit provision between the two groups (i.e. $p = 0.39$).

4.3.5 Technical assistance

From the literatures it is believed that, it is easier and cheaper to provide different services including technical services to groups than to individuals. The results of this study revealed that only 22.5% of the members of co-operatives receive technical assistance and only 24.3% of non members of co-operative. Firstly, these percentages are small, meaning that provision of technical services for both groups is

low. This may lead to poor production and marketing and hence low income. Secondly, non-members of co operatives receive technical services more than members of co-operative. These contradict the belief stated above. This may be due to inefficient performance of co-operatives as mentioned in various literatures. The chi- square. tests (p = 398) revealed that there is no significant difference for technical services provision between the marketing channel.

4.4 Quantitative analysis

4.4.1 Logistic regression analysis results

The third objective of this study was to examine the factors affecting adoption of either market channel empirically. To fulfil the objective the logistic model was adopted after reviewing the previous works to examine the factors affecting adoption. Apart from household head characteristics, the aspects of transaction costs were used as explanatory variables since the main concern of this study is the analysis of transaction costs along the marketing channels.

Market arrangements (co-operatives, D = 1) and non-co-operatives, D = 0) was thus the dependent variable and the regressors were age of household head, time used to reach market place, hours spent in negotiation, years spent in school, information on market price, average coffee price and trustworthy of buyers. After several running of the model, other independent variables were dropped. These factors were dropped for two major reasons. Firstly, they were all insignificant in the relationship and secondly; they were not the major aspects of transaction costs. Again the variables

adopted in this model can justify if farmers join co-operatives to serve transaction costs or join them for other reasons.

Although some of the repressors were insignificant, they were maintained due to their relevancy in the model. The sections below explain each variable used in the model basing on the sign of estimated coefficient value and level of significance.

Age had insignificant relationship with co-operatives' membership ($p > 0.05$). The insignificancy implies that age has very little influence on decision to choose either market type (i.e. co-operative or no-co-operative). This is so because the ages of respondents in the two groups did not differ much. Despite this insignificance the estimated coefficient is positive as was expected. This implies that the older the farmer the more he/she participated in co-operatives. These findings concur with the ones by Kilima *et al.* (1999), which assert that matured people are active in co-operatives than the young who are very mobile and tend to use their income conspicuously.

The result revealed that the time taken to reach markets is not an important factor affecting the adoption of either market channel (i.e. co-operatives or no-co-operatives). This is so because both co-operatives and private traders are situated within the production areas. Apart from insignificance, the estimated coefficient is positive something which is contrary to the expectations. It was expected that if much time was required to reach the market, farmers would withdraw from the

channel. Probably farmers expected other benefits and so they did not bother about distance.

The more the time for negotiation means the higher the transaction costs and so it discourages farmers to join a particular market channel. The sign of parameter is positive something which is against the expectations. Probably it is due to the belief that much negotiation leads to remunerative price. Again from the analysis the parameter showed insignificance (i.e. $p > 0.05$) meaning that the time spent in negotiation is not an important factor for adopting a particular market channel.

Coefficient estimate of education was negative. The sign was expected because as people become educated they tend to stand on their own without co-operatives. The same findings were obtained by Kilima *et al.* (1999) when used t- statistics. The study found that the association between education level and membership in co-operatives was negative. The reason given was that a small number of rural elite were not necessarily compelled to join in co-operatives for agricultural credit, inputs and market needs because they had relatively higher income than rural based farmers and were able to search for markets for their agricultural inputs and produce. The same reason may be relevant in this study. Education had insignificant relationship with co-operatives' membership ($p > 0.05$). This insignificance implies that education has very little or no influence on decision to choose either market type (i.e. co-operatives or no-co-operatives). This is so because most of the respondents fall in one level of education.

The access to information on market price showed positive sign. It was expected that people would join co-operative to access information as the result revealed. The more the information accessibility the more farmers will join co-operatives. According to literatures of new institution economics, sufficient and correct information reduces transaction costs. Also the variable is significant at $p = 0.000$. So the price information is a very important factor for farmers to decide which channel to use for coffee marketing.

The sign of average coffee price is positive as expected, implying that the higher the price the more farmers will prefer a particular market channel. The variable influences the decision insignificantly (i.e. $p > 0.050$). This implies that the average price is not an important variable for deciding what market channel to join. This may be because there is no big different in prices received by the two groups (users and non users of co-operatives).

The trustworthy of traders estimated value is positive as expected, meaning that the market channel membership increases as the trustworthy increases. Due to the trustworthy which in turn reduces the uncertainties, it is evident that co-operatives reduce transaction costs. The variable showed to influence the decision of farmers significantly at $p < 0.05$. Therefore, this is another important factor influencing the adoption of either market channel.

In summary, the variables (aspects) which showed the expected sign but insignificant are age, education of household head and average coffee price. Those which showed

both an unexpected sign and insignificance are time spent to reach the market place and time spent in negotiation. Only two variables showed both expected sign and significance at $p<0.05$. Each case has been explained under its respective subsection. The parameter estimation results are summarized in Table 15 below.

Table 15: Logistic regression analysis parameter estimate results

Variable/estimates	B	S.E	Wald	Df	Sig
Age of household head	.007	.013	.276	1	.599
Time spent to reach market place	.012	.021	.301	1	.583
Hours spent in negotiation	-.048	.094	.256	1	.613
Years spent in school	-.051	.048	-1.138	1	.286
Information on market price	-1.266	.334	14.337	1	.000*
Average coffee price	-.001	.001	.782	1	.377
Buyers trustworthy	.792	.324	5.98	1	.014*
Cox & snell Rsquare = 9.6%	-2loglikelihood= 250.774				
Nagelkerke Rsquare = 13.7%					

* = significant at $p < 0.05$

4.4.2 The Independent Sample t-test results

The third objective of this study was to compare the transaction costs incurred by the users and non-users of co-operatives. In this study information on various aspects of transaction costs were collected. T-test was used to compare transaction costs attached in aspects of transaction costs (time taken to reach market, bargaining, time used to follow trader for payment and amount spent in product delivery) between the

marketing channels (i.e. coops and non-coops). Measurement used was TZS, so conversion was done if measurement was not in money terms. The conversion factor was 1hour for TZS 187.5. This conversion factor arose from the fact that in the study area a casual labourer was paid TZS 1 500 per day (i.e. 8 hours). The description of each variable is given below and table 16 summarizes the results of the analysis

4.4.2.1 Time used to reach the market place (converted into TZS)

From the literature, it is believed that the time has a cost element. Therefore, the channel that required more time to reach the market place is more expensive. The t-value obtained was 0.134 which is insignificant. In this aspect the result showed that there is no difference in transaction costs between the users and the non users of co-operatives.

4.4.2.2 Bargaining time (Converted into TZS)

Bargaining is one of the important elements of transaction costs. In this study information on the time used to bargain condition of sales was collected and then converted into TZS and when compared using t- statistics it showed no significant difference between the users and non users of co-operatives. From the results it can be concluded that there is no difference in transaction costs incurred by the two groups in bargaining condition of sales.

4.4.2.3 Payment follow-up costs

The time spent in following traders for payment was collected and then converted into TZS. The analysis gives t-value as being equal to -1.281, which is insignificant.

The result implies that there is no difference in transaction costs incurred by members and non-members of cooperatives in payment follow-up.

4.4.2.4 Product delivery costs

A product delivery cost is another element of transaction costs. The information collected in Tanzanian shillings and compared between the users and non users of cooperatives. The result showed that the product delivery costs differ significantly at 10% between the members and non-members. From these results it can be justified that co-operatives have lower transaction costs compared to the other channels found in the study area. When the transaction costs from all aspects were added up and the means compared by using t-statistic, the result showed that transaction costs incurred by members and non-members of co-operatives don't differ significantly. The results are summarized in the Table 16.

Table 16: Summary of transaction costs in the study area

Variable	Coops	Non-coop	t	Sig.(2-tailed)
	Mean	Mean		
Cost (time used to reach market (TZS)	4 024	4 050	0.134	0.893.
Payment follow-up cost (TZS)	158	166	0.161	0.872
Bargaining cost (TZS)	150	128	-1.281	0.201
Products delivery cost (TZS)	1 379	1 595	1.709	0.089
Total transaction costs (TZS)	5 712	5 939	0.915	0.361

4.5 Summary of secondary data collected

As stated earlier, the secondary data were obtained from village offices. The main data collected were population size, land size (in acres), main crops. main livestock, main income activity and main source of power across the villages (see Table 17 below). In general, results showed that the Imbaseni village is leading in terms of population size but with smallest land size. This implies that the population density in Imbaseni village is high compared to other villages, may be because it is closer to the Arusha -Moshi main road. The main crops mentioned were coffee (60%). maize (20%) and banana (20%). The main livestock cattle (80%) and main income activity (80%). All villages use hydro-electricity as main source of power.

Table 17: Summary of secondary data collected

Village/item	Population size	Land size (in acres)	Main crop	Main livestock	Main income activity	Main source of power
Nkoaranga	2 881	-	Banana	Cattle	Agriculture	Hydro-electricity
Poli	2 300	5 000	Coffee	Cattle	Agriculture	Hydro-electricity
Imbaseni	9 758	2 009	Maize	Cattle	Agriculture	Hydro-electricity
Ndatu	1 660	2 857	Coffee	Cattle	Agriculture	Hydro-electricity
Ngyani	3 620	-	Coffee	Hen/poultry	Employment	Hydro-electricity

After several analyses (descriptive and quantitative), the results obtained allow the conclusion and recommendations of the study as explained in the following chapter.

CHAPTER FIVE

CONCLUSION AND RECCOMMENDATIONS

5.1 Conclusion

The objective of this study was to analyse transaction costs in coffee marketing system. Specifically, the study intended to compare transaction costs between users and non-users of co-operatives. The main reason for conducting this study is based on the need to have clear understanding of which marketing system will reduce barriers for market participation by smallholder farmers including transaction costs originating from various aspects.

Data were collected through structured questionnaire from a random sample of 279 respondents from five villages in Arumeru district using snowball sampling techniques. Descriptive and econometric methods of data analysis were used.

The main results of the study based on objective 2 and 3 which showed that 50% of respondents have negative perception with co-operative, 48% have positive perception and 2% they do not know if co-operatives are beneficial or not. Education influenced respondents' perception significantly at $p< 0.05$. From the logistic regression analysis only information on market price and traders' trustworthy was found to influence adoption of either market channel significantly at $p< 0.05$. When transaction costs from different aspects were added up and compared, the result from t-statistic revealed that no significance different between the members and non-members of co-operatives.

The analysis based on transaction cost economics can contribute substantially to the understanding of the capacity of agricultural co-operatives in reducing transaction costs. This study has aimed at evaluating and explaining the different aspects of transaction costs and assessing the capacity of co-operatives in reducing the impact of transaction cost aspects. Some aspects revealed that co-operatives can reduce transaction costs while others can not.

5.2 Recommendations

The key findings of the study revealed that co-operatives are no longer serving as marketing agents to facilitate production, marketing and to reduce transaction costs as the theory entails. Given this shortcoming, the study has highlighted some recommendations which are important to the improvement of the performance of co-operatives and other buyers and enhance their contribution to the household income and hence improving standards of living at large.

(a) Production and marketing

Policy makers need to formulate policies that will assist farmers to organize themselves for the purpose of bulking and marketing not only coffee but also other crops together. The findings of this study recognized that co-operatives dealt with coffee only while there is a trend of shifting from coffee as the main crop to banana and other crops. The 22 (7.9%) out of 279 respondents declared to shift from coffee to other crops like banana as major crops. Bulking and marketing crops together will enable them generate sufficient critical mass and their bargaining power will increase

substantially. Co-operators and private traders should also form marketing networks for consolidating coffee marketing policy issues that effect their trading operations.

(b) Promotion of credit facilities, arrangements and technical assistance.

The results of the study revealed that both co-operatives and private traders do not support production activities. The study recommends the reintroduction of essential services to farmer-members: provision of farm inputs and farm credit; and provision of marketing facilities for non-traditional and traditional crops. These services should be arranged and provided by both buyers and other stakeholders. Also there is a need to encourage financial institutions to provide risk management and credit facilities to smallholder farmers and small traders in groups or associations by using crop inventory as collateral. The provision of credit and marketing facilities should go hand in hand with the provision of technical assistance by professionals like training in order to ensure the appropriate use of the provided services.

(c) Market information

Provision of timely and adequate market information, for example on coffee prices, is key for the producers to react appropriately to market signals and forces. The findings of this study revealed that price information provision is poor. Therefore, various ways of improving the flow of information need to be developed by co-operatives and other buyers.

(d) Organizational and institutional reforms

Further reform and changes need to be done in co-operative organizational and institutional to take advantage of the challenges and opportunities opened up by globalization and technological changes. Heightened competition from other forms of business enterprises also necessitates these changes. These facts required recognition in a new ILO standard on co-operatives.

(e) Further research

Lastly, the new research on analysis and comparison of transaction costs between the co-operatives and individual private traders who transport coffee to curing factories is recommended. This is because analysis and comparison of transaction costs from the farmers who sell to cooperatives and private traders in the same area bring no significant difference.

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APPENDICES

Appendix 1: Questionnaire

A: Household information

1. Name of household head.....

2. Village.....

3. District.....

4. Region..... .....

5. Age of household head.....

6. Sex of household head: 1 = male, 2 = female

7. Marital status of household head: 1 = currently married, 2 = never married,

   3 = widowed/widower, 4 = divorced, 5 = Separated

8. How many years of schooling household head has completed.....

B: Coffee production and marketing

9. How much time does it take you to go from your homestead to market.....

10. What is the average price of coffee.....

11. For how long (years) have you been in agricultural activities.....

12. Do you usually allocate land, equipment or inputs solely to market-oriented

    production? Yes = 1, No = 2.

13. How many types of crops do you usually grow? 1.....2.....

14. What is the mode of transport frequently used?

Walking.....1

Bus.....2

Pick-up truck.....3

Truck.....4

Ox cart.....5

Car/tax.....6

Bicycle.....7

Donkey.....8

15. If current market price known, 1 = yes, 2 = no

16. How in advance do you know the prices in the market (days).....

17. Where do get market price information get?.....

18. How different market sales price from one expected from the product

19. What is average price of coffee?.....

20. How many times do you sell this product in a year?.....

21. Do you trust trader/collector/firm buying most of your production? 1 = yes, 2 = no

22. How many traders did you contact to offer the product in the last year?.....

23. In one harvest, how many times do you have to look for traders to get paid for the products you sold them?.....

24. Have you had problems with traders not paying for the products they have bought

from you? 1 = yes, 2 = no

25. You sale your crops;

Immediately after harvest.....1

You wait for a higher price.....2

You already had a deal before harvest.....3

Others.....88

26. Is spoiling of your products during transportation an important problem. 1 = yes, 2 = no

27. Have you had problems because buyers have not acknowledged the quality of delivered goods? 1 = yes, 2 = no

28. For how long have you known the trader/collector/firm that buys most of your products? (years, current year = 0)

29. Do you usually establish written contracts with the trader/collector/firm? 1 = yes, 2 = no.

30. Do you trust trader/collector/firm buying most of your products? 1 = yes, 2 = no

31. Have you received any of these services from the trader/collector/firm buying your products?

Transportation.....1

Monetary loan.....2

Loan of seeds/inputs.....3

Technical assistance.....4

Others (Specify).....88

32. Why do you prefer to sell your products in the place?

Higher price.....1

You can bargain with more buyers.....2

You are sure you will be paid the agreed price.....3

You have no other option (tied sales).....4

Other (specify).....5

33. How many hours spent bargaining the sales conditions?.....

34. Ways farmer use in bargaining condition with the buyer

You personally met the buyer to bargain your product sales.....1

You sent a representative to meet the buyer.....2

Others (specify).....3

35. In this sale, did you join another producer to transport your goods?

Always.....1

Usually.....2

Seldom.....3

Never.....4

36. Have you failed to fulfill obligations to a buyer because you received a higher offer?

Always.....1

Usually.....2

Seldom.....3

Never.....4

37. Once your product arrived the market, how long did it take to sell them?

Quickly sold (1 hour or less).....1

It took a little while (1-2hours).....2

It took more than 2 hours.....3

More than one day.....4

Sales took place in the farm.....5

38. How much did you spend to deliver or transport product?

39. How much money did you spent trying to follow up with the traders?

40. Were you able to demand from the trader to recognize the quality of the delivered product? 1 = yes, 2 = no

41. How long does the trader take to pay you back? .....days

42. Which is your most important source for loans?

Commerce (inputs salesmen).....1

Buyer of production.....2

Private

bank.....3

SACCOS.....4

Microfinance

Institution.....5

NGO.....6

Family/friend.....7

Government entity.....8

None of the above.....9

Others.....88

43. Household received technical farming assistance on the last 12 months

1= yes, 2=no

44. Number of time receive technical assistance in the last 12 months

45. Farmer's have access to information 1=yes, 2=no

46. If household has contract or informal agreement with a buyer concerning the sale of an agricultural product 1=yes, 2=no

47. If household have ever belong to a cooperative concerning the sale of an agricultural product 1=yes, 2=no

Appendix 2: Logistic regression output

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	250.774	.096	.137

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.231	8	.512

Contingency Table for Hosmer and Lemeshow Test

		market name = huria		market name = coperative		
		Observed	Expected	Observed	Expected	Total
Step 1	1	13	13.753	10	9.247	23
	2	9	10.040	14	12.960	23
	3	9	8.426	14	14.574	23
	4	10	7.336	13	15.664	23
	5	7	6.043	16	16.957	23
	6	3	5.014	20	17.986	23
	7	3	4.399	20	18.601	23
	8	4	3.865	19	19.135	23
	9	6	3.375	17	19.625	23
	10	1	2.751	22	20.249	23

Classification Table[a]

			Predicted		
			market name		Percentage
	Observed		huria	coperative	Correct
Step 1	market name	huria	13	52	20.0
		coperative	10	155	93.9
	Overall Percentage				73.0

a. The cut value is .500

Correlation Matrix

		Constant	AGE2	TMMARKET	HRSBG.19	YRSCHOO2	Q11MKTPR	AVPRIC	Q28TRUST
Step 1	Constant	1.000	-.583	-.273	-.030	-.433	-.378	-.615	-.081
	AGE2	-.583	1.000	.088	.085	.468	-.025	-.028	-.039
	TMMARKET	-.273	.088	1.000	-.096	.117	-.026	-.153	.052
	HRSBG.19	-.030	.085	-.096	1.000	.058	-.129	.002	-.051
	YRSCHOO2	-.433	.468	.117	.058	1.000	.049	-.084	-.109
	Q11MKTPR	-.378	-.025	-.026	-.129	.049	1.000	.152	-.109
	AVPRIC	-.615	-.028	-.153	.002	-.084	.152	1.000	.009
	Q28TRUST	-.081	-.039	.052	-.051	-.109	-.109	.009	1.000

Appendix 3: The independent sample t-test output

Group

	market	N	Mea	Std.	Std. Mea
Cost to reach the	huria	75	4,050	1,336	154
	coperativ	182	4,024	1,438	107
Cost for follow-	huria	75	128	142	16
	coperativ	182	150	125	9
Bargaining	huria	75	166	333	39
	coperativ	182	158	363	27
amount spend to or	huria	75	1,594.6	1,510.67	174.43
	coperativ	182	1,379.4	504.53	37.39
Transaction cots househol	huria	75	5,939	2,205	255
	coperativ	182	5,712	1,606	119

Group Statistics

	market name	N	Mean	Std. Deviation	Std. Error Mean
Cost to reach the market	huria	75	4,050	1,336	154
	coperative	182	4,024	1,438	107
Cost for payment follow-up(TShs)	huria	75	128	142	16
	coperative	182	150	125	9
Bargaining costs(TShs)	huria	75	166	333	39
	coperative	182	158	363	27
amount spend to deliver or transport	huria	75	1,594.67	1,510.673	174.438
	coperative	182	1,379.40	504.539	37.399
Transaction cots per household	huria	75	5,939	2,205	255
	coperative	182	5,712	1,606	119

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig	t	df	Sig (2-tailed)	Mean Difference	Std Error Difference	Lower	Upper
Cost to reach the market	Equal variances assumed	.355	.552	.134	255	.893	26	193	-355	407
	Equal variances not assumed			.138	147.783	.890	26	188	-345	397
Cost for payment follow-up(TShs)	Equal variances assumed	1.152	.284	-1.281	255	.201	-23	18	-58	12
	Equal variances not assumed			-1.217	124.067	.226	-23	19	-60	14
Bargaining costs(TShs)	Equal variances assumed	.280	.597	.161	255	.872	8	49	-88	104
	Equal variances not assumed			.167	149.215	.868	8	47	-85	101
amount spend to deliver or transport product(Tshs)	Equal variances assumed	1.608	.206	1.709	255	.089	215.27	125.980	-32.823	463.365
	Equal variances not assumed			1.207	80.889	.231	215.27	178.402	-139.699	570.242
Transaction cots per household	Equal variances assumed	.798	.373	.915	255	.361	226	247	-260	713
	Equal variances not assumed			.804	107.773	.423	226	281	-331	783