

Mekelle University

College of Business and Economics

Department of Economics

ANALYSIS OF GOAT MARKETING IN AFAR

/ACASE STUDY OF CHIFRA WOREDA/

By

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A Thesis Papers

**Submitted in the Partial Fulfillment of the Requirements for the Award of
Master of Science Degree in Economics/Development Policy Analysis/**

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Mekelle

DEDICATION

I dedicate this thesis to my late sister Neima Hussien.

CERTIFICATION

I declare that this thesis entitled "Analysis of Goat marketing in Chifra Woreda, Ethiopia" submitted in partial fulfillment of the requirements for the award of the degree of MSc, in Economics/Development policy analysis/ to the College of Business and Economics, Mekelle University, through the Department of Economics, done by Mr. Ali Hussein Safeno, Id. No. CBEC/PS100/02 is an authentic work carried out. The matter embodied in this project work has not been submitted earlier for award of any degree or diploma to the best of my knowledge and belief.

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List of Acronyms and Abbreviations

APDA	Afar Pastoralist Development Association
ARCPO	Afar Region Cooperative Promotion Office
BoFED	Bureau of Finance and Economic Development
BOAD	Bureau of Agriculture and Development
CC	Contingency Coefficients
CR	Concentration Ratio
CSA	Central Statistics Agency
ETB	Ethiopian Birr
FGDs	Focus Group Discussions
MEDAC	Ministry of Economic Development and Cooperation
N	Number of Respondents
MOA	Ministry of Agriculture
NGOs	Non-Governmental Organizations
PADO	Pastoral Agricultural and Development Office
PLI	Pastoralist Livelihoods Initiative
PPS	Probability Proportion to Size
RCPB	Regional Cooperative Promotion Bureau
SCP	Structure Conduct Performance
SD	Standard Deviation
VOCA	Volunteers in Overseas Cooperative Assistance
WARC	Werer Agricultural Research Centre

BIOGRAPHIC SKETCH

The author was born on January 18, 1971 in Oromia, Wonji. He attended from elementary to secondary school in the same town at Wonji School and obtained diploma in General Agriculture in Jimma University in 1998. Then he joined Haramaya University in summer and continuing program in 2007 and graduated with B.Sc. degree in Agricultural Economics in February 2010. He has served at different Gov't organization and NGOs at different positions and served at Afar Patoral Research Institutes since 2003 as planning head. Finally, He joined the School of Graduate Studies of the Mekele University in 2010/11 in the summer program.

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ABSTRACT

The livelihood of pastoralists and agro-pastoralist entirely depends on livestock and livestock products. In support of stimulating growth, economic development, food security and alleviating poverty among pastoralists, the performance of goat marketing plays an important role in any on-going or future goat development plan. This study was aimed at studying the determinants of market supply; examine the market structure, conduct and performance, identifying major constraints and opportunities of production and marketing of goat in the study area. Multiple Linear Regression Model was fitted to identify the factors influencing the variations in supply of goat. According to the result of the survey, 4 out of 8 hypothesized continuous variables (land size, herd size, income from goat sale, and off farm income), and 0 out of 4 discrete variables found statistically significant with less than 1% level. The concentration ratio result implies the existence of weak oligopolistic market structure in goat marketing having a CR4 38.88 %. This suggests that there is market imperfection because a few traders seem to have monopolized goat market.

Involving licensed goat traders, improving marketing infrastructure, organising and supporting pastoralists through training, provision of transport and credit services, providing reliable market information to all market participants are some of the major findings which needs to be given due attention. Analysis of marketing costs and margins revealed that pastoralists and agro-pastoralists received the highest marketing surplus and wholesaler traders received the least marketing surplus in goat trade business.

Keywords:-Concentration ratio, Goat, Marketing margin.

CHAPTER ONE; INTRODUCTION

1.1. Background

Ethiopia is a host to the majority of the pastoralists in the Horn of Africa (World Bank, 2001). The pastoral sector represents 12% of the population (World Bank, 2001). The pastoralists inhabit in semi-arid and arid agro ecological zones of Ethiopia and cover about 67% of the national land area, with the rangeland falling in the lowlands below 1500 m.a.s.l. In arid and semi-arid lands of Ethiopia, the primary livelihoods of the pastoralists are livestock: (cattle, goats, sheep and camels.) Hence, livestock are critical to the well being of the lowland households in terms of income, savings, food security, employment, traction, fertilizer and fuel (Blench, 2001).

Livestock productions in these areas contribute about 50% of the agriculture GDP and 90% of the annual national live animal export earnings (EARO, 2000). The pastoral livestock production also consists of about 45-55% of the cattle, 75% of the small ruminants, 20% of the equines and 100% of the camels out of the national livestock population (EARO, 2002).

In Ethiopia goats represent an important component of the farming system providing about 12 % of the value of livestock products consumed and 48 % of the cash income generated at the farm level (Kassahun *et al.*, 1989). They contribute a quarter of the domestic meat consumption; about half of the domestic wool requirements; 40% of fresh skins and 92% of the value of semi-processed skin and hide export trade in Ethiopia. In addition, an estimated 1,128,000 goats are used in Ethiopia for domestic consumption annually (Adane and Girma, 2007). Most of the goats in Ethiopia are raised by smallholder farmers who use them for cash income and meat (Anwar, 2010).

The Afar people are located in north east Ethiopia stretched from the north Danakil depression to south lowland awash valley sharing international boundaries with Eritrea and Djibouti. In the region livestock is source for income and food, used for transportation and is considered as a sign of prestige. Afar BoFED estimates in 2009 indicate that there are 10,179,277 livestock in the Afar region of which 4,267,969 or 41.93%, 2,463,632 or 24.20%, 2,336,683 or 22.95%,

852,016 or 8.37% are Goat, sheep, cattle and camel respectively. Density of animals by zone differs significantly ranging from 31006 animals/sq km in Zone Five to 6044 animals/sq km in Zone Two (BoFED, 2009). Even though huge livestock population is available in the region, pastoralists' participation in livestock marketing is not proportional to the volume of livestock they possess. This arises mainly from wide ranging socio-economic factors and absence of proper processing and marketing.

The success of agricultural development depends on the existence of an efficient marketing system. If the marketing system is inefficient, high marketing costs will render products uncompetitive particularly on the international market. Standardization of agricultural products, improving the supply of market information system, expanding and strengthening cooperatives, and strengthening private sector participation are key elements for proper functioning of the agriculture marketing system (Asfaw ,2003).

Presently, the issue of marketable supply in goat marketing has been broadly seen to be more serious for designing comprehensive pastoral development strategies for improving livelihoods of the Afar pastoralist people. This study has assessed the factors affecting the market supply in goat marketing and major opportunities and constraints that had an influence on the pastoralist households' market of the study area.

1.2. Statement of the Problem

The demand for meat is increasing in the national as well as in the international level (Tatek *et al.*, 2006). Hence small- holders are expected to benefit from the rise in demand. Despite the huge number of goat population in Ethiopia, small holders are not beneficiaries of this opportunity owing to constraints like: inadequate feed /nutrition, disease, lack of support services such as extension services, inadequate information on how to improve, marketing opportunities and others. A low growth rate of goat output vis-à-vis high human population growth rate becomes one of the major concerns in Ethiopia. Thus efforts have to be made to increase production and productivity of small ruminants to overcome this concern.

Livestock distribution and patterns of diversification survey was conducted to put a general perspective picture of livestock resources and agricultural research strategies in some areas of

Afar National Regional State (ANRS, 2006). According to Sandford and Yohannes (2000), Afar region covers 20% of sheep and 38% of goat production of the national pastoral flocks. But in the current situation, the production system of sheep and goats is characterized by poor management, poor extension services, prevalence of diseases, poor marketing system and inefficient utilization of available feed and water resources.

On top of this; there was no goat marketing research conducted in pastoral and agro pastoral production systems (APARI, 2012). Hence, in order to enhance goat economic returns to the producers, basic information and research must be done on marketing of goat in the pastoral and agro pastoral system in the region. Therefore, goat marketing study and current information about the system can serve as to enable the pastoralist be more beneficiary from their valuable goats, and for improving the overall marketing conditions in Chifra woreda and contributes more to agricultural and rural development effort for Afar Region.

1.3. Research Questions

This study was intended to deal with the following research questions:-

- What are the factors influencing marketable supply of goat marketing?
- What opportunities and constraints are available in goat marketing in the study area?
- What are the existing market structure, conduct and performance?

1.4. OBJECTIVE OF THE STUDY

1.4.1. GENERAL OBJECTIVE

The Overall objective of this study was to analyze the existing goat marketing system in Chifra woreda of Afar Region.

1.4.2. SPECIFIC OBJECTIVE

The specific objectives of the study were to:

- Analyze the determinants of marketable supply of goat
- Examine goat market structure, conduct and performance.
- Identify major constraints, opportunities of production and marketing of goat.

1.5.SCOPE AND LIMITATION OF THE STUDY

- The study primarily identified the marketing constraints and opportunities of live goat market supply in Chifra Woreda. More specifically, it focused on the PAs found within the Woreda. However, all the PAs in the Woreda were not included in the survey. This is due to limitation of time and other resource constraints. Therefore, the study was undertaken to meet its objectives given the limitations mentioned above.

1.6. SIGNIFICANCE OF THE STUDY

In a country where livestock population is important, improvement in livestock and livestock products marketing including goat can make a significant contribution to national economic efficiency and growth.

The Pastoralist in the study area can get sustainable development by improving goats supply after taking corrective actions on the basis of the research findings and suggestions. The research output is also useful for police makers in drafting policies that are convenient for pastoralist. GOs and NGOs, pastorals and public private partners can utilize information about goat marketing. In addition, it will have an extensive advantage for those who want to get information for further research. In general, the result of the study is helpful for policy makers, promotional and regulatory institutions and the beneficiary to use in designing strategies and coordinating efforts to solve problems and improve performance of goats marketing.

1.7. ORGANIZATION OF THE PAPER

This thesis comprised of five main chapters. The first chapter presented introduction of the study that incorporated back ground of the study, statement of the problem, objectives, research questions, scope and limitations of the study, significance, and organization of the thesis.

Basic definitions and concepts, used in the present study along with a brief review of the past works, empirical studies on livestock marketing and conceptual frame work were discussed in chapter two. The third chapter focused on materials and methods that incorporate description of the study area, sampling techniques, sources and methods of data collection, method of data analysis and operationalization of variables where as chapter four dealt with results and discussion. Finally, chapter five concerned with summary, conclusion and recommendations based on the findings of the study. Next to chapter five the list of references and appendix used in the paper were given.

CHAPTER TWO

REVIEW OF RELATED LITRATURE

In this part, the basic concepts of market, marketing, marketing system and market channels, the approaches and methods of evaluating the efficiency of agricultural markets have been discussed.

2.1. Some Basic Concepts and definitions

Market: It may be defined as a particular group of people, an institution, and a mechanism for facilitating exchange. The market concept has also been linked to the degree of communication among buyers and sellers and the degree of substitutability among goods (John and Shahrn, 1998).

Marketing: is the performance of all business activities involved in the flow of goods and services from the point of initial production until they are in the hands of ultimate consumers (Kohls and Uhl, 1985).

Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging values with others. Marketing is an organizational function and a set of process for creating, communicating, and delivering value to customers and for managing customer relationships in way that benefits the organization and its shareholder (Kotler and Armstrong, 2006).

Marketing is a process of planning and executing the conception, pricing, promotion and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goal (Kotler and Keller, 2005).

Agricultural Marketing-Agricultural marketing is the performance of all business activities related in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumers (Kohls and Uhl, 1985).

Livestock Marketing

Livestock marketing involves the sale, purchase or exchange of products such as live animals, milk, wool and hides for cash or goods in kind. Livestock marketing services

include provision of market information, quality control and grading of meat or milk, operation of auction markets, facilitation of marketing systems themselves, provision of marketing and processing facilities, and transport of livestock or of raw milk (Seada, 2012)

Marketing System: is a collection of channels, middlemen, and business activities, which facilitate the physical distribution and economic exchange of goods and services (Kohls and Uhl, 1985).

Market information and intelligence

Market information is crucial to producers, wholesalers and consumers to help them make decisions on what and whether to buy and sell. An effective market information system reduces risks to traders, eventually reducing market margins. When reliable information is not available, traders increase their margins to protect themselves from risk (e.g. if information on distant cattle markets is not reliable, traders face the risk of finding low prices at the end of a long trek (Abbott J C and Makeham J P.1979).

2.2. APPROACHES TO THE STUDY OF AGRICULTURAL MARKETING PROBLEMS

The different circumstances involved in the demand and supply of agricultural products, and the unique product characteristics, require a different approach for analysing agricultural marketing problems (Johan, 1988). The major and most commonly used approaches are functional, institutional, and commodity approaches.

2.2.1. FUNCTIONAL APPROACH

Functional approach to study marketing is to break up the whole marketing process into specialized activities performed in accomplishing the marketing process (Kohls and Uhl, 1985). The approach helps to evaluate marketing costs for similar marketing middlemen and/or different commodities and costs and benefits of marketing functions (Andargachew, 1990; Kohls and Uhl, 1985). The widely accepted functions are: exchange (buying and selling), physical (processing, storage, and transportation), and facilitating (standardizing, financing, risk bearing, and market information). The exchange function involves pricing, buying and selling which is a transfer of title between exchanging parties. Transportation, product processing, packing, labelling and storing are physical functions whereas

financing, promoting, standardizing, risk-bearing and marketing information are facilitating functions.

2.2.2. INSTITUTIONAL APPROACH

This approach focuses on the description and analysis of different organizations engaged in marketing (producers, wholesalers, agents, retailers, etc) and pays special attention to the operations and problems of each type of marketing institution. The institutional analysis is based on the identification of the major marketing channels and it considers the analysis of marketing costs and margins (Mendoza, 1995). An institutional approach for the marketing of agricultural product should be instrumental in solving the three basic marketing problems, namely consumers' demand for agricultural products, the price system that reflects these demands back to producers and the methods or practices used in exchanging title and getting the physical product from producers to consumers in the form they require, at the time and place desired (Johan, 1988).

2.2.3. COMMODITY APPROACH

In a commodity approach, a specific commodity or groups of commodities are taken and the functions and institutions involved in the marketing process are analyzed (Kohls and Uhl, 1985). This approach is said to be the most practical as it helps to locate specific marketing problems of each commodity and improvement measures. The approach follows the commodity along the path between producer and consumer and is concerned with describing what is done and how the commodity could be handled more efficiently (Purcell, 1979).

2.3. FRAMEWORK FOR EVALUATING EFFICIENCY OF AGRICULTURAL MARKETING SYSTEM

2.3.1. THE STRUCTURE, CONDUCT AND PERFORMANCE (SCP) MODEL

The basic view of this approach is that, given certain basic conditions, the structure of an industry or market determines the conduct of its participants (buyers and sellers) which in turn influence its performance. The basic conditions refer to characteristics which are exogenous to the market, for example infrastructure, legal and policy environment and available technology. Efficiency factors can be evaluated by examining marketing enterprises for structure, conduct and performance (Abbott and Makeham, 1979).

SCP model is one of the most common and pragmatic methods for analyzing a marketing system. It analyzes the relationship between functionally similar firms and their market behaviour as a group and, it is mainly based on the nature of various sets of market attributes and relations between them and their performance (Scarborough and Kydd, 1992). This analytical method is based on the theory that market structure and market conduct determine the performance of a marketing system.

2.3.1.1. STRUCTURE OF THE MARKET

The term market structure refers to the number of buyers and sellers, their size distribution, the degree of product differentiation, and the ease of entry of new firms into an industry (Branson and Norvell, 1983; Cramer and Jensen, 1982; Abbott and Makeham, 1981).

Examples of such dimensions include: a) number and size distribution of buyers and sellers in the market, (degree of buyers and sellers concentration), b) barriers to potential entrants: refer to the relative ease or difficulty with which new dealers may enter into market. Technological, economic, regulatory, institutional, and other factors that inhibit firms from engaging in new businesses or entering new markets, and c) degree of product differentiation: refers to the extent to which competing products in a market are differentiated and it is expected to influence the competitive interrelationships of sellers in the market.

Concentration Ratio (C)

Market concentration is defined as the number and size distribution of sellers and buyers in the market. It plays a large part in the determination of market behavior within an industry because it affects the interdependence of action among firms. The greater the degree of the concentration is the greater the possibility of non-competitive behavior, such as collusion would be in the market (Pomeroy and Triniland, 1995).

$$C = \sum_{i=1}^r S_i \quad i=1, \quad 2, \quad 3 \dots r$$

(1)

Where C - Concentration ratio,

S_i - Percentage share of the i^{th} firm (based on the amount of livestock bought and sold),

r - Number of largest firms for which the ratio is going calculated

$$S_i = \frac{V_i}{\sum V_i}$$

(2)

Where S_i – market share of buyer i

V_i – amount of product handled by buyer i

$\sum V_i$ - total amount of product handled

As a rule of thumb, concentration ratios of 50 % or more is indicative of strongly oligopolistic industry, of 33-50% a weak oligopoly, and less than that, an un-concentrated industry. This is the number and size distribution of sellers and buyers in the market (Kohls and Uhl, 1985).

The basic limitations here are the lack of reliable data on firm basis for its application, the incapability of a single measure to reveal distribution of sales between the numbers of largest enterprises, and failure to take account of product differentiation or other possible monopoly elements. Besides, the index fails to prey to inferential problems of forming hypotheses about conduct from structural characterization. For example a large number of similar-sized enterprises may result in a low concentration index, but the possibility that these enterprises to collude, to form effective oligopolistic condition is a chance (Scarborough and Kydd, 1992).

Analysis of market conduct: Market conduct refers to firm behavior like pricing and selling policies and tactics, overt and tacit inter-firm cooperation, or rivalry and research and development activities (Scarborough and Kydd, 1992). It is the pattern of behavior of enterprises in determining prices, sales promotion, and coordination policies and the extent of predatory or exclusionary tactics directed against established rivals or potential entrants (Pomeroy and Trinidad, 1995).

There are no uniform procedures to analyze the elements of market conduct. Rather, few points are considered to systematically detect indications of unfair price setting practices and conditions under which such practices are likely to prevail. The points include

checking the existence of formal and informal producing and marketing groups; the availability of price information and its impact on prevailing prices; and the feasibility of utilizing alternative market outlets (Scarborough and Kydd, 1992, Scott, 1995).

Market performance: refers to the composite of end results which firms in the market arrive at by pursuing whatever lines of conduct they espouse (Bain and Qualls, 1987). For firms acting as sellers, these results measure the character of the firms' adjustments to the effective demands for their outputs; for firms buying goods, they measure the quantity of adjustments made by firms to the supply conditions of the goods they purchase.

There are two approaches to measure marketing performance: marketing margin and the analysis of market channel efficiency.

Marketing margin:

A marketing margin may be defined alternatively as a difference between the price paid by Consumers and that obtained by producers or; the price of a collection of marketing services that is, the outcome of the demand for and the supply of each service (Tomek and Robinson,1990).

Marketing margin is most commonly used to refer the difference between producer and consumer prices of an equivalent quantity and quality of commodity. However, it may also describe price differences between other points the marketing chain, for example between producer and wholesale, wholesale and retail, prices (Scarborough and Kydd, 1992).

The size of market margins is largely dependent upon a combination of (1) the quality and quantity of marketing services provided; (2) the cost of providing such services; and (3) the efficiency with which they are undertaken and priced (Scarborough and Kydd, 1992). For instance, a big margin may result in little or no profit or even a loss for the seller involved depending upon the marketing costs as well as on the selling and buying prices (Mendoza,1991). However, under competitive conditions, the size of market margins would be the outcome of the supply and demand for marketing services, and they would be equal to the minimum costs of service provision plus "normal" profit (Scarborough and Kydd, 1992; Mendoza, 1991). Therefore, analyzing market margins is an important means of assessing the efficiency of price formation in and transmission through the system (Scarborough and Kydd, 1992).

When there are several participants in the marketing chain, the margin is calculated by finding the price variations at different segments and then comparing them with the final price to the consumer. Consumer price is the base or common denominator for all marketing margins (Mendoza, 1995). The relative sizes of various market participants' gross margins can indicate where in the marketing chain value is added and / or profits are made.

The total gross Marketing margins is given by the following formula

$$TGMM = \frac{\text{End buyers p} - 1^{\text{st}} \text{ sellers p}}{\text{End buyers p}} \times 100 \quad (3)$$

Where, TGMM=Total Gross Marketing Margin, p= price

It is useful to introduce the idea of 'producer's participation', 'farmer's portion', or 'producer's gross margin'(GMMP) which is the portion of the price paid by the consumer that goes to the producer .The producer's margin is calculated as a difference:

$$GMMP = \frac{\text{End buyers price} - \text{Marketing gross margin}}{\text{End buyers price}} \times 100 \quad (4)$$

Where, GMMP= Producer's share in consumer price

In marketing chain with only one trader between producer and consumer, the net marketing margin (NMM) is the percentage over the final price earned by the intermediaries as his/her net income once his marketing costs are deducted.

$$NMM = \frac{\text{Gross margin} - \text{Marketing cost}}{\text{Price paid by the consumer}} \times 100 \quad (5)$$

Marketing channels-The analysis of marketing channels is intended to provide a systematic knowledge of the flow of the goods and services from their origin(producer) to their final destinations(consumers) (Mendoza, 1995). This is acquired through studying the

participants, with the first step to determine what and which final markets are. While the source and destinations are clearly identified the study of participants within the channels, the activities they perform and the overall actions can easily be investigated.

2.4. CONSTRAINTS OF GOAT MARKETING

2.4.1. CONSTRAINTS AND CHALLENGES OF THE DOMESTIC GOAT MARKET

Ineffective and inefficient agricultural marketing system is widely believed to be one of the major factors for the low growth rate of the Agricultural Gross Domestic Products. The market failure is attributable to a variety of problems, the outstanding ones being inadequate market facilities, limited assembly markets, poor transportation and communication networks; lack of standard and grades; excessive post harvest wastage and losses; lack of integration of farmers to the marketing system; weak market oriented agricultural extension services; inadequate market information; limited access to finance; food aid distorting the market; lack of effective demand; poor connection with the international markets; and, weak legal system to enforce contracts (MoARD,2010).

The key constraints that the domestic goat markets are facing include: lack of and unequal access to up-to-date market information on prices; time-specific demands and quality requirements; poorly developed road networks connecting the goat supply areas (e.g., pastoralist areas) to the markets; an inadequate number of market centers for live goat with adequate waiting and holding ground, feeding, watering, resting facilities, goat scales, loading ramps, crushes, etc.; clan conflicts due to competition for limited land and water resources; lack of grades and standards; and a lack of effective value chain coordination/consultation forum among the goat value chain participants. More detailed discussions of several constraints confronting the smooth flow of goats from the production areas to the feedlots, processing, and consumption points in Ethiopia are found in Hurissa and Eshetu (2003).

2.4.2. MAIN CONSTRAINTS OF THE EXPORT OF GOATS

There are several constraints that limit Ethiopia's exploitation of export potential of goat and goat products. The critical constraints as identified based on the Ethiopia Sanitary and Phytosanitary Standards and Shoaat and Meat Marketing Program (SPS-LMM) project and other studies are summarized below:

- ♣ In adequate information regarding the country's goat number, annual off-take, productivity, and consumption levels;
- ♣ Archaic traditional production systems;
- ♣ High domestic demand relative to low supply of export-quality live goat;
- ♣ Insufficient and inconsistent supply of price competitive quality goat and meat;
- ♣ Prevalence of goat diseases;
- ♣ Import restrictions based on Ethiopia Sanitary and Phytosanitary Standards (SPS) requirements imposed by importing countries;
 - ♣ Inadequate infrastructure supporting domestic and export markets for live goat (e.g., goat markets, stock routes, resting places, quarantine stations for assembling and transporting goat are inadequate);
- ♣ Absence of a grading system, a market information system, and promotional activities;
- ♣ Lack of capacity for goat slaughter and for cold chain processing and packaging of export-quality goat products;
 - ♣ Shortage of cold chain facilities and cargo space;
 - ♣ Lack of capability for cost-effective, cold chain transport of meat products by road and sea for delivery to the Middle East, North Africa, and other international markets;
- ♣ Inadequate port facilities: the Djibouti port is the only port used and it is ill-equipped for handling a large number of goat, lacks adequate resting places, sufficient fencing, compartments for handling different categories of goat, and facilities for isolation of sick goats;
- ♣ Excessive taxes and fees on exports and time-consuming tax collection procedures which make exporting less competitive in the global market;
- ♣ the requirement of a letter of credit to authorize the exportation of goat and goat products, which does not work well with goat marketing practices in importing countries;
- ♣ in adequate financial and technical sources for goat related businesses in terms of the assistance in the preparation of loan applications (feasibility studies, cash flow forecasts, etc) to access trade finance/ capital investment loans from different banks;

♣ Limited access to foreign exchange earnings. In Ethiopia, exporters and importers can only access foreign exchange through the bi-weekly auctions at the national bank;

♣ Illegal export trade.

It can be argued that Ethiopia will benefit more by exporting meat rather than live goats as there are several problems in exporting live goats. First, there is limited marketing infrastructure, and feeding and watering facilities en-route to the live goat export markets, which results in high transaction costs and reduces the quality of live goats upon arrival in destination markets. Second, live goat exports have also been observed to enhance the chances of disease transmissions and as a result the exports of live goats have faced frequent bans by importing countries whenever there are goat disease outbreaks within Ethiopia or bordering countries.

Constraint of goat marketing

Institutional factors

- Market information system
- Road network
- Market centers

Non- institutional factors

- Clan conflicts
- Lack of consultation/coordination forum among market participants
- Weakness in understanding the existing social structure
- Lack of goat market extension service (Seada, 2012).

2.5. OPPORTUNITIES

The United States Agency for International Development (USAID) is pleased to announce the inauguration of the Andido Livestock Market completed under the Pastoralist Livelihoods Initiative (PLI) on July 14, 2007. The Andido market, located in Amibara Woreda of Afar Region, represents the first link in an improved “value chain” to improve livestock sector performance that will lead to economic benefits for pastoralists.

Afar Pastoralist is a cultural and economic system that is founded on livestock rearing as the primary economic activity. It determines social structure, resource management,

productivity, trade, and social and welfare mechanisms in communities. Pastoralist communities hold the intangible resource of a strong local knowledge of livestock rearing, which has helped these communities subsist largely from their animal wealth for generations. However, this livelihood is highly vulnerable to drought, animal disease outbreaks or other shocks.

Most people in the Afar region of Ethiopia live largely by livestock production, using animals for milk, meat, transport, sale and exchange.

The Afar pastoralists raise mixed species of primary livestock, usually camels and cattle and keep supplementary herds of shoats. Camels are best suited to the arid desert-like area of Afar. In times of water scarcity they can endure without water for more than two weeks. Furthermore, they are browsers as are goats and feed on the foliage of trees and bushes. Hence, they are not dependent on surface grass like cattle and to a lesser degree sheep (Seada, 2012).

It is argued that in the face of climatic shocks, the livestock holdings of herders with larger herd sizes recover more quickly. In general, in the pastoral production system, herd accumulation is an effective way of reducing risk (Getachew and McPeak 2004)

2.6. REVIEW OF EMPIRICAL EVIDENCE

2.6.1. RELATED STUDIES CONDUCTED IN ETHIOPIA

Gizachew (2005) in his study recognized that Market participation and sales volume decisions are found to be important elements in the study of dairy marketing patterns. As a result, Participation decision of the smallholder was affected by education of household head, experience in dairy production, and return time from the district capital and financial income from different sources. Education of the household head, extension visit, and return time from the district capital, financial income from different sources, credit, grain production and crossbred dairy cows were important determinants affecting volume of dairy sales.

The market supply refers to the amount actually taken to the markets irrespective of the needs for home consumption and other requirements. Whereas, the marketed surplus is the residual with the producer after meeting the requirement of seed, payment in kind, and consumption by farmer (Wolday, 1994).

It was important to know that marketing actions in developed countries, such as packaging, brand name, density of the distribution channel, advertising, permanent exhibitions, sponsoring, press bulletins, among others were helping to build long term assets and positions as brand equity and customer satisfaction. These assets were leveraged to deliver short-term profitability and shareholder value (Dessaiegn et al., 1998).

According to Mengistu (2008) examined a rangeland and livestock resource in Ethiopia. He identifies livestock population, holding per household and trends in livestock ownership, management practices, animal health, disease situation, and livestock marketing and consumption pattern. He also discussed problems related to livestock production in general and up-date the data- base on Borena rangeland and livestock resource which is the mainstay of the Borena people, pastoral economic and social system; for the ongoing and future rangeland development project and programme activities so as to ensure an effective and sustainable rangeland production system.

Aklilu (2002) explained that, the decision to sell animals by the primary producers in Ethiopia is usually based on urgent cash requirements. Producers come to the markets with no information before hand on the going price of the day and farmers may take back their animal(s) if the price offered is too low to try their luck next time in the same or in another market nearby.

Tesfaya (2008) explained that, marketing information system and extension service that focuses to increase the livestock sales volume with a better bargaining power will increase the pastoralists' income from the resources at hand. Then the income again will drive them to follow the fastest growing global marketing system which is mandatory to compete with others against the growing and changing tastes and preference of customers. Pastoralists take the same measure if the market happens to be close to where they graze their animals. But, if the market is of some considerable distance from where they reside then they will be persuaded to sell their animals, however low the price is on the day, as they can't afford to return empty handed without buying grain and other necessities for their families. Profit becomes a motive for sale only at farmer-trader level and above. Tesfaya (2008) in his

discussion indicated the concentration ratio result implies the existence of strong oligopsonic market structure in Ayssita market especially in shoat and cattle marketing having a CR4 75% and 52% respectively. Weak oligopsonic market structure is found to be a common feature of Chifra and Sabure markets having CR4 between 33% and 50% except that of shoat markets in Chifra CR4 30%. Yallo market is the only competitive market having a lower four firm's concentration in all Shoat, Cattle and Camel markets.

According to Mohammed (2009), explained very important findings regarding the determinant factors affecting pastoralist households' market participation decision found out Participation decision of the sampled pastoral households was affected by educational status of the household head, Sex of the household heads, Family size, total herd size, availability of grazing land, extension contact, livestock mortality, and weight of livestock. Mohammed (2009)) concluded that based on the result ,gross commercial off-take rate was estimated for sampled pastoralist household respondents, in general, very low gross commercial off-take rates were observed both for cattle and small ruminants i.e. 4.2 percent and 5.67 percent respectively

Seada(2012) revealed the concentration ratio result implies the existence of strong oligopolistic market structure in cattle and shoat marketing having a CR4 65.8 per cent and 60 per cent respectively. Weak oligopolistic market structure is found in camel market (CR4 40%).

This suggests that there is market imperfection because a few traders seem to have monopolized the livestock market in cattle and shoat marketing. Generally there is no competitive market in Ayssaita market because each livestock have a ratio (CR4) or the market share of the largest four firms; which is greater than 33per cent

2.6.2. RELATED STUDIES CONDUCTED ABROAD

A study conducted by Bolokang Derrick (2006) on factors affecting farmer participation in mainstream cattle markets in South Africa reveals that, the significant variables that affect marketing participation are; Farmer Training, Total Herd Size, Market Information, Farming System, Market distance, Remittance, Lobola, Mortality, stock theft, and Household Size.

Ma Poon (1988) discusses the need of livestock development for self sufficiency in Mauritius. As a result, he indicated the required situation, viz. feed resources, cattle number, milk and beef production and consumption, production level and their future demand, identifies constraints to production and proposals to increase productivity.

2.7. CONCEPTUAL FRAME WORK

The independent variables, shown in the conceptual frame work were selected after going through various literature review given above, which were hypothesized to influence marketable supply.

Dependent Variable Y= Marketable Supply of goat

Independent Variables : X_n

Variables Code	Definitions	Unit measurement	Expected sign
X1	Family size (FAM_SZ)	Continuous	+ ve or _ve
X2	Income from goat sale (INC_GO)	Continuous	+ ve
X3	Off-farm income (OFF_INC)	Continuous	_ve
X4	Age of the household head(AGE)	Continuous	+ ve
X5	Education level (EDU_LEV)	Continuous	+ve
X6	Total herd size (TOH_SIZE)	Continuous	+ve
X7	Sex of household head (SEX)	Dummy	+ve
X8	Access to extension services (EXT_SER)	Dummy	+ve
X9	Access to market information (ACC_MIF)	Dummy	+ve
X10	Market distance (MKT_DIS)	Continuous	_ve
X11	Death due to drought (D_DR)	Continuous	+ve
X12	Irrigable land holding(IRR-HO)	Continuous	_ve

CHAPTER THREE

MATERIALS AND METHODS

This chapter starts by brief description of Afar Regional State and the Chifra Woreda. The Chapter provides the methodology and variables selected for this particular study would be operationally defined and the measuring tools would be explained.

3.1. DESCRIPTION OF THE STUDY AREA

The Afar National Regional State is one of the nine Regional States of Ethiopia and it has a common boundary with Eritrea in the north, Djibouti and Eritrea in the east, Somali and Oromiya in the south, Tigray and Amhara Regions in the west. The Region lies in the Northern parts of the Rift Valley, which is a part of the East Africa Rift system. Geographically, the Region is situated between 8^o45' to 14^o27'N latitude and 39^o 51' to 42^o 23'E longitude. The topography of the region varies from hilly escarpment in the western and southern edges with an altitude of 1,000-1,500 m.a.s.l, to lowland plains that fall in the altitude of 0-100 m.a.s.l. The Region is sub-divided into 5 Zones, 28 Weredas, 1 special Wereda and 336 *Kebeles* (Lowest administrative units). The human population is estimated to be over 1,390,273 and nearly 86.7% of the total population of the region lives in rural areas while the remaining 13.3% live in urban centers (CSA, 2007).

3.1.1. LOCATION OF THE STUDY AREA

The study was conducted in Chifra district, zone one of the Afar Regional State (Figure 1) and is located south west of Semera on the main road of Mile to Woldiya, about 162 km from the regional capital city (Semera) and bordered on the south by Mille, on the west by the Oromiya Zone (Amhara Region), on the north by the Administrative Zone four, and on the East by Dubti (Zone one). The total land area of the district is about 173,374 ha of which a large area is rangeland (APARDB, 2006).

3.1.2. ECONOMIC ACTIVITIES

As the people who live in the Woreda are pastoralist, cattle rearing are the mainstay economy of the people. Therefore, they move from place to place to look for pasture for their cattle (APDA, 2006).

Agriculture

i. Land use land cover

According to wood Biomass inventory map, 8 major distinct types of land cover classification are identified (BoFED, 2009). These are: - Cultivated land, wood lands, grass land, bush land and shrub land, wetlands/swamp land, water body, exposed rock surface, exposed and flat sand surface and salt flat surface. **Table 1: Land use land cover**

Land use land cover	Percent
Cultivated and	3.2
Wood lands	0.19
Grass land	6.5
Bush land and shurub land	17.07
Wetland/Swamp land	0.79
Water body	0.75
Rock surface	21.13
Exposed and flat sand surface	46.16
Salt flat surface	1.74

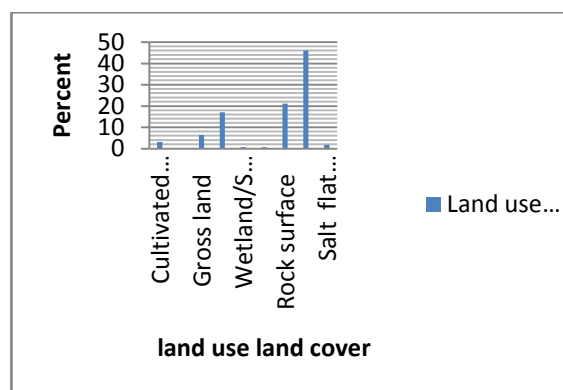


Figure 1: Land use land cover ,Source: BoFED, 2009

Source: (BoFED, 2009).

ii. Livestock production

In the region livestock is source of income and food, used for transportation and is also considered as a sign of prestige. There are 10,179,277 livestock in the region of which 4,267,969 or 41.93%, 2,463,632 or 24.20%, 2,336,683 or 22.95%, 852,016 or 8.37% are Goat, sheep, cattle and camel respectively. Density of animals by zone has a great range, 31006 animals/sq km in Zone Five whereas 6044 animals/sq km in Zone Two (BoFED, 2009).

iii. Crop production

In addition, the dwellers also engage in cropping with the aid of small scale irrigation. The prevailing high temperature and less rain fall distribution throughout the woreda along with more evapo-transpiration process highly affect the contribution of the agricultural sector as much as expected to the communities (BoFED, 2009). According to the Central Statistics Authority (CSA) statistical Bulletin estimates, in the region 13140 ha of land was used in 2003/2004 for agriculture and the estimated production was 261,341 quintals (Central Agricultural Census Commission, 2004/05).

3.1.3. SOCIAL AND ECONOMIC INFRASTRUCTURE

In terms of infrastructural development, the Afar region in general and that of the Woreda surveyed in particular is at its infant stage. Economic services such as road, power, information communication technologies, are not widely distributed in those Woreda. With respect to road, fringe roads that connect few Kebeles with Woredas are constructed through the participation of communities, NGO's and GO's. Though postal services are being used in the regions, the service is limited only to eight Woredas of the regions. The distribution of financial institution i.e. banks in the region is confined to not more than 4 Woredas such as Dubti, Ayssaita, Mile and Awash sebat kilo Woredas. However, the remaining Woredas get the service from adjacent regions such as Tigray, Amhara and Oromiya. Moreover, social services including basic necessities are not yet addressed well (BoFED, 2009).

A. Water Supply

Water scarcity is a critical issue for many developing regions in general and for those of arid and semi arid areas in particular. The Woreda has a very limited access to potable water supply. The total potable water supply coverage of the region at the end of 2005 was 26.9%. In general, there are 115 pumps, 65 motorized water sources and 6 developed springs (BoFED, 2009). For pastoralists, easy access to water differs significantly by seasonal variation. During the rainy season, they have an opportunity to have relatively accessible water for human and livestock consumptions and vice versa during the dry season. The major sources of water for pastoral and agro-pastoral community and their livestock's are rivers, ponds, stagnant waters during the rainy seasons, hand dug wells, motorized deep wells. The quantity and distribution of existing surface and ground water supply schemes developed in the Woredas are insufficient (WARC, 2007).

B. Health Services and Health Facilities

The number and quality of services of health facilities are crucial to decrease mothers' and children death and to create healthy man power. In order to combat the health problem of the region priority should be given to the prevention of communicable diseases by expanding and updating the health facilities of the region. Having this in to consideration, the regional government tried to improve the number and services of facilities and at the end of 2009 makes the region health service coverage 70%. In the region there are 3 Hospitals, 31 Health Centers, and 209 Health Posts. With regard to health personnel's there are 3 Specialized Doctors, 10 Doctors, 49 Health Officers, 250 Nurses, 33 Pharmacists, 56 Laboratory Technicians, 313 Front line health workers, 44 Health assistance and 29 sanitations (BoFED, 2009).

C. Education Service and Institutes

Education is one and the most important sector for regional economic, social and political development. Even if, greater effort is being made by the regional government to enhance the level of education coverage in the region, the coverage was 20.8% at the end of 2005, it is still at lower level comparing to other regions. According to the data processing unit of

BoFED, the total number of regular schools (Primary and Secondary) are 360, number of students are 115,672 and number of teachers are 2,377 (BoFED, 2009).

D. Market Service

Though endowed with enormous livestock resource, the Afar pastorals have not benefited much from it. In most of the areas, there is lack of market places. Given the magnitude of livestock, market centres are few in number forcing pastoralists to travel longer distances. Distances to the markets are too far for animals, which die on route or die up on arrival. Lack of feed and water compels distressed sells of livestock at low price (especially at dry seasons). Livestock prices fall during this time. While traders continue to visit markets, few cattle are available for sell due to massive out migration to the adjacent regions. Low market price of the cattle further deters pastoralists from selling (WARC, 2007).

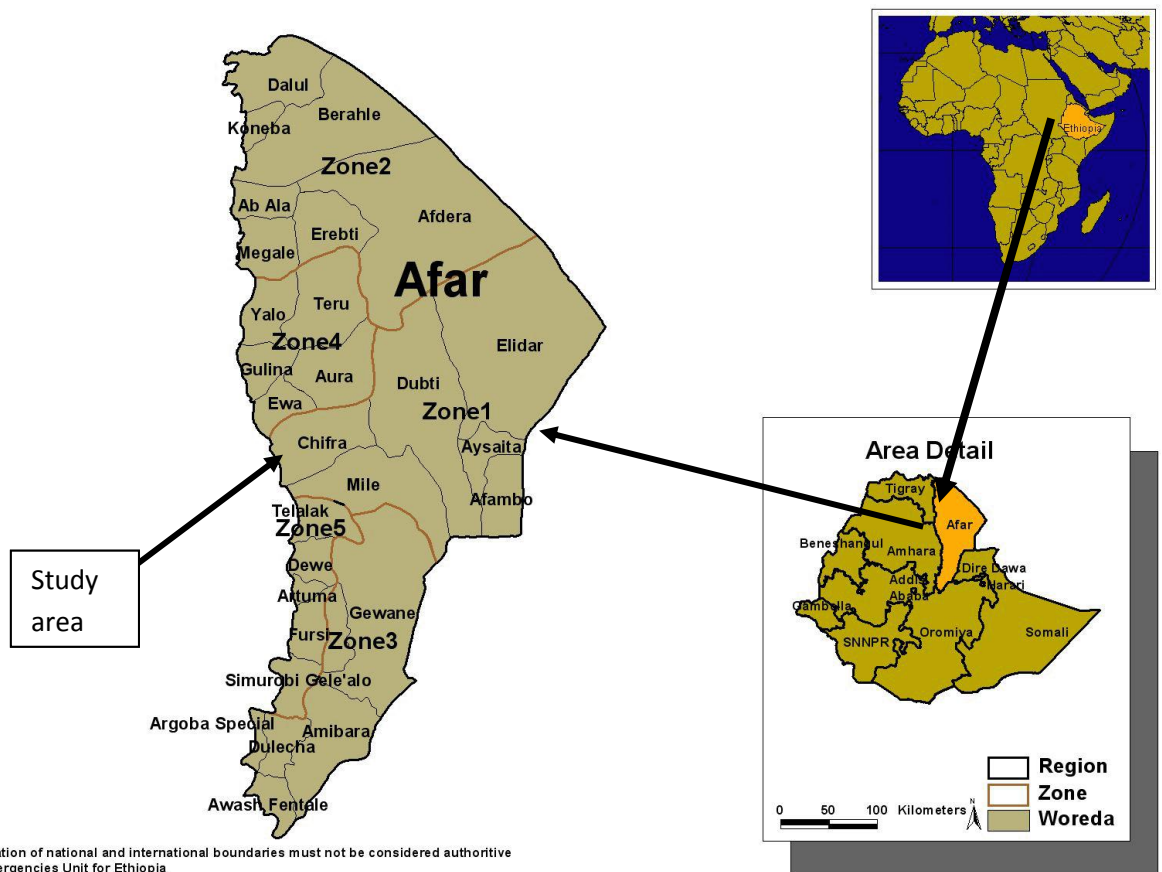


Figure 2 Administrative districts of Afar Region.

CLIMATE

The average temperature of the area is about 29°C and the rainfall is bimodal with erratic distribution, with the long rainy season (*Kerma*) between Mid-June to Mid-September and short rainy season (*Sugum*) occurs between March and April, and the average annual rainfall is between 400 and 600 mm (APARDB, 2006).

TOPOGRAPHY AND SOIL TYPES

The altitude range of the area is between 550-1,100 m (APARDB, 2006) and most of the rangeland of the study area falls under below 850 m above sea level. The dominate soil types in these areas are black, sandy, vertisoils and deposits of silt and fine sand particles occur in the plain flat areas where cultivation is practiced (APARDB, 2006).

FARMING SYSTEM

Some of the pastoralists are semi-nomadic, who are settled along the rivers and streams that flow to the region, practice crop production as a mixed farming and the community engaged in such system are increasing recently. The major crops grown by such group of the community include majorly maize, sorghum and teff. But, vegetables, fruits, oil crops and root crops are also cultivated in a limited range as source of food and income (WARC & APARI, 2007). Live animals, especially cattle, goats, sheep and camels are the main marketable output of the pastoralists.

Human population

The district has an estimated total population of 91,080 of whom 50,861 are males and 40,219 are females; 9,132 or 10.02% of its population are urban dwellers and the household numbers are 52,684(CSA, 2007) Of the total population of the region, 6.55% live in this district.

3.2. SAMPLING TECHNIQUE

From the eight woredas found within the Aausi-Resu zone ,Chifra Woreda is purposefully selected, because of the presence of large number of goat Population .There is also high interest and need for identifying challenges and opportunities of goat marketing, and studying the factors influencing goat supply by Afar Pastoral Agro-pastoral Research

Institute. Moreover, it is one of the Seven Woredas which have market location in the Region.

There are two groups of people who deal with goat marketing. These are goat Owners, and goat traders. Out of 19 Kebeles in the Woreda 13 of them are pastoralist Kebeles. Hence, for this study, multi stage sampling technique was applied in the selection process of the samples. Two pastoralist Kebeles and two agro-pastoralist kebeles were purposely taken in to the sample. By lottery and systematic sampling method the households were selected from all pastoralist and agro-pastoralist kebeles found prevailing in Chifra Woreda.

Whereas, with respect to goats owners by taking into account the infrastructural availability, financial capacity, time availability and other logistics of the research, that was taken from the sampled pastoralist Kebeles concerned, from the total number of House Hold in four Kebeles 179 respondents were selected with systematic sampling technique.

To select goats' traders from goats markets, using information about goats' traders that was taken from Pastoral Agricultural and Development Office (PADO) the average number of goat traders in the market day was 70. There is one goat market in the woreda, Hence by using covenant sampling technique at rate of 50 Per cent 35 goats' trader respondents were selected. Focus group discussion was undertaken on the issues relevant to factors influencing marketable goats and uses to collect facts about the constraints, opportunities and solution of production and marketing.

3.3. SURVEY METHODOLOGY

Both quantitative and qualitative data were gathered through primary and secondary data sources.

The primary data was collected from respondents and also informally from targeted groups and extension experts by interviewing method with the aid of semi structured pre-tested questionnaire. Pastoralist of sampled house hold and goats' traders were considered as focus group discussant of the primary data.

Four, tenth-grade completed enumerators, with enough training orientation and close supervision gathered the primary data.

The secondary data was collected from records of different books, report from government authorities (national, regional, woreda, and Kebeles offices), journals, thesis, internets sources which was appropriate to the study.

3.3.1. QUALITATIVE DATA COLLECTION

Qualitative data was obtained through focus group discussion and document review.

Focus Group Discussions (FGDs)

Focus group discussions was conducted in each Keble to get enough information regarding factors that affects goat supply and other related issues set in the objectives. The researcher has facilitated all the FGDs in the local language. Shorthand note was used to document the content of FGDs.

3.3.2. QUANTITATIVE DATA COLLECTION

Quantitative data was obtained through observing and recording well-defined events check list and questionnaire.

3.4. DATA ANALYSIS METHOD

Two types of data analysis, namely descriptive statistics and econometric analysis were used for analyzing the data from pastoralists, traders and market survey.

To analyze quantitative data that was collected on factors influencing marketable supply of goat simple descriptive statistics was employed.

Moreover, econometric model Multiple Regression model was therefore used to analyze the socio-economic factors influencing goats' supply of pastoralist.

Anything that can't be examined through quantitative analysis was analyzed qualitatively based on observation, interview with extension workers and pastoralist. The existing goat market structure, conduct and performance were measured with the aid of S-C-P approach.

3.4.1. DESCRIPTIVE STATISTICS ANALYSIS

3.4.1.1. STRUCTURE, CONDUCT AND PERFORMANCE (S-C-P) MODEL

To study the function of markets, many researchers have applied "structure-conduct performance" /SCP/ paradigm. The methodology was elaborated by Bain (1968) to

evaluate performance of industries in USA. Subsequently, it was applied in studies on the functioning of markets in agricultural sector and served as a tool to evaluate the performance of the business (Clemence and Maria, 1994; Rangaswamy, 2002).

According to Harris;(1993), the market performance represents the economic results of structure and conduct, in particular the relationship between distributive margins and the costs of production and marketing services. Time series price data were used to throw light on the degree of competition in marketing system.

It is emphasized that the more concentrated an industry is, and /or the greater the barrier are to enter in to the market, the easier it is for enterprises to collude in their output and pricing practices. This results in inefficient allocation of resources. The basic tenets of S-C-P is that, given certain " basic conditions", the performance of a particular industry depends on the conduct of its sellers and buyers, which in turn is strongly influenced by the structure of the relevant market (Clemence and Maria,1994).

Hence, in this study, the structure-conduct-performance (SCP) paradigm was used as a framework in analyzing goat market performance operation and behavior of goats' traders.

3.4.2. ECONOMETRIC MODEL SPECIFICATION

Factors affecting market supply

Kidie (2007) stated that there is no decisive statistical ground for model specification among alternatives. As he further noted, recent studies are commonly using regression models to estimate the supply function. Likewise for this particular study, Linear OLS regression model was used to analyse and estimate supply of goats in Chifra woreda.

Linear Ordinary Least Squares Regression Econometric Model Specification: Following Gujarati (2004) the OLS regression is specified as: $Y = f$ (family size, sex of household, Income from goat sale, off-farm income, dead goats due to drought, access to extension services, age of household head, educational level, herd size, distance from market center, access to market price information , irrigable land holding).

The econometric model specification of supply function was estimated by

$$Y_i = \alpha_i + \sum s_i X_i + U_i$$

Where: Y_i = Market supply of goats in number

α_i = Intercept

s_i = Coefficient of i th explanatory variable

X_i = Vector of explanatory variables

U_i = disturbance term

Before running the OLS Regression Model all the hypothesized explanatory variables were checked for the existence of multi co linearity problem. Two measures were used to test the existence of multicollinearity. These were: Variance Inflation Factor (VIF) for association among the continuous explanatory variables and contingency coefficients for dummy variables.

According to Maddala (1992), VIF can be defined as:

$$VIF(X_i) = \frac{1}{1 - R_i^2}$$

Where R_i^2 is the squared multiple correlation coefficient between X_i and the other explanatory variables. The larger the value of VIF, the more would be the problem. As a rule of thumb, if the VIF of a variable exceeds 10 (this will happen if R_i^2 exceeds 0.90), that variable is said to be highly collinear (Gujarati, 2004).

Similarly, contingency coefficients were computed for dummy variables. For dummy variables if the value of contingency coefficient is greater than 0.75, the variable is said to be collinear.

$$C = \sqrt{\frac{\chi^2}{n + \chi^2}}$$

Where: C is contingency coefficient; χ^2 is chi-square test and n = total sample size.

3.5. Hypothesis and definition of variables

In identifying factors that influence goat supply the main task is to analyze which factor influences and how? Therefore, potential variables, which are supposed to influence goat market participation and quantity of goat supply, need to be explained. Accordingly, the major variables expected to have influence on both the pastoralist participation decision and quantity supply are explained as follows:

3.5.1. THE DEPENDENT VARIABLE

Marketable Supply Of goats (MASPG):-for the purpose of this study, the concept of Marketable Supply of goats defined as the actual supply of goats per year by household to the market which was measured in Tropical Livestock Unit (TLU).

3.5.2. THE INDEPENDENT VARIABLES

The independent variables that were expected to have influence on marketable supply could be of many types.

Sex of Household Head (SEX): It is a dummy variable that represents the personality of the respondents, capturing value 1 if the household head is male, 0 otherwise. Male-headed households participate in market better than female ones. So sex of the household head is a significant determinant of goat marketable supply. Therefore, it was hypothesized that sex of the headed households would have positive relationship with marketable supply of goats.

Family size (FAM_SIZE): It is a continuous variable, measured in man equivalent i.e. the availability of active labour force in the household, which affects farmer's decisions to participate in market. Since production is the function of labour, availability of labour was assumed to have positive relation with volume of supply. However, family size was expected to have positive impact on market participation and volume of sales, but larger family size requires larger amounts for consumption, reducing marketable surplus. A study by Singh and Rai (1998) found marketed surplus of buffalo milk to be negatively affected by family size. However, a study conducted by Wolday (1994) showed that household size had significant positive effect on quantity of *teff* marketed and negative effect on quantity

of maize marketed. In this context family size was expected to have positive or negative impact on market participation and volume of goats' sale.

Education of household head (EDU_CAT): It is a dummy variable and refers to the formal schooling of a respondent during the survey period. Those household heads who had formal education determines the readiness to accept new ideas and innovations, and easy to get supply, demand and price information and this enhances farmers' willingness to produce more and increase volume of goats' sale. Therefore, formal education was hypothesized to positively influence market participation and marketable surplus. Holloway et al. (1999) observed that education and visits by an extension agent had significant and positive effect on quantity of milk marketed in Ethiopian highlands.

Income from non-farming activity (NONF_INC): It is a dummy variable that show obtained from non-farming activities by the household head. This income may strength farming activity or reluctant to produce goat to generate money from goat rather than getting income from non farming activities. However, getting income from non farming activity was assumed to have direct or inverse relation with marketable goat supply.

Total Herd Size (TOH_SIZE): is a continuous independent variable measured in terms of tropical livestock unit (TLU). It is defined as the number of goats hold per household. According to Fidzani (1993), large herds generate a higher marketable supply than small herds. Therefore, pastoralist who had more number of goat producing stocks was expected to have positive relationship with number of goat supplied to the market.

Access to extension services (EXT_SER): it is a dummy independent variable taking a value of '1' if the pastoral household has access to extension service and '0' otherwise; extension service as a source of information to improve their skill and knowledge about their production and marketing .Those pastoralists who had recurrent speak to with extension workers were more expected to supply goat to the market..

Access to Market information (ACC_MIF): it is a dummy independent variable marketing decision is based on market price information. The availability of market price information will increase pastoralists' negotiating ability during marketing. Market price information **was** expected to have a positive effect on marketable supply of goat. This is

measured as a dummy variable taking a value of '1' if the pastoral household has access to market price information and '0' otherwise.

Market Distance (MKT_DIS): market distance is a continuous independent variable measured in minutes. It is defined as amount minutes from pastoral Keble to the nearest market (kilometer). Pastoralists which had taken lower minutes to the market were expected to more likely supply their goats, as they are more likely to recover their production and marketing costs.

Death due to drought (DR_RIS); this is measured as a continuous independent variable taking as number of dead animals (in TLU) during drought. It is characterized by very low rainfall and the lack of natural grazing range land which leads to the higher occurrence of mortality. Therefore, death due to drought was expected to have influence of the household to supply goats in to the market positively.

Irrigable land holding (IRR-HO) goats' productivity depends on natural rangelands and pastoral agriculture extensification than intensification. So, it is assumed that the larger the farm size, the better would be the risk bearing ability. Due to this to have lower number of goats to supply goats into the market.

Income from Goat sale in 2004 E.C: is one of the sources of on-farm cash income which is the immediate source of capital for pastoralists and agro-pastoralists to finance their food and non-food consumption and farming operations. The income from goat sale in 2004 E.C was expected to affect the household marketable supply positively in a way that income from goat sale can stimulate production and thus marketable supply for 2005 E.C

CHAPTER FOUR

RESULT AND DISCUSSION

4.1. Descriptive Statistics Result

4.1.1. Household Characteristics

4.1.1.1. Age of the household;

The average age of the total sampled goat producer respondents was 52.8 years with standard deviation of 7.713 (Table 2). This is comparable for the two group mean, (54.07 years, 51.77 years for pastoralist and agro-pastoralist household head respectively. Household in agro-pastoral areas are on average younger than household heads in pastoral areas and the difference is statistically significant at 5 % level. This indicates that agro-pastoralists were in productive age than pastoralists.

Table 2- Age distribution of sampled goat owners' respondent

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P- value
Mean age	54.07	51.77	52.83	0.0465**
Standard Deviation	7.10	8.08	7.71	
Maximum	72			
Minimum	42			

Source: survey result, 2013

** Significant at 5 % level

4.1.1.2. Educational status of the household;

The educational back ground of the sampled household head is believed to be an important feature that determines the readiness of household heads to accept new ideas and innovations.

About 91.1% and 6.1% of the sampled households were illiterate and could read and write, respectively. However, in agro-pastoral communities only 87.6% and in pastoral

communities about 95.1% of the sampled households were illiterate. About 8.2% and only 3.7% could read and write and whereas 2.1% and 1.2% had joined primary school in agro-pastoral and pastoral communities, respectively. About 2.1% and 0% had joined secondary school in agro- pastoral and pastoral communities, respectively. The chi-square test indicates that there is statistical significant difference between the two areas in their educational level at 1 percent level of significant. This indicates that agro-pastoralists were in accepting extension service than pastoralists.

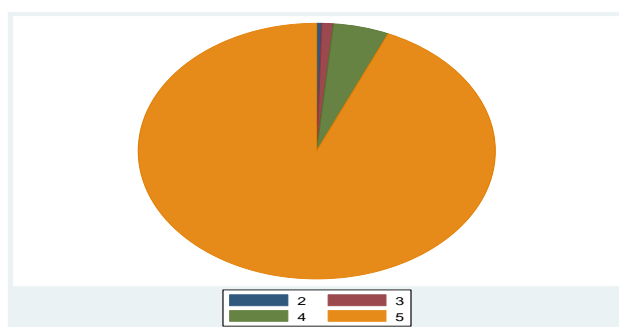
Table 3 Distribution of sampled respondent by their educational status;

Variable	Pastoralist N=82		Agro-Pastoralist N= 97		Total N= 179		Chi- square ($x^2 - value$)
	No	%	No	%	No	%	
Illiterate	78	95.1	85	87.6	163	91.1	3.676***
Can read and write	3	3.7	8	8.2	11	6.1	
Primary school	1	1.2	2	2.1	3	1.7	
Above primary school	0	0	2	2.1	2	1.1	
Total	82	100	97	100	179	100	

Source: survey result, 2013

*** Significant at 1 % level

Figure 3 Educational statuses of the respondents



2= above primary school

4 = Can read and write

3= Primary school

5= Illiterate

4.1.1.3. Family size of the household;

The average family size of the sampled goat owners in the study area was 6.65 adult equivalents (6.38 for pastoralist and 6.88 for agro-pastoralist) with a minimum and maximum family size of 3.2 and 12.5 adult equivalent, respectively with standard deviation of 1.94. This mean value was higher than the national average family size i.e. 5 adult equivalents (CSA, 2007). Agro-pastoral areas had on average lower labor force than pastoral areas and the difference is statistically significant at 1 % level.

Table 4 Distribution of sampled goat owners' by average family size

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P- value
Average family size	6.3780	6.8835	6.65	0.0000***
Standard Deviation	1.85	2.00	1.94	
Maximum	12.50			
Minimum	3.20			

Source: survey result, 2013

*** Significant at 1 % level

4.1.1.4. Access to extension service;

Agricultural extension is one of the crucial services delivered as public good by the government and NGOs. Extension service is very important for the development of goat production. Extension service for market oriented goat production is not yet being provided in the study area. Extension service on feed development, goat management, and health services are provided by the woreda offices of pastoral, agro-pastoral and rural development (BoPARD) and different NGOs working in the study area. The majority 125(69.8%) households replied that they got extension service. However, the remaining 54(30.2%) reported that they were not got extension service. But there is no statistical difference between extension contact and the two groups mean.

Table 5 Sampled household's access to extension service.

Variable	Pastoralist N=82		Agro- Pastoralist N= 97		Total N= 179		Chi- square ($x^2 - value$)
	N ₀	%	N ₀	%	N ₀	%	
Access to extension Yes	55	67.1	70	72.2	125	69.8	0.547
No	27	32.9	27	27.8	54	30.2	
Total	82	100	97	100	179	100	

Source: survey result, 2013

4.1.1.5. Access to market price information;

Majority of the respondents, 132(74%) replied that they have access to market price information about nearby market prior to sell their goat. The remaining 47(26.3%) did not have access to market price information int nearby market prior to sell their goat in the year during the survey. According to the researcher's personal observation and key informant discussion the major source of market information in the study area were "Dagu" or local information exchange mechanism. But there is no statistical difference between market price information in the two groups mean.

Table 6 Sampled household's access to market price information.

Variable	Pastoralist N=82		Agro-Pastoralist N= 97		Total N= 179		Chi- square ($x^2 - value$)
	N ₀	%	N ₀	%	N ₀	%	
Access to market Information Yes	60	74.2	72	74.2	132	73.7	0.026
No	22	26.8	25	25.8	47	26.3	
Total	82	100	97	100	179	100	

Source: survey result, 2013

4.1.1.6. Distance to the nearest market place;

The survey result indicates that the mean distance over which respondents travel to sell goat were 209.85 minutes (248.77 minutes and 176.96 minutes for pastoralist and agro-pastoralist respectively) with standard deviation of 76.85. The minimum and maximum time required to reach at nearest goat market center were 120 minutes and 323.50 minutes respectively. Pastoralists spend more time to reach to goat market than agro-pastoralists and the difference is statistically significant at 1 % level.

Table 7 Distance from the homestead to the nearest goat market centre.

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P- value
Market Distance in minutes	248.77	176.96	209.85	0.0000***
Standard Deviation	78.12	58.43	76.85	
Maximum	323.50			
Minimum	120.00			

Source: survey result, 2013

*** Significant at 1 % level

4.1.1.7. Off- farm income;

In the study area salary employment, petty trades, gift, and handcraft were found to be the major non-farm activities that sampled respondents participated in. In Table 10, the average non-farm income for the sampled households was 3701.31 Birr with standard deviation of 8572.54. The minimum and maximum non-farm income was found to be 0 and 41820.00 Birr. On average, agro-pastoral residents had higher off-farm income (5510.22 Birr) than pastoral residents (1561.50 Birr). Analysis of mean comparison has confirmed the existence of significant mean difference between the two group in off-farm income (P=0.0019) at 1 Percent.

Table 8 Mean value of sampled respondents' non farm income.

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P- value
Mean value of non farm income in ETB	1561.5	5510.22	3701.31	0.0019***
Standard Deviation	4739.46	10492.37	8572.54	
Maximum	41820.00			
Minimum	0.00			

Source: survey result, 2013

*** Significant at 1 % level

4.1.1.8. Total herd size;

Goat holding is an indicator of household's wealth status. Herd size was hypothesized to have positive and significant relationship with marketable supply of goat. As shown in table 9 the average TLU for sampled households was 9.57 with standard deviation of 3.37. The sampled respondents who live at pastoral area have the higher TLU (12.33) than agro-pastoral area (7.23) TLU. The mean difference was highly significant between the two groups at 0.01 levels.

Table 9 Sampled respondents' by TLU holdings.

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P-value
Total herd size in TLU	12.33	7.23	9.57	0.0000***
Standard Deviation	2.8848	1.4128	9.0701	
Maximum	18.70			
Minimum	3..60			

Source: survey result, 2013

*** Significant at 1 % level

4.1.1.9. Goat mortality

According to the survey result the sampled respondents' goat lost due to mortality on average 0.09 TLU. According to the researcher's personal observation and key informant discussion the main cause for goat mortality were shortage of water pasture due to recurrent drought, poor and/or lack of access to veterinary services medicines, animal disease. The computed p-value shows there was highly significant difference between the two groups at 1percent level.

Table 10 Goat mortality.

Variable	Pastoralist N=82	Agro- Pastoralist N= 97	Total N= 179	P-value
Mortality in TLU	0.15	0.05	0.09	0.0000***
Standard Deviation	0.1249	0.0778	0.1137	
Maximum	0.40			
Minimum	0.00			

Source: survey result, 2013

*** Significant at 1 % level

4.1.2. CHARACTERISTICS OF TRADERS INTERVIEWED

Though there are no trade specializations, according to the business proportions sampled trader channel members were identified as retailer, urban wholesaler, regional wholesaler and exporter and constituted 25 Per cent, 45 Per cent, 18 Per cent and 12 Per cent of the channel member traders respectively. 95 Per cent traders did not have legal trading license.

4.1.2.1. PERSONAL CHARACTERISTICS OF GOAT TRADERS

All traders interviewed were men. The average age was 35 year. The minimum and maximum age ranging from 25 to 62 year. Of the target trades, 92 Per cent were married, from the informal survey it is learnt that non residents of the local area had been dominant during peak marketing period. The sampled traders were composed of the private business men having different status from assembling to exporting.

4.1.3. MARKET STRUCTURE

Market structure refers to the degree of buyers' and sellers' concentration, the degree of market transparency (market information), and the condition of entry to and exit from trade (Scarborough and Kydd, 1992; Pender *et al.*, 2004).

In this study the market structure of goat assessed using market concentration ratio, the degree of market transparency by the flow of market price information within markets and the condition of entry into and exit from trade by examining educational level, trade experience, licensing procedure, lack of working capital and policy barriers.

4.1.3.1. . DEGREE OF MARKET CONCENTRATION

Market concentration refers to the number and relative size distribution of buyers and sellers in the market. For an efficient market, there should be sufficient number of firms (buyers and sellers); firms of appropriate size are needed to fully capture economies of size; there should be no barriers to entry into and exit from the market and should have full market information.

The analysis of the degree of market concentration was carried out at the sampled Chifra markets. It was calculated by the percentage of goat handled by the largest four traders. From these results it can be inferred that goat market of Chifra was characterized by weak oligopolistic market type ($CR_4 = 38.88$). *The concentration ratio result implies the existence of Weak oligopolistic market structure found in goat market (CR4 38.88%). This suggests that there is market imperfection because a few traders seem to have monopolized goat market. Generally there is no competition in Chifra market in goat marketing due to goat market has a ratio (CR4) or the market share of the largest four firms are greater than 33%.*

Table 11 CONCENTRATION RATIOS FOR SAMPLED TRADERS

No of Traders (A)	Cumulative Frequency of Traders (B)	% of Traders [$D = \frac{A}{35} \times 100$]	Cumulative % of Traders (E)	Quantity Purchased in number (F)	Total Quantity Purchased in number (G = A x F)	% Share of Purchase ($S_i = \frac{G}{36776}$)	% Cumulative Purchase ($C = \sum_{i=1}^r S_i$)
1	1	2.86	2.86	3800	3300	10.33	10.33
1	2	2.86	5.72	3500	3500	9.52	19.85
1	3	2.86	8.58	3700	3700	10.06	29.91
1	4	2.86	11.44	3300	3300	8.97	38.88
2	6	5.71	17.15	1100	2200	5.98	44.86
3	9	8.57	25.72	895	2685	7.30	52.16
4	13	11.42	37.14	960	3840	10.44	62.60
1	14	2.86	40	600	600	1.63	64.23
6	20	17.14	57.14	735	4410	11.99	76.22
1	21	2.86	60	821	821	2.23	78.45
5	26	14.28	74.28	731	3655	9.95	88.40
4	30	11.43	85.71	550	2200	5.98	94.38
5	35	14.29	100	413	2065	5.62	100
35		100			36776	100	

Source: Survey result, 2013

4.1.3.2. BARRIERS TO ENTRY AND EXIT

In line with this particular study, managerial know-how, working capital, legal and policy constraints were used in analyzing barriers to goat market entry and exit. Table 12 summarizes barriers to entry and exit of goat traders expressed in terms of education level attained, experience in goat trade, main sources of capital, access to credit and licensing of the sampled goat traders across the sample market.

i) Managerial Know-How: Managerial know how refers to the ability and knowledge of goat traders and it was examined by level of traders' formal education and their trade experiences.

a) Level of education: The result of traders' survey in Table 12 indicated that about 40%, 25.7% and the rest 34.3% of goat traders attained elementary, junior and secondary level education, respectively. The majority of the traders had elementary level education which confirms that traders' educational background did not seem to be a barrier to entry into goat trade.

TABLE 12 BARRIERS TO ENTRY AND EXIT OF GOAT TRADERS (%)

Barriers	Frequency	%
Level of formal education		
1-4 grades	14	40
5-8 grades	9	25.7
9-10 grades	4	11.4
11-12 grades	8	22.9
License		
Not licensed	28	80
Licensed	4	11.4
No response	3	8.6
Main source of fund		
Own capital	25	71.4
Borrowed with credit	-	-
Relatives and friends	10	28.6
Access to credit		
Did not have access	29	83
Easy to get credit	4	11.3
Did not need	2	5.7
Business experience		
< 1 year	4	11.4
1-5 years	12	34.3
6-10 years	11	31.5
10-20 years	8	22.8

Source: Survey result, 2013

b) Business experience: Business or trade experience refers to the number of years that goat trader engaged in trading activity. Traders' business experience is important in decision making activity.

The traders' survey results in Table 12 showed that most of the traders had been in goat trading business for more than 5 years. Out of the surveyed traders about 11.4%, 34.3%, 31.5% and 22.8 % of the traders had less than 1, 1-5, 6-10 and 10-20 years of business

experiences, respectively. The majority of traders in the sampled markets had 1-5 and 6-10 years of experience. This may explain that there is no barrier to entry in goat trade with respect to years of experience.

ii) Lack of working capital: Working capital refers to the amount of money required by goat traders to enter into the trading business. From the survey result, it was observed that the majority of goat traders (71.4%) had their own source of capital for the respective trading activities. However, traders' survey result revealed that about 83% of the goat traders responded that they did not have access to credit (Table 12).

The main problem to get credit were lack of guarantee for collateral and complicated processes, which they view as a constraining factor in expanding their scale of operations and achieving greater efficiency. This implies that lack of capital discourages entry into goat trading. Based on the survey result the minimum working capital which require in goat trade is 75,000.00 Birr.

iii) License of goat traders: In many business activities licensing is a major barrier. As a rule, a trader who has license in one business is not allowed to perform any other business other than the business for which he/she is licensed. However, this was not the case as most of the traders operating in the study area had no goat trade license.

Based on the sample traders' survey, about 80% of the respondents were not licensed in goat trading. Only 11.4% of the traders responded they had licenses. The remaining 8.6% were not volunteered to respond to this question (Table 12). Since the majority of traders lack trading license in goat trading activities, it seemed that there was no restriction to enter and exit in the goat trading business.

4.1.3.3. DEGREE OF MARKET TRANSPARENCY

The degree of market transparency refers to the timeless and reliability of market information that the traders have for their marketing decision. In a transparent market, participants have adequate information about their competitors regarding their source of supply and buying prices for better decisions.

Pastoralists and traders had no or very little access to formal goat marketing information. However, it was observed that market information was disseminated in different ways. Traders' survey result indicated that about 39% of the sample traders got price information

from a combination of telephone, personal observation, other traders and brokers. About 21%, 13% and 18 % of the traders got price information from other traders, through telephone and brokers, respectively. The rest (9%) of the traders reported that they could guess market information from the acts of other traders (it has problems in terms of the time it takes and the reliability of price information).

4.1.4. CONDUCT OF GOAT MARKET

4.1.4.1. PASTORALISTS MARKET BEHAVIOR

Market conduct refers to the patterns of behavior that firms follow in adopting or adjusting to the markets in which they sell or buy (Bain, 1968). In this research conduct of the goat market was analyzed in terms of the pastoralists' and traders' price setting, purchasing and selling strategies.

The sources of price information for the majority of the pastoralists and agro- pastoralists were friends, client traders, and Personal visit of the market and nearby pastoralists in order of their importance. Almost all transactions were paid in cash. The first three major price determination strategies: prices fixed by relatives, prices fixed by the market and prices fixed through negotiation with individual buyers were 44 Per cent, 25 Per cent and 16 Per cent respectively.

This result indicates that the price setting to the tradition of information exchange among the Afar people and we see that how the same information sharing affects market price, i.e., the fact that majority set prices by the advice of relatives may have something to do with tradition.

Table 13 Pastoralist price determination at sales market in the majority of cases

Price determination	Frequency	Percent
Follow prevailing market prices	44	25
Negotiate with individual buyers	28	16
Discuss with other sellers and jointly agree on the market price	18	10
Fix sale price according to relatives	77	44
Fix sale price according to (PRODUCTION COSTS+ MARKET COSTS)	9	5

Source: Own data, 2013

4.1.4.2. **TRADERS PRICE DETERMINATION AT PURCHASE MARKET AND SALES MARKET**

As indicated below in the Table 14, the traders' price determination at their purchase market and sales market were mainly influenced based on cost and profit, and the prevailing market price of animals. At the traders purchase market and also sales market price determination based on cost and profit higher than the rest of price determination.

Table 14: At purchase market and sales market trader's price determination.

Price determination	At purchase market		At sales market	
	Frequency	Per cent	Frequency	Percentage
Follow prevailing market prices	12	34	8	24
Argue with other traders	4	12	2	7
Based on cost and profit	19	54	25	69

Source: Survey result, 2013

The traders used their own marketing strategies during purchasing to attract suppliers; they use local language (Afaregna), be friendly with pastorals and through providing better price to producers.

4.1.4.3. PURPOSE OF SELLING GOATS

The sampled pastoralists ranked their reasons for selling goat, 41% to escape the disease and drought, and 24% accounted sold for immediate income need, and 17% for culling (Table 15). As shown in the Table 15, about half of the households in the pastoralists sold their goats to avoid the risk of losing their animals i.e. they sold goat in expectation of bad weather and/or disease. .

Table15 Reason for selling of goats by PPS and APPS.

	PPS	APPS
Market Issues	N (%)	N (%)
Reason for selling		
Culling	17(20.7)	0(0.00)
Cash need	24 (29.3)	94(100)
Risky situation	41(50)	0(0.00)

Source: Survey result, 2013

Unlike the pastoralists, table 15 indicates that the sole reason for selling goats by agro-pastoralists is their immediate cash needs.

The pastoralists keep goat for prestige and as an insurance against risks (Anwar, 2010). Absence of social security systems created socio economic crises that were manifested in raiding/robbery.

Absence of insurance against risks was not only limited to the aforementioned crisis but also to protect their livelihood in case of crises, the pastoralists engage in sharing goat for someone. This effort created difference of ownership, control and benefit which made decision difficult either to slaughter or sale the goat shared. So any development effort needs to acknowledge why the system exists and the mechanisms it sustains itself.

4.1.5. GOAT MARKET PERFORMANCE

Analysis of Market Performance: Marketing efficiency is essentially the degree of market performance. It is defined as having the following two major components: (i) the effectiveness with which a marketing service would be performed and (ii) the effect on the costs and the method of performing the service on the production and consumption. These are the most important because satisfaction of the consumer at lowest possible cost must go hand in hand with maintenance of high volume of farm output (Ranakumar, 2001).

The two approaches to measure marketing performance are: marketing margin and the analysis of market channel efficiency. Market performance in this study was examined using marketing margins at different levels of market chains.

4.1.5.1. MARKETING MARGIN

A marketing margin can be defined as a difference between the price paid between consumers and that obtained by producers; or as the price of a collection of marketing services that is the outcome of the demand for and supply of such services (Tomek and Robinson, 1990). This approach includes the analysis of marketing costs and margins and it measures the share of the final selling price that is captured by a particular agent in the marketing chain (Mendoza, 1995).

Channel I: Producer -Regional wholesaler-Retailer-Consumer

Channel II: Producer -Regional wholesaler-Urban wholesaler-Retailer-Consumer

Channel III: Producer-Urban assembler-Regional wholesaler-Retailer-Consumer

Channel IV: Producer-Urban assembler-Retailer-Consumer

Channel V: Producer -Urban wholesaler-Consumer

Channel VI: Producer - Regional wholesaler- Exporter -Consumer

Channel VII: Producer-Exporter- Consumer

Channel VIII: Producer-Consumer

But in this study total gross marketing margin was calculated using Channel VI because this channel was dominantly practiced

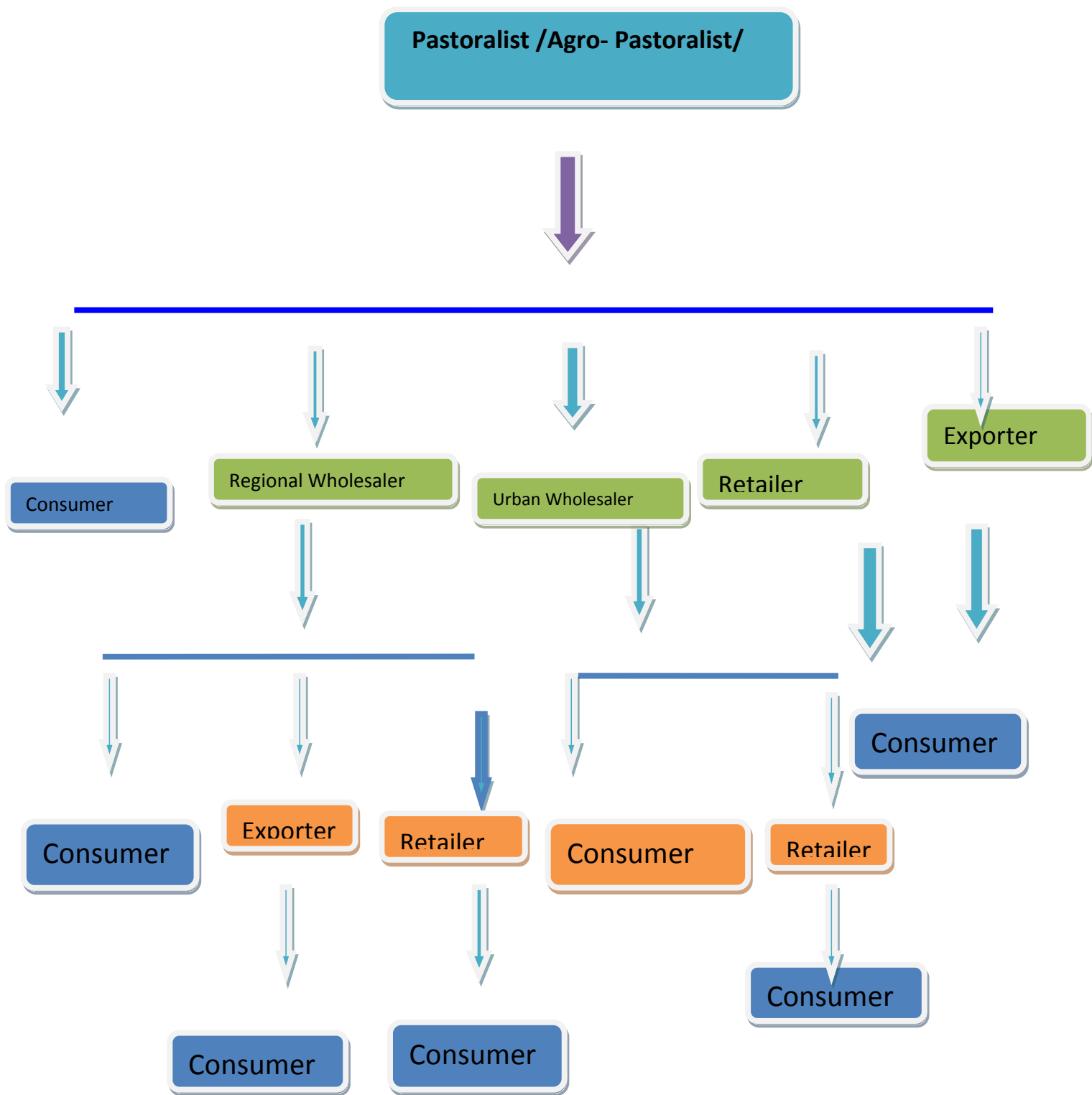


Figure 4: Goat market channel

Source: Own data, 2013

Table 16: Cost structure and Profitability of Goat Wholesalers and Exporters

Market Actor	Marketing Margin	Goat Price at different market channels
		Value at Market (ETH Birr)
Pastoralist's	Price to pastoralist at Chifra market	800
	Cost of Goat rearing	188
	Transport cost to Chifra market	2
	Watering and feed fee	2
	Loss – trading	3
	Loading & unloading	2
	Miscellaneous	3
	Total marketing cost of Goat Per head	200
	Pastoralist's gross profit	800
	Pastoralist's Net Benefit	600
Total cost for wholesalers		1000
Wholesaler	Wholesaler's price	1100
Exporter's	Wholesaler gross profit	300
	Wholesalers Net Benefit	100
	Purchase price for exporters in Djibouti	1100
	Loading & unloading)	2
	County Council fees	5
	Watering and food fee	8
	Transport	11
	Tax	1
	Loss – trading	4
	Overhead cost	14
	Total cost of Goat Per head	45
	Total cost for exporters	1145
	Selling price of the exporters	1650
	Exporters gross profit	550
	Exporters Net Benefit	505
Total Gross Marketing Margin		51.51 %

Source: Survey Result, 2013

The analysis clearly showed that the net earnings of wholesalers (Birr 100 per head) less than the earnings of exporters (Birr 505 per head). The pastoralist gets the highest net benefit Birr 600 per head than other Participant.

Based on the reported prices by the different market participants, summarized in (Table 17),

The different indicator of marketing margins for Goat was calculated and the estimates are indicated below.

Table 17: Marketing margins

TGMM (complete distribution channel) = 51.51
GMM (wholesalers) = 18.18
GMM (exporters) = 33.33
GMMp (producers participation)=(100% -TGMM) = 48.49

Source: own data, 2013

The Table 17 clearly showed that regarding on producers and exporters of goats had high gross marketing margin than wholesaler.

Table 18: Price of Goats at different market level

Marketing Channel	Selling Price(birr/head)	% share
Participant		
Producer	800	48.49
Wholesaler	1100	18.18
Exporter	1650	33.33

Source: own data, 2013

The pastoralist gets the highest share 48.49 Per cent than other Participant (Table 18).

4.1.6. Major constraints perceived by pastoralists and agro- pastoralists with respect to goat marketing

Pastoralists and agro- pastoralists household were asked to rank constraints regarding goat marketing in order of importance. The five most important constraints were: irregular demand and unstable goat price, disease and physical risk, inadequate market infrastructure, limited access to credit service, and inadequate access to market price information about nearby market were ranked as 1st, 2nd, 3rd, 4th, and 5th respectively (Table19).

Marketing constraints were ranked using preference ranking methods. In preference ranking method, index was computed with the principle of weighted average and indexes were ranked each other using auto ranking with MS- excel 2007. The following formula was used to compute index employed by Anwar, (2010):

Index = $R_n * C_1 + R_{n-1} * C_2 \dots + R_1 * C_n / \sum R_n * C_1 + R_{n-1} * C_2 \dots + R_1 * C_n$ where, R_n = Value given for the least ranked level (example if the least ranked is 5th, then $R_n = 5, R_{n-1} = 4, R_1 = 1$)

C_n = Counts of the least ranked level (in the above example, the count of the 5th rank = C_n , and the count of the 1st rank = C_1)

Table 19 Major constraints perceived by pastoralists and Agro- pastoralists

Constraints	Importance			Index of Marketing Constraints	Rank
	Most Important (3)	Important (2)	Less Important (1)		
Irregular demand and unstable goat price	105	55	16	0.119048	1
Disease and physical risk	90	77	9	0.116667	2
Inadequate market infrastructure	55	67	54	0.110204	3
Limited access to credit service	60	87	29	0.095578	4
Inadequate access to market price information about nearby market	49	82	45	0.081973	5

4.1.7. Major constraints perceived by Goat traders

Similarly goat traders were asked to rank constraints regarding goat marketing in order of importance. Based on the computed index of marketing constraints were: Poor health of goats, Poor quality of goats supplied, Transportation problem, Irregular supply, Limited access to credit service, Multiple and non transparent tax system, Inadequate market infrastructure ,and Inadequate access to market price information were ranked from 1st up to 8th (Table 20)

Marketing constraints were ranked using preference ranking methods. In preference ranking method, index was computed with the principle of weighted average and indexes were ranked each other using auto ranking with MS- excel 2007. The following formula was used to compute index employed by Anwar (2010):

Index = $R_n * C_1 + R_{n-1} * C_2 \dots + R_1 * C_n / \sum R_n * C_1 + R_{n-1} * C_2 \dots + R_1 * C_n$ where, R_n = Value given for the least ranked level (example if the least ranked is 8th, then $R_n = 8, R_{n-1} = 7, R_1 = 1$)

C_n = Counts of the least ranked level (in the above example, the count of the 8th rank = C_n , and the count of the 1st rank = C_1)

Table 20 Major constraints perceived by Goat traders

Constraints	Importance			Index of Marketing Constraints	Rank
	Most Important (3)	Important (2)	Less Important (1)		
Poor health of goats	21	11	3	0.093	1
Poor quality of goats supplied	22	7	6	0.090	2
Transportation problem	15	12	8	0.083	3
Irregular supply	11	9	15	0.070	4
Limited access to credit service	13	4	18	0.068	5
Multiple and non transparent tax system	14	17	4	0.0084	6
Inadequate market infrastructure	10	15	10	0.0073	7
Inadequate access to market price information	13	8	14	0.0072	8

Source: own data, 2013

4.2. Results of Econometric Model

4.2.1. Results of linear multiple regression Model

DETERMINANTS OF GOAT MARKETABLE SUPPLY

This section presents and discusses empirical findings of econometric analysis (Multiple Regression Model). Estimates of the parameters of the variables expected to determine the pastoral goat marketable supply are displayed in Tables 24 and 25. The Multiple Coefficient of determination (R^2) and adjusted R-squared tend to optimistically estimate how well the model fits the population. That is, 94.1 Per cent of the total variation in dependent variable explained by the variation in explanatory variables jointly. Adjusted R-squared (0.93) attempts to correct R-squared to more closely reflect the goodness of fit of the model in the population.

Similarly, according to the regression ANOVA in Table 24, the significance value of the F statistic ($F_{12, 166} = 867.11$, $P = 0.000$) shows that the independent variables do a good job explaining the variation in the dependent variable. And also the large regression sum of squares (260204.509) in comparison to the residual sum of squares (16757.1337) indicates that the model accounts for most of variation in the dependent variable (Marketable supply of goat).

A total of 12 explanatory variables were included in econometric model out of which 4 variables were found to be statistically significant to influence marketable supply of goat, the remaining eight of the explanatory variables did not have statistically significant influence on the marketable supply of goat in the study area at the conventional level of significance (i.e. 0.01). Among factors which had significant influence on the regress OFF-INC, and INC-GO, IRR-LHO, and TOH-SZ were statistically significant at 1 Per cent level.

Mathematically the relationship between goat marketable supply and significant explanatory variables can be presented:

$$Z(i) = \beta_0 + \beta_1\chi_1 + \beta_2\chi_2 + \dots + \beta_m\chi_m$$

Where: Z(i) is a function of explanatory variables (Xi)

β_0 is the constant and β_i is the parameter coefficients

$$Z(i) = -12.861 + 0.49X_1 - 0.021X_2 + 0.764X_3 - 22.284X_4 + 6.804X_5 + 1.683X_6 + 2.481X_7 - 0.00026X_8 + 0.0005X_9 - 8.563X_{10} + 0.48X_{11} + 0.071X_{12}$$

Table 21: Regression ANOVA

Source	SS	df	MS	F	R-squared = 0.9395
Model	260204.509	12	33.643	867.11	AdjRsquared=0.93510.727
Residual	16757.1337	166	100.946589		Root MSE = 10.047
Total	276961.642	178	1555.96428		

Source: Own data, 2013

Table 22: The Multiple Regression Model Estimates

Variable		Standardized Coefficients	t	Sig.
		Beta		
Family Size		.309	1.58	0.115
Market Distance		.014	-1.54	0.127
Death due to drought		.729	1.05	0.296
Irrigable land holding		4.990	-4.47	0.000***
Total Herd Size		1.554	4.38	0.000***
Access to Market Price Info.		1.471	1.14	0.254
Extension Service		2.165	1.15	0.254
Off farm Income		.00009	-2.80	0.006***
Lag Income from goat sale		.0002	2.71	0.007***
Sex		6.512	-1.31	0.190
Education level		3.104	0.15	0.877
Age		.080	0.89	0.377
	(Constant)	14.203	-0.91	0.367

F(12, 166) = 867.11

Prob > F = 0.0000

R-squared = 0.9395

The number of observations = 179

Note: *** significant at 1% level.

Source: regression output, 2013

Income from Goat sale in 2004 E.C: is one of the sources of on-farm cash income which is the immediate source of capital for pastoralists and agro-pastoralists to finance their food and non-food consumption and farming operations. Similar to the hypothesis made in this study, the income from goat sale in 2004 E.C was expected to affect the household marketable supply positively in a way that income from goat sale can stimulate production and thus marketable supply for 2005 E.C the result in Table 22 revealed that annual lagged year (2004 E.C) farm income was positively related with marketable supply of goat at 1 Per cent significance level. According to the model result, as the lagged year income of the household from goat increase by one birr, the marketable supply increase by 0.0002 TLU, ceteris paribus (Table 22). This means that households who managed to earn more on-farm income are more likely to adopt new goat technology and increase productivity thereby supply will be more.

Irrigable Land holding: According to the result in table 25, this variable has highly negative relationship with marketable supply of goat at 1 Per cent level. Keeping other variables constant, marketable supply decreases by 4.99 TLU if irrigable land holding increases by one hectare. This indicates that agro-pastoralists households who had irrigable land during drought seasons not forced to sell their goats to the market because there is forage access and some of their immediate cash needs can be met from the sale of irrigation products

Off farm Income: Based on the result in table 25, off farm income has negative relationship with marketable supply of goat at 1 Per cent level. According to the model result, as the off farm income of the household from goat increase by one birr, the marketable supply decrease by 0.00009 TLU, ceteris paribus (Table 25). Because farmers can raise money from non-farm for their immediate cash needs and they are not forced to sale their goats into the market.

Herd size: According to Fidzani (1993), large herds generate a higher marketable supply than small herds. Therefore, a pastoralist and agro-pastoralist that has more number of goat producing stocks was expected to have positive relationship with number of goat supplied to the market. Herd size has highly positive relation with marketable supply of goat at 1 Percent level.

As the goat holding increases by one TLU, the marketable supply of goats will increase by 1.554 TLU keeping other variable constant (Table 22).

4.3. Opportunities and challenges of goat marketing and the way forward

4.3.1. Opportunities

Recently, there has a trend of continuous and rapid increases in global consumption, production and trade of goats' products in developing countries (Hall et al.2004).

The factors that led to this increased demand are: population growth, urbanization, rise in income in growing urban centers of developing countries, international influences (globalization and liberal international trade), and technological changes in the production , communication and transport sectors (Hall et al.2004; Haenet et al.2003).

The rapid growth in demand for meat products in the world represents a great opportunity for goat and others livestock rich countries and regions. For Afar opportunities to export to Middle Eastern countries and other African countries have been growing. Clearly Afar region has comparative advantage in terms of geographic proximity to the Middle Eastern markets, with the potential for the quickest delivery time of fresh meat or meat products. Ethiopia's lowland goats, sheep, cattle, and camel breeds are highly demanded in the Middle Eastern due to their better taste and the organic nature of their production (Hurissa and Eshetu 2003).

In addition to the growing opportunity to export live goats and meat, there will also be an increase in domestic demand due to urbanization and economic growth. Additionally, there is a rising (and unmet) domestic demand for goats products, consumers report that low availability of goats products is a major reason for not consuming goats products and more than 95 % of those reported in adequate level of consumption also indicated their interest in increasing their level of consumption(Anwar, 2010).

Hence, the low levels of per capita goat consumption and consumers willingness to increase goat consumption show the potential to expand the domestic goat market.

With growing urbanization, there has been a rapidly developing food service sector (fast food outlets, restaurants, and hotels) in Ethiopia, particularly in Addis Ababa. This will increase the demand for high quality processed goat products and goats ingredients. Additionally, the food manufacturing sector, which utilizes goat ingredients, has been expanding in Ethiopia (EARO, 2007).

There are several bakeries and confectionary factories which require goat products as their main ingredients, these represents another area of growing market opportunities for goat producers and goat product processors and suppliers. Due to a high level of wide spread malnutrition in Ethiopia, there is also a growing interest in the preparation of nutritional foods (Seada, 2007).

In order to exploit emerging market opportunities there is a need to improve both the quality and quantity of goat and goat products under the different production systems. There are challenges at the household level, and at the export level, including the high mortality rates of goat.

4.3.2. Challenges of goat marketing at the household level and live goats and meat

Export

4.3.2.1. Challenges of goat marketing at the household level

The socio economic condition of pastoralists and agro pastoralists were poor when compared to the prevailing conditions in the highlands. The study area characterized by inadequate infrastructural facilities such as all weather roads, safe drinking water supply, shelter, standard hotels, markets, schools and sanitation facilities. Lack of awareness about processing technologies and entrepreneurial skills makes them to continue in the life as usual growth path.

The following are the challenges of goats marketing at the household level:

- Goat markets were lacking in various basic facilities like watering, fodder availability, services of veterinary, Goats sheds, loading/un-loading arrangement, weighing arrangement etc.
- The quality of feed and quantity of feed shortage were the core problem faced in the study area.

- There is no market information system prevailing. The introduction of mobile phone has eased many large sized traders for exchanging information with different goat markets.
- Lack of or asymmetric goat price information was characteristic of the Chifra pastoralists and agro pastoralists.
- There is no specific export oriented goat farming trend.
- Lack of organized markets
- Lack of facilities for meat processing.
- In adequate grazing lands.
- Low price of goat in the existing market
- Prevailing illiteracy among goats' owners.
- Adverse weather conditions including drought.
- Prevalence of animal disease.
- In adequate measures and support from government for goat marketing.
- Production techniques in pastoral and agro- pastoral areas are different.

4.3.2.1. Constraints and Challenges of live goats and meat export

The rapid growth in demand for meat products in the world represents great opportunities for goat resource- rich regions like Afar to exploit. However, there are several constraints and challenges that limit Afar's exploitation of export potential of goat and goat products.

The critical constraints and challenges are summarized below:

- √ In adequate information regarding the regions goat's numbers, annual off- take, Productivity and consumption levels;
- √ Archaic traditional production systems;
- √ High domestic demand relative to low supply of export- quality live goats;
- √ In sufficient and in consistent supply of price competitive quality goat and meat;
- √ Prevalence of goat disease;
- √ Absence of a grading system, a market information system, and promotional activities;

- √ In adequate port facilities; the Djibouti port is the only port used and it is ill-equipped for handling a large number of goat, lacks adequate resting places, sufficient fencing compartment for handling different categories of goats, and facilities for isolation of sick Goats.
- √ Excessive taxes and fees on exports and time- consuming tax collection procedures which make exporting less competitive in the global market
- √ Limited access to foreign earnings;
- √ Illegal export trade.

4.3.3. The way forward

Based on the findings of the study which were raised by focus group discussants. The following consensus issues emerged on modalities for moving forward;

- ◆ Assessment of the goat market, review of previous goat market information service and design of goat market information system.
- ◆ Arrange for marketing infrastructure such as road, transport, communication, services of veterinary and storage houses.
- ◆ Arrange safe drinking water in the market for the goats which supplied in to the market.
- ◆ Train the pastoralists and agro pastoralist in range land utilization, management, goat management and hygiene and goat marketing strategies.
- ◆ Establish goat feed factory.
- ◆ Consider government policy support for pastoralists and agro pastoralist
- ◆ Undertaking special measures and support from government for goat marketing.
- ◆ Initiate and organize goat marketing cooperatives in the study area.

CHAPTER FIVE; SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.1. SUMMARY

Given the large population of livestock in the country, their contribution to the total GDP was extremely low for many reasons. The most cited reasons include lack of market-oriented production, excessive margin mainly due to inefficient and costly transport, absence of livestock market information, lack or non-provision of transport, ineffective and inadequate infrastructural and institutional set-ups, prevalence of diseases, inadequate government interventions and absence of market regulations and legislations, excessive price and supply fluctuations, poor linkage of research and extension, and illegal trade.

The livelihoods of pastoralists and agro-pastoralist in Chifra woreda are primarily dependent on goat and the cash income derived from goat and their products. As a result, goat marketing needs due attention in any on-going or future goat development plan. The survey was conducted in Chifra district of Afar region to assess the existing goat marketing system with specific objectives of studying the determinants of market supply, examine the market structure, conduct and performance, identifying major constraints and opportunities of production and marketing of goats in the study area.

In order to attain these objectives the study made use of primary data collected through households, market and traders' surveys. The market survey was conducted on weekly basis from February 07, 2013 to April 30, 2013 in the sampled market during the major market days.

The market survey captured information on prices and different variables which influence goat prices. Accordingly, traders survey were collected from a sample of 35 goat traders during three different periods i.e., Christian and Muslim festivals, Christian fasting and normal periods.

Descriptive statistical analyses were used to analyze goat market structures, marketing costs and margins, and efficiency of marketing channels. Econometric estimation technique was employed to identify factors influencing goat supply for sampled markets. The goat marketing system was evaluated using structure, conduct and performance approach. Marketing costs and margins were computed to judge the efficiency of goat

marketing channels. Multiple linear regression models were used to identify factors influencing the supply of goat in the Chifra market.

The traders' survey result confirmed that trade license; business experience and educational background did not hinder entry in to goat market. However, capital requirements and access to market information were found to be barriers to enter in to goat market.

The main marketing constraints identified by this study in households survey were irregular demand and unstable goat price, disease and physical risk, inadequate market infrastructure, no access to credit service, and inadequate access to market price information about nearby market.

The main marketing constraints identified by this study in traders' survey were poor health of goats, poor quality of goats supplied, transportation problem, irregular supply, limited access to credit service, multiple and non transparent tax system, inadequate market infrastructure ,and inadequate access to market price information

The study revealed that goat market in the study area was not competitive because few traders monopolized the markets. Goat market in Chifra (38.05%) was characterized by weak oligopolistic market type.

The analysis clearly showed that the net earnings of wholesalers less than the earnings of exporters. Producers and exporters of goats received high gross marketing margin than wholesaler. The pastoralist gets the highest share than other Participant. With regard to marketing costs, total marketing costs per head of exporter was found to be the highest cost for goat traders in the marketing channels.

The study also investigated the determinants of goats supply by using the multiple linear regression models. Regression results of the model have shown that income from goat and herd size have highly significant and positive effect up on the amount of goats supplied to the market whereas land size, and off- farm income have negative influence.

5.2. CONCLUSION AND POLICY IMPLICATIONS

Based on the results of this study, the following conclusion and policy implications are made so as to be considered in the future intervention strategies which are aimed at promoting goat markets in the study area in particular and the country in general.

Good marketing facilities and services are important for efficient goat marketing systems. Improvement of marketing infrastructures and facilities and alleviating constraints to marketing will potentially increase the welfare of pastoralists and agro-pastoralists, urban consumers and improve the national income as well. When income of pastoralists and agro-pastoralists increases through better access to market infrastructure, they could improve production both in terms of quantity and quality thereby benefiting consumers. As a result, governmental and non-governmental organizations involvement in the improvement of market infrastructure in the study area should be given a priority.

The calculated market concentration ratio confirmed that the overall goat markets are found to be traditional, under-developed and inefficient (oligopolistic market structure). Thus, government actions are required to license goat traders and perform inspection and other ways of developing the market mainly by investing on market infrastructure in the study area.

Pastoralists supply goat to markets with little or without having current market information. Providing market information to producers and market participants are very important to improve the performance of goat markets in the study area. Availability of reliable market information will increase the bargaining power of producers and hence improved prices for their products. Therefore, attention should be paid to provide access of market information for the pastoralists.

Pastoralists sold their goat with price discount when they faced severe cash shortages and problem of feeding and watering their animals due to drought. Thus, the government should design appropriate means of addressing pastoralists' problems through loans in case of urgent cash need and provide them improved technologies to cope up the drought.

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7. Appendix

MEKELLE UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ECONOMICS
SURVEY QUESTIONNAIRE FOR
ANALYSIS OF GOAT MARKET IN AFAR

Hello! How are you? Thank you for giving me your precious time.

My name is _____. I am _____
_____.

This interview is part of the research Mr. Ali Hussien is undertaking as a partial fulfilment of the award of MSc in Economics. You are selected from population living in the kebele. This interview takes a few minutes.

Part I. General information:

1. Zone _____
2. Name of the woreda _____
3. Name of the kebele _____
4. Date of interview _____
5. Interview Code Number _____
6. Signature _____

Part II. Household Characteristics:

1. Name of the household head _____
2. Religion _____
 1. Muslim 3. Catholic
 2. Orthodox 4. Protestant
 5. Others
3. Ethnicity _____
 1. Afar 2. Amhara
 3. Tigray 4. Oromo
 5. Others

4. Sex of the respondent

1. Female 2. Male

5. Family size of the respondent ----- in number

6. Educational status:-

1. Above secondary education -----

2. Secondary education (7th -12th grade) _____

3. Primary education (1st - 6th grade) _____

4. Read and write _____

5. Illiterate _____

7. **Marital status:** - Single (1), Married (2), Divorced (3), Widowed (4)

8. **Occupation:** - Government (1), NGO (2), Cooperative (3), Goat rearing (4),
off farm activities 5), Daily Laborer (6), Agriculture (7), Others (8)

9. The distance of respondents' residences to the market place ----- in walking minutes. .

Distance of your residence to the nearest development center _____ in walking minutes. .

10. Annual Income of Household?

Means of Income generation Types	Annual income (in Birr)
Government	
NGO	
Cooperative	
Goat rearing	
Off – farm activities	
Daily Laborer	
Agriculture	
Others	
Total	

Part

III

Infrastructure availability and affordability in the area

11. Are there modern transportation facilities in the area? Yes =1 No.=0

Part V.

Access to different services

20.. Did you have extension contact in relation to Goats production and marketing?

Yes =1 No =0

20.1 If yes, What was the extension advice on?

- 1. Goats choice 2.Feed preparation 3.Rang land management system
- 4. Market information 5.Prevention and care of Goats 6. Management and hygiene of Goats
- 7. Other (specify)_____

21.How often the extension agent contacted you?

- 1. Weekly 2. Once in two week 3. Monthly
- 4 .Twice in the year 5. Once in a year 6. Any time when I ask them

22.Did you know (visit) the nearby market price before you sold your Goats?

Yes=1 No=0

23.1If yes, did you sell your Goats as what you expect?

- 1. Yes 0. No

24. Where is your market place for your Goats?

Primary ----- Secondary ----- Tertiary -----

25. Price of Goats in all markets?

Market Types	Price in birr (in 2011/12)
Primary	
Secondary	
Tertiary	

26. How often would you receive information?

Weekly= 1 Monthly= 2 Annually=3

27.1. If yes, what is /are your source(s) of information?

Radio =1 TV =2 Extension Agents =3 Cooperatives= 4

Brokers =5

By means of local information exchange (“Dagu”)=6 Telephone(mobile)=7

Others (specify)=8

28. How did you qualify your source of information?

1. It was reliable

2. It was timely

3. It was adequate

4. Other (Specify)-----

29. Are you accessible to veterinary service in your locality /near distance?

Existing= 1

Not existing =2

Others (specify) =3 _____

30.. How is Artificial insemination supply?

Adequate =1

Inadequate =2

Others (specify) =3

Part VI

31.What changes took place in your herd/flock over the last 12 months?

Production Year	No of Goats at begging of the year	Sold	Purchased	slaughtered	Births	Death	Net Gift made	Net (at end of year)
2004 E.C								
2005 E.C								

32. Do you perceive that Goats mortality reduce your number of Goats supplied to the market?

Yes =1 No =0

32.1. If yes, how many number of Goats and how many number of marketable Goats l loss by mortality in a year?

Number of marketable Goats loss by mortality	Number of non marketable Goats loss by mortality	Total loss by mortality

33. Do you perceive that stock theft reduce you're number of Goats supplied to in Goats marketing?

Yes =1 No =0

33.1 If yes, how many number of Goats in a year?

34. Do you perceive that Drought risk reduce you're number of Goats supplied to in Goats marketing?

Yes =1 No =0

34.1If yes, how many number of Goats in a year? -----

34.2 How many times Drought risk takes place within a year? -----

35. When drought takes place? /Month or season /-----

36. Has any member of your family ever migrated out during Drought risk?

1= Yes 0= No

37. What is the Goats' price in the market at present on average? -----

38. If you expected a better price, did you sell at what you expected? 1. Yes 0. No

39. Do you perceive that weight of Goats' increase you're number of Goats supplied to in Goats marketing?

Yes =1 No= 0

40. Do your live Goats' have preferred grad by buyers?

Yes =1 No= 0

41. Do your live Goats' have preferred quality by buyers?

Yes =1 No= 0

41.1 If No, what interventions are needed to improve quality and quantity of Goats' production to attract better prices?

42. How do you Transport live Goats' when you want to selling?

Transport (Trucking) =1

Move Goats by foot =2

42.1 If by transport (Trucking), how much you pay for transport to reach to the market? _____ (Amount in Birr)

43. How many minutes took to transport your Goats to market? _____

44. Did you face difficulty in finding buyers when you wanted to sell? 1. Yes 2. No

45. If yes, is it due to:

1. Inaccessibility of market

3. Lack of information

2. Low price offer

4. Shirking of weight

5. Other (Specify

46. What are the problem creating low quality and quantity of Goats' and Goats' product when producing Goats'? (mark ✓)

Problem	
Quantity of feed	
Quality of feed	
Breed	
Disease	
Environment	
Management and hygiene	
Mortality	
Drought	
Conflict in the Pastoral areas	
Water	
Others (specify).	

47. The reasons why are you prefer of the Goats'?

Reason for preference				
Better product	Resistance to drought	Due to feed change in the area	Resistance to disease	Preference of the product in the market

48. The reasons why are you keeping Goat? (Mar ✓)

Reasons	
For consumption	
Prestige	
Wealth	
For sale	
Ceremonies	
Others, (specify),	

49. The reasons why are you soled Goat? (Mar ✓)

Reasons	
Culling	
Cash need	
Risky situation	

50. When did you supply your live Goats' for sale?

Weekly =1

Two times per month=2

Once per month =3

Others, (specify) _____

51. How many numbers of Goats did you supply in the market when you participating in the market?

Numbers of Goats	
Dry season	Wet season

52. Where did you supply your live Goats' for sale?

Nearby market place = 1 Farm gate = 2

53. Who are the buyers of your Goats?

Buyers					
Consumers 1	Goats' Traders 2	Goats' Processors 3	Cooperative 4	Brokers 5	Agent 6

54. What are the primary sources of feed for Goats'?

Communal range land 1

Private range land 2

Crop by product 3

Crop residue 4

Improved forage 5

Fallow land grazing 6

Sugar cane residue 7

55. What are the sources of water for your goats'?

Rivers 1

Springs 2

Ponds/natural 3

Ponds/Artificial 4

Dam 5

Berka 6

Others, specify

56. Do you move Goats' to other place in search of feed and water?

Yes =1 No=0

56.1 If yes, where you took Goats' during dry season? Why you prefer that place?

Where _____

why, _____

57 Which season decreased your number of Goats' supplied to in Goats' marketing? _____

58. Did you face problem in Goats' production and marketing? If yes what was the cause & your suggestions to solve each problems?

No	Problem faced	1. Yes 2. No	If yes, was/were the cause/s of the problem	Suggestion	Most important(3)	Important (2)	Less Important (1)
1	Drought risk						
2	Seasonality						
3	Water						
4	Disease and physical risk						
5	Low birth rate of Goats'						
6	Problems of grade and standard						
7	Transport						
8	Low market demand						
9	Unstable Goats' price						
10	Lack of experience in Goats' Selling						
11	Lack of experience in Goats' Production						
12	Lack of quality and adequate feed						
13	Inadequate market infrastructure						
14	Inadequate access to Current market information						
15	Inadequate extension service						
16	Weak legal system of enforcement contracts						

B. Traders' questionnaire

Date_____

Questionnaire number_____

Name of enumerator_____

Woreda _____

A. Socio-demographics

1. Name of Respondent_____

2. Gender of Respondent_____

1. Male 2. Female

3. Age of respondent_____

1. Youth 2. Middle-aged 3. Elder

4. Religion of household head

1. Muslim 2. orthodox Christian 3. Protestant

4. Catholic 5. Other (specify)_____

5. Marital status of household head

1. Single 2. Married 3. Divorced 4. Windowed

6. Educational level of household head

1. Illiterate 2. Primary school 3. Secondary school

4. Religious school 5. College education

B. THE TRADING ENTERPRISE

7. When did you start selling Goats'?

8. Do you have another occupation other than trading Goats'?

1. Yes 2. No

If yes, what is your occupation?_____

9. Type of business:

1. Retailer,

2. Wholesaler

3. Farm collector

10. What is the legal status of this trading business?

1. Sole ownership

5. Shareholding Company (action)

2. Subsidiary (or branch) of another enterprise

6. State-owned enterprise

3. Partnership

7. Other.....

4. Cooperative

11. What was the amount of initial working capital when you the started the business? _____ Birr

12. What was the amount of your working capital in 2004 E.c? _____ Birr

13. How many Goats' you purchase per week/month?

14. How much profit you add on your initial cost per Goats?

15. Where is the source of Goats'/supply?

1. Pastoralists from Woreda

2. Retailers from the Woreda

3. Wholesales from Woreda

4. Pastoralists out of Woreda /Region specify the Woreda /Region

5. Traders out of Woreda /Region specify the Woreda /Region

6. Other (Specify) -----

16. Supply of Goats' from source

a.High

b.Medium

c.Low

17. Demand of Goats’

a.High

b.Medium

c.Low

18. What are the common problems in buying Goats’?

19. Where did you get market information about Goats’?

20. How do you settled payment (immediate, credit, advance payment)

21. Did you add values to the products?

22. What are the main constraints on the Goats’?

23. What are the constraints on the marketing of Goats’?

24. As to you what opportunities can be exploited for Goats’ market?

25. Who has helped you financially to start this trading business?

1. Owner(s) only

6. Foreign company

2. Family members

7. Local bank

3. Non-family members residing locally

8. Alternative financial institution

(e.g, NGO, MFI)

4. Non-family members residing elsewhere

9. Other

5. Local company

10. Don’t know

C. MARKETING CONCERNS

We would like to ask you about your opinions regarding the current market situation.

26. In your opinion, what are the three most important problems facing your marketing system?

1. Price instability

7. Pressure by authorities

13. Weak legal system for contract

2. Price fixing by certain market

8. Unfair or inappropriate taxation enforcement actors

3. Barriers to trading on ethnic basis

9. Difficulties in obtaining license

14. Inadequate infrastructure

4. Drought

10. Lack of regulation of unlicensed

15. Problems with demand or traders Supply situation

5. Trading practice of cooperatives

6. Disease

12. Limited access to credit

27. How do you determine at what price to buy products, in the majority of cases?

1. Follow prevailing market prices
2. I make my own determination on the basis of the quality and quantity of the product
3. I discuss with other buyers like me and we jointly agree on the market price
4. I fix my purchase price according to the sale price I think can get (FINAL PRICE-COSTS)
5. I fix my purchase price according to the other large buyers in the markets
6. Other -----

28. How do you determine at what price you will sell your products, in the majority of cases?

1. I follow prevailing market prices
2. I negotiate with individual buyers
3. I discuss with other sellers me and we jointly agree on the market price
4. I fix my sale price according to my purchase price (PURCHASE PRICE+COSTS)
5. I fix my sale price according to the other large sellers in the market
6. Other -----

29. Are there large commercial trading enterprises and processing enterprises (factories, abattoirs, etc) active in your market?

1. Yes, 2. No 3. Don't know

If yes, how many operate in your main market?

30. With all the different market participants, do you consider this market to be competitive, in that prices are determined through free market competition among market actors? 1. Yes 2. No 3. Don't know

31. What were your marketing costs from purchase to sale for this transaction?

Cost Category	Birr	cost
		code

1 .Loading at purchase market

2. Payment to intermediary agent at purchase

3. Tips during purchase

4. Market levies at purchase market

5. Market levies at purchase market to either intermediary or final

sale market

6.Transport costs from intermediary to final sale market

7. Total Payments at road stops (kella) ----- number

8 .Payment to transport broker

9. Loading at intermediate market (not final sale market)

10. Loading at final sale market

11. Storage costs

12. Telephone

13. Payment to intermediary agent at sale

14. Tips during sale (outside of agent fees)

15. Personal travel costs

16. Municipality market levies at sale market

17 .Other

32. Mode of transport codes

1. Trekking 2. Trucking

D. TRADING PRACTICES

33. Do you use intermediaries, such as agents or brokers, who either sell or buy on your behalf?

1. Yes 2.No

34.Do you have regular suppliers from whom you purchase regularly? 1. yes 2.No

35.Do you have regular customers to whom you sell regularly? 1.yes 2.No

36 Do any of your suppliers let you buy on credit?

1. None of your suppliers 2. Some of your suppliers 3. All your suppliers

37. Do you pay a different price when you buy on credit? 1. Yes 2. No

38.Do you let any of customers buy on credit? 1. Never 2. Some customers 3. All customers

39. Do you receive a different price when you sell on credit? 1. Yes 2. No

40. What are your main sources of market information? Rank. First Second Third

Information

1. Personal observation (seeing, eavesdropping)

7. Radio/Television

2. Speaking with regular customers

8. Internet

3. Speaking with regular suppliers

9. Respondent sets his/her own price

4. Speaking with intermediaries (buying agents, brokers,

10. Association or Chamber of Commerce

Selling agents)

11. Concerned government officials (trade bureau)

5. Speaking with other traders like yourself

12. Other -----

6. News papers 13. I don't get any information

41. When you sell products in markets outside of your market, if you don't find a buyer, what do you do?

1. You leave your products with a selling agent or broker 4. You sell on credit

2. You return with the products on the following market days 5. You recondition the product to increase its

Value

3. You sell products at a reduced price 6. You return with the product to your own market or home

7. You take the product to a different market.

E. Trading Disputes

42. Have you experienced any of the following problems with customers?

a. 1 Yes 2. No

1 Payment after the agreed upon date

2 Partial payment

3 No Payment

4 Attempt to renegotiate agreed upon price

5 Bad quality of purchased product

6 Disagreement after selling

F. Dispute Resolutions

43. How did you ultimately resolve your dispute, with either suppliers or customers? Rank.

1. Disputes with suppliers First Second Third

2. Disputes with customers First Second Third

G. Financial Assets and Access to Credit

44. What is your current working capital that you use for trading purposes? Birr

45. Have you had access to any form of credit (including informal sources)? 1. Yes 2. No3

Credit source

1.Bank

2.Micro finance institution

3.Saving and credit associations

4.NGO

5.Other traders

6.Moneylender

7.Friends or relative

8.Ekub

9.Other sources

C. Checklist for Goats survey (PADO) and Development agent (marketing expert)

1. PADO

1. Woreda -----
2. Total population of the Woreda -----
3. What is the total arable land of the Woreda?
4. What is the total irrigated land?
5. What is the total livestock population of the Woreda?
6. What are the total beneficiary/ livestock owner?
7. What are the main livestock type produce in your Woreda?
8. Is there livestock veterinary in your Woreda?
9. If yes what types of veterinary medicine distribute to pastoralist?
10. What is the role of your office in Goats market, market information and Goats handling?
11. How do shoats producers distribute/sale Goats?
12. Are there livestock cooperatives?
13. Are there any commercial center?
14. Are there contractual agreements between Goats owner and any wholesaler or retailer within or outside the Woreda?

15. If your answer to the above three consecutive questions is no, what is the reason and the solution you think?

_____ Are there complaints on lack of demand for Goats?
16. If yes, what control mechanism you used to solve the problem?
17. Any conflict between buyers and sellers in terms of quality, failure to settle payments (contracts).
 19. What are the main constraints on the Goats?
 20. What are the constraints on the marketing of Goats?
 21. As to you what opportunities can be exploited for Goats market?
 22. Any additional on Goats and marketing remark

2. Development agent (marketing expert)

1. sex -----
2. Age
3. Woreda -----
4. Are there any training provided to the pastoralist/agro-pastoralists in order to let them profit oriented?
5. If yes how many times per month or year?

6. Is there any facilitation made to avoid lack of shoats buyers by contract agreement or another mechanism.
7. Is there any change in the income of the household?
8. As to you what opportunities can be exploited for Goats market?
9. What are the main constraints on the Goats' production?
10. What are the constraints on the marketing of Goats?
11. Are there competitors who supply products from other place? If yes their strength and weaknesses

Check List for Structure, Conduct and Performance of Goat Marketing System

Appendix Table 1: Market outlet

Pastoral Goat Market Out let			
Market Out let	(Volume traded)	Perecent ()	Perecent ()
Producer			
Producer/village traders			
Urban assemblers			
Whole sellers			
Consumers			

Appendix Table 2: Financial position

Financial position of Goat traders in sample markets			
Financial Capital Market	N Birr	Place of operation	Place of operation
		traders	traders
Amount of working capital in the start			
1			
2			
3			
Total			
Amount of working capital in 2013			
1			
2			
3			
Total			

Appendix Table 3: Purchase and sale strategy

Buying , Selling and Pricing strategy of Goat in sample market					
Marketing strategy	Marketing behaviour of traders (%)	Market			
		1	2	3	Total
Who set the purchase price of Goat?	Buyer				
	Seller				
How is the purchase price set?	Demand				
	Supply				
Time of purchasing price of Goat set?	At the time of purchase				
Who decide your selling price?	Buyers				
	Negotiation				
	Demand and supply				
How is your Goat selling price set?	Negotiation				
	After sale at terminal market by brokers				
How do you attract your buyers?	Provide better price				
	Negotiation power				
	By visiting them				
	Better price and Negotiation				
Type of payment	Cash				
	Credit				

Appendix Table 4:Involvement

Entry barriers mentioned by Goat traders						
Entry barriers	Category(%)	Role of traders(%)				
		Rural assembler	Whole seller	Retailer	Secondary trader	Total
Trend of finance access	Improved					
	Deteriorated					
	No change					
Major problem to enter Goat market	Lack of capital					
	Lack of information					
	Lack of Goat house					
Source of information on price	Other traders					
	Personal observation					
Source of information on demand	Other traders					
	Personal observation					
Source of information on supply	Other traders					
	Personal observation					

Appendix Table 5:Traders resource ownership

Marketing cost of Goat marketing						
Cost items	Traders category					
	Rural assembler	Urban assembler	Whole seller	Retailer	Exporter	Total
Transportation cost						
Storage loss cost						
Loading and Unloading cost						
Labor cost						
Water and feed cost						

Appendix Table 6 Conversion factor used to estimate man equivalent

Age group	Male	Female
<10	0	0
10-13	0.2	0.2
14- 16	0.5	0.4
17- 60	1	0.8
>60	0.7	0.5

Source:Rehima Mussema,2010

Appendix Table 7 Conversion factor used to estimate tropical livestock units

Animal Category	TLU
Goat	
Adult	0.13
Young	0.06

Source:Rehima Mussema,2010

Appendix Table 8 Multicollinearity test for continuous variables

Variable	VIF	1/VIF
inc_go	13.92	0.071833
toh_sz	13.90	0.071923
mkdist	2.14	0.466452
irr_lho	1.73	0.578058
age	1.66	0.601212
deathdro	1.66	0.602766
famsizadueq	1.24	0.809007
off_inc	1.19	0.837670
Mean VIF	4.68	

Source: own computation, 2013

Appendix Table 9 Contingency coefficient for dummy variables (obs=179)

	extser	sex	edu_lev	age	acc_mpf
extser	1.0000				
sex	0.2382	1.0000			
edu_lev	-0.1568	-0.0780	1.0000		
age	0.2242	0.1448	0.2458	1.0000	
acc_mpf	0.7419	0.2244	-0.1388	0.0625	1.0000

Source: own computation, 2013

