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KUMASI

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

FACULTY OF AGRICULTURE

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EXTENSION

FACTORS INFLUENCING SOYBEANS PRODUCERS' CHOICE OF MARKETING CHANNELS IN THE SABOBA DISTRICT OF NORTHERN REGION, GHANA

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THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PHILOSOPHY IN AGRICULTURAL ECONOMICS

OCTOBER, 2015

DECLARATION

I hereby declare that this submission is my own work towards the M. Phil. (Agricultural Economics) and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

The study focused on factors influencing the choice of marketing channels by soybeans farmers in the Saboba District of the Northern Region. Two hundred and forty (240) soybeans farmers and ten (10) agents of the marketing channels were randomly selected for the study.

The study specifically looked at the marketing channels that are available in the study area, the distribution of farmers among the marketing channels, services provided by the marketing channels, challenges faced by farmers in trying to access the marketing channel, and the influence of economic and non-economic factors on the producers" choice of marketing channels.

It was revealed that there are four marketing channels in the study area; these include the direct sales to the NGOs, sedentary wholesalers, itinerant wholesalers, and the microprocessors. These marketing channels offer different services, which affect the marketing costs and the incomes received by farmers in diverse ways. The most patronized market in the study area is the direct sale to the NGOs, followed by the itinerant wholesalers, sedentary wholesalers, and micro-processors being the least patronized.

Farmers who sell their soybeans directly to the NGOs enjoy production and marketing services such as; agronomic training, ploughing, transport, pre-finance, production credit support, linking farmers to input suppliers, purchase by grades, and purchase by weight. The itinerant wholesalers, sedentary wholesalers and microprocessors provide production and marketing services such as; production credit support, prompt payment, cash payment, and negotiated price. Benefits such as higher price, assured market and input supplies are enjoyed by farmers who sell directly to the NGOs. Proximity to the buyers is the benefit farmers who market through the itinerant

wholesalers, sedentary wholesalers and microprocessors enjoy. Factors such as delays in payment, delays in buying, inadequate information, low demand, low price, inability to meet grades, not purchasing by weights are the constraints faced by farmers in marketing of their soybeans.

Multinomial logit model was used to analyze the influence of the economic and non-economic factors on the producers" choice of marketing channels. It was revealed that factors such as; age, mode of payment, speed of payment and price of soybeans influence farmers decision to sell directly to the NGOs relative to the sedentary wholesalers. The cooperative membership of farmers, household size and marital status were found to have influence on the farmers" decision to the sedentary wholesalers relative to the direct sale to the NGOs.

The marital status of the farmer, cooperative membership, experience, and contractual agreement were found to have influence farmers choice of itinerant wholesalers relative to the direct sale to the NGOs. The speed of payment, mode of payment, and age of the farmer have a influence on the farmers choice of direct sale to the NGOs relative to the itinerant wholesalers.

DEDICATION

I dedicate this thesis to my late parents, Mr.& Mrs. Udimal Bayem and the entire

Udimal family.

ACKNOWLEDGEMENT

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LIST OF ACRONYMS

EPDRA : Evangelical Presbyterian Development and Relief Agency

ESAP : Economic Structural Adjustment Programme

FAO : Food and Agriculture Organization

IIA : Independent of Irrelevant Alternatives

KM$_2$: Kilometer Square

MM : Millimeters

MNLM : Multinomial Logit Model

MNPM : Multinomial Probit Model

NGOs : Non-Governmental Organizations

OLS : Ordinary Least Square

CHAPTER ONE

1.0 INTRODUCTION

1.1 The background of the Study

Marketing of agricultural produce in sub-Saharan Africa had been the sole responsibility of the government, but after the implementation of the Economic Structural Adjustment Programmes (ESAP), most countries" governments (parastatal agents) stopped being directly involved in the marketing of these produce (World Bank, 1993). The liberalization of the agricultural marketing has led to the involvement of the private sector in the marketing of various agriculture produce. These developments have led to the emergence of various marketing channels for marketing of various agriculture produce. According to Magingxa (2003), the liberalization of agricultural markets has made the sector more vibrant, as it offers the producers of various produce options for the sale of their produce. Liberalization of agricultural markets has also gone a long way to improve the profit levels of the farmers (World Bank, 1993). A stronger growth in agriculture will result in a higher income for farm households, and generate more employment opportunities, which will result in a drastic reduction in the level of poverty. However, agricultural growth will require the presence of an efficient marketing system to buy the produce, in other to help in minimizing the level of wastage and promote competitive prices.

Marketing performs essential functions which when overlooked will affect the production and marketing of both agricultural and non-agricultural produce. These include; exchange, physical and facilitation functions. The sellers must carry out the exchange function in an attempt to dispose off their produce; identifying potential buyers, negotiating prices, and terms of sale. The ultimate aim of every seller is to meet

the demand of the buyer at a price that helps cover the costs of production and enjoy some level of profit.

The marketing system also performs physical functions which include; storage, transportation, and processing of product. In addition, the marketing system carries out facilitating functions which includes risk bearing, financing, standardization and market intelligence.

Over the years, different marketing channels have evolved to carry out these marketing functions for different commodities. However, the efficiency of these channels in meeting the marketing objectives of producers leaves much to be desired.

Agricultural producers in Northern Ghana and especially in the remote areas still encounter several problems in marketing their produce. In many cases, there are limited alternative marketing channels for farmers, but in other cases, the existing marketing channels operate to the disadvantage of the farmers. Producers of soybeans in Northern Ghana are particularly confronted with the suitable choice of marketing channels as this choice prove to be a main determinant of the profit made in soybean production.

The purpose of this study is to identify and analyze the factors that influence soybeans producers" choice of marketing channel, since different marketing channels offer different services which impact differently on the costs of marketing and price received by farmers.

1.2 The Problem Statement

Choice of a marketing channel plays a key role for the successful marketing of both agricultural and non-agricultural products. Different marketing channels offer different services that go a long way to affect the costs farmers incur in marketing of the produce

and hence the income they receive from the sale of the produce. According to Tsourgiannis and Warren (2008), the marketing channel used in marketing one"s produce will affect either positively or negatively on income depending on the costs incurred. According to Barker (1981), choice of marketing channels should be of paramount importance to every farmer if their aim is to make profit from their transactions, since costs incurred and a benefit one derives varies from channel to channel.

Marketing channels (agents) in an ideal state ensures that the operation of the marketing system is done to the benefit of all the players in the marketing chain. This is only achievable when the price offered meets the cost of production, marketing and some returns to the farmer, and adequate market information, credit supply, prompt payments, transport services, assured market (purchase contract), extension services, etc are made available. Also, the cooperative membership of the farmer, educational level, and experience of the farmer in the production and marketing of soybeans ensure proper conduct of marketing process.

However, the operations of marketing channels in the study area leads too much to be desired, as there are many factors that are hindering the successful operation of the marketing channels in the study area. The movement of the products from the farm gate by the farmer to the next agent in the channel comes at a cost. These costs vary with the channels through which a commodity is passed (Reddy, et al., 2004). Some marketing channels (agents) buy the produce at the farm gate while with others the produce will have to be transported to them before the purchase is made. The differences in costs lead to varied benefits for farmers across various marketing channels. Various marketing channels provide services that help in reducing the costs that farmers incur

in marketing of their produce thereby increasing the farmers" benefit. Marketing channels provide services such as; pre-finance, transport, credit, tractor services among others that help in reducing the costs farmers incur and thereby increasing their benefit.

There is a dearth of information to soybeans farmers on the choice of marketing channels, and as a result they end up offering their produce to the marketing channels that do not help them in meeting their main goal of higher income (FAO, 2004). Inadequacy of information or the lack of it will prevent the farmers from knowing the services that are provided by all the available marketing channels to help them take informed decisions. In a situation where information is lacking or not adequate, producers may end up offering their produce to marketing channels that may not be offering the best price. According to Mangisoni (2006), some farmers are compelled to accept low prices for their produce due to lack of information that will help them make informed choice.

The speed of payment of goods sold is another consideration that affects channel choice. Some soybeans producers are paid weeks or months after the sales. This normally brings discomfort to the producers since most sell to meet emergency needs. The delays sometime compel the producers to sell to a marketing channel that may be offering low price but for the main fact that it is ready to pay instantly.

Another challenge that confront soybeans farmers in marketing of their produce is access to means of transport. Most of the production is done in the remote areas and produce will need to be transported to the market centers. Due to the lack of means of transport by farmers and the unavailability of public means of transport, they are often compelled to dispose off their soybeans at the farm gate. Lack of transport services

limit the farmers ability to explore other marketing channels operating in distance locations.

According to Delgado (1999), high cost is the main obstacle to smallholder farmer"s ability to access markets (marketing channels) of their choice for their farm produce. As a result, some farmers are forced to dispose their produce to marketing channels that do not offer them better prices. The marketing channel that is able to reduce the transaction costs such as transport cost, credit costs, information cost etc in essence will be helping the farmers to achieve their goal of higher revenues and under normal circumstances will be the most preferred marketing channel by the farmers. Therefore, when appropriate marketing channels are in operation, the costs farmers incur in trying to sell their produce will be reduced to the lowest amount, hence impacting positively on the income level of the farmers.

In the production and marketing of soybeans several services are required to ensure that the costs farmers incur in the production and marketing are reduced to give the farmers greater benefits. Services such as the transport, pre-finance, tractor services, provision of inputs, agronomic training, extension etc when made available to the farmers helps in reducing their costs of production and marketing hence impacting positively on the benefit one receives from the sale of his/her produce.

Also, farmers involved in the production and marketing of soybeans have varied years of experience in the production and marketing of soybeans, different educational level, cooperative and non-cooperative membership farmers. These factors have influence on the decision the farmer takes in marketing his/her produce.

Different channels offer different benefits to the farmers, some of these benefits offered by the marketing channels include prompt payment, pre-finance, proximity to

the farmer, assured market (purchase contract), the use of right measuring scale, among others. Services such as prompt payment, proximity to the farmer, assured market (purchase contract), ready cash, purchase by weights, among others when available to the farmer helps in increasing the income they derive from the production and marketing of soybeans. Unfortunately, these benefits are always not available in all marketing channels.

For marketing channels to operate effectively and efficiently there is the need for the provision of market information, credit, prompt payment, better prices, assured market, transport services, etc. The research therefore seeks to examine and determine how the presence and absence of these factors guide farmers decision making in the choice of marketing channels, since they vary from channel to channel.

1.3 Research Questions

To address the problem stated above the following research questions will be considered;

1. What are the marketing channels available for soybeans marketing in the study area?

2. What are the services offered by the various marketing channels?

3. What challenges confront soybeans producers in the marketing of their produce at various marketing channels in the study area?

4. What is the distribution of the soybeans producers among various marketing channels in the study area?

5. What are the economic and non-economic factors that influence producers" choice of marketing channels for soybeans in the study area?

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1.4 Objectives of the Research

The main objective of the study is to identify and analyze the factors that influence soybeans producers" choice of marketing channels in the Saboba District of Northern Region, Ghana.

1.4.1 Specific Objectives of the Research

To answer the above research questions the following specific objectives will be considered;

1. To identify and examine the marketing channels that are available in the study area.
2. To analyze the distribution of soybeans producers among various marketing channels in the study area.
3. To examine the challenges that confront soybeans producers in marketing of their produce at various marketing channels.
4. To identify and compare the services offered by the various channels.
5. To examine the influence of economic and non-economic factors on the producers" choice of marketing channels.

1.5 Hypotheses of the Research

The main hypothesis of the study is that soybeans farmers" choice of marketing channels in the Saboba District is influenced by economic and non-economic factors.

1.5.1 Specific Hypotheses of the Research

1. A farmer"s choice of marketing channel is influenced by the benefit he/she derives from the marketing channel. The benefits derived from a particular marketing channel are depended on a host of factors, which include information available to the farmer, access to extension services, proximity, pre-finance, tractor

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services, transport services, provision of inputs, contract production, production support credit, product price etc. The presence of these factors and others have great effect on the benefits a farmer derives from a particular marketing channel. It is therefore hypothesized that marketing channels that are able to provide most of the services that positively influences the benefit will be the most preferred marketing channel by the farmers.

2.   The choice of marketing channels by farmers is negatively influenced by the costs they incur in the production and marketing of their produce. The costs farmers incur are depended on other factors, which include transaction costs, proximity, inadequate of transport services, absence of assured market, unavailability of inputs etc. It is hypothesized that when the cost farmers incur in trying to reach a particular marketing channel is high fewer farmers will patronize such marketing channel if not all farmers. Increase in transaction costs of reaching a particular marketing channel will discourage farmers from selling to such marketing channels as that will impact negatively on the benefit. Since the benefit one derives, depend on the difference between the income and the costs incurred.

3.   The proximity to the market is another factor that influences the costs. When the distance to a particular marketing channel is, far it will imply that less farmers will patronized such marketing channels as a lot of time will be required in the marketing one‟s produce which could be put into under profitable ventures.

4.   The choice of marketing channels by producers is influenced by the transaction costs. When transaction costs is high, it will impact negatively on the benefit that a producer will derive from the sale of his/her produce. Farmers will always try to minimize the transaction costs, if they cannot avoid it completely. Since it is through

the minimization of the transaction costs that they will be able to achieve their objective of higher incomes. Because different marketing channels offer different services which impact differently on the transaction costs, farmers in the sale of their produce will consider the transaction costs associated with each marketing channel before making a choice.

In conclusion, it is therefore hypothesized that the choice of a marketing channel by soybeans farmers is influenced by the costs and benefits derived from the marketing channel which are also depended on a host of factors.

1.6 The Significance of the Study

For soybeans farmers to be able to achieve their main goal of higher income there is the need for proper linkages between the producers and the buyers of soybeans. Even though yield improvement can lead to an improvement in the level of farmers" income, other factors that operate at the market place may hinder the achievement of a high income. In certain cases, incomes may actually decline with yield increases if the marketing services are not well organized and a good price is guaranteed. Farmers involved in soybeans production may obtain similar yields or production levels, but they end up receiving different levels of income. Though other factors such as period of sale, yield level etc, affect the level of income received by the farmers, the type of marketing channel used appears to be the main determinant of the income differences received by the farmers. Different marketing channels offer different services that can reduce the marketing costs and increase the price received by the farmers.

Smallholder farmers, who are considered poor, cultivate almost all soybeans. These farmers, due to their small farm holdings need to be helped to get access to the market. This calls for the need to go beyond production technology enhancement and towards

transitioning these farmers into the exchange economy (Kitinoja & Kader, 2002). The participation in the soybeans market offers one of those opportunities. The study on market channel selection is thus important, since it will enable the market operators to know the factors that determine farmers" choice of channels and to help them provide services to their clients in order to maintain them and if possible to attract new customers.

Even though some studies have been done on marketing channel selection, the commodities covered in these studies have different characteristics compared to soybeans that is being studied. A study by Gong et al. (2007), only evaluated transaction cost as a factor that influences producers" choice of marketing channel. To them the choice of marketing channel by producers is only influenced by transaction cost. A study by Jari and Fraiser (2009), also analyzed the influence of institutional and technical factors on the producers" choice of marketing channel. Nevertheless, as much as these studies are important there are other factors beyond these that also influence producers" choice of marketing channels. There is more than just taken transaction costs, institutional and technical factors individually as only factors that influence the producers" choice of marketing channels.

The study therefore seeks to analyze the influence of economic and noneconomic factors on the soybean producers" choice of marketing channel.

1.7 The Organization of the Study

The study is organized into five chapters. Chapter One of the report presents an introductory background and the problem statement. It also includes: the research questions, research objectives, the specific objectives of the research, hypothesis of the research and the significance of the study.

Chapter Two of the study consists of the literature review. The Chapter gives a brief introduction of the chapter, importance of agricultural marketing and marketing channels and their roles. The Chapter also includes; factors that influence soybean producers" choice of marketing channels, economic factors influencing producers" choice of marketing channels, and the influence of non-economic factors on the producers" choice of marketing channels. The influence of non-economic factors on the producers" choice of marketing channels is sub-divided into sections which include; institutional factors, technical factors, social characteristics. Chapter Two also contains empirical studies on factors affecting choice of marketing channels and conclusion.

The methodology used in this research is considered in Chapter Three. The characteristics of the study area are first presented. The methods of data collection have been described in this chapter so also are the methods of data analysis.

Chapter Four presents the main findings of the study. The chapter begins with a brief introduction. It is grouped into sections and comprised of the following; demographic characteristics of studied households which include gender distribution among soybeans farmers, age, marital status, and educational level. The organization of soybeans marketing is sub-divided into marketing channels, services provided, benefits, and marketing challenges. The econometric analysis is sub-divided into multinomial logit estimate of marketing channels choice and marginal effects of the multinomial logit model.

Chapter Five gives a summary of the study, conclusion,   and policy recommendations. The references and appendices have also been included.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In this chapter, literature was reviewed under the following headings: importance of agricultural marketing, marketing channels and their roles; factors that influence producers" choice of marketing channels; and empirical review of the choice of marketing channels.

2.2 Importance of Agricultural Marketing

In many countries and almost in all the developing countries agriculture constitute the single biggest industry. Agricultural sector employs the greater proportion of the labor force in the developing countries with commerce and industry relying on it as a source of their raw materials. Due to this, many are of the opinion that the development of agriculture sector is at the center of economic growth process in developing countries (Crawford, 2006).

According to Kohls and Uhl (1985), agricultural marketing is the performance of all business activities involved in the flow of goods and services right from the production until they are in the hands of the final consumer. A well functioning agricultural marketing system ensures that macro and sectoral policies change the incentives and constraints faced by micro level decision makers. Macro policies geared towards the development of agricultural sector normally becomes redundant without an effective agricultural marketing system to transmit the signals sent by the central government. The opportunities at the micro level for welfare improvement that will translate into the macro level growth are achieved through an effective agricultural marketing system. Agricultural marketing plays a fundamental role of managing risk

associated with the demand and supply by regulating net export flows across space and in storage over time, thereby reducing the price variability faced by consumers and producers (Barrett and Mutambatsere, 2005).

Agricultural marketing has been at the centre stage in propelling the development of many nations. With the advent of new farm technologies in the form of green revolution, white revolution, blue revolution, yellow revolution, etc most countries have achieved food self-sufficiency through agriculture marketing. Now almost every economy is involved in international trade in one way or the other, to siphon off the excess supplies of commodities to the needy countries or to also import to make up for the deficit. Farmers now are producing products for international marketing. Input marketing is also growing at a rapid rate. Agricultural marketing has helped various actors in the economy to achieve their objectives. Farmers as the scarce resource users are always on the look out for the most rewarding benefits in farming (Thomsen and Foote, 1952). An assured market environment for the products enlivens the spirit of the farmers to use the resources most judiciously. A healthy agricultural marketing acts as an incentive for the farmers to use the resources prudently. Thus, efficient input marketing and output agricultural marketing system are indispensable to bring desired level of welfare to the farmers.

Agricultural marketing facilitates the movement of farm commodities from production centres to the consumption centres. It provides scope to the consumers to choose farm commodities of their choice to satisfy their needs. Consumers" welfare is brought about through increased marketing output by following an efficient agricultural marketing system (Acharya and Agarwal 1992).

At the level of the entire society, agricultural marketing plays a very sensitive role. It is an extension of individual consumer‟s interest. When the consumption requirements are met by an effective agricultural marketing, society at large gets benefit in this process. It enhances the standard of living of the people (Acharya and Agarwal, 1992). Society‟s resources are distributed efficiently among the population in the desired direction. That is to say people‟s welfare to some extent is directly linked to the efficient agricultural marketing. Agricultural marketing is a source of livelihood to several people. Through its interlinked activities, it helps in price stabilization.

A well functioning marketing system helps in reducing malpractices in the market. Malpractices such as manipulation of weights and measures, which is prevalent in marketing of agricultural produce in developing countries (Reddy et al., 2004), can only be corrected when marketing systems are designed to ensure that uniform measuring scales are adopted for the sale of farm produce. The uniform measuring scale should be geared towards the benefit of all the market participants.

2.3 Marketing Channels and Their Roles

A marketing channel is "an organized network of agencies and institutions which, in combination, perform all activities required to link producers with the consumers to accomplish a marketing task" (Bennett, 1988). According to Reddy et al. (2004), marketing channel is a chain of intermediaries through which various farm commodities pass between the producers and consumers. However, these channels differ from commodity to commodity. These channels must be designed such that it delivers a level of value to the consumers that create a sustainable competitive advantage for the value chain. The „value‟ can take many forms depending on the requirement of the consumer.

Marketing channels are put into two main categories; direct and wholesale marketing channels. Wholesale marketing channels are intermediaries working to make marketing systems more efficient by buying a variety of products, in large volumes, and selling these items on to other businesses who require relatively small quantities of a variety of goods (Crawford, 2006). Wholesale marketing channels have other intermediaries between the channels, who also provide services such as financing, transport etc to ensure that produce finally gets to the final consumer in the form that will be acceptable. Direct marketing channels on the other hand, are where the produce is sold directly to the end user of the product. In direct marketing channel, the chain for the movement of the produce is quite short as compare to the chain in the wholesale market channel.

According to Lamb et al. (2008), marketing channels perform three main essential functions. These are transactional function, logistical function, and facilitating function. The transaction function ensures that information is available to both buyers and sellers, appropriate measuring scales are used, prompt payment are made, payments are made through the mode that will not bring discomfort to the producers among others. The logistical function include the provision of transport services, storage, etc. The facilitating function on the other hand ensures that services such as pre-finance, production support credit, agronomic training, contract services, market information, grading, legal services among others are made available to farmers.

The most prominent role of channel intermediaries is to help deal with the different needs of the producers and consumers (Palmer, 2000). Channel intermediaries ensure that produce are in the form, place, and time that both the producer and consumer will derive maximum satisfaction from. Marketing channels ensure that credit is made

available to farmers to help them carryout activities that will ensure that their produce finally gets to the final consumers and to also meet other social obligations.

Kerin (2009), also indicates that marketing channels perform various roles that ensures that the produce move at the costs that will help the farmers achieve their objective of higher income. These roles include the transactional role, facilitating role and logistic role.The logistic function includes the provision of the transport services for carting of farm produce, the provision of storage facilities among others. The transactional function ensures that buying and selling are carried out without any parties involved feeling being cheated. The transaction function plays a role of ensuring that credit is extended to farmers since some farmers cannot bear the costs of all the activities. The provision of market information and conduction of research is another essential role that is assumed by marketing channels. The agents of various marketing channels ensure that information necessary for the smooth running of their businesses is provided since it is only through that the farmers will be able to meet their demand and they in turn meeting the demand of the farmers.

Marketing agents in a channel perform various functions of intermediations such as sorting, attesting to quality, storing goods, transport, organizing sales, assuming or pooling risk and supplying credit (Stigler, 1961, VanRaatle and Webers 1998, Biglaiser, 1993). It will certainly be difficult if not impossible for rural farmers or smallholder farmers to assume all these tasks or roles without the involvement of the channel members. A study by Jones (1985), in Bolivia indicates that marketing channels are an integral part of the production and marketing of agricultural produce since they sometimes provide financial support to the farmers.

To actually help facilitate the process of getting the produce to the final consumer, there is the need for appropriate marketing channels that will play intermediary role between the producers and the consumers at marketing costs that will not leave any of the actors in the chain worse off. The costs of accessing various marketing channels vary from channel to channel. These costs also depended on factors such as distance, transport cost etc. In some cases, a farmer may not be able to access a marketing channel that may be offering the best price due to the initial costs that a farmer may have to incur in other to reach the channel. As a result, there is the need for the marketing channels to help perform roles such as; financing, provision of transport services etc that will help facilitate the marketing of various agricultural produce especially in the developing countries where most farmers cannot assume those roles themselves. If roles such as financing, transport etc are left for the farmers to perform, it will exclude some farmers from certain marketing channels. To help farmers achieve their goal of high income, channel operators need to have interest in the farmers" activities right from the production to the marketing of their produce.

One of the pressing problems of agricultural marketing is the lack of adequate transport services at reasonable cost. Lack of transport services refers to the absence of the transport service in an important agricultural marketing areas, seasonality of transport service, high charges due to inadequacy, and lack of good roads (Reddy et al., 2004). Marketing channels perform various roles that ensure that these services are brought to the door step of the farmers at a price that will not make them worse off. These marketing channels do by offering transport services to the farmers.

Inadequacies exist in grading of agricultural produce especially in the developing countries. In the absence of standardization and grading, adulteration is the

consequence (Reddy et al., 2004). Each intermediary in this case may adulterate the produce to his/her short-term advantage. This poses a problem in assigning prices to the commodities as per the quality specification. Reddy et al. (2004) further note that the true beneficiaries in a situation of such inadequacies of standardization and grading are the market intermediaries since they are at liberty to quote any commodity as inferior and offer a low price for it. Marketing channels perform a role of ensuring that appropriate standards are set in marketing of various agricultural produce to ensure that producers are not cheated to be motivated to cultivate more. Since the agents in the marketing channel, continue stay in business is depended on the farmers ability to continue to produce.

Marketing channels also perform a role of ensuring that there is ready market for farm produce. This they do by going into contract with producers. These contracts normally take the form of providing pre-finance to the farmers during the planting season and buying the produce right after harvest. In the absence of such services producers will always be at a disadvantage especially when it comes to the period of glut (Saminathan, 2012). It is further noted that contracting of smallholders to produce help provide a support framework for farmers who might otherwise have few social networks from which to learn, to borrow and to otherwise support their initiatives. The value of the contracting arrangements in the public sphere is that the network it establishes has been used to boost the production levels of farmers who would otherwise hover around the official poverty line, albeit within a protected commercial environment.

Market information is very essential for producers, traders, consumers as well as to the government and its agents, if market mechanism has to work efficiently (Reddy et al., 2004). The relevant market information deals with character and volume of

supply of commodities, the present and expected level of consumers" demand, current price quotation, and future prices. However, farmers more often than not, are in a total dark as far as this information is concerned. Farmers do not have information on the existing prices of the products and are forced to rely on price information furnished by colleagues and unscrupulous traders who seek to take advantage of the uninformed producers. Marketing channels perform a role of ensuring that farmers are furnished with correct market information, since their continue stay in business depends largely on the readiness of the farmers to continue to produce (Cundift et al., 1980). This role is essential in developing countries where extension services to farmers are difficult to access since extension agents are inadequate.

2.3.0 Factors that Influence soybean producers' Choice of Marketing Channels

Although marketing of agricultural produce remains an important tool in increasing farmers" income and easing poverty, Kherallah and Kirsten (2001) explain that farmers experience barriers such as insufficient and inadequate physical infrastructure, lack of basic education and marketing knowledge, lack of organizational support and institutional barriers in the production and marketing of their produce. These factors and others are said to have influence on the producer"s choice of marketing channels (Jari, 2009). For this study the factors are further grouped into economic and non-economic factors.

The various non-economic factors reported by various authors to have influence on the choice of marketing channels are; transactional, institutional and social factors (Jari and Fraiser,2009). The economic factors include the following; price of the produce, mode of payment, transportation cost, duration of payment, quantity of produce marketed (Mburu et al., 2007).

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2.3.1 Economic Factors Influencing Producers' Choice of Marketing Channels

According to Nyaupane and Gillespie (2010), producers" choice of marketing channels at any point in time is guided by the price they receive from the marketing channel. This means, the prices offered by a marketing channel plays a crucial role in the marketing of agricultural produce.

A study by Tsourgiannis et al. (2002), revealed that factors such as price, mode of payment, speed of payment, and quantity produced influence the producers" choice of marketing channels. When the price offered by a particular marketing channel is high relative to others, most producers will shift their attention to that marketing channel for the sale of their produce. On the other hand, when the price is low in relation to other marketing channels the producers will avoid the use of that particular marketing channel. According to Zivenge and Karavana (2012), prices serve as an incentive for farmers to produce and as well, determines the marketing channels choice by the producers.

According to Ogunleye and Oladeji (2007), the producers" choice of marketing channel is influenced by the channel"s mode of payment. Farmers will prefer cash payment to cheque payment, since they mostly sell to meet emergencies and as a result will not have time to wait until the cheque matures for them to cash their money. In certain areas, there are no banks closer for the farmers to cash the cheques and as a result will not be ready to travel long distances to enable them cash their money, since they will rather prefer to use that time for other productive activities.

Ogunleye and Oladeji (2007) further noted that farmers" choice of marketing channel is influenced by the channel"s speed of payment. Farmers mostly sell in response to family emergencies and will only offer their produce to marketing channel

that will offer spot payment. This is to suggest that if a marketing channel is offering high price to the producer but not ready to offer spot payment the producer will look at the alternative marketing channels where he/she feels he can be paid instantly sometimes even if at a lower price.

Another factor that is said to have influence on the producers" choice of marketing channel justified by Ogunleye and Oladeji (2007) is the quantity of the commodity produced. Producers who produce in large quantities choice of marketing channels will differ from those that produce in smaller quantities. Producers that produce in large quantities are more likely to look out for marketing channels that can make a one-stop buying, since that will enable them to enjoy the economies of scale.

Zivenge and Karavina (2012), assert that there exists a positive relationship between farm size and the producer"s choice of marketing channels. According to them, farmers with large farms have the ability to produce more, ceteris paribus, and will sell some of their produce immediately after harvest to prevent post-harvest losses. The immediate selling to avoid post-harvest losses will compel farmers to sell to the marketing channels that are within the farmers" immediate environment since that is more or less a coping strategy. They further note that farmers who produce in large quantities have a tendency to sell to the marketing channels that provide opportunities for price negotiation.

A study by Johnson and Manoharan (2009) showed that a farmer"s marketing decision is influenced by factors such as; age, education status, extension contact, experience, and credit access. The educational status and the extension contact are reported to have a positive influence on the choice of marketing channels by the cashew producers. The report indicates that farmers who have access to education and extension

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services are more likely to sell to marketing channels that are far from them. The same study showed a negative relationship between the age of a farmer and the choice of a marketing channel, as farmers advance in age they turn not to sell to marketing channels that are far from them. The report indicates that aged farmers are not likely to offer their produce to the marketing channels that are far from them.

Another economic factor that is said to have influence on the producers" choice of marketing channel is the transaction costs (Commons 1934). Commons (1934) introduced the concept of transaction costs and treated it as a fundamental unit of marketing analysis. The concept of transaction indicates that the exchange of ownership rights is a good approach instead of looking at it as the exchange of physical commodities (Commons, 1934). Accordingly, the basic assertion of transaction cost economics is that, the costs of doing transactions could be too high under certain conditions, so organizing economic transaction into a particular governance structure (farm specific related) could result in a better marketing performance that will result in a reduction of costs incurred by the sellers.

The study by Williamson (1985), described transaction differently: "when a good or service is transferred across a technologically separable interface", focusing more on the exchange of physical goods and services and giving priority to corporeal form of property (Kaufman, 2003).

A study by Coase (1937) identifies that firms exist because of transaction cost. The market exchange activity is not costless, so the cost of a transaction has an important role on the organization of firms and contracts. The study further notes that, transaction costs is associated with information, negotiation, monitoring, coordination, and enforcement of contracts; therefore, firms emerge to reduce such costs. Information

costs arise *ex ante* of exchange. Negotiation costs are the costs incurred in physically carrying out the transaction, while monitoring costs occur *ex post* of the exchange and include the costs of ensuring that the other parties involved in the exchange respect the terms of the transaction.

Transaction cost consists of both observable and non-observable costs that are incurred as the commodities move from one person to the other person (Eggertson,1990). These costs include, cost for monitoring, bargaining, looking for appropriate marketing channels to market the produce and finally the cost involved in transferring the commodity to its final destination (Hobbs,1997, Jaffee and Morton,1995). According to Delgado (1999), high transaction cost is the main hindrance to farmers access to markets among smallholder farmers. High transaction cost may force farmers to sell to marketing channels that may not give them a high utility, as they may find it difficult to reach the marketing channels that may offer them higher returns due to the transaction cost.

According to Williamson (1985), transaction cost theory has three main attributes; frequency at which the costs occurs, the uncertainty at which those costs occurs, and the degree of asset specificity. These variables will determine whether the cost will be lower in the market or not. Transactions can occur at a high or low frequency. If transaction cost has low frequency, the cost of carrying out the transaction will be too expensive to be protected, and vice versa. Frequency of the transaction, however, is the easiest to deal with, but it still has a strong effect on transaction costs.

The presence of transaction cost in agricultural marketing can be evaluated through the difference in marketing costs, choice of marketing channels used by farmers, costs of inputs and prices received by farmers from the sales of their produce. High

transaction costs will serve as disincentive for farmers to participate in certain markets. The presence of transaction cost is often reflected in the difference or the discrepancies in the selling and buying prices (de Janvry et al., 1991). According to Makhura (2001), when marketing costs vary from channel to channel, farmers will not be encouraged to offer their produce to the marketing channels that have high marketing costs and will do everything possible to avoid them.

According to Wood (2000), the presence of transaction cost limits veterinary services to the people of Uganda and Zimbabwe. This is because cattle owners will have to always travel long distances before they can have access to the services of veterinary technicians, which comes at a costs. The costs involved in moving the animals are so high that some farmers are excluded from veterinary services. The transaction costs and its related issues such as time needed to transport the product to the market center imply that the resource poor farmer cannot access certain markets.

2.3.2. The Influence of Non-Economic Factors on the Producers' Choice of Marketing Channels

Farmers in their choice of marketing channel take into account the prevailing institutional, social, and technical factors. Institutional factors may include information access, cooperative membership, extension contacts, access to credit and presence of contractual agreement, and the legal system. Social factors include gender, age, sex, household size of the farmer, educational status, marital status etc. The technical factors include availability of means of transport, availability of storage facilities, mobile phone and radio set as a proxy for information access.

2.3.2.1 Institutional Factors

According to Dorward and Kydd (2005), well-established and efficient

institutional factors promote market transactions and ensure the sustainability of trade. A well functioning institutional factor ensures that farmers get easy access to market information, market price and market conditions which reduce the level of uncertainty in the marketing environment. Institutional factors include, access to information, and institutional environment, market arrangement and legal environment, cooperative membership, contractual agreement, access to credit etc (Mburu et al., 2007).

Access to market information plays a key role in the marketing of agricultural and non-agricultural produce. According to FAO (2004), information helps farmers to locate potential buyers of their commodities, quality, quantity and the price at which the produce will be purchased. Information is very important to the successful marketing of agricultural produce but the source of the information is paramount as inaccurate information can also mislead the farmers and also affect their returns greatly. FAO (2004) indicated that farmers in developing countries, mostly the smallholders, rely on the informal sources for their marketing information. The FAO report further indicates that some of these is mostly from the traders, relatives and friends which may not be up to date, making its usefulness doubtful (FAO, 2004).

According to Jagwe et al. (2007), Martey et al. (2012), and Dorward and Kydd (2005) access to market information plays a key role in the farmers‟ choice of marketing channel. The study reveals that farmers who own radio sets have more access to marketing information and as a result will always base their marketing channel choice on that information. A study by Martey et al. (2012), used cell phone as a proxy for market information access. The results show that farmers with cell phones have better access to market information, affecting their decisions as to where to sell their produce. Cell phone access expands farmer‟s opportunities, and reduces the search

costs, strengthen farmers bargaining power, improve market efficiency, and reduce risks.

In addition, unfavorable legal environment sometimes serves as a barrier in the choice of marketing channels for the sale of produce. According to Minot and Golleti (1997), when trade laws are transparent, it reduces the transaction costs as agreements can be enforced legally. In other words, well-established legal institutions promote the organization of marketing channels and decreases the marketing costs. According to Ruijs (2002), many developing countries have laws that are not working and leaves offenders go unpunished, as the courts are out of reach to most producers and the traders alike. Because of these, producers resort to informal relationships and repeated transactions as these reduces the level of risk involved (Randela, 2005).

Also, the organization of markets tends to be a serious problem among farmers in the developing countries. As a result, they normally sell their produce individually and directly to the final consumers without the involvement of other channel members (Key and Runsten, 1999). Marketing of the produce individually puts farmers at disadvantage as they cannot come together and push for a common price and they end up being cheated. This individual selling prevents them from enjoying the economies of scale (Kherallah and Minot, 2001). So, farmers that belong to an organization or cooperative membership normally enjoys economies of scale when they sell together and hence influence their choice of marketing channel.

Access to credit by the producers is said to have an influence on the producers‟ choice of marketing channel. According to Mburu et al. (2007), marketing channels that are able to provide credit to the producers will be the most preferred market channel by farmers especially among the resource poor farmers. It is assumed that farmers who

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needed credit for their farming activities are more likely to offer their produce to market channels that offer credit services to farmers. This is normally done in the form of pre-financing of production activities. Producers who are engaged in small-scale agriculture have limited access to factors of production, credit, and information, and markets are often constrained by high transaction costs (Matungul et al., 2001). As a result, when there is a market channel that offers credit facility to farmers it will influence their decision in the choice of market channel for marketing of their produce.

Studies by Mburu et al. (2007), further noted that the availability of extension services has an influence on the producers" choice of marketing channels. Extension agents serve as a vital source of information to the farmers and as a result will always influence the choices that individual farmers will make in both the production and marketing of their produce. The information provided by the extension agents will cause farmers either to offer their produce to a particular market channel or avoid it in the marketing process. Extension agents under normal circumstances will urge farmers to sell their produce to the highest bidder since it is only through that they can achieve their main goal of higher income.

According to Singh (2000), the main benefit of going into contract farming is that it offers farmers better and reliable income. This is because contracting provides farmers with guaranteed market for their produce since market for their produce are often negotiated before they go into the production of the produce. Since contracting provides better and reliable income to the farmers, it will influence their behavior on the choice of market channels, as they will like to deal with market channels that will provide them with guaranteed market. Contract farming literature suggest that farmers often benefit from contractual agreements due to better access to credit, capital, certified

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seeds and other farm inputs, enhanced educational opportunities and better market information. A study by Miyata et al. (2009) indicate that farmers who under normal circumstances would not be able to produce and market their produce are able to do that through contract farming.

The rational for marketing contract adoption by agricultural producers is supported in various ways from contract theory (Warning and Hoo, 2000). Principalagent theory identified the importance of risk-reduction in contracting relationships and transactions cost theory highlighted the importance of transactions cost minimization in contracting (Warning and Hoo, 2000). According to Warning and Hoo (2000) the expaansion of the two approaches can help to explain the use of marketing contracts for agricultural commodities. The principal chooses the produers with whom it would like to contract and set contract terms. The producers, in turn, choose whether to participate. The combination of these choices describes the selection process for contract-farming scheme. The benefit participants accrue will depend on the terms of the contract and their own characteristics.

2.1.2.2 Technical Factors

Technical factors such as storage facilities, means of transport, market stalls, roads, etc are said to have influence on the farmers" choice of marketing channels.

A study by Machethe (2004), reports physical infrastructures that influences the producers" choice of marketing channels to include roads, storage facilities, transportation facilities, communication links etc.

Technical factors have great influence on the performance of markets for agricultural produce. Efficient technical factors help in moving agricultural produce from the producer to the marketing channel at the lowest possible cost (Carre and

Drouot, 2002). Most producers are said to lack appropriate transportation and road infrastructure, storage etc. The presence or the absence of such facilities are reported to have influence on the producers'' choice of marketing channels since it will either make it difficult or easy for producers to reach some marketing channels of their choice (Machethe,2004). Means of transportation is said to have an immense influences on the choice of the marketing channels especially where the producers are far from the market centre (Machethe, 2004). Absence of it will cause producers not to be able to access certain marketing channels that would have afforded them better returns. Lack of transport services, is the absence of transport services in important agricultural marketing areas, seasonality of transport services, high cost due to inadequacy, lack of all weather roads and transport vehicles, unsuitability of the existing transport facilities for the transportation of farm produce (Reddy et al., 2004). Availability of the means of transport to various market centers has an influence on the farmers'' choice of marketing channels. When farmers have no access to means of transport they are always compelled to sell their produce to marketing channels that are within their reach without due consideration to the price being offered. According to Zaibet and Dunn (1998), unavailability of means of transport, leads to an increase in the transaction cost (marketing costs) and therefore reduces the incentives to move produce from the farm gate to the markets.

According to Makhura (2001), some farmers use their own means of transport for transporting of their commodities to various markets. Such farmers are said to have access to marketing channels outside their immediate environment, and as a result are able to select market channel that will help them meet their main goal of higher income. Farmers who have personal means of transport are also able to access market information from various markets and are able to make informed choices on the

marketing channels they should adopt. In some parts of Southern Africa, farmers who do not have personal means of transport normally packed their commodities in sacks, and are then transported to the market centers using the commercial means (Jayne et al., 2002).

Roads network affect the choice of marketing channels by farmers. Roads leading to most production areas are mostly not easily accessible and as a result hinder the flow of agricultural commodities to the market centers. According to Beckmann and Earles (2000), the major problem confronting agriculture markets within the sub-Saharan Africa is the issue of transport infrastructure and the need to reduce cost. Road infrastructure and the availability of means of transport has a great influence on the farmers choice of marketing channels, thus the cost one will incur, especially where the farms are far from the marketing channels (Gabre-Madhin, 2001). This is normally a serious problem during the rainy season when it is almost impossible to use the roads for anything (Goletti and Wolff, 1998). This situation also increases the prices farmers will need to pay in order to transport their produce (Dijkstra et al., 2001). When transportation costs are high farmers will always look for the best option that will help them to reduce the cost of selling their produce in order not to reduce their income.

Value addition to agricultural commodities can take the form of grading, sorting, packaging in standard weights and processing of the produce (Mather, 2005). This is very important and has a great influence on the producers" choice of marketing channels. It becomes a problem when buyers (channels) require value addition but no price differential is attached to the activities. Producers usually avoid marketing channels that require such activities (grading, sorting etc) as precondition for their patronage.

2.1.2.3 Social Characteristics

The socio-economic characteristic of the farmer is also hypothesized to have an influence on the producers" choice of marketing channels (Füsun et al. , 2009b). Factors such as age, gender, household size, marital status, education status, experience, kinship ties etc are those reported to influence the farmers" choice of marketing channel (Boogaard et al., 2011).

It is believed that older household members produce in smaller quantities and are not willing to sell to the distant marketing channels due to high transaction costs involved. According to Mugwe et al. (2008), Kasieet et al. (2008), and Bourton et al.(1999), age has a negative correlation with the farmers choice of marketing channels that are far from the farmer. Mugwe et al. (2008), Kasie et al. (2008) further note that, the negative relationship could be that younger farmers have longer period of planning and as a result will take decisions that older farmers will consider risky. According to Sindi (2008), and Enete and Igbokwe (2009), older household heads are less likely to take risk unlike the younger household heads and as a result will sell to a marketing channel where they think risk is less. Bourton et al. (1999) further noted that gender has a great influence on the producers" choice of marketing channels. Female"s household heads are reported by Bourton et al. (1999) to have more information on marketing channels than their male counterparts due to their social network and their involvement in most agricultural marketing activities. As a result, they are more likely to offer their farm produce to the marketing channels that may not be considered by their male counterparts.

According to Matere et al. (2008) experience is important in generating confidence among the farmers to become receptive to new ideas to enable them be competitive in

the market. The more experience (in years) one gains in marketing of his/her produce the more it will influence the marketing channel the person will adopt for marketing of his/her produce.

Matere et al. (2008) noted that educational level of the household head is expected to be related to the analytical thinking capacity of the farmer. As it will provide the farmer the ability to take calculated risks that will bring high returns to the household. The calculated risk will enable the farmer to determine the marketing channel where risk will be less when adopted for marketing of one‟s produce.

2.3.3 Empirical Studies on Factors Affecting Choice of Marketing Channels

A study by Ogunleye and Oladeji (2007) on cocoa farmers in Nigeria, revealed that farmers‟ choice of marketing channels is influenced by price offered by the marketing channels and mode of payment. They stated that delays in payment discourage farmers from selling their produce to some particular marketing channels even though those marketing channels may be offering a higher price for the produce. Ogunleye and Oladeji (2007) further indicated that bad road tends to increase the transportation cost and so farmers will prefer a very low transportation cost if they cannot completely avoid it. As a result, they end up selling to marketing channels that are closer to them. The most patronized marketing channel by the producers is the itinerant buyers who move from village to village to buy the produce. The study indicates that prompt payment, buying of both dried and fresh beans might have accounted for the farmers selling to the itinerant wholesalers.

A study by Jari and Fraiser (2009) on technical and institutional factors influencing agricultural marketing channel choice amongst small holders and emerging farmers in the Kat River Valley, using multinomial logit model indicated that factors such as access

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to information, availability of good market infrastructure, availability of contractual agreement, expertise on grades and standards, existence of extensive social capital, group participation and reliance on tradition have influence on the producers" choice of marketing channel. The findings indicated that an improvement in the above variables will lead to a great improvement in the participation in either formal or informal marketing channels.

Studies by Agarwal and Ramaswani (1992) and (Brewer 2001) identified factors such as price, productions scale, farm household characteristics and the behavioral conditions (experience, trust and risk), distance to the market to have effect on the choice of marketing channels. Also, a study by Zuniga-Arias (2007) pointed out factors such as farm household characteristics, market context, production system and price attributes to have effects on the mango producers" choice of marketing channels in Costa Rica.

Also the study by Angula (2010), on determinants of sustainable coffee marketing channel choice and supply response among organic and utz certified smallholder farmers in Uganda, revealed that the availability of labor has an influence on the producers" choice of marketing channels. The study revealed that producers who have limited access to both own and hired labor may not be able to meet specifications of some of the marketing channels and will have to avoid them especially when it requires extra labor. However, this finding is in contrast to what Wollni and Zeller (2007) revealed in their study "of Coffee Marketing in Costa Rica". They found that labor availability was not a constraint to Costa Rican Coffee producers" choice of marketing channels. In the same study farm size, which was used as a proxy for wealth, had an influence on the choice of marketing channel. This implies that resource poor farmers

may find it difficult to access high value marketing channels. This is so because high value marketing channels may require some qualities that will demand some initial investment which the resource poor farmers may not be able to provide.

A study by Overa (2006) on the telecommunications sector in Ghana, demonstrates that the introduction of telecommunication would make the exchange of information and networking among traders more efficient through the introduction of technology. The research reveals that more transactions can be conducted in an uncertain economic environment after adopting new technology that enhances microlevel trust building within pre-existing trade networks, creating better services and higher profits. This will positively influence the marketing channel that a producer will adopt for the sale of his/her produce. A study by Jano (2007) on Ecuador"s cacao marketing Chain, revealed that the determinants of marketing channel choice include not only transaction-related variables (i.e.quantity sold or means of transport) and farmer characteristics (wealth, level of isolation and belonging to an association), but also variable related to quality of production.

A study by Zaharieva et al. (2001) revealed that the choice of marketing channel by the Bulgarian wine makers is influenced by the cost of getting the product to the marketing channels. As they, all have different costs of getting their produce to the market centres.

A study by Poole et al.(1998) looked at the factors affecting the producers" choice of marketing channels. The study indicates that previous experience postively influences producers" choice of marketing channels. For farmers who have been in marketing of agricultural produce for several years, choice of marketing channels will

vary from the new entrant since the former will have up to date information that will help him/her to make a choice.

The certainty of payment influences the producers" choice of marketing channels, since farmers under normal circumstances will prefer to offer their produce to the marketing channels they think will be able to pay instantly than those that will pay at a later date.

Nkhori (2004) writing on cattle markets in Wahalapye District Botswana showed a negative relationship between speed of payment and Botswana Meat Commission (formal marketing channel channel). The results indicated that, smallholder farmers sell to take care of emergencies and as the days for payment increases, it discourages them from patronizing that particular channel. The same study points a negative relationship between distance to the market and the choice of marketing channel. This variable has a positive relationship with the transportation cost. The longer the distance, other things being equal, the higher the transportation cost and farmers will prefer marketing channels that have low transportation cost. Nkhori (2004) further noted that herd size and access to market information positively and significantly influence the farmers choice of Botswana Meat Commission (formal marketing channel). The influence of herd size on the farmers" choice of (formal) marketing channels is due to the fact that farmers with large herd size tend to sell a great number at a time and will always look out for marketing channels that can make those purchases to prevent them from selling at different markets which also comes with a cost.

(Chalwe, 2011), writing on beans producers" choice of marketing channels in Zambia, using probit model showed that factors such as price of the produce, scale of operation (quantity of beans harvested and quantity sold), distance to the market, farm

mechanization used, and livestock ownership positively influence the choice of private traders (informal marketing channel). Output price has an influence on the choice of marketing channel. This means high price provides an incentive for farmers to use a particular marketing channel since that guarantees them higher profits. The study further notes that the quantity of beans produced have an influence on the choice of marketing channel. The study indicates that farmers who produce in smaller quantities might have little opportunity to sell since they may have to reserve that for household consumption. Ownership of means of transport (cattle) was found to influence the choice of marketing channels by farmers. This implies that farmers with personal means of transport will be able to have access to marketing channels outside their communities and will also be able to have large farms since according to the report they also use the same cattle for draught purposes.

Boger (2001), in the study on Polish hog market indicated that there exist a positive relationship between the producers" choice of marketing channel and the contractual agreement. This is because of pre-finance that farmers receive from the contractors.

A study by Boughton (2007) revealed that farmers choice of marketing channels is guided by the net returns. Each farmer faces a price for his/her produce offered to a marketing channel and a transaction costs that may depend on the public goods and services (e,g distance to market, availability of the transport etc) and household specific characteristics (e.g educational attainment, gender, marital status, age, search costs, negotiation).

Gong et al. (2007), in their study on transaction costs and cattle farmers choice of marketing channel in China, indicated that farmer"s choice of cattle marketing channel is influenced by a number of transaction cost variables, but may also be influenced by

the socio-economic characteristics of the farmer or farm. In the study, transaction costs were grouped into information costs (price fluctuation, information access, and quality inspection), negotiation costs (delay payment, contract agreement), and monitoring costs (grade uncertainty, and farm service). The result indicates that direct market channels (processors) have payment delays and as a result cattle farmers who require immediate cash payment may have to sell their cattle at the spot marketing channels where payment is immediate. It was revealed that some cattle farmers rather prefer to sell their cattle to the direct marketing channels (processors). The reason attributed to their choice of direct marketing channel (processors) is that selling to them could result in better prices and premium bonus. The report concluded that farmers who sold to direct marketing channels were able to minimize transaction costs of which delay in payment is a component. The report recommends for more favorable market institutions to help minimize the transaction costs of trading between the farmers and the marketing channels.

Ferto and Szabo (2002) in their study on the choice of supply chain in Hungarian fruit and vegetable sector using multinomial logit model showed that Producer‟s choice of marketing channels is greatly influenced by the transaction costs. The study points that farmers are therefore more likely to sell to marketing channels that involve minimum transaction costs in order to maximize the returns from trade. Ferto and Szabo (2002) further noted that the probability of a producer choosing to sell to a marketing cooperative is positively influenced by farmers‟ age and having a mobile phone. The probability of a farmer choosing a marketing cooperative for marketing of their produce is negatively influenced by the bargaining power and and the possibility of monitoring. The probability of a farmer choosing to sell to the producer organization is positively

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influenced by the farmer"s age and negatively influenced by bargaining power and the possibility of monitoring.

Olwande and Mathenge (2010) writing on market participation among the poor rural households in Kenya, indicated that the choice of marketing channels by producers is positively influenced by farm size. The study concluded that as ones scale of production increases the person is likely to engage in the informal marketing channels than the formal marketing channels.

Amaya (2009), in the study on effects of access to information on farmer"s market choice: The case of Potato inTiraque Watershed (Cochabamba-Bolivia) using multinomial logit model indicated that farmers" choice of market channel is influenced by factors such as; market attributes (time to reach the markets and nearness to the paved road), production (number of plots owed by the farmers), and household related variables (access to loan, cell phone ownership, location and age of household head).

Amaya (2009) further noted that farmers who own cell phones are more likely than those that do not have, to prefer marketing channels that are farther. The marginal effect of having a cell phone has a positive effect on going for marketing channels that are farther from the producers. On the other hand, their probability has a negative influence on choosing marketing channels that are closer to them. Cell phones change farmers" decision about marketing channels since this tool allows farmers to have access to information from distant marketing channels.

The researcher further notes that the total quantity of potato produced is important in explaining the choice of marketing channels by the producers. Farmers who produced in large quantities will choose marketing channels that they feel they can do one stop selling but this decision is subject to the costs of transportation and time required to

reach the channel. The marginal effect on the predicted probability of going to farther marketing channel increases by 0.6% for every quantity increase.

The study by Zivenge and Karavina (2012) noted that produce price, cell phone, farm size, and cooperative membership are the main determinant of marketing channel choice by farmers. The results reveal that cell phone ownership significantly determine marketing channel choice. The farmers who have cell phones are more likely to sell their produce to informal marketing channels. According to the Zivenge and Karavina (2012) farmers who have cell phones were more likely to get real time market price, given that informal marketing channels have more flexible prices as compared to the formal marketing channels. Farmers receive higher prices from informal marketing channels than they receive from the formal marketing channels. This is true for farmers who are good negotiators. Zivenge and Karavina (2012) further pointed that farm size has a positive and a significant influence on the producers" choice of informal marketing channels. Cooperative membership was found to have a significant influence on the smallholders choice of marketing channel, with cooperative less likely to participate in the formal markets. This is contrary to the usual assumption that collective action affords the smallholders the opportunity to enjoy the economies of scale and reduce specific trasaction costs. They further note that the possible explanation to this may be that cooperatives in the study area are bound by social motives rathar than on business motives. The researchers further explain that cooperatives in Chanomora district are formed around development circles with the government taken the initiative, and forcing individuals into groups to enable it ease the coordination of development programmes rather than individuals initiating the process.

A study by Girma and Abebaw (2012) revealed that farmers" choice of marketing channels is significantly influenced by gender, educational status of the household head,

agriculture extension services, market information, non-farm income, adoption of modern livestock inputs, volume of sales, and time spent to reach a particular marketing channel. Girma and Abebaw (2012) noted that the sex of the farmer has an influence on the choice of marketing channels. The result reveals that being a male farmer has a positive and significant influence on the probability of selling ones produce to the farm gate buyers (marketing channels). Agricultural extension services in the form of visits is reported to have a positive and significant effect on the probability of selling directly to the consumers than selling at the farm gate. Farmers" frequent contact with the extension agents is expected to increase the farmers" ability to acquire important market information as well as other related agricultural information which in turn helps the farmers in choosing the best marketing channel for marketing of their produce.

Access to credit by farmers positively and significantly influences the farmers choice of marketing channels. The findings by Girma and Abedaw (2012) revealed that access to credit by farmers increases the probability of choosing consumer and other farmer outlets by 8.2% and 2.3% respectively as compared to the base category (farm gate buyers). They further noted that farmer"s agriculture cooperative membership and the availability of market information negatively and significantly influences the choice of farm gate marketing channel.

2.3.4 Conclusion

Based on the review, the following factors were found to be relevant in influencing farmers choice of marketing channels. These include contractual agreement (purchase contract), quantity of produce, transport costs, price of produce, speed of payment, mode of payment (cash), credit access, experience in soybeans farming, farm size (proxy for wealth), gender, age, marital status, household size, education level attained,

extension contact, cooperative membership, access to means of transport, and cell phone ownership.

CHAPTER THREE

3.0 METHODOLOGY

3.1 The Study Area

3.1.1 Location

Saboba District is located in the North-Eastern part of the Northern Region of Ghana sharing boundaries with Chereponi District to the north, Gushiegu District to the west, Yendi Municipality to the south-west; Zabzugu and Tatale Districts to the south and the Republic of Togo to the East. The Oti River is used as the international boundary between Ghana and the Republic of Togo even though there is an official boundary beyond the River Oti. The district lies between Latitudes 24º N and 25 º N; Longitudes 27º E and 13 º E and covers a land area of approximately 1,100km^2 (SDADP, 2011). The 2010 trial Population and Housing Census puts the population of the district at approximately 60,000.

3.1.2 Agriculture

The district has great potentials for agriculture. Some of the crops grown in the area are: maize, rice, yam, soybeans, groundnut etc. Soybeans, rice, groundnut and cotton are mainly grown as cash crops as they are hardly consumed by the farm households. The district is also noted for its high potential for livestock industry.

Livestock rearing is practised by almost every household in the study area. Most of the rearing is done on small scale levels with just a few rearing on a large scale. The animals commonly reared are cattle, goats, sheep, pigs, and poultry birds. These animals are reared on a free range system with just a few farmers only providing pens.

It is only the World Vision office in the ditrict that keeps poultry birds under intensive system. The farm supplies table eggs to bread bakers and other users of eggs in the

district.

There is also butcher"s shop in the district, where animals are slaughtered for sale to the public. Animals that are normally slaughtered in this butcher house are mostly ruminants such as cattle, sheep, and goats. There is also a special market for live animals. In this market animal such as cattle, sheep, goats, pigs and poultry birds are sold.

In recent times great attention has been given to soybeans by farmers and some organizations that have identified soybeans as a crop that has a potential for increasing farmers" income in the district. As a result there are various organizations and individuals both within and outside the district trying to promote the soybeans industry in various ways. The organizations and individuals involved in soybeans production supports its production and marketing in the area of pre-finance and provision of inputs. Some of these include Savanna Farmers Marketing Company, EPDRA, Bosbel, Itinerant wholesalers, Micro-processors, sedentary wholesalers etc. Soybeans cultivation is now seen as a major cash crop that can help farmers achieve their objective of higher incomes.

The district is also noted for its high potential in oil production. These are mostly from groundnut, and shea nut. These activities are carried out both at the individual and at the groups" levels. These activities serve as a main income generating venture for some households especially among women. These are done at small scale levels with little or no sophisticated implements.

Fishing is another economic venture being engaged in by the people in the study area. This is done along the banks of River Oti and its tributaries. This is the main economic activities engaged in by people living along the Oti River especially the Ewe

communities. Even though the catch is not much, it serves as the supplier of fishes to both the Ghanaian and Togo communities especially those along the River Oti.

"Dawadawa" processing is another economic activity that is being carried out in the study area. This is done using "dawadawa" beans, but in recent times attention is now on the use of soybeans for its preparation which has also resulted in high demand for soybeans in the district. Agricultural activities in the study area, is mostly at small scale level with just a few farmers producing on a large scale. The crops that are produced on a large scale are; rice, maize, and soybeans. Yam production used to be on a small scale level, but in recent times production levels have been increased due to increase in demand for yam both within and outside the district.

Fonio production and procession is another economic activity that is being given a boost to help revive its production. ACTION-AID has built a procession centre at Tilagbeni; a community in Saboba for the women who are into its procession to help improve upon the quality of fonio processed by the women.

The district serves as a food basket for the region especially when it comes to cereals. Agricultural produce of the district are normally bought by market women from Volta-North, Yendi, Kpandai, and Yeji. Some farmers also transport their produce to markets in Kintampo, Accra and Kumasi for sale.

3.1.3 Infrastructure

3.1.3.1 Road and Transport

The district has a poor road network, as the two major roads leading to the district capital are always impassable especially during the rainy seasons. In some places, there are no feeder roads linking the communities to the district capital, as some of the footpaths are communities" own initiatives that also get deteriorated during certain

times of the season, especially the rainy season. This normally affects the movement of agricultural produce to the market centers and the movement of farm inputs especially fertilizer back and fro the hinterlands. The deplorable state of the road network has a serious effect on the price of agricultural produce since buyers who finally find themselves in such communities always try to offer low price for the produce.

3.1.3.2 Markets

There are five market centers in the district. These include the Saboba market, Wapuli market, Kpalba market, Gbagbanpong and Demon markets. With the exception of Saboba and Wapuli markets, which have a few market stalls, Kpalba market is still under construction and for Gbagbapon and Demon markets one cannot boast of a single market stall. The distance to these market centers are also quite far as people will have to travel between the distances of 2km and 18km to get to the nearest market centers, which is mostly on, foot (SDADP, 2011). The situation has compelled some farmers to always dispose their soybeans at the farm gate since the costs they would have to incur in transporting their farm produce is high. Since there is a negative relationship between the price offered by the buyers of agricultural produce on the one hand and the distance and the nature of the road on the other side, farmers will always try to avoid such markets to minimize its effect by selling at farm gate. Because the physical infrastructure in the markets are poorly developed it makes selling in those markets very risky, since farmers will have to always carry their produce back home anytime they are not able to dispose all their produce. This development often brings additional costs to the farmer since he/she will have to bear the costs of transporting the produce back home.

3.1.3.3 Transport

Vehicular moment in the district is so restricted that the only time one could travel or transport his/her produce is normally between the hours of 2am and 5am. This hampers the movement of agricultural produce to the market centers especially for farmers who live far from the district capital. The only cargo trucks that sometimes come to the rescue of these farmers are often from outside the district making the costs of accessing them expensive. Inadequacy of transport services has compelled some farmers to always sell at the farm gate since the transports that are available always charge exorbitant prices.

3.1.3.4 Communication

There are two local FM stations in the district, and these include radio Gaaki and radio Kitawoln with coverage covering the entire district and beyond. Radio Gaaki especially provides air time to Ministry of Food and Agricultural staff to educate farmers on issues relating to agriculture in general. They help in dissemination of marketing information to the farmers, which help in their decision making as to the marketing channel to adopt for the sale of their produce.

The district has four telecommunications service providers. These are MTN, TIGO, Vodafone, and Airtel. There is a problem with network coverage, as the reception is not extended to most communities in the district. The reception is always interfered by the reception of the telecommunications networks in the neighboring Togo. Some communities within the district are not able to use mobile phones due to the absence of reception but in other communities, it is the interference of the reception from the neighboring Togo that makes them unable to use the mobile phones. The absence or interference of the reception makes it difficult for farmers to seek for information about

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the conditions in the various markets a situation which predisposes some producers to opportunistic buyers.

3.1.3.5 Post-Harvest

The main storage facilities used by most farmers in the area are the local silos. These are used by farmers to store their foodstuffs against the lean season and store seeds for the next growing season. They are also used to store farm produce that are not immediately sold after harvest but are stored to meet good price. There are some modern storage facilities built by ACTION-AID for some selected women"s groups within Saboba township which are also rented out when not in use to market women especially the itinerant wholesalers and sedentary wholesalers.

3.1.4 The Institutions, Service Providers and NGOS

There are various institutions working to promote the growth of agriculture in the Saboba District. The principal among them is the District Directorate of the Ministry of Food and Agriculture (MOFA) that provides extension services to the farmers. The Directorate also provides farm inputs to the farmers when the need arises, sometimes on credit. The Directorate is the first point of contact on issues relating to agriculture. Another institution that is contributing to the growth of agriculture in the district is the Evangelical Presbyterian Development and Relief Agency (EPDRA). This is NGO operating in the district in the area of agriculture. It often provides inputs such as fertilizer, agro- chemicals, tractor services, credit among others to the farmers. The costs of these services are paid for after the produce are harvested and sold. EPDRA provides services to farmers in their communities in order to solve the problem of farmers having to travel long distances in search of such services. The services of EPDRA are also

geared towards the rural poor farmers who often cannot afford to acquire the necessary inputs needed for their production.

There are financial institutions in the district that offers credit services to all manner of persons including the soybeans farmers. The notable among these financial institutions are Saboba Community Cooperative Credit Union, Saboba District Credit Union, GN Bank (micro finance component), among others. These financial institutions help in solving the financial needs of most people especially farmers, since most often find it difficult to obtain credit from the traditional banks due to their inability to meet collateral requirements.

There are also NGOs in the district working to ensure that agriculture is given a boost. Notable among them are Integrated Development Center (IDC), World Vision International. These NGOs provide services that help in reducing the difficulties farmers often go through in the production of crops and rearing of animals. Integrated Development Center and the Evangelical Presbyterian Relief and Development Agency provide tractor services to the farmers, the costs of which they pay after soybeans, are harvested and sold. These NGOs also provide agronomic training to the farmers through their extension agents who often make frequent visits to the farmers. World Vision International though not directly involved in agriculture but from time to time it also provide support to some farmers mostly in the area of inputs.

Besides, these institutional service providers, there are individual service providers with outlets across the district where farmers from various parts of the district could easily get their required inputs. Inputs provided by these individuals service providers include the provision of agro-chemicals, protective clothing, among others. Some of the individual service providers also help in the sale of the government-subsidized fertilizer.

3.2 Methods of Data Collection

The main methods that were employed for the data collection are focus group discussion, field visits, and interviews with the use of questionnaires and interview guides. With regard to the focus group discussion, producers of soybeans were engaged in their respective communities with the help of an interview guide. This was to help in ascertaining their views on issues that might not be captured by the individual interviews. Prior to the data collection, there was a reconnaissance survey in selected communities for the study, to familiarize the researcher with the producers and help estimate the cost that will be involved in the data collection.

3.2.1. Types and Sources of Data

Both primary and secondary data were sourced. Primary data were obtained from the producers of soybeans that were interviewed in their respective communities. Information was also obtained from the marketing channels agents to help identify services they each provide to their clients. Secondary data for the study were obtained from journals, textbooks, etc.

3.2.2. Sampling

This study relied on the Evangelical Presbyterian Development and Relief Agency (EPDRA) operational zones in the district. The organization operates in four zones in the district which includes Wapuli, Kpalba, Sanguli and Saboba zones. There are soybeans farmers in all these zones, comprising contract and non-contract farmers. But production levels vary from zone to zone, as in some zones there are more producers than others and also in the scale of production. Kpalba zone has a greater number of soybeans producers, followed by Wapuli zone, Saboba and Sanguli zones in that order. Quota sampling technique was used in assigning seven communities to Kpalba zone,

six toWapuli, four to Saboba and three to Sanguli zones. The simple random technique (the lottery method) was then used to select a required number of communities from each zone. The differences in the number of communities selected from the zones were also due to the differences in the level of output (production).

Quota sampling technique was again applied in assigning the number of people to be interviewed to the various communities. Communities with a greater number of producers were assigned a greater number of people to be interviewed and vice versa.

The simple random technique (the lottery method) was later used in selecting the required number of the communities and producers for the study. This was done without replacement anytime a community or a farmer was selected until the require number of communities and soybeans farmers were selected. The cards were thoroughly mixed after every selection to ensure that every community and farmer had equal chance of being selected. Two hundred and forty soybean farmers were interviewed. Thet able below gives a full detail of how the sampling was carried out.

Table 3.1: The Sampling Procedure

Zone	No.of communities	No. of soybean farmers	No. Communities included	Farmers included
Kpalba	44	525	7	**105**
Sanguli	19	110	3	**22**
Saboba	25	170	4	**34**
Wapuli	32	395	6	**79**
Total	**125**	**1200**	**20**	**240**

Source: Survey, 2013

3.2.4 The Survey

The actual data collection preceeded the reconnaissance survey which was undertaken by the researcher to help familiarize oneself with the study area. The reconnaissance survey was to enable the researcher select communities and respondents

for the study and to also operationalized the variables. The reconnaissance survey afforded the researcher the opportunity to budget for the actually data collection and to know the time farmers will be available to participate in the research, since it was cropping season and most farmers will spend greater proportion of their time on their farms. The reconnaissance survey took five (5) days to complete.

The formal study questionnaire was pre-tested before the actual data collection to ensure that the questionnaire was well understood to ensure smooth data collection. It is always important to pre-test the instrument to ensure that questions are understood by the respondents and there are no problems with the wording or measurement. Pre-testing was also conducted to help find out the most appropriate time the respondents would be available and the level of cooperation the researcher is likely to get from the farmers. Each questionnaire took approximately thirty minutes to be completed. Fifteen farmers were interviewed at the pre-testing stage. Two days were used for questionnaire pre-testing.

Actual data collection took place in May 2013 with the help of four enumerators who were engaged. The enumerators were taken through a day"s traning session to enable them understand the wording, and skip patterns. It took six days to complete the entire data collection. The interviews were carried out in Likpakpaln (Konkomba) with the enumerators having to explain the questions to the farmers for them to provide answers.

3.2.5. Limitation of the Study

The main limitations faced was during the data collection. The researcher was unable to get to the oversea (thus villages across the River Oti) villages and some farmers refusing to be interviewed. Due to the researcher"s inability to paddle canoe

which is the only means of transport to reach some of the communities, some communites were not included in the study. Coupled with the researcher"s inability to paddle canoe, the canoes were also not in good condition the situation, which made it more risky to use them even if the owners were around to help in that regard.

Also, because the data collection period coincided with the major cropping season, some farmers could not make time for the interview, as some were always found in their farms or on their way to the farm. This situation made the enumerators to interview some farmers in the evening after they had returned from their farms.

3.3. Methods of Data Analysis

Both descriptive and inferential analysis were employed for analyzing the data obtained from the soybeans producers and the buyers in the selected communities.

3.3.1. Descriptive Analysis

Descriptive tools such as frequencies and percentages were used to examine the available marketing channels, the distribution of farmers among various marketing channels and services provided by various marketing channels in the study area. Score ranking was used to rank the challenges confronting soybeans farmers in marketing of their produce.

3.3.2.Inferential Analysis

The influence of economic and non-economic factors on the soybeans producers" choice of marketing channels was analyzed using multinomial logit regression model.

3.3.2.1 Choice of Model

According to Mohammed and Ortmann (2005), there are several methods that can be used to explain the relationship between dependent and independent variables. Such methods include linear regression models, probit model, logit model, log-linear regression, discriminant analysis, multinomial logit model, and multinomial probit model. Models such as probit model, logit model, multinomial logit model and multinomial probit model have especially found great acceptance in choice studies. The logit and probit models are used when the study involves a binary choice. The choice of either the probit or logit model depends on the assumption being made about the error term. If the error term is assumed to be normally distributed then probit model is the most applicable, if on the other hand the error term is assumed to be logistically distributed then logit model is the most appropriate.

According to Montshwe (2006), Ordinary Least Square has found great acceptance in the economic literature for analyzing data. However, Gujarati (1992) pointed out that it is most applicable when dealing with quantitative data, but can lead to serious problems when applied to the qualitative data. Again, the OLS cannot be used in the study of choice because it will violate the fact that the probability has to lie between 0 and 1, if there are no restrictions on the values of the independent variables. However, multinomial logistic regression model guarantees that probabilities estimated from the logit model will always lie within the logical bounds of 0 and 1 (Gujarati, 1992). In addition, OLS is not practical because it assumes that the rate of change of probability per unit change in the value of the explanatory variable is constant.

Models such as log-linear regression and discriminant analysis can also be applied, but logistic regression proves to be more useful. Since log-linear regression

requires that all independent variables be categorical and discriminant analysis requires them all to be numerical, but logistic regression can be used when there is a mixture of numerical and categorical independent variables (Dougherty, 1992). In addition, discriminant analysis assumes multivariate normality, and this limits its application because the assumption may be violated (Klecka, 1980). In this study, the logistic model is preferred because of its comparative mathematical simplicity and fewer assumptions in theory. Moreover, logistic regression analysis is more statistically robust in practice, and is easier to use and understand than other methods.

For example, the study by Higuchi et al. (2012), on the impact of socio economic characteristics of coffee farmers" marketing channel choice relied on the binary logistic model. This is because the study only considered two channels, hence the need for a binary logistic model. However, with more than two choices, the multinomial logit model is the most preferred. The multinomial logit model has found great acceptance in many areas including economics, market research, and transportation engineering. Multinomial logistic regression can be used to determine a dependent variable, based on continuous and/or categorical independent variables, where the dependent variable takes more than two forms (Hill et al., 2001). Multinomial logistic model is also used to determine the percentage of variance in the dependent variable explained by the independent variables and to rank the relative importance of independent variables. This model is the ultimate because it allows one to analyze data where an individual has more than two choices to make. In this particular study, soybeans producers are faced with the alternatives of selling their produce to any of the available marketing channels in the study area, which are more than two. These decisions are made based on the option, which maximizes their utility, subject to economic and non-economic factors

that influence their choice. With the multinomial model, an individual choice is dependent on alternatives available to him/her.

The choice of multinomial logistic model for this study is also based on the assumption of independence of irrelevant alternatives (IIA). The independence of irrelevant alternatives (IIA) means that, all else being equal, a person"s choice between two alternative outcomes is not affected by the other choices that are available (Cheng and Long, 2007).

Under multinomial logit model, the channel with the highest number of observations is often treated as a base or reference category for the analyses but the researcher to suit a particular purpose can also change the base category.

3.3.2.2 The Theoretical Model

The mathematical form of a discrete choice model is determined by the assumptions made regarding the error omponents of the utility function for each of the alternative. The specific assumptions that lead to the multinomial model are (1) the error components are extreme-value (or Gumbel) distributed, (2) the error components are identically and independently distributed across alternatives, and (3) the error components are identically and independently distributed across observations/individuals (Koppelman and Bhat, 2006).

The most common assumption for error distributions in the statistical and modeling literature is that error terms are normally distributed. There are good practical and theortical reasons for using the normal distribution for many modeling applications. However, in the case of choice models the normal distribution assumption for error term leads to the multinomial probit Model (MNP) which has some properties that make it difficult to use in choice study analysis. The Gumbel distribution is selected because it

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has computational advantage in the context of where maximization is important, closely approximates the normal distribution and produces a closed-form probabilistic choice model (Koppelman and Bhat, 2006).

The Gumbel has the following cumulative distribution and probability density functions:

$$F(x) = \exp[-\exp(-\mu(x - \eta))] \tag{3.1}$$

$$f(x) = \mu \exp[-\mu(x - \eta)] \exp[-\exp(-\mu(x - \eta))] \tag{3.2}$$

Where μ is the scale parameter which determines the variance of the distribution

and

η the location (mode) parameter.

The mean and the variance of the distribution are:

$$\text{Mean} = \eta + \frac{0.577}{\mu} \tag{3.3}$$

$$\text{Variance} = \frac{\pi^2}{6\mu^2} \tag{3.4}$$

The second and third assumptions state the location and variance of the distribution

just η and σ^2 indicate the location and variance of the normal distribution.

The three assumptions, taken together, lead to the mathematical structure known as the Multinomial Logit Model (MNL), which gives the choice probability of each alternative as a function of the systematic part of the utility of all the alternatives.

The general expression for the probability of choosing an alternative „i‟ $\left(i = 1, 2, .. J \right)$ from a set of J alternatives is:

$$Pr(i) = \frac{\exp V_i}{\sum_{j=1} \exp\left(V_j \right)} \quad (3.5)$$

Where $Pr(i)$ is the probability of the decision-maker choosing alternative i and V_j is the systematic component of the utility of alternative j.

The probabilities of each alternative are given by modifying equation (3.5) for each alternative to obtain:

$$Pr\left(NGOs \right) = \frac{V_{NGOs}}{\exp(V_{NGOs}) + \exp\left(V_{sedentary\ wholesalers} \right) + \exp\left(V_{itinerant\ wholesalers} \right)} \quad (3.6)$$

$$Pr\left(sedentary\ wholesalers \right) = \frac{V_{sedentary\ wholesalers}}{\exp\left(V_{sedentary\ wholesalers} \right) + \exp\left(V_{itinerant\ wholesalers} \right) + \exp\left(V_{NGOs} \right)} \quad (3.7)$$

$$Pr\left(itinerant\ wholesalers \right) = \frac{V_{itinerant\ wholesalers}}{\exp\left(V_{sedentary\ wholesalers} \right) + \exp\left(V_{itinerant\ wholesalers} \right) + \exp\left(V_{NGOs} \right)} \quad (3.8)$$

Where $pr\square NGOs\square$, $pr\square$sedentary wholesalers$\square$, and $pr\square$itinerant wholesalers$\square$ are the probabilities of the deision-maker choosing NGOs, sedentary wholesalers, and

itinerant wholesalers respectively and V_{NGOs}, $V_{\text{sedentary wholesalers}}$, and $V_{\text{itinerant wholesalers}}$ are the systematic components of the utility for NGOs, sedentary wholesalers and itinerant wholesalers respectively. It is appropriate to replace these three equations by a single general equation to represent the probability of any alternative and to simplify the the equation by replacing the explicit summation in the denominator by the summation over alternatives as:

$$\Pr\square i\square \square \frac{\exp\square V^{i}\square}{\exp\square V_{NGOs}\square\square \exp\square V_{\text{sedentary wholesalers}}\square\square \exp\square V_{\text{itinerant wholesalers}}V\square} \qquad \square 3.9\square$$

$$pr\square i\square \square \frac{\exp\square V^{i}\square}{\square \exp\square V_{j}\square} \qquad \square 3.10\square$$
$$j\square NGOs, \text{sedentary wholesalers and itinerant wholesalers}$$

Where i indicate the alternative for which the probability is being computed. This formulation implies that the probability of choosing an alternative increases monotonically with an increase in the systematic utility of that alternative and decreases with increases in the systematic utility of each of the other alternative.

3.3.3 Empirical Model Specification

A farmer''s decision to participate in either NGOs, sedentary wholesalers or itinerant wholesalers signifys the farmer''s direction to maximize utility. Multinomial regression was used to analyze the factors that influence farmers'' decision to adopt any of the marketing channels for the sale of their soybeans.

A typical logistic regressionmodel which was used is of the form:

$$\ln\left[\frac{p_i}{1-p_i}\right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 +,......+ \beta_n X_n + e$$

$\log it\, p_i = \ln[1-p_i]=$

Where:

$X_1 = gender\ X_2 = age\ X_3 = M.Status\ X_4 = H.size\ X_5 = education$

$X_6 = \exp erience\ X_7 = c.membership\ X_8 = e.contact\ X_9 = m.ownership$

$X_{10} = t.access\ X_{11} = f.size\ X_{12} = q.soybeans\ X_{13} = c.agreement\ X_{14} = m.payment\ X_{15} = s.payment\ X_{16} = p.soybeans\ X_{17} = c.access$

$\ln\left[\frac{p^i}{}\right] = $ logit for market channel choice

$[1-p_i] = p = $ not using a particular

marketing channel

i

$1-p = $ using a particular marketing channel

i

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$X_i =$ independent variables $\beta_i =$

parameters to be estimated

e = error term

The STATA 11 software was used to estimate these parameters as well as their marginal effects. Selling soybeans directly to the NGOs market was chosen as base category and used as the comparison group since it is the most patronized marketing channel by most soybeans farmers in the study area. Microprocessors were rarely chosen and as a result was not used in the analyzes individually, but combined with the sedentary wholesalers since they have almost similar characteristics. This combination is only used in the multinomial logit model analyses due to small number of farmers who sold to the microprocessors since its marginal effects estimation will be difficult to estimate. The marginal effects were also estimated and used in the interpretation since the parameter estimates of the multinomial logit only provide direction and not probability or magnitude of change.

In the model, choice of market channel represented the dependent variable where participation in the NGOs had been set as a reference category. The choice of marketing channel described the decision to sell soybeans directly to the NGOs, sedentary wholesalers or itinerant wholesalers. It followed that p_i represented the probability of selling soybeans to the NGOs and $\left(1 - p_i\right)$ is the probability of either selling to the sedentary wholesalers or itinerant wholesalers. In other words, the model was used to assess the odds of selling soybeans directly to the NGOs as against selling to the sedentary wholesalers and itinerant wholesalers.

3.3.4 Variable Definition

The tables 3.1 and 3.2 below provides the definition of independent variables and their a prior expectations. Age of the farmer represented the age of soybeans farmer in years. The sex of a farmers was set as a dummy, where a male took a value of one or zero for otherwise. Education level of the farmer was also assigned dummy values. It took the value of one if the farmer had no formal education, two for basic education, three for SHS, four for tertiary and five for others. Farm size was used as a proxy for wealth and measured in acreage. Price represented the price offered by the marketing channels in (GH₵). The quantity of the produce represent the number of 50kg bags offered to the market. Cooperative membership of the farmer was set as a dummy taken the value one if the farmer is afflilated to a cooperative and zero otherwise. Contractual agreement was also set as dummy variable, where the availability of a contractual agreement took a value of one or zero for otherwise. Means of transport was measured as availability of means of transport either owned or hired, it took the value one for availability or zero for otherwise. Experience of the farmers represented the number of years a farmer has been into the production and marketing of soybeans.

Mode of payment for soybeans was set as a dummy, where cash payment took the value of one or zero for otherwise. Credit access was set as a dummy, where it took the value of one if a farmer has access or zero for otherwise. Mobile ownership was set as a dummy, where it took the value of one if a farmers has or zero for otherwise. Duration for payment of produce bought was also set as a dummy, where it took the value of one for instant payment and zero for otherwise.

The dependent variable Y in the model is a categorical variable that represents the marketing channel choice available to the soybeans producers in the study area. These

are defined as $j \Box 0$, $j \Box \Box 1$, $j\ 2$, *etc*.The dependent variable include the following; direct sales to the NGO=0, sedentary wholesalers=1,itinerant wholesalers=3.Those are the channels that producers at any point in time could offer their soybean for sale.

Dependent Variable

Table 3.2 Description of the dependent variables used in multinomial logistic model

Dependent Variable	
Marketing channel choice (Dependent variable)	0= Direct Sales to NGOs, 2=Itinerant 1=sedentary wholesalers, wholesalers

Explanatory Variables

Table 3.3 Description of the independent variables used in multinomial logistic model.

Variable Name	Measurement (Code)	A Priori Expectation
X_1 =Age	years	-
X_2 =Farm size (proxy for wealth)	acreage	+
X_3= Experience	Number of years in production and marketing of soybeans	+
X_4= Credit access	1=yes, 0= otherwise	+
X_5= Gender	1=male, 0=female	+/-
X_6= Contractual agreement	1=yes, 0= otherwise	+
X_7= Marital status	1=yes, 0= otherwise	+
X_8= Means of transport	1= yes, 0= otherwise	-
X_9= Price of soybeans	GHC	+
X_{10}= Cooperative membership	1=yes, 0= otherwise	+/-
X_{11}= mobile phone ownership	1=yes, 0= otherwise	+
X_{12}= Speed of payment	1=instant, 0=otherwise	-

X_{13}= Mode of payment	1= cash, 0= cheque	+/-
X_{14}= Extension contact	1= yes, 0= otherwise	+/-
X_{15}= Quantity produced	Number of 50kg bags	+
X_{16}= Level of education	1= no forma leducation, 0=otherwise	+
X_{17}= Household size	Number of people	+

CHAPTER FOUR

4.0 RESULT ANALYSES AND DISCUSSIONS

4.1 Introduction

This chapter presents the study findings and detailed discussion on the findings. It begins by discussing the findings on demographic characteristics such as gender, education level, marital status, and age distribution of soybeans producers. The chapter further discusses the types of marketing channels in the study area, the distribution of farmers among various marketing channels, services provided by the marketing channels, the challenges that confront farmers in accessing the marketing channels and econometric analyses of the influence of economic and non-economic factors on the producers'' choice of marketing channel.

4.2 Demographic Characteristics of Respondents

The section gives an overview of the household demographic characteristics. Under this section gender, age, educational background, and marital status of the sampled farmers

are analyzed and discussed in relation to their influence on the producers" choice of marketing channels. These are important, because the main activities are coordinated by the household head and the head"s decisions are more likely to be influenced by such demographic characteristics (Makhura, 2001).

4.2.1.Gender Distribution among Soybeans Farmers

The sex of the household head is an important characteristic in household decision making, as males often take decisions on behalf of the entire household. Gender was analyzed by checking the number of male and female soybeans farmers.

The table 4.1 below shows the distribution of males and females in the soybeans production in the study area. A greater proportion of the respondents were males representing approximately seventy-two (72%) as opposed twenty eight percent (28%) for females. This is an indication that the industry is dominated by males. The results confirm the study by Montshwe (2006), who pointed out that agricultural activities are mostly dominated by males.

Table 4.1: Distribution of Farmers by Gender

Gender	Frequency	Percentage
Male	173	72.1
Female	67	27.9
Total	**240**	**100**

Source:Survey, 2013

4.2.2 Age

The table 4.2 below indicates the age distribution of soybeans farmers in the

Saboba District. About seventy-seven household heads are within the age bracket of 19 and 29 constituting 32.1% of the soybeans producers interviewed. Sixty-seven (67) of the producers interviewed also fall within the age bracket of 30 and 39 constituting 27.9% and fifty (50) of the producers are in the range of 40 and 49 years, which represent 20.8% of producers interviewed. Only six farmers representing a percentage of 2.5% are below the ages of nineteen. Over seven percent (7.1%) of the farmers representing seventeen of the farmers interviewed are of ages of sixty and above. This categorization was done to help determine the age distribution of the farmers since that influences their choice of marketing channels.

Table 4.2: Distribution of Soybeans Farmers According to Age

Age (Years)	Frequency	Percentage
< 19	6	2.5
19-29	77	32.1
30-39	67	27.9
40-49	50	20.8
50-59	23	9.6
≥ 60	17	7.1
Total	**240**	**100**

Source: Survey, 2013

4.2.3 Marital Status

The marital status of households is usually used to determine the stability of the household in African families. It is normally believed that married household heads tend to stay long in farming activities than the unmarried farmers (Jari and Fraiser, 2009). If this assertion is true, the married status of a farmer will affect agricultural production and hence, marketing.

The table 4.3 below provides information on the distribution of respondents by marital status. The result revealed that roughly one hundred and ninety-three (193) soybeans producers constituting 80.4% are married. Thirty of the farmers representing 12.5% of the farmers interviewed were singles. Fifteen of the farmers representing 6.3% of the farmers interviewed were widowed. Two of the farmers representing 0.8% are divorced. Farmers who are married have additional family labour, since the couples can easily come together to render services when the need arises. In the case of marketing channels choice, farmers who are married can access distant marketing channels when it requires them to carry the produce to the buying center, as compared to the singles and others who will have no that additional labour force.

Table 4.3: Distribution of Soybeans Producers According to Marital Status

Marital Status	Frequency	Percentage
Single	30	12.5
Married	193	80.4
Divorced	2	0.8
Widowed	15	6.3
Total	**240**	**100**

Source:Survey, 2013

4.2.4 Educational Level

The distribution of farmers by educational level achieved was examined by looking at the levels of school education attained by the farmers. Farmers were categorized in five groups which include; farmers who have never had formal education, basic, secondary, tertiary and others.

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The results in table 4.4 reveal that most of the farmers had low formal education, in that 58.8% of the producers had no formal education, 25.8% ended up at Junoir high school level. Over ten percent (10.8%) ended at the Senior high school and 4.6% at the Tertiary level. This may be because soybeans are grown in rural areas where school enrolment is low. The lower educational levels among the sampled households imply that written market information is of minimal benefit to most soybeans farmers in the study area.

Table 4.4: Distribution of Soybeans Farmers by Highest Educational Level Attained

Educational Level	Frequency	Percentage
No formal education	141	58.8
Basic Education	62	25.8
Senior High School	26	10.8
Tertiary	11	4.6
Total	**240**	**100**

Source: Survey, 2013

4.3 The Organization of Soybeans Marketing

The marketing of soybeans is organized around four marketing channels. These include: the direct sales to the NGOs, sedentary wholesalers, itinerant wholesalers and microprocessors. Any of the channels can be adopted for the sale of one"s soybeans.

The itinerant wholesalers, sedentary wholesalers can also sell their soybeans to the NGOs. The NGOs in turn sell their soybeans to the processing companies who are usually located outside the district. Microprocessors buyers do not resell the soybeans to other marketing channel but process it into soymilk, "dawadawa" , and soy kebab

etc. The diagram below gives a picture of how the soybeans marketing is organized in the Saboba District.

Figure 4.1. The organization of Soybeans Marketing in Saboba District
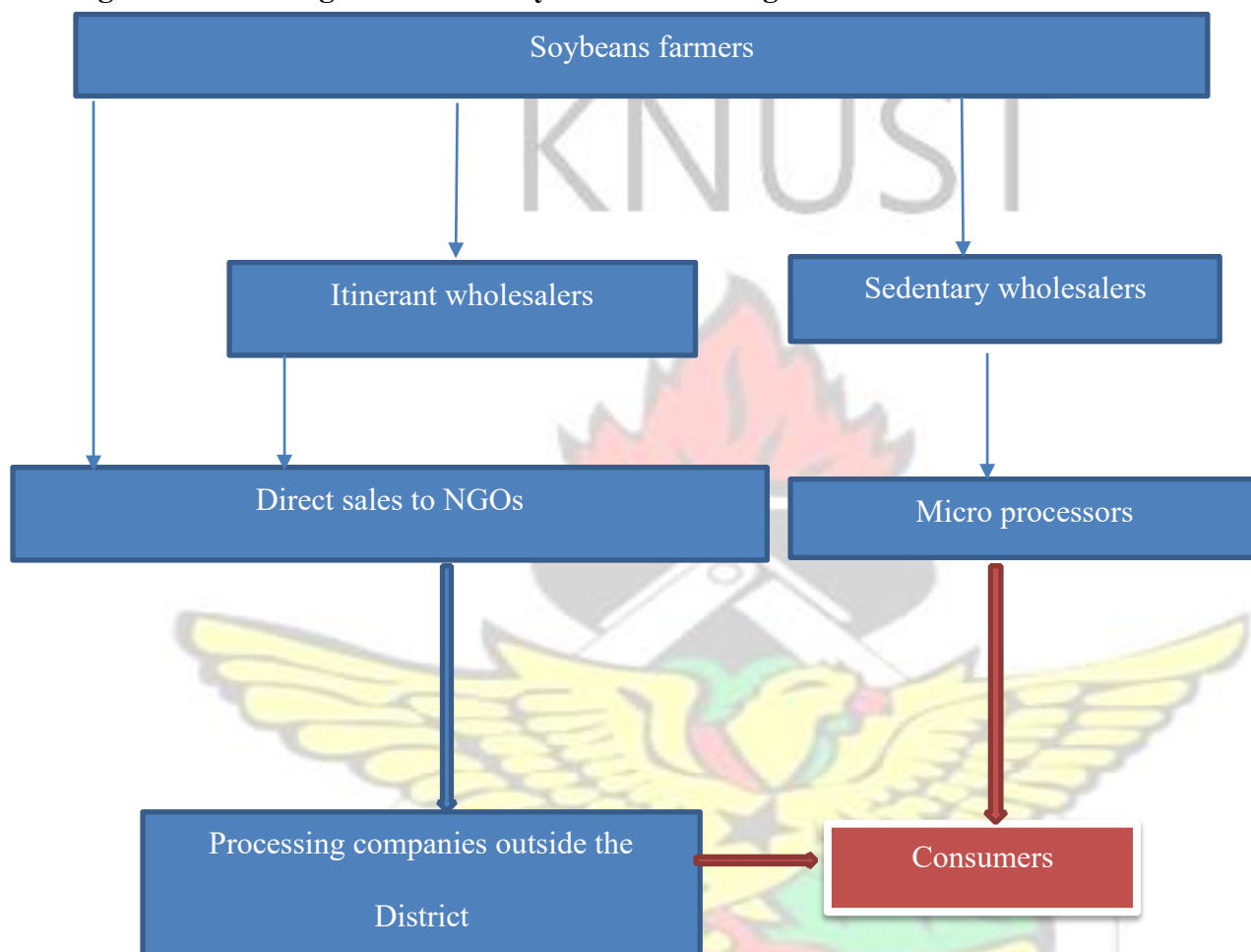
Source: Survey, 2013

4.3.1. Marketing Channels

The marketing channels in the study area are summarized below.

Farmer ➡ NGOs

Farmer ➡ Sedentary wholesalers

Farmer ➡ Itinerant wholesaler Farmer

Micro ➡ processors
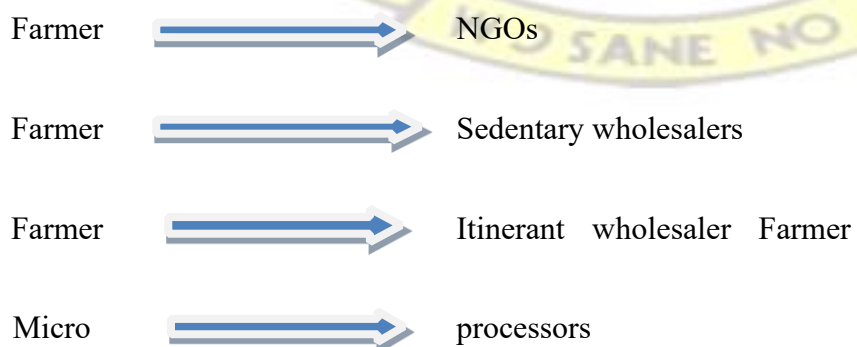
4.4 Market Conduct

4.4.1 Buying and Selling Practices

Most of the soybeans are sold just after harvest. This is to enable the farmers repay their loans and also meet their contractual obligations. Some farmers also store their soybeans and sell at a later date. The NGOs pre-finance the soybeans farming in the study area. They purchase soybeans by weights of 50kg. The agents of NGOs supply poly sacs (size three) to the farmers for bagging of their produce after harvest. The agents of NGOs move from community to community to make the purchase. The farmers after selling their soybeans to the NGOs will have to wait for weeks and in some cases months before their money is paid them. The NGOs also use cheque for payment. The NGOs buy soybeans by grades, as a result soybeans, which do not meet their grade are often rejected.

The itinerant wholesalers, sedentary wholesalers and microprocessors do not prefinance the activities of soybeans farming. They do not buy soybeans by weight but rather use volume measures such as bowls "Olonka" as means of measurement. This mode measurement leaves the farmers worse off, since the buyers often subject the bowls to various levels of alterations to take advantage of the farmers. The income one receives is always less when produce are sold in volumes as compared to when the same quantity of produce is sold by weight. They offer instant cash payment after buying soybeans but can sometimes also delay payment to a week or two. The buyers make regular visits to the communities to buy soybeans, normally on the eve of Saboba market. Itinerant wholesalers and microprocessors do not reject soybeans with low grade but rather offer low price for it. The itinerant wholesalers sometimes extend financial support to farmers who are in need.

4.4.2 Pricing Behaviour

The price the NGOs offer to the sellers is based on the weight of soybeans. The price for soybeans is determined before harvest (50kg). The itinerant wholesalers, sedentary wholsalers and microprocessors do not base their price on the weight. They use bowls "Olonka" as a means of measurement. The price per bowl is often negotiated at the point of sale between the farmers and buyers, with farmers selling in large quantities having the opportunity to ask for price increase.The itinerant wholesalers, sedentary wholesalers and microprocesssors buy both low quality and high quality soybeans but there is price differential.

4.3.3 Services and Benefits Provided

The study revealed various services offered by the various marketing channels in the study area. Marketing channels provide various services that go a long way to help farmers in the production and marketing of their soybeans, especially the resource poor farmers. These services at the end of the day influence the producers" marketing decision. Marketing channels provide both production and marketing services such as; agronomic training, ploughing, transport service, production credit support, contract farming, purchase by weights, and linking farmers to input suppliers. The table 4.5 below shows the services and benefits provided by the marketing channels.

Table 4.5: Services and Benefits Provided By the Marketing Channels

Services provided	NGOs	Sedentary wholesale	Itinerant wholesaler	Microprocessor
Production services				
Agronomic training	√	×	×	×
Contract farming	√	×	×	×
Ploughing	√	×	×	×

Production credit support	√	√	√	√
Marketing Services				
Prompt payment	×	√	√	√
Purchase by weight	√	×	×	×
Negotiated price	×	√	√	√
Linking soybeans farmers to input suppliers	√	×	×	×
Transport services	√	×	×	×
Mode of payment (cash)	×	√	√	√
Benefits				
Higher price	√	×	×	×
Contract (Assured market)	√	×	×	×
Received inputs	√	×	×	×
Proximity	×	×	√	√

Source: Survey, 2013 √ applicable ₓ not applicable

NGOs offer almost all the services listed in the table 4.5 above with the exception of three. They do not make prompt payment for purchases and do not pay for the produce in cash but in cheque. Also the transaction with the NGOs do not provide the opportunity for the farmers to negotiate the price as product prices are fixed before the produe are harvested.

Sedentary wholesalers do not provide farmers with many of the services provided by the NGOs but they provide credit for production inputs, make prompt payment for purchases and negotiate the price of the product with farmers at the time of purchase.

They also pay for the purchases mainly with cash. The itinerant wholesalers and microprocessors provide exactly the same services as provided by the sedentary wholesalers.

In addition, soybeans farmers in the study area enjoy certain benefits, which also vary from channel to channel. Soybeans farmers who market their soybeans through the NGOs enjoy benefits, which include higher price, input supply, and assured market.

Soybeans producers who market their produce through the NGOs enjoy benefits such as assured market (purchase contract), inputs etc that are often not provided by other marketing channels in the study area. In the event of low price for soybeans, producers who market through the NGOs are assured of ready market as compared to other marketing channels. This is because other market channels based their pricing on demand and supply situation in the market the practices, which always leave the producers worse off in the event of bumper harvest. NGOs on the other hand set price for soybeans prior to the harvest and as a result not influenced by the supply and demand situation in the markets.

Inputs such as seeds, weedicides, polysacks (size three) etc are also supplied to soybeans farmers through the initiatives of the NGOs. Even though these services come at a cost, producers enjoy the economies of scale and quality of seeds is assured since the seeds are always bought from the approved sources. Farmers who sell to other marketing channels are deprived of these gracious benefits and as a result end up paying high prices for the inputs and sometimes planting seeds that are not viable.

With the exception of NGOs, all other marketing channels are found in the communities of the soybean producers. Even where these marketing channels are not found, there is always regular visits by the channel members to those communities to make purchases. Therefore, in terms of proximity farmers who market their soybeans through marketing channels other than the NGOs have a greater advantage since they can always be called upon when the need arises especially during emergencies.

4.3.4 Marketing Constraint (Challenges)

The following constraints were identified: inability to meet grading requirements, delays in payment, the delays in buying, low price, inadequate means of transport, low demand, inadequate market information, and under pricing. Table 4.6 below presents results on constraints faced by farmers in marketing of their soybeans and their respective ranks.

Table 4.6: Marketing Constraints and Their Ranks

Marketing challenges	Number of farmers reporting challenge	Proportion of farmers with challenge (%)	Rank
Delays in payment	146	60.83%	1
Inability to meet grades	93	38.75%	4
Delay in buying	144	60%	2
Not purchasing by weight	85	35.42%	5
Low price	64	26.67%	6
Inadequate means of transport	6	2.50%	8
Low demand	12	5%	7
Inadequate information	96	40%	3

Source: Survey, 2013

The delays in payment is when a farmer is not paid instantly after the sales transaction. Of the two-hundred and forty (240) soybeans farmers interviewed, onehundred and forty six (146) representing 60.83% reported delays in payment as a challenge they face in marketing of their soybeans. Due to the delays in payment, some farmers said they are often compelled to sell to other less preferred marketing channels even if at a lower price. This is a challenge because farmers often sell to meet emergency needs and whenever there is a delay in payment, it puts pressure on the farmers since they will sometimes have to borrow money from elsewhere in order to meet those pressing needs whiles waiting on the marketing channel (agents) to pay them later.

Another constraint facing soybeans farmers in marketing of their soybeans is their inability to meet the grading requirement. Grading is a particular level of quality that a product (soybeans) must meet to be accepted by the buyers. In the case of soybeans, this is when soybeans are free from stones and moulded soybeans. Of the two-hundred and forty soybeans farmers interviewed, ninety-three (93) of the farmers representing 38.75% reported that inability to meet grading requirement is their main challenge. Grades and standards contribute to operational and pricing efficiency by providing buyers and sellers with a system of communicating price and product information. By definition, commodities are indistinguishable from one another. The farmers" inability to meet grades and standards restricts the development of an effective and efficient marketing systems, since it is a major obstacle in trying to achieve an integrated national market (Lee, 1974). Farmers" inability to meet grading requirement of buyers is becoming a major problem for some producers since they lack the requisite expertise that will enable them produce soybeans that will meet the require standards by the buyers. Produce that do not meet the required standards set by the buyers are often rejected at the point of sale. Low grade soybeans is a cost to the farmers and as a result impact negatively on the farmers" income levels. The issue of moulding and stones in the soybeans are common problems associated with the grading of soybeans.

Delays in buying is when farmers (soybeans farmers) are not able to sell their soybeans when they feel like selling or having to wait for a longer period to have their produce bought. One-hundred and forty-four (144) respondents representing 60% of the farmers interviewed indicated that the delays in buying their produce is their main challenge since they are often compelled to sell to less preferred marketing channels as a result of the delays.

Not buying by weight is when produce is not bought according to its weght. Eighty-five respondents representing 35.42% indicated that not buying soybeans according to its weight is their main challenge. Some of the channels used methods which are not based on the weight of the produce. They use bowls called "Olonka" which the buyers often subject to various levels of mechanical alterations to take advantage of the farmers. The mechanical alteration of these bowls is often done whenever there is an upward adjustment in prices of soybeans.

Inadequate means of transport refers to inadequacy of transport service in an important agricultural marketing areas, seasonality of transport service, high charges due to inadequacy, lack of all weather roads and transport vehicles, and unsuitability of the existing transport facilities. Six people (soybeans farmers) representing 2.5% of the farmers interviewed indicated that inadequate means of transport in a challenge confronting them in marketing of their soybeans.

Lack of information on price is another challenge that confronts soybeans farmers. Some soybean farmers said they often do not get information relating to the prevailing prices. Of the two-hundred and forty farmers interviewed, seventy-eight of them representing 32.5% indicated inadequate information on prevailing prices as their main challenge.

Low prices is when the price offered for a product does not reflect its costs of production or below prices offered for the same product by other buyers. Sixty-four farmers representing 26.67% indicated that low price for soybeans is their challenge. According to some of the farmers, it is the buyers who come out with the price and they have no choice than to go with them. According to the farmers, buyers in their attempt to offer low price for soybeans end up classifying some soybeans as been below the

quality grade. The farmers further noted that, this level of price places them in difficult situation because the revenue they receive can hardly meet their costs of production.

Another constraint facing soybean farmers in marketing of their soybeans is low demand. This is when buyers are not available or available but not ready to buy soybeans at the going price. Twelve soybeans farmers representing 5% of the farmers interviewed indicated that low demand for soybeans is their challenge. Some of the farmers indicated that due to low demand for their soybeans, they are sometimes compelled to store and sell in the following year.

4.3.5 Farmer Patronage of Marketing Channels (Main Channels)

Farmers can choose to use a single channel or a combination of marketing channels to sell their soybeans. However, the number of people who sell their soybeans through the different marketing channels differ significantly, as can be seen in the table 4.7 below, which indicates the number of farmers who sell to each of the marketing channels identified in the study area.

Table 4.7: Farmers Patronage of Marketing Channels

Marketing Channel	Frequency	Percentage
NGOs	144	60.0
Sedentary Wholesalers	11	4.6
Itinerant Wholesalers	78	32.5
Microprocessors	7	2.9
Total	**240**	**100**

Source: Survey, 2013

The figure 4.2 below gives a graphical representation of farmers" patronage of marketing channel. The figure 4.2 shows that the most patronized marketing channel in the study area is the direct sales to the NGOs recording a figure of one-hundred and

forty four (60%) farmers, followed by itinerant wholesalers with a figure of seventyeight (32.5%), sedentary wholesalers eleven (4.6%), and microprocessors being the least patronized marketing channel with a figure of seven farmers (2.9%).

Figure 4.2 Farmer Patronage of Marketing Channels

WHICH MARKETING CHANNEL DO YOU SELL YOUR SOYBEANS TO?

NGOs/GOVT INSTITUTIONS
SEDENTARY WHOLESALERS
ITINERANT WHOLESALERS
MICRO PROCESSORS

2.9%

32.5%

60%

4.6%
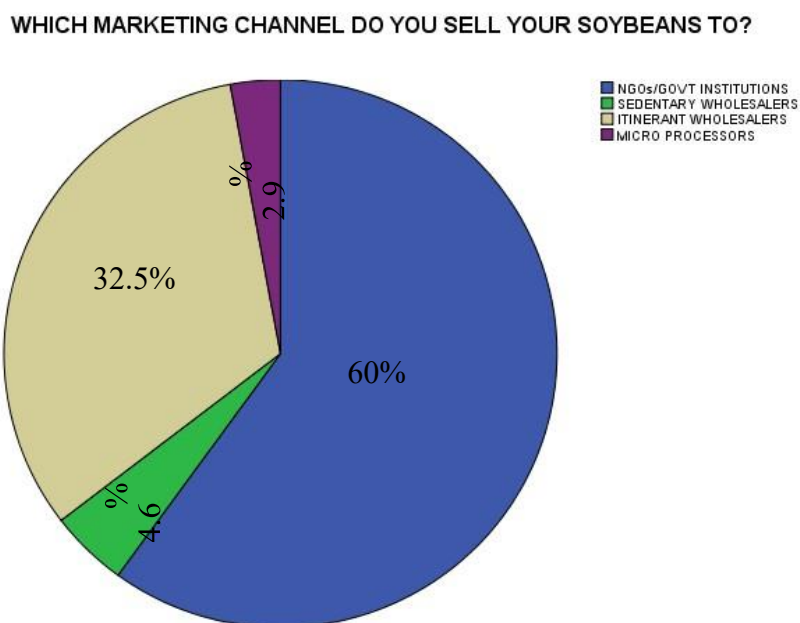
Source: Survey, 2013

4.3.6 Quantity Of Soybeans Supplied To Each Marketing Channels

The figure 4.3 below shows the quantity of soybeans that farmers supplied to each of the marketing channels in the study area.

Figure 4.3 Quantity of Soybeans Supplied to Each Marketing Channel (tonnes)
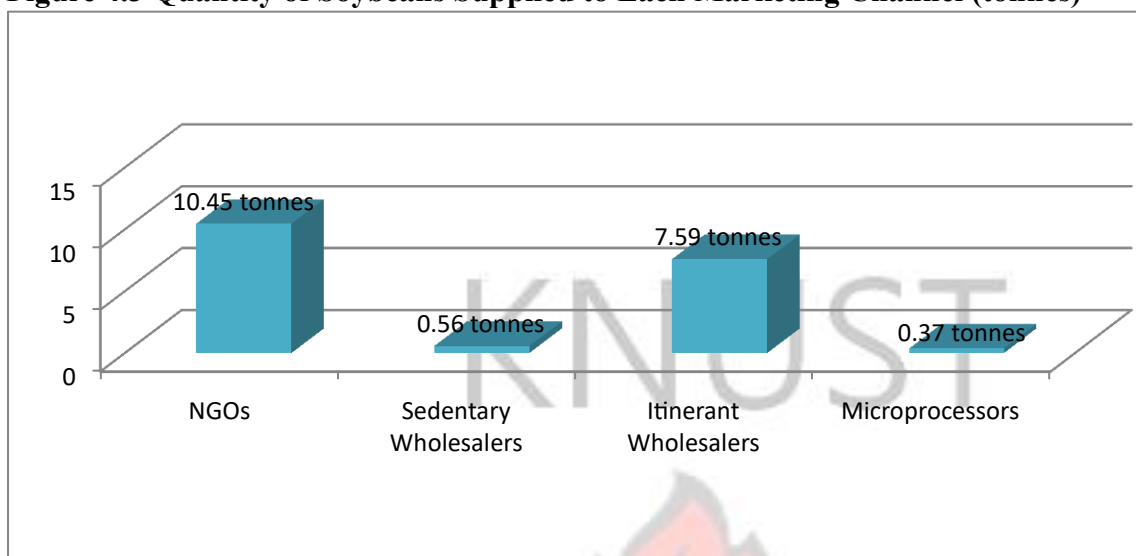
It was revealed that a greater proportion of soybeans is supplied directly to the NGOs and followed by the itinerant wholesalers with the microprocessors been the least. Approximately, nineteen tonnes of soybeans were supplied by the farmers to the various marketing channels during the 2012/2013 cropping season. Out of the number, 10.45 tonnes constituting fifty-five percent (55%) was supplied directly to the NGOs. An approximately three percent (3%) of the soybeans marketed, was supplied through the sedentary wholesalers making up 0.56 tonnes. Also, approximately forty percent (40%) of the soybeans was marketed through the itinerant wholesalers making up 7.59 tonnes. The microprocessors were the least in terms of quantities that were supplied to each of the marketing channels. The microprocessors were supplied with just two percent (2%) of the soybeans making 0.37 tonnes. The NGOs and the itinerant wholesalers are the dominant marketing channels in the study area.

4.4. Cross Tabulation

4.4.1 By Gender * Marketing Channel Choice

The table 4.7 below shows a cross tabulation between gender and marketing channels. The result revealed that there is an association between gender and marketing channel. Of all the male soybeans farmers that marketed their soybeans, 62.43% of them marketed through NGOs; 30.06% of the male farmers also sold their soybeans through the itinerant wholesalers. The sedentary wholesalers and microprocessors recorded low patronage of 6.36% and 1.16% respectively.

It was revealed that 53.73% of the female farmers marketed their soybeans through the NGOs. It was also revealed that about 38.81% of the female soybeans farmers also marketed their soybeans through the itinerant wholesalers. The sedentary and the microprocessors recorded the percentages of 0.00% and 7.46% respectively from male farmers.

The Pearson Chi-square of 12.592[a] shows that there is an association between gender and choice of marketing channel. This was significant at 1%, indicating that one‟s sex influences the choice of marketing channels. Males are more likely to sell directly to the NGOs and itinerant wholesalers than to the sedentary wholesalers and microprocessors. Females on the other hand are also more likely to sell directly to the NGOs and the itinerant wholesalers as compared to the microprocessors, but with no possibility of selling to the sedentary wholesalers.

Table 4.8 :By Gender * Marketing Channel Choice

	MARKETING CHANNEL				
	NGOs	Sedentary Wholesalers	Itinerant Wholesalers	Micro Processors	Total

GENDER	Male	108	11	52	2	173
	Row percentage	62.43%	6.36%	30.06%	1.16%	
	Female	36	0	26	5	67
	Row percentage	53.73%	0.00%	38.81%	7.46%	
Total		144	11	78	7	240

Source: Survey, 2013

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.592[a]	3	.006
Likelihood Ratio	14.614	3	.002
Linear-by-Linear Association			
N of Valid Cases	7.046	1	.008
	240		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.95.

4.4.2 By Marital Status*Marketing Channel Choice

The table 4.8: below presents results on cross tabulation between the marital status of soybeans farmers and marketing channel choice. Of all the singles who marketed their soybeans 66.67% sold directly to the NGOs and 20% offered theirs to the itinerant wholesalers. The sedentary wholesalers and micro processors recorded the least percentages of 3.33% and 10% respectively. This gives an indication that the sedentary wholesalers and micro processors are least patronized by the singles.

Also of all the married soybeans farmers interviewed, 61.66% of them offered their soybeans directly to the NGOs, 4.15% to the sedentary wholesalers, 32.64% to the

80

itinerant wholesaler and 1.55% to the micro processors. Divorced farmers were only two, both of whom offered their soybeans to the sedentary wholesalers.

Widowed farmers in the sample were fifteen (15). 33.33% offered their soybeans directly to the NGOs, 60% to the itinerant wholesalers and 6.67 % to the micro processors.

The Pearson Chi-Square value of 56.641[a] gives an indication that there is an association between one‟s marital status and the marketing channel one finally adopts for the sale of his/her soybeans and this was significant at 1%. This implies that married farmers are more likely to sell their soybeans directly to the NGOs and the itinerant wholesalers than the remaining marketing channels.

Table 4.9 By marital status * marketing channel choice

			Sedentary Wholesalers	Itinerant Wholesalers		
		NGOs			Micro Processors	Total
Marital Status	**Single** Row Percentage	20 66.67%	1 3.33%	6 20.00%	3 10.00%	30
	Married Row Percentage	119 61.66%	8 4.15%	63 32.64%	3 1.55%	193
	Divorced Row Percentage	0 0.00%	2 100%	0 0.00%	0 0.00%	2
	Widowed	5	0	9	1	15
	Row Percentage	33.33%	0.00%	60.00%	6.67%	
Total		144	11	78	7	240

Source:Survey, 2013

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.641[a]	9	.000
Likelihood Ratio	25.941	9	.002
Linear-by-Linear Association	1.969	1	.161
N of Valid Cases	240		

a. 9 cells (56.3%) have expected count less than 5. The minimum expected count is .06.

4.4. 3 By Educational Level Attained * Marketing Channel Choice.

The table 4.9 below presents the result on association between the educational level attained by a soybeans farmer and the choice of marketing channel. The result revealed that there is an association between farmers" level of education and the choice of marketing channels. The results showed that 56.03% of soybeans farmers who had no formal education offered their soybeans directly to the NGOs, 36.88% to the itinerant wholesalers, 5.67% to the sedentary wholesalers and only 1.45% marketed through the microprocessors.

The results showed that there is an association between basic education of the farmers and their choice of marketing channels. About 64.52% of soybeans farmers who had basic education marketed their soybeans directly through the NGOs, 1.62% through the sedentary wholesalers, 29.03% through the itinerant wholesalers and 4.84% through the microprocessors.

The results revealed an association between the farmers who have attained education up to the SHS and the choice of marketing channels. Of all the soybeans farmers that have attained SHS education, 76.92% of them marketed their soybeans directly through the NGOs, 19.23% through the itinerant wholesalers and 4.84%

through the microprocessors. None of them offered their soybeans to the sedentary wholesalers.

The Pearson Chi-Square distribution of 15. 347ᵃ shows that there is an association between ones educational level and the choice of marketing channel for the sale of their produce. Even though this was significant at 10%. This means that as one‟s level of education increases the person tend to sell more to the NGOs relative to other marketing channels.

Table 4.10 By Educational Attained* Market Channels

		MARKETING CHANNELS				
		NGOs	Sedentary Wholesalers	Itinerant Wholesalers	Micro Processors	Total
Educational Level Attained	No Formal Education	79	8	52	2	141
	Row percentage	56.03%	5.67%	36.88%	1.42%	
	Basic Education	40	1	18	3	62
	Row percentage	64.52%	1.61%	29.03%	4.84%	
	SHS	20	0	5	1	26
	Row percentage	76.92%	0.00%	19.23%	3.85%	
	Tertiary	5	2	3	1	11
	Row percentage	45.45%	18.18%	27.27%	9.09%	
Total		144	11	78	7	240

Source :Survey, 2013

Chi-square tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.347ᵃ	9	.082
Likelihood Ratio	14.751	9	.098

Linear-by-Linear Association	.003	1	.954	
N of Valid Cases	240			

a. 8 cells (50.0%) have expected count less than 5. The minimum expected count is .32.

4.5 Multinomial Logit Estimate of Marketing Channels Choice

Table 4:11 below contains the regression results on factors influencing soybeans

producers" choice of marketing channels

Table 4.11: Multinomial Logit Regression Analyses on Farmers' Market Channel Choice in Relation to Direct Sales to NGOs

Variable	Sedentary wholesalers Coefficient	Standard error	Itinerant wholesalers Coefficient	Standard error
Gender	-2.4719	1.4836	-0.8357	1.0132
Age	-1.4960	0.6005**	- 0.9807	0.4815**
Marital status	2.1647	0.8221***	1.7617	0.5957***
Household size	0.2001	0.0992**	0.0796	0.08445
Level of education	0.3668	0.3547	0.3107	0.374
Experience	- 0.0009	0.1786	0.2239	0.1067**
Cooperative membership	2.1421	0.8389**	2.1481	1.0081**
Extension access	1.0880	0.9142	1.4729	0.8533
Mobile ownership	0.1925	0.9580	-0.6607	0.9147
Transport access	-0.2857	0.9021	-0.4460	0.8576
Farm size	-0.2346	0.2929	0.3780	0.1952
Quantity produced	-0.0648	0.0784	-0.0611	0.0594
Contractual agreement	0.7379	0.7737	1.6005	0.7540**
Mode of payment (cash)	-20.2992	2.6154***	-16.4577	1.6340***
Speed of payment	-3.5625	1.0446***	-7.1115	1.0081***
Price of soybeans	-0.0582	0.0252**	-0.0237	0.0304
Credit access	-1.1050	0.7869	0.2707	0.7284
Constant	26.3044	5.8178***	19.0551	3.8113***
Number of observation	**240**			
Base category	**NGOs**			
Wald chi2	**693.18**			
Prob>chi2	**0.0000**			
Pseudo R^2	**0.6907**			
Log pseudo likelihood	**-64.2829**			

Source: Regression estimation from the household survey data (2013) ***$p<$

0.01,**p < 0.05

The results showed that a producer's choice of the sedentary wholesaler relative to the direct sales to the NGOs is significantly influenced by the farmers' age, marital status, household size, cooperative membership, mode payment, and speed of payment. The age of the farmer, mode of payment, speed of payment and the price of soybeans were found to have negative influence on the farmers choice of the sedentary wholesalers relative to the direct sales to the NGOs. This means that soybeans farmers are more likely to choose NGOs for marketing of their produce relative to the sedentary wholesalers. Factors such as the cooperative membership of the farmers, household size of the farmer and one's marital status were found to have positive influence on the producers' choice of sedentary wholesalers relative to the direct sales to the NGOs. This means the farmers are more likely to select sedentary wholesalers for marketing of their produce relative to the direct sales to the NGOs.

Factors such as age, mode of payment, speed of payment, marital status, cooperative membership, experience and contractual agreement were found to influence farmers' choice of itinerant wholesalers relative to the direct sales to NGOs. A farmer's marital status, cooperative membership, experience and contractual agreement were found to have positive influence on ones choice of itinerant wholesalers relative to the direct sales to the NGOs. Implying that, soybeans farmers will more likely choose the itinerant wholesalers relative to the direct sales to the NGOs. In addition, factors such as speed of payment, mode of payment, and age of the farmer were found to have a negative influence on the farmers' choice of the itinerant wholesalers relative to the direct sales to the NGOs. This means the soybeans farmers will more likely select the direct sales to the NGOs relative to the itinerant wholesalers.

The Wald chi-square value of 693.18 with a p-value of <0.0000 tells us that the model as a whole fits significantly better than an empty model (i.e., a model without predictors). The researcher corrected the model for the possible heteroscadesticity by using the command *robust* in stata.

Due to the inability of the coefficients to measure the percentage change, marginal effects were also analyzed to help determine the magnitude or probability of change. The results on marginal effect are presented in the table 4.12.

The age of the soybeans producer is significantly associated with a high probability of not choosing the sedentary wholesalers relative to the direct sales to the NGOs. This was found to be significant at 5%. From the marginal effect analysis shown in the table 4.12, it is realized that the choice of sedentary wholesalers relative to the direct sales to the NGOs decreases by 0.22% for every increase in one"s age. The result revealed that the age of the farmers influence their choice of itinerant wholesalers relative to the direct sales to the NGOs. It is found to be significant at 5%. The results on the marginal effect showed that an increase in ones age will result in 0.16% reduction in itinerant patronage relative to the direct sales to the NGOs. This implies that, as one becomes older, the person would be more likely to associate him/herself with the NGOs than the itinerant and the sedentary wholesalers. The reason for this association may be the reduced risk direct sales to the NGOs present to the farmers as a result of purchase contracts.

The result in table 4.11 above reveals that, the marital status of farmers has an influence on the farmers" choice of a marketing channel. The result indicated that there is a positive association between marriage and the farmers choice of marketing channel. Farmers that are married are more likely to sell to the sedentary and the itinerant

wholesalers relative to the direct sales to the NGOs. This was significant at 5% and 1% respectively. The marginal analysis in the table 4.12 shows that, the probability that a producer once married would sell his/her soybeans to the sedentary wholesaler and itinerant wholesalers relative to the direct sales to the NGOs increases by 0.32% and 0.29% respectively. This is as a result of assistance that the itinerant and the sedentary wholesalers offer to the farmers to meet other social obligations, which is not provided by the NGOs. Because married farmers have a lot of social obligations to fulfill, they try to associate themselves with marketing channels, they can easily rely on when the need arises, hence their association with the itinerant and sedentary wholesalers.

The result in table 4.11 also indicates that one"s cooperative membership has a positive influence on the farmer"s choice of marketing channel. It is revealed that farmers who are into cooperative are more likely to sell to the sedentary and itinerant wholesalers relative to the direct sales to the NGOs. It was found to be significant at 5% for both marketing channels. The marginal analysis in the table 4.12, shows that the probability that a soybeans farmer will sell his/her soybeans to the sedentary wholesalers relative to the direct sales to the NGOs increase by 0.32% with cooperative membership. It is revealed also that a soybeans producers" choice of the itinerant wholesalers relative to the direct sales to the NGOs also increases by 0.36% with cooperative membership. Cooperative members promote unity and a sense of belongness. It also enables the farmers to share information and collectively cope with market related constrainsts. Collective action also enables them attain bargaining power, economies of scale and reduced transaction costs. This finding justifies Mburu et al, (2007) in their study on determinants of smallerholders cattle owners choice of marketing channels.

The result in table 4.11 shows that farmers who entered into contractual agreement are more likely to sell to the itinerant wholesalers relative to the direct sales to the NGOs. This was found to be significant at 5%. The marginal analysis in the table 4.12 also reveals that the probability that a farmer will select itinerant wholesalers relative to the direct sales to the NGOs increases by 0.26% with contractual agreement. This is contrary to the findings of Jari (2009) who indicated that farmers who are into contractual agreement are more likely to sell directly to the NGOs relative to the itinerant wholesalers.

Mode of payment refers to either the producer is receiving payment in cash or cheque. The result in the table 4.11 reveals that, when payments are not cash, farmers would be more likely to sell directly to the NGOs relative to the itinerant wholesalers and the sedentary wholesalers. It was found to be significant at 1% for both marketing channels. The result on marginal effect in the table 4.12 indicates that farmers choice of sedentary and itinerant wholesalers relative to the direct sales to the NGOs decrease by 0.30% and 0.27% respectively. This result is not consistent with the findings of (Ogunleye and Oladeji, 2007) who indicated that farmers generally enjoy cash payment and will only offer their produce to a particular marketing channel if they are sure of being paid cash. But, this is supported by the research findings of Martey et al, (2012) who indicated that farmers are more responsive to output price relative to transaction costs and would only offer their produce to a particular marketing channel if they are sure of higher price, rather than the mode of payment adopted by the channel. It is also because of the trust that farmers have in the direct sales to the NGOs that makes them to sell their produce to them even when payment is not cash. The NGOs have an organized system as compared to the itinerant and sedentary wholesalers who can hardly boost of any set up.

Speed of payment is whether the farmers receive payment instantly, a week later or a month. The speed of payment by a marketing channel is found to be statistically significant. The probability that a producer will sell his/her produce to the sedentary wholesaler relative to the direct sales to the NGOs decreases by 0.55% for every delays in payment. In addition, when the payments are not instant, the probability that a soybeans farmer will offer his/her soybeans to the itinerant wholesalers decreases by 1.06% for every delays in the duration for payment. The result is not consistent with the findings of Boger, (2001), who indicated that producers in general enjoy prompt payment and any attempt by a particular marketing channel to delay payment will result in a decrease in patronage by the producers. The finding is not consistent with the findings of Ogunleye and Oladeji, (2007) who indicated that farmers often enjoy instant payment and will only offer their produce to a particular marketing channel if they are sure of receiving instant payment. The result is consistent with the findings of Tsougiannis et al. (2008) who indicated that the choice of marketing channels is heavily depended on the price offered by the marketing channel and not any other factor.

The result in the table 4.11 above reveals that price of soybeans has an influence on the producers choice of marketing channels. As the price of soybeans increases farmers turn to offer their produce directly to the NGOs relative to the sedentary wholesalers. This was found to be significant at 5%. The marginal analysis in the table 4.12 shows that a unit increase in price of soybeans offered by the farmers will result in 0.0086% reduction in the quantity of soybeans offered to the sedentary wholesalers relative to the direct sales to the NGOs. Increasing one"s income is the main force that drives farmers into soybeans production. Because soybeans farmers are profit maximizers they are more likely to associate themselves with the marketing channel

that offers better price in relation to other available marketing channels. In the table 4.5, it was recorded that higher prices were some of the benefits soybeans farmers who market their soybeans directly to the NGOs enjoys. Therefore, the negative association of farmers to the sedentary wholesalers in relation to the direct sales to the NGOs is mainly due to good price that is offered by the NGOs. Martey et al. (2012) presented similar results which indicated that farmers are more responsive to output price relative to transaction costs. The price of soybeans is an incentive for farmer to produce as well as determines marketing channel choice. The finding also supports the findings by Tsougiannis et al. (2008) who indicated that the choice of marketing channels is heavily depended on the price offered by the marketing channel.

Table 4.12. Marginal Effects after Mlogit

Variables	Sedentary Wholesaler (dy/dx)	Itinerant Wholesalers (dy/dx)
Gender	-0.037	-0.0138
age	-0.022^{**}	-0.0162^{**}
Marital status	0.032^{***}	0.0291^{***}
Household size	0.0029^{**}	0.0013
Education	0.0055	0.0051
Experience	-1.84e-06	0.0037^{**}
Cooperative membership	0.032^{**}	0.0355^{**}
Extension contact	0.0162	0.0244
Mobile ownership	0.0029	-0.0109
Transport access	-0.0043	-0.0074
Farm size	-0.0035	0.0063
Quantity of soybeans	-0.00097	-0.0010
Contractual agreement	0.0110	0.0265^{**}
Mode of payment	-0.0303^{***}	-2.7199^{***}
Speed of payment	-0.0530^{***}	-1.1766^{***}
Price of soybeans	-0.0009^{**}	-0.0004
Credit access	-0.0165	-0.0045

CHAPTER FIVE

5.1 Summary of fundings

The analyses revealed that there are four main marketing channels in the Saboba district of Northern Region for soybeans. These channels include selling directly to the NGOs, the sedentary wholesalers, the itinerant wholesalers, and the microprocessors. Most farmers were found selling their produce directly to the NGOs, followed by the itinerant wholesalers, sedentary wholesalers and the microprocessors.

The four marketing channels identified provide various services that go to benefit the farmers, and hence influence their channel choice decision. Services identified are grouped into production and marketing services. The production services include : agronomic training, ploughing, contract farming and provision of production credit. Marketing services such as purchase by grade, purchase by weight, negotiated price, linking soybeans farmers to input suppliers, transport services, prompt payment and cash payment are also provided by some marketing channels. The benefits that were found to be derived by farmers include: higher price, assured market, input supply and proximity.

The main challenges identified in the study area by the soybeans farmers include inability to meet grades, delays in buying, the use of volumes measures, low price, inadequate means of transport, inadequate information and low demand.

The analyses of the economic and non-economic factors that influence the farmers choice of marketing channels revealed that the producers choice of marketing channel is influenced by factors such as; age, marital status, household size, cooperative membership, contractual agreement, mode of payment, duration of payment, price of soybeans.

The age of the farmers from the analyses agrees with the a prior expectations that as farmers advance in age they turn to patronize the direct sales to the NGOs relative to the sedentary and itinerant wholesalers. The marital status of the farmers from the analyses conforms with the a prior expectations that, married farmers are more likely to sell their produce to the sedentary and itinerant wholesalers relative to the direct sales to the NGOs. The results on household size from the analyses also justifies the a prior expectation that as a farm household size increases they turn to sell to the sedentary wholesalers relative to the direct sales to the NGOs. The result on the experience of soybeans farmers conforms with the a prior expectation that soybeans farmers who have been into the production and marketing of soybeans for long will turn to the itinerant wholesalers relative to the direct sales to the NGOs.

The results on the cooperative membership of the farmers partly agrees with the a prior expectation that farmers who are into cooperative are more likely to sell to the sedentary and the itinerant wholesalers relative to the direct sales to the NGOs. Contractual agreement by the farmers does not agrees with the a prior expectation that farmers who are into contractual agreement are more likely to sell their produce to the itinerant wholesalers relative to the direct sales to the NGOs. Mode of payment from the analyses partly conforms with the a prior expectations that when payment is in cash farmers are more likely not to sell to the sedentary and the itinerant wholeaslers relative to the direct sales to the NGOs.

The speed of payment for the soybeans bought from the analyses does not agees with the a prior expectation that when payment is instant farmers will turn to offer their soybeans directly to the NGOs relative to the sedentary and the itinerant wholesalers. The result on the price of soybeans does not also conforms with the a prior expectation,

that when price of soybeans increases farmers will sell to the sedentary and itinerant wholesalers relative to the direct sales to the NGOs.

5.2 Conclusion

The marketing channels that are available in the study area are the sedentary wholesalers, itinerant wholesalers, microprocessors and the direct sales to the NGOs. The direct sales to the NGOs is the most patronized market in the study area, followed by the itinerant wholesalers, sedentary wholesalers and micro processors been the least patronized.

On the distribution of soybeans farmers among various marketing channels, it was revealed that one hundred and forty-four (144) soybeans farmers sold their soybeans directly to the NGOs, eleven (11) farmers to the wholesalers, seventy-eight (78) farmers to the itinerant wholesalers and seven (7) farmers to the micro processors.

The challenges that confront soybeans farmers in maketing of their produce are as follows: delays inpayment, inability to meet grades, delays in buying, not purchasing by weight, low price, inadequate means of transport, and low demand. The delays in payment was ranked the highest among all the challeges and inadequate means of transport been the least.

The analyses revealed that individual marketing channels provide certain services to the farmers. These services are grouped into two, thus production service and the marketing service. Under the production service, the following services were recorded: agronomic training, contract farming, ploughing, and the provision of production credit to farmers. The farmers who sell directly to the NGOs enjoy all these services, but those who sell to the itinerant wholesalers, sedentary wholesalers and micro processors only enjoy production credit support. Marketing service provided by the marketing channels

include: prompt payment, purchase by weight, negotiate price, linking farmers to the input buyers, transport service, and the cash payment. It was revealed that farmers who sell directly to the NGOs do not enjoy prompt payment, but those who sell to the other remaining markting channels enjoy prompt payment. Farmers who sell directly to the NGOs do not have opportunity for price negotiation since prices are fixed before farmers go into production of soybeans, but other marketing channels do provide opportunity for price negotiation. Farmers who market directly to the NGOs sell their soybeans in weight but those who sell to the other marketing channels sell in volume. Liking farmers to the input suppliers is a service that NGOs provide to the farmers who market their soybeans directly to them, but this is not the case in other marketing channels. Famers who market their soybeans to the sedentary wholesalers, itinerant wholesalers and micro processors are paid cash, but those who market directly to the NGOs sometimes receive their payment in cheque. Transport services are provide to the farmers to the farmers who market directly to the NGOs, but that is not the case in the other marketing channels.

From the analyses, the following economic and non-economic factors were found to be significant and influence soybeans producers" choice of marketing channels. They include: age, marital status, household size, experience, cooperative membership, contractual agreement, cash payment, speed of payment, and price of soybeans.

5.3 PolicyRecommendations

The constraints soybeans farmers reported in the study include their inability to grade and to meet grade specifications of the buyers. It is therefore recommended that Minisrty of Food and Agriculture , research institutions and NGOs should come out

with training programs that will help equip the farmers with the skills of grading to enable them meet grade specification by buyers.

The buying of soybeans in volumes instead of by weight was another constraint reported by the soybeans the farmers. It is thereby recommended that standardized weights and measures should be encouraged by the Ministry of Food and Agriculture, and NGOs that are into agriculture to help deal with the descrepancies that are associated with the use of volume measure.

From the analyses, price of soybeans was reported as one factor the influences producers, choice of marketing channels. It is therefore recommended that Ministry of Food and Agriculture and NGOs that are into agriculture should provide regular and current information on soybeans prices so that market participants could make informed decisions.

Also from the study, the delays in payment by the buyers was reported as a constraint that soybeans farmers face in marketing of their soybeans. This is because most farmers sell to meet family emergencies. It is therefore recommended that an effective credit scheme with low interest should be established so that when farmers are in need of cash they can easily source loans from there while waiting for payment from the buyers.

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APPENDIX A

```
Multinomial logistic regression              Number of obs   =       240
                                             Wald chi2(34)   =    693.18
                                             Prob > chi2     =    0.0000
Log pseudolikelihood = -64.282902            Pseudo R2       =    0.6907
```

channel	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]
0	(base outcome)				
1					
gender	-2.471896	1.483562	-1.67	0.096	-5.379624 .4358328
age	-1.496001	.6004934	-2.49	0.013	-2.672946 -.3190552
mstatus	2.164698	.8221324	2.63	0.008	.5533484 3.776048
hhsize	.200104	.0992334	2.02	0.044	.00561 .394598
education	.3668184	.3547321	1.03	0.301	-.3284437 1.062081
experience	-.0008578	.1786154	-0.00	0.996	-.3509374 .3492219
cooper	2.142133	.8388666	2.55	0.011	.4979847 3.786281
extenaccess	1.087955	.9141752	1.19	0.234	-.7037956 2.879705
mobile	.1925266	.9580208	0.20	0.841	-1.68516 2.070213
transacce	-.2856513	.9020997	-0.32	0.752	-2.053734 1.482432
farmsiz	-.2346119	.2929251	-0.80	0.423	-.8087345 .3395107
quantity	-.0647758	.0783796	-0.83	0.409	-.218397 .0888453

	.737903	.7737193	0.95	0.340
contragree	-.7785589	2.254365		
	-20.2992	2.615363	-7.76	0.000
modpay	-25.42521	-15.17318		
	-3.562466	1.044616	-3.41	0.001
speepaym	-5.609876	-1.515057		
	-.0582346	.0252189	-2.31	0.021
price	-.1076627	-.0088065		
	-1.104972	.7868777	-1.40	0.160
credit	-2.647224	.4372797		
	26.3044	5.817783	4.52	0.000
_cons	14.90176	37.70705		

2			
gender			
	-.8357768	1.013243	-0.82	0.409
	-2.821697	1.150143		
	-.9807015	.4815065	-2.04	0.042
age	-1.924437	-.0369661		
	1.761949	.5956868	2.96	0.003
mstatus	.594424	2.929473		
	.0796102	.084456	0.94	0.346
hhsize	-.0859205	.2451408		
	.310735	.3739667	0.83	0.406
education	-.4222263	1.043696		
	.223852	.106706	2.10	0.036
experience	.014712	.4329919		
	2.148103	1.008123	2.13	0.033
cooper	.1722182	4.123987		
	1.472934	.8533372	1.73	0.084
extenaccess	-.1995765	3.145444		
	-.6606987	.914694	-0.72	0.470
mobile	-2.453466	1.132069		
	-.4460448	.8575699	-0.52	0.603
transacce	-2.126851	1.234761		
	.3780457	.1951712	1.94	0.053
farmsiz	-.0044828	.7605742		
	-.0611223	.059435	-1.03	0.304
quantity	-.1776127	.0553681		
	1.600583	.7540114	2.12	0.034
contragree	.1227482	3.078419		
	-16.45766	1.633992	-10.07	0.000
modpay	-19.66022	-13.25509		
	-7.111507	1.008085	-7.05	0.000
speepaym	-9.087318	-5.135696		
	-.0237094	.0304012	-0.78	0.435
price	-.0832946	.0358759		
	-.270735	.7283967	-0.37	0.710
credit	-1.698366	1.156896		
	19.05505	3.811334	5.00	0.000
_cons	11.58498	26.52513		

APPENDIX B

SABOBA DISTRICT MAP

108
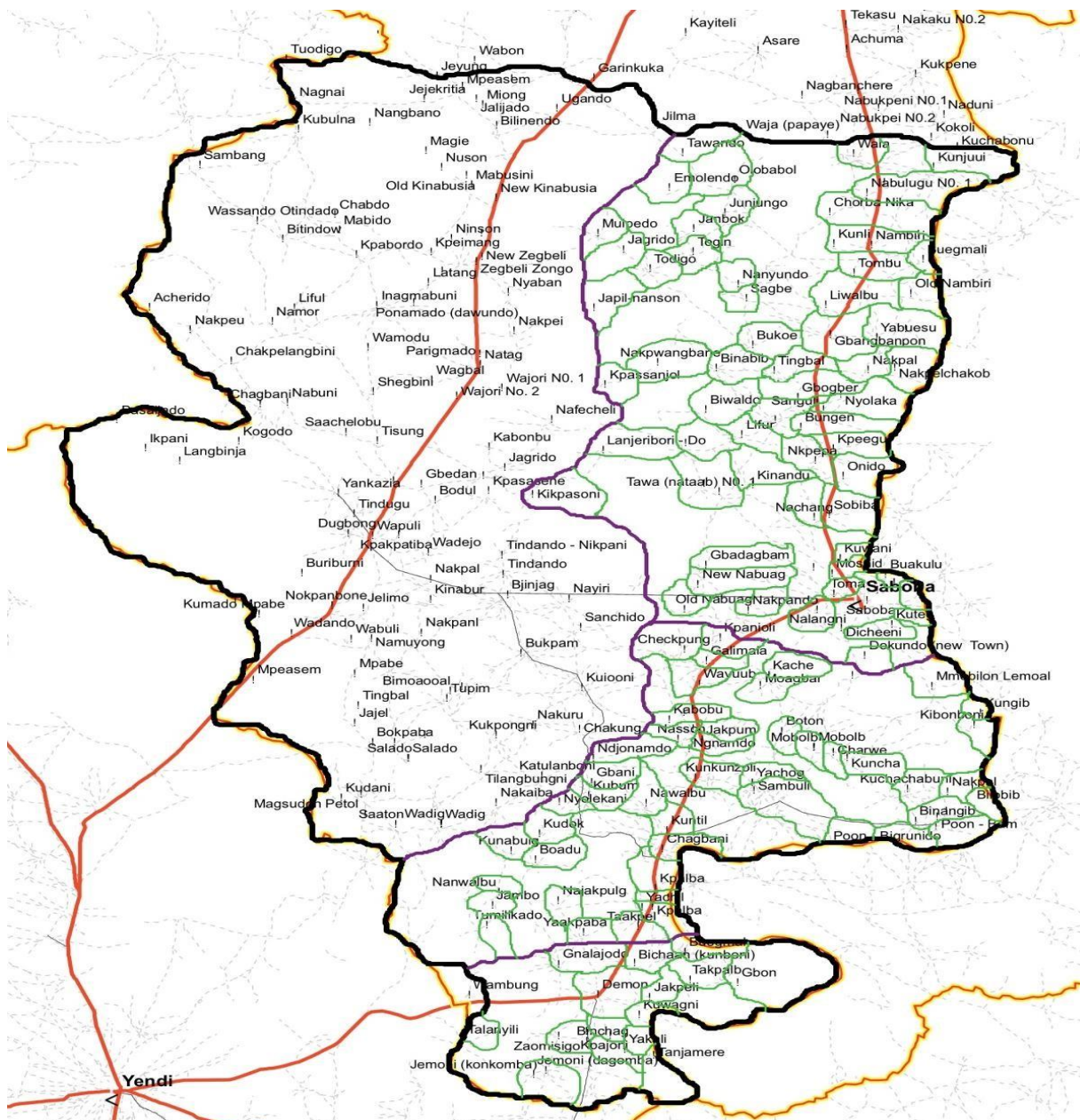
APPENDIX C: SAMPLE QUESTIONNAIRE

BACKGROUND INFORMATION

Date …………………………………………………………..

Interviewer………………………………………………………

Zone……………………………………………………………..

Name of Respondent……………………………………………

A. DEMOGRAPHIC DETAILS

Fill in the relevant space and where possible mark with √.

A.1 gender		A.2 age(years)						A.3 marital status				A.4 household size		
M	F	<19	19 29	30 39	40 49	50 59	≥60	single	married	divorced	widowed	M	F	Total

A.5 what is the highest educational level attained by household head. (Mark with √)

No formal education	Basic education	JHS	SHS	Tertiary education	Other (specify)

A.6 Indicate the number of people who assist in your soybeans activities

Type of employee	Unpaid family members	Full-time employees	Part-time employees	TotalLabour force
Number				

A.7 what is your employment status and which income groups do you fall?

Employment Status		Income Group (GHC per Month)					
	Tick	<20	20- 50	51- 100	101- 200	201- 500	>500
Full time farmer							
Part time farmer							
Formally employed							
Pensioner							

A.8.Where is the source of your capital for the investment?

SOURCE	AMOUNT (GHC)
Borrowing from the bank	
Borrowing from friends	
Personal savings	
Aid	
Support from NGOs	
Others (specify)	

B.LAND AND FARMING

B.1.Indicate the land tenure system and how the land was acquired

Land Tenure System					How the land was acquired						
Communal		Rent/Lease		Privately owned		Bought		Inherited		Resettled		Other (Specify)

B.2.What is your farm size for soybeans? .... acreage

C.CAPITAL ENDOWMENT

C.1.For how long have you been in soybeans farming and marketing.........years?

C.2.Do you belong to any farming group or cooperative society?

Yes		No	

C.3.Have you received training in any of the following?

Skills	Yes	No	Where learned
Marketing			
Risk Management			
Other (Specify)			

D.MARKETS

D.   1.Which marketing channels are available in your area?

Marketing channels	Tick	Tick those not satisfied with		Reason for dissatisfaction
NGOs/Gov't institutions				
Sedentary wholesaler				
Itinerant wholesaler				
Village level wholesaler				
Retailer				
Commission agent				
Micro processor				
Others (specify)				

D.2. Which market channel do you sell your soybeans to?

Marketing Channel	Reason
NGOs/Gov't institutions	
Sedentary wholesaler	
Itinerant wholesaler	
Village level wholesaler	
Retailer	
Commission agent	
Micro processor	
Others (specify)	

D.3. What services are provided by the market channel you offered your soybeans to?

……………………………………………………………………………………………

D.   4.What constraints do you face in trying to offer your soybeans to a channel of your choice ?

……………………………………………………………………………………………

D.5. Are you able to reach a channel of choice easily?

yes		no	

D.6. Are you able to find market for all your produce?

yes		no	

D.7.If no, what happens to the remaining produce?

Loss through spoilage		Sell at low prices		Store and sell later		Process it		Eaten by family members	

D.8.How difficult is it to look for buyers?

Not difficult	Difficult	Very Difficult

D.9.What other constraints do you face in marketing of soybeans to a channel of choice?
……………………………………………………………………………………………
…………………………..

D.   10.Do you perform any of the following before the sale of your soybeans?

Ensuring cleanliness		Ensuring uniformity		Reducing moisture level	

D.11. Do you have problem meeting these quality requirements?

Yes		No	

D.12.What then happens to the produce with poor standard?

……………………………………………………………………….

…………………………………………………………………

D.13.How many 100kg bags of soybeans do you market? .... kg

D.   14.How much does it cost to store 100kg bag of soybeans? ....,,,,,,,,,,,, GH₵

D.15. which of the following benefits do you derive from marketing channels used in marketing your soybeans?

Receives inputs	
High price	
Reduced market costs	
Contract(assured market)	
Proximity	
Prompt payment	
Pre-finance	
Ready cash	

D.16.Do you have any contractual arrangement with the channel you market your soybeans?

Yes		No	

D.17.Do you have regular channels who always buy from you?

Yes		No	

D.18.If yes, how long have you being trading with this channel? .... .years

D.   19.How is the soybeans moved to the marketing center?

	Means of transport				
	Bicycle	M.Bike	Truck	Wheelbarrow	Donkey cart
Hired vehicle (individual)					
Hired vehicle (group)					
Own transport					
Public transport					
Buyers transport					
Farm gate					

D.20. Distance and costs to get to the buying marketing channel?

Buying marketing channel	km	GHC

NGOs/Gov't Institutions		
Sedentary wholesalers		
Retailer		
Village level wholesaler		
Commission agent		
Micro processors		
Other (specify)		

D.21.What general problems do you encounter in moving the soybeans to the market channel?

Poor road net work		Inadequacy of means		High cost of transport		Other (specify)	
		transport					

D.22.Complete the table indicating the mode of payment and the duration for payments

marketing channel		How are you paid?				Duration for payment							
		Cash		Cheque		Other (specify)		Instant		A week		A month		Others

D.23.If not instant, what is the rate of certainty regarding payment?

High		Very high	

D.24.Do you combine with others when selling?

Yes	Reason	No	Reason

It reduces cost		I do not sell at the same time with others
share market information		I do not sell in the same market with them
Increases bargaining power		They will make my product inferior
Other (Specify)		Results in conflict
		Other (Specify)

D.   25.Before selling your produce what value addition activities to you perform?

Activity	Tick	Importance
Sorting (grading)		
Drying		
Packaging		
Weighing		

E.INFRASTRUCTURE:

E.1.Do you have a mobile phone?

Yes		No	

E.2.Do you have a radio set?

Yes		No	

E.3.Do has access to means of transport?

Yes		No	

F.MARKETING INFORMATION:

F.1.Do you have access to market information?

Yes		No	

F.2.Do you have the information prior to the sales of the soybeans?

Yes		No	

F.3.What is the sources of information and type?

SOURCE	TYPE OF INFORMATION

	price	Buyer	Market demand	Date for sales	Market opportunity
Co-farmers					
Extension agents					
Buyers					
Public					
Friends					
Other (Specify)					

F.4.Do you consult other farmers before taking decisions on the choice of marketing channel to use?

Yes	No

F. 5.If yes, on what do you consult them on?

……………………………………………………………………………………………

……………………………………………………………………………………………

G.EXTENSION SERVICES:

G.   1.Do you have access to extension services?

Yes	No

G.   2.If yes, how will you rate the services provided by the extension agents?

Helpful		Not helpful	

G.3. Are you able to contact the extension agents during the period of marketing?

Yes	No

G.4.If yes, what service do they provide?

Advice on record keeping	Advice on marketing	Other (specify)	

G.5.Are extension agents available when you need them?

Yes	No

G.6.If no, what are some of the difficulties you face in trying to contact them?

………………………………………………………………………………

`H.INSTITUTIONAL SUPPORT SERVICE

H.1.Are you aware of roles played by organizations in marketing?

Yes		No	

H.2.Do you think public institutions (such as local administration, national government, public organizations) are willing to help and support your farm business?
Explain

………………………………………………………………………………………

………………………………………………………………………………………

H.3.Are you a member of an organization?

	Name of organization		Reason for not joining
Yes		No	

H.4.If yes, how does the organization helps you in marketing of soybeans?

Provide market information		Have a life insurance		Lobby with policy makers		Setting of objectives		Others (specify)	

H: 5. Do you have access to credit?

Yes		No	

H.6.How will you assesses the legal system in the marketing of soybeans?

Enforcement		Relax		Stringent		Very stringent	

H.7.What are the main constraints you face in your farming business?

Constraints	Minor constraints	Major constraints
a. financial b. lack of support by the government c. lack of trust in the institutions d. lack of market e. inadequate information		

H.8.Does your tradition affects your marketing activities in anyway?

No		Yes	

H.   9.If yes, explain how it affects ....

I.PRICING:

I. 1.Do you carry out market survey before selling?

Yes		No	

I.2.How is the price for soybeans set?

		Fixed by the buyers		Negotiated		Set by me		Other (specify)	

I.3.Which of the following influence the price you set for your produce?

	Important	Very important	Not important
(a) Depend on transaction cost			
(b) Depend on the concentration of the markets			
(c) Depend on the market we sell			
(d) Depend on price by other local farmers			

I.4.Who negotiates on your behalf? ....

…………………………………………………………………………………………

1.5 .How much did you sell 50kg bagsoybeans? GHC……………………………….

I.6.Suggest ways you think the sector can be improved to make it more vibrant?

……………………………………………………………………………………………