Choice of market channels by smallholder vegetable farmers in King Sabata Dalindyebo Municipality in the Eastern Cape Province of South Africa

By

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ABSTRACT

The study investigates the choice of market channels by smallholder vegetable farmers in King Sabatha Dalindyebo Municipality, in the Eastern Cape Province of South Africa. Vegetables as a group of horticultural crops are important for their contribution as an income support to a large proportion of the rural households. However, enhancing vegetable farmers to reach markets and actively engage in the markets is a key challenge influencing vegetable production in South Africa. The perishable nature of vegetables demands effective marketing channels. The main objective of the study was to investigate factors affecting vegetable farmers' choice of market channels in King Sabata Dalindyebo Municipality in the Eastern Cape Province. The study adopted a multistage stratified sampling method. Multi-stage sampling was done in which the first stage involved selecting respondents from the different wards in the King Sabata Dalindyebo Municipality. This was done through stratification by separating vegetable smallholder farmers and homesteads within that area (different villages within the area). This was followed by employing quota sampling through the different households and smallholder farmers within those areas in order to determine households and smallholder farmers that are able to provide the needed information concerning the choice of market channels. By stratified random sampling based on village, project membership and smallholder farmers, a sample of 110 heads of households was chosen for the study in eight different wards of KSD. The sampling for this study was based on a large sampling technique of $n \geq 30$ as there is no information regarding the population of the total number of homesteads and smallholder farmers that are under each traditional leader (chief) in these study sites. This sample comprises homesteads and smallholder farmers that took part in vegetable production. A structured questionnaire together with field observations and measurements were adopted for obtaining information from household respondents. Descriptive statistics (percentages, means, frequency tables and figures) and a Multinomial logistic regression model have been used to analyze the data. From the Multinomial logistic regression results, farming experience is positively related to choice of farm gate market channel at 1% level of significance. The age of vegetable farmers was positively related to the choice of direct to consumer market channel at 5%

significance level. The level of education of the vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level. Moreover, the results also showed that the inputs used are positively related to the choice of farm-gate as well as direct to consumer market channels at 5% significance level. Similarly, means of transportation used and choice of marketing channel of the vegetable farmers are positively related at 1% significance level at the direct to consumer choice of market channel. Furthermore, access to extension services indicated a positive relationship to the choice of market channel amongst the smallholder vegetable farmers for the direct to consumer at 5% level of significance which is insignificant for that of the farm-gate. There is therefore, need for strong extension support in assisting the farmers to diversify their production, provide market information thereby enhancing production and opening up channels for market accessibility. This is seen to enhance rural households' livelihood outcomes in agricultural production thereby improving the choice of market channels by smallholder vegetable farmers and alleviating poverty and improving food security. More so, the government and research institutes need to organize workshops and extension programs in famer' training for more efficiency in their vegetable production and marketing.

Key words: Choice of market channels, Eastern Cape, KSD Municipality, multinomial logistic regression model, smallholder vegetable farmers and South Africa.

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LIST OF ABBREVIATIONS

AE	Adult Equivalent
ARC	Agricultural Research Council
DAFF	Department of Agriculture, Forestry and Fisheries
DBSA	Development Bank of Southern Africa
DoA	Department of Agriculture
ECDC	Eastern Cape Development Co-operations
ECSECC	Eastern Cape Socio Economic Consultative Council
EFO	Ezemvelo Farmers' Organization
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GNP	Gross National Product
IFAD	International Fund for Agricultural Development
IGDP	Integrated Growth and Development Plan
KSD	King Sabata Dalindyebo
MALA	Ministry of Agriculture and Land Affairs
NAMC	National Agricultural Marketing Council
SA	South Africa
SPSS	Statistical Package for Social Scientists

CHAPTER ONE

INTRODUCTION

1.1 Background

The contribution of agriculture to the economy has been a point of discussion for quite some time, because it is of importance to know what drives the development of the economy. If agriculture is the sole or dominant sector, understanding its structure and workings will be helpful in planning programs to support those who are engaged in it (Segie *et al*., 2014). Vegetables as a group of horticultural crops are important for their contribution as an income support to a large proportion of the rural households. However, enhancing vegetable farmers to reach markets and actively engage in the markets is a key challenge influencing vegetable production in South Africa. The perishable nature of vegetables demands effective marketing channels.

Smallholder farmers, therefore, can be described as those classes of farmers who own small plots of land in which they cultivate staple crops in addition to one or two cash crops which almost completely rely upon family labor (Yahya and Xiaohu, 2014). Global Food and Agriculture Investment Outlook (2015) noted that it is unfavorable for smallholders to participate in marketing in South Africa, due to the difficulties they face in their market access in less developed nations. Smallholder agriculture plays a crucial role in rural livelihoods as it is estimated that about 86% of rural dwellers in South Africa depends solely on the sector (Matsane and Oyekale, 2014).

On one hand, farmers' choice of market channel is a very important aspect in market participation decision. Smallholder farmers have alternative market channels for selling their agricultural produce, including vegetable. These market channels include farm-gate, direct to consumer, middleman and contract marketing. These channels offer different prices and sales services, which determine farmers' choices of the channel for marketing their produce (Segie *et al.*, 2014). Informal markets embrace unofficial transactions between farmers and from farmers directly to consumers, such as intermediary (brokers), other farmers, relatives or neighbors. Formal markets (such as traders, wholesalers and cooperatives) have clearly defined grades, quality standards, and safety regulations.

Smallholder farmers find it difficult to penetrate the formal markets due to high transaction costs, high risks, missing markets, and lack of collective action (Jari and Fraser, 2009). Most farmers in developing countries are fragmented and geographically isolated, and outside the reach of formal market institutions.

Marketing can be described as the process of preparation and executing the consumption pricing, promotion and delivery of idea, goods and services to create exchange that satisfy individual and organizational goals (Urgessa, 2011). Moreover, marketing is described as the set of economic and behavioral actions that are involved in coordination the various stages of economic activities from production to consumption. According to Moyo (2010), marketing is described socially as the societal process where individuals and groups obtain what they required and needed by developing, donating as well as generously exchanging services and merchandises of value with others. Furthermore, Moyo (2010) and Makhura (2001) describe market participation as earnings that a farmer receives from market activities and also as any market related activity which promotes the sale of produce and the volumes of produce traded explains market participation by the farmer or individual.

According to Department of Agriculture Forestry and Fisheries (2012), in South Africa agriculture employs about 10-11% of the working population and it is estimated that about 81% of people participating in agriculture are smallholder farmers. Smallholder farmers are faced with major problems such as high poverty rates, low production, high costs of input, poor market participation, and dominance of food processors and supermarkets that prevent their fuller access opportunities to profitability (Vermaeulen *et al*, 2008 and Buthelezi, 2013). Smallholder farmers are the drivers of many economies in Africa even though their potentials are not fully realized.

Moreover, DAFF (2012) outlined that about 78% of the Eastern Cape population depends directly or indirectly on agriculture for their livelihood. The agricultural sector has been identified as one of the sectors that have a significant potential for job creation (DAFF, 2010). Eastern Cape Socio Economic Consultative Council (ECSECC) (2011) stated that poverty in the Eastern Cape remains extensive and deep and it is estimated that 80% of the Eastern Cape residents live below the poverty line. The main factors that contributed

to high levels of poverty include large household size; lack of employment; lack of education; lack of access to markets; and poor road infrastructure (Stats SA, 2012). Makhura (2001) and Moloi (2010) stated that the majority of the disadvantaged farmers are not part of the mainstream agriculture and practice subsistence agriculture in overcrowded, semi-arid areas. This kind of subsistence farming is characterized by low production, poor access to land and poor access to inputs and most importantly, poor access to credit (DAFF, 2012).

According to Van der Heijden (2010) and Baloyi (2010), the production systems of smallholder farmers is characterized by being simple, making use of outdated technologies, insecure property rights, lack of support services, low returns and high seasonal labor fluctuations. At the same time, smallholder farmers face difficulties in accessing active market channels due to the low quality and small volumes produced as well as recent phyto-sanitary and sanitary standards which are obstacles in accessing markets. Despite government efforts to link emerging farmers to meaningful agricultural value chains, smallholder farmers are still not actively involved in market channels. In South Africa, there is need for attempting to solve the afore-mentioned obstacles one after the other to offer solutions, thereby improving vegetable farmers' choice of marketing channels.

Moreover, commercialization of the agricultural sector requires improving the ability of smallholder farmers to produce marketable surplus, market participation and choice of profitable market channels. The next section presents the research problem statement, followed by objectives of the study in section 1.3. Research questions are presented in section 1.4, presentation of hypotheses in section 1.5, Justification of the study is presented in 1.6 and section 1.7 provides an outline of the rest of the study.

1.2 Problem statement

According to African Development Bank (2014), encouraging growth and development in choice of marketing channels of resource poor smallholder famers have been variously approached in many ways in order to enable them to raise their income levels. Due to the inherent problems of smallholder agriculture, featuring low production, lack of profit as well as poor market participation, the fortunes of the sector have remained unchanged for a long time (Makuvaro, 2014). Understanding such challenges among smallholder farmers is important in identifying areas that need focus and direction for improvement. In the light of these challenges, suggestions can be made on how to improve smallholder farmers' market. Various studies on smallholder transformation in South Africa and southern Africa have established that successfully linking emerging farmers to markets is an effective means to alleviate smallholder poverty and achieve meaningful transformation (Khaile, 2012). It is observed that factors preventing smallholder farmers from active market participation are numerous and varying from place to place and from one farm type to another (Fairtrade, 2013).

Understanding the impact of level of market channels has potential impact on smallholder farmers' participation in commercial agriculture. This is important for unlocking suitable opportunity sets necessary for providing better incomes and sustainable livelihoods for smallholder farmers. Commercial orientation of smallholder agriculture leads to a gradual decline in real food prices due to increased competition and lower costs in food marketing and processing (Khaile, 2012). Such information is crucial and can influence the transformation process in a positive way. But this information is not readily available and requires systematic studies to be obtained and made accessible to policymakers. Therefore, this study will investigate factors affecting vegetable farmers' choice of marketing channel.

1.3 Aim and objective of the study

The main objective of the study is to investigate factors affecting vegetable farmers' choice of market channels in King Sabata Dalindyebo Municipality in the Eastern Cape Province. More specifically, the study aimed to:

I. Describe the current market access status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality.

II. Identify factors influencing the choice of market channels of smallholder vegetable farmers in the formal vegetable markets.

III. Recommend possible strategies that policymakers can use to assist smallholder vegetable farmers in their efforts to access formal vegetable market channels.

1.4 Research questions

I. What is the the current market access status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality?

II. What are the factors influencing the choice of marketing channels of smallholder vegetable farmers in the formal vegetable markets?

III. What are the possible strategies that policymakers can use to assist smallholder vegetable farmers in their efforts to access formal vegetable market channels?

1.5 Hypothesis

I. Current market access status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality is poor.

II. There are no factors affecting the choice of marketing channels of smallholder vegetable farmers in the formal vegetable markets.

1.6 Justification of the study

This research will be useful in assessing the barriers that smallholder farmers face in developing sustainable livelihoods through choice of marketing channels and will assist in improving the existing marketing policies and develop strategies. It will develop institutional reform to ease the challenges on market involvement of vegetable smallholder farmers and homestead. It will improve the financial performance of the farmers, and enhance the level of success with which they operate. It will assist in guiding policy makers' adjustment of incentive structure employed to contribute towards successful vegetable farmers' choice of marketing channels.

This study is important from a policy perspective, as little is understood about the factors that influence smallholder market participation, particularly the role of transaction costs and assets in King Sabata Dalindyebo Municipality. Understanding factors that influence smallholder farmers' market participation and level of participation will assist policy makers to develop strategies required to improve market participation and household income. High transaction costs are major marketing constraints for smallholder farmers in developing countries specifically in South Africa. Transaction costs such as distance to market, poor infrastructure, lack of market information, insufficient expertise on and use of grades and standards have under-use of different market channels.

Overcoming these constraints requires understanding of factors influencing smallholder famers' choice of marketing channel. These can be a key strategy for increasing access of smallholders to assets, information, services and markets necessary to raise their incomes. However, no empirical study has been carried out to investigate factors influencing the choice of marketing channel by vegetable smallholder farmers specifically in King Sabata Dalindyebo Municipality, Eastern Cape of South Africa. No empirical evidence about why producers choose specific market channels and how transaction costs influence market channel choices. A study of this nature is, therefore, important from a policy perspective as it will inform practical interventions required to improve smallholders' market choice and in ultimately increasing their welfare.

1.7 Outline of the study

This dissertation consists of five chapters. Chapter one presents the background of the study, problem statement, objectives of the study, research questions, hypothesis and justification of the study. Chapter two presents the literature review on the choice of market channels by vegetable smallholder farmers and its factors and constraints. Chapter three presents the research methodology which includes the description of the study area, research design, (unit of analysis, data collection, sampling procedure, data analysis and delineation) and ethical considerations. Chapter four presents the results and discussions of the study. Lastly, chapter five summarises the findings made from the study, and it encompasses the conclusion and recommendations which emerged from the study.

CHAPTER TWO

OVERVIEW OF SMALLHOLDER FARMERS IN SOUTH AFRICA

2.1 Introduction

This chapter reviews some relevant literature regarding vegetable smallholder farmers' choice of market channels. The review starts by looking at the background, characteristics and importance of smallholder farmers. This is followed by a review of the role of markets in economic development, the market channels adopted by vegetable smallholder farmers, and the factors influencing the choice of market channels by smallholder farmers. Additionally, the constraints facing smallholder farmers in production and transportation are also reviewed. A review of current agricultural policies in South Africa is also presented.

2.2 Background, characteristics and importance of smallholder farmers

This section looks at the background information of South African smallholder farmers as well as their characteristics and importance of smallholder farmers to farmers and households' livelihoods.

2.2.1 Background of smallholder farmers

There is no clear-cut definition of smallholder farmers and these farmers are distinct in numerous ways depending on the context one is using, country and even ecological zone (Machingura, 2007, Pienaar, 2013). According to Machingura, (2007) the term smallholder is often used interchangeably with terms such as small-scale, resource poor and sometimes peasant farmer. The term small-scale is repeatedly and frequently used in South Africa to refer to black smallholder farmers who are characterized by non-productive, backwards, non-commercial and subsistence agriculture and it is generally related with black farmers, as if black farmers do not have the ability to become large-scale commercial farmers (Kirsten and van Zyl, 1998). Cousins (2013) mentioned that the lack of good quality data on smallholder farmers exacerbates this problem of smallholder definitions.

The term smallholder farmers is used as the broader term to refer to the total number of farmers or households involved in agricultural production on a comparatively small scale.

Smallholder farmers in South Africa are defined and characterized as non-productive, backward, non-commercial, subsistence agriculture which is located in deep rural areas part of the former homeland areas as well as deriving their benefits from primary agriculture (Ministry for Agriculture and Land Affairs, 1998, Kirsten and Van Zyl, 1998, DAFF, 2012). Obi (2012) defines smallholder farmers as farmers who produce relatively small volumes of produce on relatively small plots (which are normally less than 5ha) and are generally more resource poor. Furthermore, smallholder farmers may be defined as those planters who originate benefits and livelihoods from primary agriculture and produce mainly to create, generate an income and farmers who produce mainly for their own consumption and these farmers are mostly excluded from farm workers who earn wages (Aliber *et al*., 2010).

Smallholder farmers are defined as those marginal and sub-marginal farm households who own or/and cultivate less than 2.0 hectare of land and mainly farm for household consumption as well as have low asset base. According to Ntshephe (2011) a smallholder farmer is described as a commercial farmer who in accumulation, is a beneficiary of one of government's land reform programs and is mainly reliant on the state or semi-state establishments for support and finance. Senyolo *et al*. (2006) views smallholder farmers as farmers who were previously excluded from the mainstream economy and that now represent the second economy. Smallholder farmers are further characterized by their mixture of farm practices of both commercial and subsistence production where they make use of family labor (Narayanan and Gulati, 2002).

According to DAFF (2012) smallholder farmers are the drivers of many economies in Africa, especially in South Africa even though their potential is repeatedly not conveyed forward. Smallholder farmers are found in deep rural areas of South Africa and are non-commercial, thus their contribution to Gross National Product (GNP) is limited (Makhura, 2001) and reason behind this is that they are having fewer endowments when compared to commercial farmers and their location in rural areas. Farming under the smallholder systems is categorized by low level of production technology and small size of farm holding of approximately 1.5 to 2.0 hectares per farmer, with production primarily for subsistence and little marketable surplus. Smallholder farmers are those farmers owning

small plots of land on which they grow subsistence crops and one or two cash crops relying almost exclusively on family labor. These farmers are characterized by simple, outdated technologies, low returns, high seasonal labor fluctuations and mostly women playing a vital role in production. DAFF (2012) noted that these smallholder farmers have slight difference in between them, ranging from individual farmer to the other as they pose individual characteristics, farm size, resource distribution between food and cash crops, livestock and off-farm activities, their use of external inputs and hired labor, the proportion of food crops sold and household expenditure patterns. Aliber and Hall (2011) and Aliber and Cousins (2013) revealed that South Africa using general consensus has a total number of approximately 2 million small-scale farming households.

DAFF (2012) divided smallholder farmers in South Africa into two separate groups in their 2012 Integrated Growth and Development Plan (IGDP). The first group of smallholder farmers is emerging smallholder farmers which is defined as those farmers which are situated in deep rural areas in former homelands areas (that is Transkei and Ciskei) and these farmers are pre-dominated by blacks. Van der Merwe (2012) stated that this group is the most predominant and contains large extent of farmers as it is estimated to have approximately 140 000 farmers who are black farming households and are further commercially inclined by marketing their produce locally. The second group are subsistence farmers who are those farmers that produces agricultural yields for their own households consumption and livelihood purposes and are estimated to be approximately 2 million (DAFF, 2012).

2.2.2 Characteristics of Smallholder farmers

According to Oettle *et al*. (1998) as cited by Pote (2008), smallholder farming in South Africa is diverse and is challenging to define. Smallholder farming involves largely black households farming and producing relatively low production on small plots of land approximately less than 2.0 hectares with limited resources. Generally, smallholder farming on its own rarely provides a sufficient means of livelihoods in communal areas as more than 2.6 billion people dependent solely on agriculture for their livelihood (Ncube, 2014). Smallholder farmers are the main source of food for the rural population, an income generating occupation because it is the main activity for many rural dwellers' in

many developing countries, especially South Africa. This infers that smallholder agricultural productivity is very fundamental in alleviating poverty and hunger which couples rural areas.

In knowing the potential of smallholder farmers as well as their contribution in livelihoods and Gross Domestic Product, it is important to firstly, understand their key characteristics especially regarding their technological status, location, production objectives and factor intensity.

2.2.2.1 Location

Smallholder farmers in South Africa are characterized by their exclusive location and these farmers are mainly situated in former homelands of South Africa. In South Africa, smallholder farmers are found in deep rural areas, and are perceived as non-productive, backward and subsistence farmers who are located in rural areas with the sole aim of food supply for households (Sikwela, 2008). According to Obi (2006) the apartheid policies such as the Group Areas Act of 1956 resulted in land imbalances as allocation was done along race lines which affected most of the black farmers. As a result, many smallholder farmers are mainly blacks, who were apparently dispossessed from their original land during apartheid rule and some were relocated to the former homelands (Nel and Davies, 1999). According to World Statesmen (2000) and Pote (2008) these former homelands were self-governing territories, namely Bophuthatswana, Ciskei, Transkei, Gazankulu, KaNgwane, KwaNdebele, KwaZulu, Lebowa, Qwaqwa and Venda. These areas were once self-sufficient territories which were formed as part of the apartheid policy regime. These homelands and self-governing territories ceased from existence as self-governing in 1994 at inception of democratic rule in the South Africa.

2.2.2.2 Low level of production technology and factor intensity

According to DAFF (2012) smallholder farmers in South Africa are characterized by; simple and outdated production technologies which consequently lower agricultural production. As result many smallholder farmers in South Africa make use of traditional production techniques which results in lower productivity levels. According to Pote (2008), use of traditional techniques lead to a narrow production base which frequently characterize smallholder farming. The high use of outdated technology by smallholder

farmers is exists because of use of family labor. Smallholder farmers are labor intensive because they are poor and cannot afford external farm inputs. There is limited usage of external inputs such as machinery and fertilizers by these farmers (Cousins, 2005).

2.2.2.3 Own production and subsistence

Production in smallholder farming is primarily for own consumption purposes and there is little marketable surplus. These farmers are more concerned with production to meet their household's daily needs and provide food as well as improving their livelihoods. Cousins (2005) further confirmed that smallholder farmers are characterized by accessing output from farming for some rural households to constitute a greater proportion of their total livelihoods.

2.2.3 Importance of smallholder farmers

Smallholder farmers play important functions that are advantageous to both the economy and biosphere. Smallholder farmers are recognized for their contribution to poverty alleviation, food security, and employment generation at the local, regional or international level. Smallholder farmers contribute to equitable distribution of income and linkages for creation of economic growth. These smallholder farmers have an advantage of flexibility which motivates family labor resources and allows them to assign labor to activities with higher marginal returns and more so, smallholder farmers use resources efficiently. In spite of its important contributions smallholder farmers face a number of challenges. However, they continue to thrive and produce for their families and survival in the face of the hostile conditions. The contributions of smallholder farming are discussed in the following sub-sections.

2.2.3.1 Poverty alleviation

Smallholder farmers contribute to poverty alleviation without any doubt and these farmers contribute through food price reduction and employment creation (Dorward and Kydd, 2003). According to Kalibwani (2005) as cited by Pote (2011) the majority of smallholder farmers in Southern Africa produce food for subsistence purposes while on the same time produce crops for their livelihood. Smallholder farmers have the potential to produce marketable surpluses and create employment because they are labor-intensive. Machethe (2004) illustrated that smallholder farmers and agriculture have the potential of

alleviating poverty using three ways namely: by increasing food supply in the household, creating employment for local dwellers and lastly, providing and increasing farm income. The amplified food supply provides farmers with superior possibilities which lead to consumers having more choices at reasonable prices. The highest percentage of poverty in South Africa is found in rural areas and since the majority of rural people and smallholder farmers are engaged in agricultural production, improvement in the smallholder farming sector will increase the chances of poverty alleviation. In addition, improved production will bring about competition which will lead to fall in the price of tradable agricultural goods and in the long run cause reduction in poverty amongst rural and urban dwellers.

2.2.3.2 Equitable distribution of income

Smallholder farmers provide efficiency which leads to improved incomes and promotes reasonable distribution of income creating forward and backward linkages which are essential for economic growth of both rural and urban dwellers. Furthermore, smallholder farmers are able to allocate incomes more equitably because they produce their own food, which implies that less will be spent by these smallholder farm households on food purchases (Obi, 2012). A poor household who produces their own food are in a better position in terms of income than those who purchase food from retailers and supermarkets. Majority of smallholder farmers earn their income through selling their produce which results in an improved welfare for farmers.

2.2.3.3 Linkages for economic growth

Smallholder farmers are more efficient and successful than those who are engaged in non-farm economic activities. In the main, growth of smallholder farmers allows business growth through linkages which provides further growth. Van Rooyen *et al*. (1995) indicated that most of the output gains resulting from the investments coming from various sectors of the economy stimulate the production and demand for inputs from other sectors which is termed backward linkages. Smallholder farmers who are successful generate demand for non-farm sector goods, such rise in demand leads to elevated output and thus consequently results in higher incomes.

2.3 The role of markets in economic development

Markets are playing a very crucial and vital role in economic development and growth through breaking the vicious cycles that exist in the economy. The market availability allows specialization of production by farmers which results in increased yields, efficiency. Well managed and monitored markets leads to resourceful and efficient distribution of rare resources and enlargement of the general welfare of society. This further leads to optimum utilization of agricultural resources and enhancement of the standard of living in the society. Markets provide a basis for creation of employment opportunities and industrial development, creation of utilization. Markets create the basis for foreign trade, and serve as sources of national revenue and ultimately creating the environment for investment. According to Chilundika (2011) well-managed markets allows proper functions of a markets to take place. When there is an existence of enough markets for trading of all produced output as well as large amount of buyers and sellers such that no single entity can exclusively stimulate the price of goods. As a result, it is quite imperative for farmers to participate in markets, both as sellers and buyers, so that markets can be competitive and functioning efficiently.

Chilundika (2011) argues that in order to stay competitive and functioning, there must be an increase in reliance of the past decade markets as they become the foundation for developmental strategies in which they will increase the functioning of markets efficiently and that is shown in developing countries. There is still a problem of low participation to marketing by smallholder farmers in rural areas in most of the developing countries and this has led to failures of market base developmental strategies to facilitate growth, wealth creation and poverty reduction which are the pillars of economic development. Bellemare and Barrett (2004) and Chilundika (2011) noted that in rural areas there is existence of significant market frictions which commonly impede the market participation, dampening farmers and households' capacity to benefit from market opportunities as well as the capacity of governments to influence microeconomic behavior through altering market incentives.

Many scholars and policy makers in the past tended to put a lot of emphasis on price sealing strategies and incentives as mechanisms to encourage market participation and

development by farmers. However, as recent studies have indicated relying on the use of price policy alone may not achieve the desired goal as there are various factors affecting the market participation and development of farmers.

In a study done by Tembo *et al*. (2009) in Zambia it was found that maize excess demand was inelastic with respect to the own consumer-producer price ratio and any price support policies that altered the price ratio would have restricted effects on the market behavior of farmers. While a study done by Nijhoff *et al*. (2003) noted that the use of price policy strategy to encourage production and sell of maize was not in the greatest interest of long term food security and smallholder welfare instead a short-term strategy was preferred.

Hence a further look and understanding of factors which constrain the market participation decision of smallholder farmers is necessary since it appears that the existing policies do not benefit the farmers.

2.4 Marketing channels adopted by vegetable smallholder farmers

There are several channels employed by smallholder farmers to market their products. Gausi *et al.* (2004) noted that a majority of smallholder farmers make use of different ways in marketing their products wherever they display them in order to attract customers. They are discussed in detail below.

2.4.1 Marketing products at the farm-gate

This form of marketing can be described as the process of selling products at the point of production. Adams (2004) states that marketing of products at the farm-gate entails selling of product at the very place the product is produced. For instance,when vegetables are sold from a farm garden or broiler unit. Mkendaa and Van Campenhoutb (2011) affirmed that there are merits in marketing at the farm-gate, there are no transport costs incurred when farm products sold by the farmer at his or farm gate, this, therefore reduces the transaction costs and leads to lower prices. Senyolo *et al.* (2006) argued that there are shortcomings resulting when farmers use farm-gate techniques to sell their produce because they may be forced to accept what is offered as the local price for production, may be unable make profit. On the other hand, Niemeyer and Lombard (2003) also Bijman Ton and Meijerink (2007) stated that smallholder organic farmers who do not have

access to established markets use farm-gate marketing to sell produce at local prices, not enjoying the premium prices of marketing organically.

According to Machethe (2004) and Makhura (2001), the factors constraining the selling of agricultural commodities can be categorized as physical infrastructure or geographical location of the farmer(s) for example, lack of good roads could prevent selling activities because farmers may not be reached by potential buyers that are in other places. Furthermore, Gausi *et al.* (2004) and Osebeyo and Aye (2014) argued that farmers would seek other markets further away, once the local market's demand is satisfied and the transport cost for the products to the remote market increases.

2.4.2 Marketing products directly to consumers

Marketing products in the consumer market is explained by Dunn (2009) as the channel where farm products are supplied straight from the farm to the final consumer. Huong *et al*. (2013) discovered that most times, farmers sell their produce directly to consumers by operating farm stalls therefore bypassing independent smallholders' who are engaged in marketing by local farmers. Generally, the farm produce or products which could be sold in the market could be sold at a perishable farm stall, where fruits and vegetables are sold.

According to Niemeyer and Lombard (2003), when farmers sell processed products such as pickles, jams and cooked maize; the problem with marketing directly to consumers arises as they lack the necessary facilities for processing, packaging and storage to add value to their products. It has been proven that smallholder farmers have problems with processing their products because the farmers typically use home equipment that is time consuming and inefficient. Matungul *et al.* (2001) also stated that difficulties may be posed to smallholder farmers who do not have transport. Matungul (2002) stated that the quality of produce is not good sometimes because of the unsuitable storage, packaging, handling and transportation.

2.4.3 Marketing agents

Marketing agents are commonly known as middlemen or market intermediaries. In several literatures, the term marketing agent or middlemen is used interchangeably. Products can be sold directly to consumers through marketing agents or middlemen.

Agbugba (2013), asserts that some smallholder farmers access markets through marketing agents or middlemen who are paid commission to sell their products, in order to attain higher premiums. Kisamba-Mugerwa (2005) stated that middlemen have maintained a stronghold on the market scene because they are able to provide farmers with resources that are necessary for their work. These resources could range from good organizational skill, little bureaucracy to quick payment for their goods. Products must undergo drying, storage, transportation, processing and packaging before distribution, the middlemen remains crucial in marketing the products that require time, storage, space and energy inputs. Furthermore, Hazell *et al*. (2006) outlined that in many cases these products are sold and bought several times, adding value at each step, before reaching the consumer. Technology and finance to carry out these functions are usually beyond the reach of low-income farmers and are left to middlemen who have the resources.

According to Adams (2004), in South Africa, some smallholder farmers supplying to different retail outlets, such as the Spar group, use middlemen. Makhura (2001) outlined that in some areas of Limpopo Province, smallholder farmers producing bananas and mangoes use marketing agents as a means of selling products. Ndokweni (2002) discovered that from 2002 to 2003 a group of smallholder farmers in KwaZulu-Natal, the Ezemvelo Farmers Organization (EFO) collectively sold organically grown products to a supermarket chain, Woolworths, through a middleman who supplied the products to a pack house. The EFO has then changed this approach by selling directly to a different pack house who in turn supplies Woolworths.

2.4.4 Direct or contract marketing

According to Hazzell *et al.* (2006) direct or contract marketing can be described as the process involving the sale of farm products directly to retailers. Farmers are often known to sell directly to retailers. Although, retailers take up fairly flexible volume of produce and support smallholder farmers with publicity, they do not compromise quality. Organic Agriculture (2015) argues that some black empowerment companies, such as Zakhe in KwaZulu-Natal, have managed to secure large government contracts with the Department of Correctional Services who for political reasons prefer to buy contractually from the smallholder sector. Makhura (2001) stated that a group of smallholder farmers

in Limpopo Province also collectively sell vegetables to Thohoyandou Spar using direct marketing.

Department of Agriculture, Forestry and Fisheries (2012) noted that engaging in direct or contract marketing by smallholder farmers has some advantages, it reduces the marketing margins and the producers can obtain a higher price for products and sales volume is certain. The disadvantages however are that the farmer must safeguard sufficient produce of suitable quality to supply the customer or retailer at all times and that the quality of the produce meets retailer standards. Furthermore, United Nations (2013) outlined that the farmer will have to buy additional produce to make up the quantity required when the farmer cannot meet the needs of the retailer, thereby losing some profit.

According to Makhura (2001), smallholder farmers in Limpopo, selling to Thohoyandou Spar, experience transport complications and minimal processing activities (sorting, washing and packaging), which would add value to their produce, due to poor infrastructure, such as a pack house. It is evident that smallholder farmers are facing a number of constraints in marketing. Difficulties in marketing range from poor infrastructure, lack of relevant marketing information and skills and high input costs to limited processing capability. Matungul (2002) stated that the majority of smallholder farmers live in areas with poor roads that make transport services unattainable and costly.

2.5 Factors influencing the choice of market channels by smallholder farmers

There are numerous obstacles in accessing the market for smallholder farmers.

2.5.1 Barriers to Market Access

According to Dorward and Kydd (2003), the degree to which market access for smallholder farmers has improved with market liberalization differs across crops and countries. Boughton *et al.* (2006) outlined that although for some farmers new opportunities might have developed, formal markets are difficult to access because of the challenges that smallholder farmers experience. Dorward and Kydd (2003) also stated that even in more reachable areas, more assurance is required by smallholder farmers that they will be able to sell what is produced and attain a reasonable price. Boughton *et*

al. (2006) notes that literature indicates that smallholder farmers face a range of barriers that hinder improved market access and market participation.

2.5.2 High transaction costs

According to Maltsoglou and Tanyeri-Abur (2005), transaction costs can be defined as the "cost incurred for arranging a contract *ex-ante* and cost for supervising a contract *ex-post* or mainly the costs of running the economic system". Transaction costs can be classified as information, negotiation, and monitoring and execution costs. Information costs (ex-ante) relate to the costs acquired in obtaining information relative to the undertaking of the transactions (such as price information and market location). Matungul (2002) notes that negotiation costs represent the costs acquired while the transaction is being carried out (negotiating terms of exchange, drawing up the contract). Furthermore, Bech and Pedersen (2005) stated that monitoring and enforcement costs (ex-post) are the costs acquired once the transaction is done and in order to ensure that the terms agreed upon ex-ante are kept to payment arrangements.

2.5.3 Lack of market information

According to Janowski *et al* (2006), the delivery of basic market information in smallholder agriculture is a service that targets to increase efficiency of agricultural markets and contribute towards participation in these markets. David-Benz *et al* (2004) outlined that for instance, provision of information on pricing and market location would support smallholder farmers in making better decisions on where to sell their produce and negotiate prices.

Furthermore, Van de Heijden (2010) noted that the provision of basic information needed for marketing of smallholder agriculture is a service which targets an increase of agricultural marketing efficiency thereby contributing towards participation in the markets. David-Benz *et al.* (2004) further states that for instance, provision of information on pricing and market location would assist smallholder farmers in making better decisions on where to sell their produce and negotiate prices.

Benard, Dulle and Ngalapa (2014) stated that information sources used by smallholder farmers in the South African context, include family members, neighbors, friends, extension services and to some extent newspapers and radio. Machethe (2004)

discovered that extension services do not exist, or are limited in some areas of South Africa. However, the Ministry of Agriculture and Land Affairs (MALA) (1998) indicates that the extension service represents the main source of information on improved technology and market access for many smallholder farmers and resource-poor farmers. Lack of market information, or differential access to market information, creates direct obstacles to market access, which limits farmer participation.

2.5.4 Poor infrastructure

Poor infrastructure is the common barrier that affects rural smallholder farmers' participation in markets. According to Chaminuka *et al.* (2006), in African countries high transaction costs are one of the main factors limiting growth of smallholder agriculture and this can largely be attributed to poor infrastructure. Kirsten et al. (1998) also stated that in South Africa, poor physical infrastructure in rural areas, particularly former homeland areas, remains a major hindrance to smallholder agricultural growth. Van Zyl and Van Schalkwyk (1993) argued that provision of good infrastructure is a key requirement for achieving higher levels of agricultural productivity and profitability. Everatt and Zulu (2001) discovered that despite government initiatives to improve the quality and quantity of the infrastructure in rural areas through programs such as the Community Based Public Works Program, Consolidated Municipal Infrastructure Program and the Poverty Relief and Infrastructure Investment Fund, the impact on smallholder farmers has been inadequate in terms of marketing.

Yahya and Xiaohu (2014) describes infrastructure as the capital stock that offers public goods and services. According to Wanmali (1992), infrastructure is categorized as two types; "Soft infrastructure" comprises transportation services, finance services, input distribution and marketing. "Hard infrastructure" comprises roads, telecommunications, electrification and irrigation. The Development Bank of Southern Africa (DBSA, 1998) describes infrastructure as a direct and vital link to agricultural progress in smallholder agriculture because both soft and hard infrastructure is needed by smallholder farmers to succeed. Matungul (2002) discovered that improved infrastructure decreases the costs of transactions for market participants.

Melesse (2015) stated that smallholder farmers may use these services more, if infrastructural services are more accessible, leading to improved productivity and market participation. Ferris *et al*. (2006) hold that if smallholder farmers have access to telecommunications, such as mobile or public phones, internet and email, they could communicate with potential buyers and negotiate prices without going to markets looking for buyers. Chaminuka *et al.* (2006) further argued that whilst agricultural development can stimulate improved infrastructural development, also development of infrastructure can stimulate agricultural and rural development. According to DBSA (1998), improved infrastructure can also improve overall development results and economic competitiveness.

Pinstrup-Anderson and Shimokawa (2006) argued that lacks in rural infrastructural services result in poor functioning of the domestic markets due to limited market participation, with little spatial integration, low price transmission and weak international competitiveness. Makhura and Mokoena (2003) stated that in South Africa, poor road conditions and distant markets have been identified as some of the factors that hinder improved market access for smallholder farmers. Machethe (2004) maintained that poor road conditions also contribute towards unattainability of input markets, causing low levels of market participation. International Fund for Agricultural Development IFAD (2009) outlined that the factors determining the access to input and output markets comprises the distance to the markets, networks of roads, transportation cost and the frequency of market visitation.

2.5.5 Access to land

Arun (1999) indicated that land is the most essential resource in order to obtain agricultural productivity and access to land tends to be a major problem that is faced by those individuals practicing agriculture, especially in urban areas. Naylor (1999) noted that, the availability and access to land is exacerbated by the fact that land - in some cases - is being used for non-agricultural purposes; for example, the building of houses so as to cope with the increasing number of people migrating to the cities.

Ravallion (1989) mentioned that landholding in rural areas is the most common asset as well as a good indicator of poverty. Therefore, households with small farms tend to be vulnerable to food insecurity. According to Musotsi *et al.* (2008), home gardening remains the most essential method of food production for the majority of people, especially those living in developing countries, but land seems to be the biggest problem encountered in this regard due to the high population density that leads to a lot of pressure on land since it is required for settlement. Land has a negative effect on food production, and results in food insecurity. Nzomoi *et al.* (2007) noted that, the practicing of farming activities by households depends on whether the land is privately owned, leased or rented because farmers who are squatters may not want to adopt technology that is expensive, or devote themselves to agricultural practices since the land can be taken away any time the owner wants it back.

According to Marsh (2007), households with access to land, water and technical assistance are the only households with a feasible chance of partaking in home gardening, leaving many households which are without these resources food insecure. The world's landless or farmers with food plots which are too small to provide for their needs are regarded as the hungriest people who live in rural areas. Access to land, seeds, water and agricultural equipment determines the level of farming that a person can attain (Matshe, 2009).

2.5.6 Lack of inputs

Aliber and Hart (2009), citing Fraser *et al.* (2003), in a study that was done in the Eastern Cape, mentioned that in most cases African farmers lacked access to implements and other resources although they had access to crop land, so they would end up concentrating on home gardens in order to provide some measure of food supplementation. There is great dependency on neighbors in rural areas since they borrow each other's tools so that they are able to partake in farming. This means that, at times, they get the tools only when others are not using them or get them later than the time that they would like to use those (Fraser *et al*., 2003).

In other words, increase in domestic staple food production brings about improvement in food security, whereas dependence on imports can be reduced by providing smallholder farmers with inputs and improved technology. These production inputs can be made available at affordable prices so that even poor households are able to access them since rural households are characterized as being poor (IFAD, 2011).

Matshe (2009) noted that, smallholder agriculture's ability to contribute towards reducing food insecurity and produce better products depends on the access of livelihood assets, as well as a strong institutional and favorable external environment since it plays a crucial role. The limited access to land, capital, inadequate research and extension support results in low standards of living. This is because of the inefficient use of land and unproductiveness as a result of the absence of appropriate research and extension services (Machingura, 2007). Therefore, partaking in agricultural activities is limited in this way.

2.5.7 Lack of knowledge

Ozowa (1995) stated that, the general lack of awareness amongst small-scale farmers is mainly contributed by the high level of illiteracy amongst the farmers; this results in a low level of agricultural production. Rural households are able to produce food when they have knowledge on how to grow crops and raise animals (livestock) that provide beneficial nutritional outcomes and sustain household livelihoods on a continuous basis, in a family. Nompozolo (2000) recommended that extension officers must be trained in indigenous knowledge relevant to the farming communities they serve. If extension officers can be trained on agricultural production activities occurring in places in which they work, households for those communities will benefit in terms of gaining the requisite food production techniques for the products they are producing; however, this is possible only if extension officers visit these households in their communities. Nompozolo (2000) suggested that, a reasonable amount of information is necessary to bolster own food production in rural areas and for good performance in agricultural productivity.

2.5.8 Gender

According to Seti (2003), all levels of social and economic lives are affected by food insecurity since the costs thereof are very high. Due to food insecurity, high health and

medical costs are encountered in addition to funeral costs as well as low productivity amongst the labor force. “Food insecurity usually affects the vulnerable members of the household, particularly children and women” (Seti, 2003). Hubbard (1995) mentions that food insecurity and nutrition, in many parts of the world, tends to be greater amongst females, than males, infants, in parenthood (particularly during pregnancy, nursing and as single parents), as well as in old age. Women are said to be responsible for decision making in child nutrition. There is a great need for women to partake more in home gardening than men since they are more likely to be affected by food insecurity (Akrofi *et al.* (2008)). Women are likely to concentrate on the production of food crops to attain household food security and men’s income (that is obtained from other non-agricultural activities) can be used on other activities that do not contribute to household food security (Sweetman, 1999).

2.5.9 Water access

Water is an essential resource in food production, making it a critical factor in food security. Achieving the food security of growing numbers of people with the same amount of water is thus an important societal concern (Wenhold, 2007). The growing population and consequent escalation, in per capita consumption of water, have implications for water supplies (FAO, 1990). Food security is the outcome of many interrelated factors, one of which is water, an essential resource for food production. Food production is the most water-intensive activity in society and water is the number one food-limiting factor in many parts of Africa (FAO, 1990). According to FAO (1990), agriculture is the largest single user of water, with about 75% of the worlds freshwater currently used for irrigation. Inadequate and extreme fluctuations in the amount of water available is a major constraint to the productivity and profitability of agriculture, causing most poor farmers to remain at the subsistence level and in perpetual poverty (Hatibu *et al.*, 2006).

2.5.10 Inadequate inputs

Another problem associated with rural agriculture is that there is a great lack of starting capital in order to buy seeds, fertilizers, tools and other things that can be used for production. According to Seti (2003), the only way that these households can attain

money to buy all the necessary things needed for producing agricultural goods is when they either get remittances and pension grants, or through producing and selling the production. The money made will also be used to buy other inputs.

2.5.11 Fencing and theft

According to Kekana (2006), a long distance between a farming area and the residing place of an individual can also be identified as a problem to farming. This is due to the fact that if a farmer has to travel a long distance to the plot, it will lead to insufficient attention and little time allocated to visiting the plot which may result in theft. This will then expose the cultivated crops to theft and damage by unauthorized people and animals. In this regard, Seti (2003) mentions that crops are often stolen or damaged by livestock due to the lack of proper security.

2.6 Constraints facing smallholder farmers

Smallholder farmers face numerous constraints, which increases risk and uncertainty as well as pose hindrances for increased production and consequently preventing farmers from accessing agricultural markets. Despite growing new market opportunities for farmers, there is a risk that smallholder farmers will be enfolded out, even though they possess some competitive advantages over larger producers, especially in their low costs in accessing family labor and intensive local knowledge (Poulton *et al*., 2010). Dorward and Kydd (2005) further argued that smallholder farmers will be excluded in high value markets because of their historical colonial legacy, location and poor performance of their production which is characterized by decaying infrastructure, high production costs and transaction cost as well as poor quality which make smallholder farmers less competitive.

2.6.1 Lack of market information

Smallholder farmers often face limitations in accessing market information and this is another reason for higher levels of transaction cost that smallholder farmers are facing. Majority of the smallholder farmers in South Africa do not have access to market information which limit their participation in high value markets and agro-food markets as well as meeting the market standards and this is proven in the study done by Baloyi (2010) which indicated that about 765 in Limpopo Province do not have access to market

information, especially information on market prices and seasonal trends in the demand for agricultural products as well as consumer demands. According to Jordaan (2012) smallholder farmers further lack information regarding the quality requirements of the products demanded by markets, best times and places to sell their yields as well as potential buyers of their produce after harvesting. Randela *et al.* (2008) noted that access to market information has a statistically substantial effect on the degree of market participation by smallholder producers.

This lack of market information is due to many factors such as insufficient communication system and low levels of literacy by smallholder farmers. Dealers with advanced social capital are better be able to enter more capital-intensive marketing accomplishments such as wholesaling and long-distance transport, whereas traders with poor social networks face major barriers to entry into the more lucrative market segments (Kherallah and Kirsten, 2000). According to Montshwe (2006), lack of timely and reliable information is severe, particularly in the communal areas and the poor transfer of information, knowledge and skill is manifested by limited interaction between farmers and extension agents due to factors such as laziness, poor road networks, resources and language barriers.

2.6.2 Poor physical infrastructure

Poor conditions of physical infrastructure are the major contributor of high transaction costs among smallholder farmers. Majority of smallholder farmers are located in remote areas and are geographically dispersed and far away from lucrative markets as result of poor physical infrastructure. Distance to the market, together with poor infrastructure and poor access to assets and information results in high business costs. According to Jordaan (2012) lack of access to electricity which is highly needed to operate cooler, storages and pack house is one of the reasons which leads to high transaction costs and that is one of the main reasons that majority of smallholder farmers do not have storages, cool rooms and pack house. According to Baloyi (2010) smallholder farmers lack access to post-harvest, storage and processing facilities which constitutes a block to smallholder farmers entry into agricultural markets, since the emphasis of buyers is more on quality. Access to storage facilities increases farmers' flexibility in selling their products, as well

as their bargaining power, hence lack of access to such facilities increases transaction costs (Bienabe *et al*., 2004).

2.7 Constraints on production and transportation

Agricultural production by smallholder farmers for markets calls for production resources which include land, capital and labor force. According to Baloyi (2010) poor access to these assets (land, capital and labor force) disturbs and affects the way in which smallholder farmers are able to benefit from these opportunities provided in high value markets, and more distinct in terms of the volume of products traded and the quality of those products. Thus, smallholder farmers lack consistency in terms of producing for the markets due to inadequate access to production resources.

Transportation is one of the major constraints which smallholder farmers have as majority of smallholder farmers have no means of any kind of transportation their produce to markets. The lack of transport by smallholder farmers results in late delivery of the produce and loss of quality which ultimately leads to lower prices which is the major challenge the smallholder farmers encounters.

Smallholder farmers lack consistency in terms of supplying their products to high value markets (in terms of quantity and quality) which is highly important. Most of the smallholder farmers just supply only when they have surplus, others when they have transportation. According to Louw *et al.* (2004) and Baloyi (2010) observed that many smallholder farmers supply and distribute their produce to fresh produce markets for only two or three months of the year and cannot achieve continuity in the market. Many retailers and supermarkets are reluctant to purchase from smallholder farmers because of their lack of consistency for this reason. According to Reardon (2005) as cited by Baloyi (2010) the main reasons are that smallholder farmers – they don't deliver (start/stop), don't invest (invest just one time and don't keep up), and are a major hassle to work with.

2.7.1 Grades and standards of produce

Grades and standards are one of the most important factors of marketing as a product at first must meet the consumer requirements. Most of the smallholder farmers do not meet

the market grades and standards because of lack of finance and knowledge as well as resources which are necessary in ascertaining the requirements (Mzyece, 2011). As result of poor and inadequate knowledge and resources from smallholder farmers to meet the consumers' requirements, many consumers are reluctant to purchase food products unless production procedures are guaranteed as safe. The poor knowledge and inability to meet growing grades and standards requirement force smallholder farmers not to participate in markets and as a result of uncertainty and unreliability, smallholder farmers are unable to supply formal markets with products.

2.7.2 Small scale of operations

Smallholder farmers are faced with an operation challenge whereby they have very small scale of operation which forces them to produce crops at a high value in order to make the ends as well as eventually meet the ends. Van der Heijden (2010) stated that the small scale of operations by smallholder farmers result in low bargaining power of smallholder farmers as compared to commercial farmers who are able to negotiate better prices in purchasing of inputs and selling of their produce, because of their small operations smallholder farmers cannot benefit from the economies of scale. This small scale operation is mainly due to average farm size of smallholder farmers which is less than 10 hectares. It has been proven that size has adverse effects on farmers' decisions, especially marketing and market participation decisions.

2.7.3 Lack of markets in rural areas

Majority of smallholder farmers are located in rural areas where there are no markets for their produce (Baloyi, 2010). Farmers face market shortage for their produce and this in turn affects negatively their decision making in terms of marketing because of their remote location where there is no agricultural markets and agro-processing for their produce. Lack of market integration by smallholder farmers leads farmer to sell at the farm gate for lower prices as compared to places where markets are found. The shortage of market in remote areas is linked to farmers' inability to access marketing information. Poorly functioning markets and inconsistency are also other reasons for lack of markets in rural areas.

2.7.4 Transport facilities

Most of the smallholder farmers in developing countries, especially South Africa lack transport facilities to move their harvest to markets because there are few transporters available for smallholder farmers as majority of these farmers are situated in deep rural areas. Farmers do not have access to vehicle or trucks to deliver their produce to various collection points and this force farmers to carry their produce either in buckets or push the produce with wheel barrow, which then restricts the amount of produce to be taken and marketed at a collection point. If that produce is rejected as result of quality and standard, a farmer is forced to carry it back to the farm. The shortage or nonexistence of

transport constrains the farmers and raises subjective costs of farmers for participating in markets and it further undermines the incentives for farmers to supply standardized quality produce and this raises buyer transaction costs (Moyo, 2010). Smallholder farmers would be able to access and enjoy marketing opportunities if the state government could put in place measures to encourage transporters to operate in the rural areas especially during the marketing periods, this will also help smallholder farmers to benefit from the facilities in the urban market (Jacobs, 2008). Policy makers need to develop a plan or strategy which will be of a benefit to smallholder farmers like contract farming or transport contracts for these farmers.

2.8 Characteristics of markets for smallholder famers in South Africa

According to Department of Agriculture (DOA) (2007) a market system is defined as the systematic process which enables various market players to offer and ask buyers and sellers to interact and make deals. In developing countries the marketing system is fewer, competitive and under developed as compared to developed countries. Christian (2015) noted that the market system in South Africa is characterized by smallholder farmers who lacks market information, lack of identifiable markets, lack of transparency and lack of understanding market fundamentals.

The supply chain of agricultural products in South Africa characteristically includes many players and agents with many farmers at one end and consumers on the other end, and majority of these supply chains are traditional supply chains which are linked with social structures. Smallholder farmers' interaction with markets is restricted to dealing with a produce collector or for sales in village market. Smallholder farmers therefore, often do not have sufficient knowledge of what the consumers and markets really wants and as a result, majority of smallholder farmers end up producing products that may not meet markets and consumers' needs.

Makhura (2001) noted that before smallholder farmers consider which marketing channel to use, they firstly consider the costs associated with production and transportation, profits, level of trust among the available brokers and familiarity of the market. In other circumstances, smallholder farmers market their produced yields through offering channels with low market prices because these farmers' lacks market knowledge and information as well as find it difficult in accessing markets that are more rewarding. Most smallholder farmers in South Africa are involved in locally based markets and less of their products are sold in high value markets and with little or no amount being exported. Largely, smallholder farmers market their produce independently in local markets, but they sometimes make use of market intermediaries in international markets.

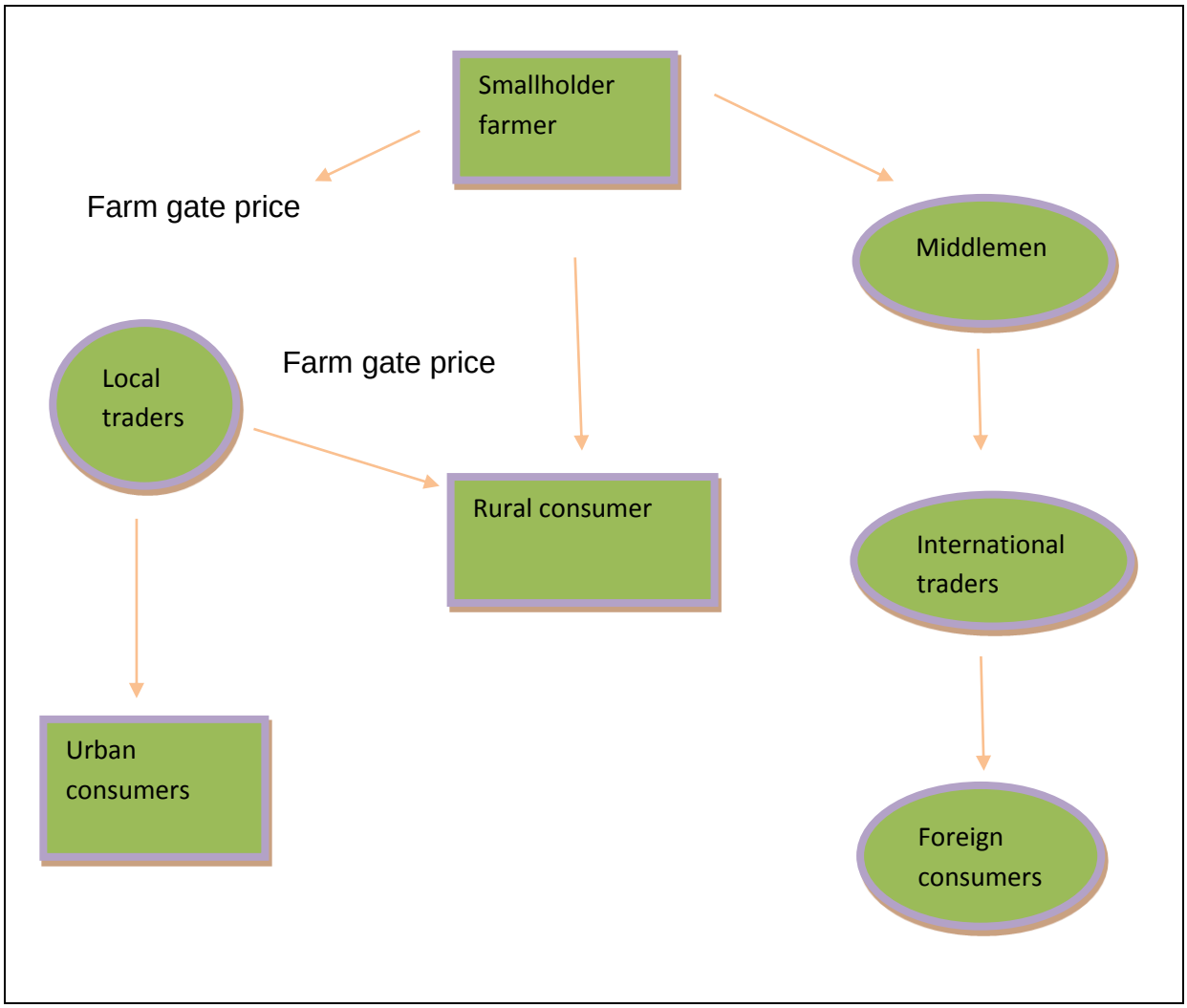

Figure 2.1: Marketing channels for crop farmers
Source: Christian (2015)

Figure 2.1 is an example of the marketing channels that are commonly used and followed by smallholder farmers. The arrows in Figure 2.1 demonstrate the different paths that are followed by the yield harvested and which are sold by smallholder farmers till the produce reaches the final consumers. The produce from smallholder farmers is sold to consumers and traders at the farm gate, frequently through informal transactions where prices and terms of exchange are unofficially negotiated. Kherallah and Minot (2001) and Ruijs (2002) stipulated that these transactions which are occurring between farmers and traders and between farmers and consumers most often occur in the spot markets.

2.9 Agricultural policies in South Africa

The Ministry of Agriculture and Land Affairs MALA (1998) stated that in the past, South African agricultural policies were established to suit white commercial farmers who were given access to land and substantial support services. In the early 1900s, over 80 Acts of Parliament were passed giving support to the large-scale farming sector, mainly in marketing, leaving smallholder farmers marginalized. Fidzani (1993) discovered that from the 1980s there was erosion in direct government support to agriculture, which continued in the 1990s with attempts to eliminate obstacles that reserved smallholder farmers from entering larger scale agriculture. Kirsten *et al* (1998) also Yahya and Xiaohu (2014) stated that to incorporate smallholder farmers, the creation of an independent and market-driven agricultural sector through policy reforms in the 1990s is made possible.

2.10 Chapter summary

In this chapter it was made clear that smallholder farmers in South Africa are defined and characterized as non-productive, backward, non-commercial, subsistence agriculture. Smallholder farmers in South Africa are primarily located in deep rural parts of the former homeland areas and deriving their benefits from primary agriculture. Moreover, markets are playing a very crucial role in economic development through breaking vicious cycles that exists. The literature reviewed showed that market availability allows specialization of production by farmers which results in increasing yields, efficiency and productivity. Furthermore, the well managed and monitored markets leads to resourceful and efficient distribution of rare resources and enlargement of the general welfare of society and further leads to optimum utilization of agricultural resources and enhances the standard of living of society. There are numerous obstacles in accessing the market for smallholder

farmers which increases risk and uncertainty as well as hindrances for increased production and consequently preventing farmers from accessing agricultural markets. Despite growing new market opportunities for farmers, there is a risk that smallholder farmers will be enfolded out, even though they possess some competitive advantages over larger producers, especially in their low costs in accessing family labor and intensive local knowledge.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology of the study. The aim of this chapter is to give a detailed description of the study area and research methodology. Research methodology consists of research design, sample, sample design, data collection and data analysis which are used in the study and also guide the researcher on methods that are used in the research process.

3.2 Description and selection of the study area

Description of the study area illustrates the background information of the King Sabata Dalindyebo (KSD) Local Municipality. It outlines the geographical location, climatic conditions, agricultural activities and topography of the study area. Description of the study is helpful as it familiarizes one with the study area where the research was based on and gives description of the KSD Local Municipality, which is also important in understanding the study results.

3.2.1 Geographical location

King Sabata Dalindyebo Local Municipality was established in December 2000 and comprises two magisterial areas which are Mthatha and Mqanduli. The KSD is one of the 5 local municipalities (Ingquza Hill, Mhlontlo, Nyandeni and Port St. Johns), located under the O.R Tambo District Municipality in the Eastern Cape (King Sabata Dalindyebo Local Municipality, 2009). The name KSD was chosen from King Sabata Dalindyebo who fought for freedom in Transkei. The KSD Local Municipality is located in the Eastern Cape which is the second largest province of South Africa. The KSD Local Municipality has a total population of around 451 710 and the majority of whom reside in rural settlements where rural household size is 105 240 (King Sabata Dalindyebo Municipality, 2010). According to King Sabata Dalindyebo Municipality (2009), the municipality comprises of 105 000 households with an average of 4 to 7 people per household and it measures nearly 3 027

km^2. The municipality comprises 35 wards, of which 12 wards are rural based. The municipality has low racial diversity; the majority of the population is Blacks 96%, 1.7% Coloured, 2% Whites and 1.3% Indians. Agriculture, tourism and forestry are the three main economic opportunities the municipality. The major language which is widely spoken in this municipality is IsiXhosa at 92.8%, English 3.6% and other languages at 3.6% respectively. The population growth rate of the municipality is 0.82% per annum. The major challenge of the municipality is unemployment, which is currently at 38.30% (Stats SA, 2013). Figure 3.1 is a map showing OR Tambo District Municipality.

Figure3.1: Map showing O.R Tambo District Municipality of the Eastern Cape Province
Source: Eastern Cape Development Co-operations (2013)

3.2.2 Socio economic viewpoint

King Sabata Dalindyebo Local Municipality (2009) has outlined that the municipality has a major stumbling block which is poverty. The average poverty rate ranges more than 70% and Human Development Index (HDI) is 0.50 compared to the national average of 0.653, while employed people are estimated to be above 26% and most of these people are employed in community based centers and services (KSD, 2009). It is further estimated by the King Sabata Dalindyebo Local Municipality (2009) that 34-36% of households depend solely on social security where they earn R1 280 and almost 85% earn less than R1000 per month. King Sabata Dalindyebo Municipality (2010), mentioned that the child support grants in the municipality is approximately 70%. The infrastructural development in the municipality is poor, and the number of households with piped water and taps is limited. Almost half of the Municipality does not have clean water, low access to electricity, and no wastage removal. The infrastructure used is old and outdated which makes the situation even worse. The level of education in the municipality is increasing at a low rate compared to other years. The rate of people with tertiary education is increasing by 2% per year and almost more than 40% do not have education at all (King Sabata Dalindyebo Municipality, 2010).

This increase of 2% per year of people going to tertiary's in KSD municipality is assisting the municipality in terms of acquiring formal education which will increase skills and knowledge in the municipality as well as improving agricultural productivity through skills obtained from higher education. Furthermore, high unemployment rate is the major reason why about 40% do not have education at all as most households depend on social grants and may not have enough resources to send their children or wards to school. Most households in the municipality depend heavily on social grants as their source of credit to purchase inputs and pay labor which improves agricultural productivity.

3.2.3 Agricultural potential

King Sabata Dalindyebo Municipality has varied topography and climatic conditions, while Mqanduli region is a tropical region, Mthatha is a temperate climate region and has potential tourism. The varying climatic situations of the municipality is reflected in diversity of agricultural production which includes bee keeping, beef farming, dairy farming, crop farming, wool farming, tropical and deciduous fruit farming, vegetable farming (King Sabata Dalindyebo Municipality, 2010). Farming activities in the KSD Municipality include land use farming which is widely associated with clearing of natural vegetation for agricultural based activities such as crop and livestock farming as well as veld burning for grazing purposes which occur with no formal control. The land which farmers have access to is communal based land which is normally used for agricultural activities and forestry. Climate change may cause changes in the climatic conditions positively or negatively which will consequently affect agricultural potential in the municipality.

3.3 Research design and conceptual framework

This section presents the study research design and conceptual framework used in the study as well as explaining them.

3.3.1 Research design

Research design is a plan and structure of the investigation, it explains the procedures that the research adopted in obtaining answers to the study questions (Segie *et al.* 2014). There are two types of research designs, namely cross sectional and longitudinal research designs. This study employed the cross-sectional research design. The selected sample comprises vegetable smallholder farmers in the areas of King Sabatha Dalindyebo Municipality. Quota sampling procedure was used to select smallholder farmers interviewed. The sample size was 110 smallholder farmers; study used both qualitative and quantitative data.

3.3.2 Conceptual framework for choice of market channels

Choice of market channels by smallholder vegetable farmers is adversely affected by several factors, which include government policies relating to infrastructure development, price controls and taxes (see the Figure 3). Choice of market channels by smallholder farmers is further affected by socio-economic factors, cultural factors, internal factors (such as lack of finance, market information, outdated technologies) and external factors (such as political stability of the nation, natural disasters and calamities) also affect market access and participation.

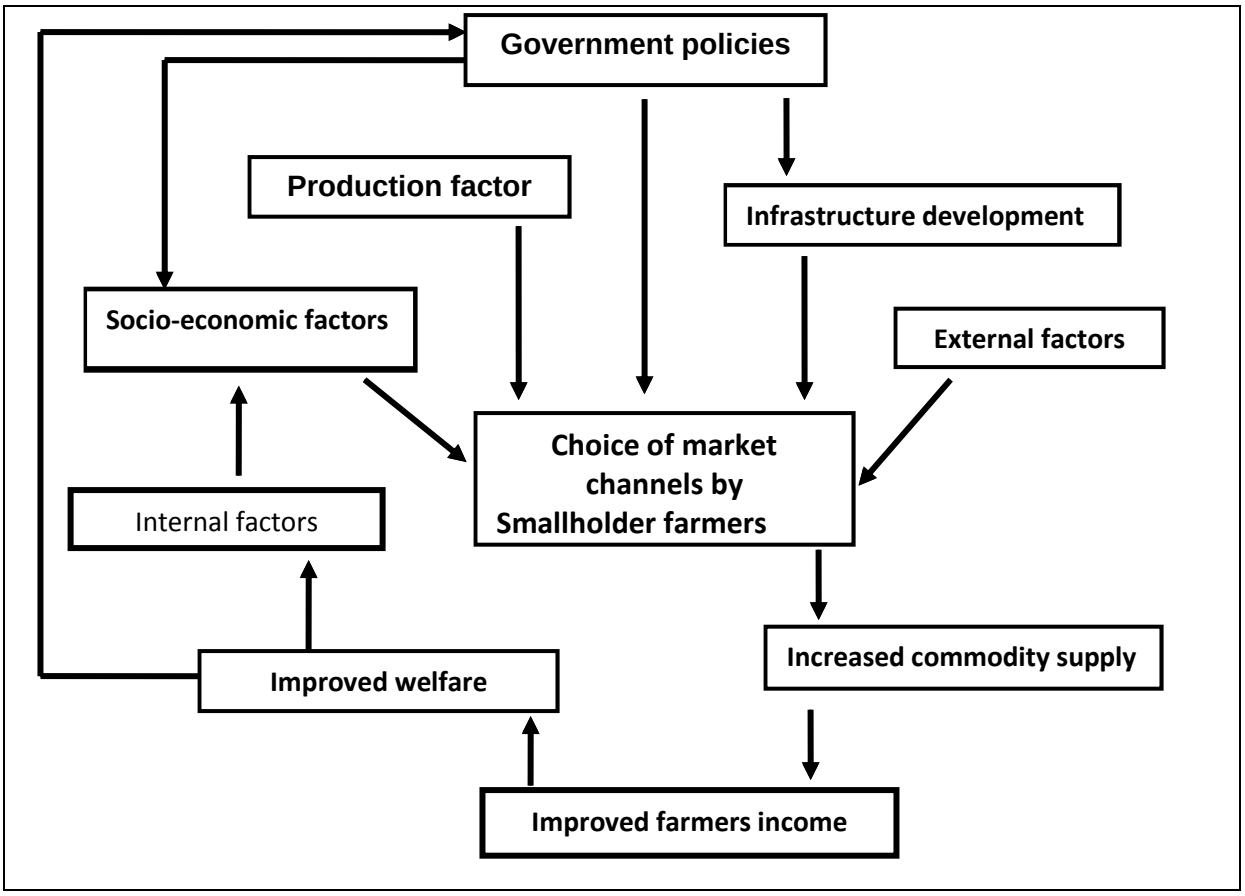

Figure3.2: Factors affecting choice of market channels by smallholder farmers
Source: Jagwe (2011)

The conceptual framework (figure 3.2) illustrates that markets are essential for smallholder crop farmers and homesteads not only for selling commodities to wholesalers and retailers and other consumers but they are important for profitability and stimulation of productivity. This increases agricultural growth which in turn contributes in alleviating poverty and help in feeding the ever increasing population. For smallholder vegetable

farmers to have an effective market and participate in value chain markets, farmers and decision makers require supportive policies and environmental policies that will ensure and provide effective communication networks, infrastructure, market information and removal of barriers that hinder smallholder farmers in accessing and participating in markets. The involvement of policy makers will ensure that all those factors that adversely affect market access and participation by smallholder vegetable farmers are removed. The reduction of these factors more specifically transaction costs, risks in commodities and agro-commodity markets as well as infrastructure will stimulate and promote faster growth and benefits in poor smallholder farmers which will sustain them for a long time.

The conceptual framework shows that if the policy makers and decision makers invest in public goods which are normally used by smallholder vegetable farmers and homesteads as well as rural dwellers more often, both farm and non-farm revenues can be improved, and high transaction costs that are hindering smallholder farmers can be reduced. Moreover, the investment will increase demand for local produced agricultural products and commodities which will contribute in improving livelihoods of farmers and employment rate in rural areas. In accordance to studies done by Jagwe (2011), Makhura *et al.* (2001) and Goetz (1992), there are many factors that constrain smallholder farmers to participate in markets, and that is because of external and internal factors as well as additional factors which affect farmers' production and costs associated with market prices and transaction.

3.4 The unit of analysis

A unit of analysis can be defined as the major entity that is analyzed by a study; it can be groups, individuals, geographical units and social interactions (Aliber, 2013). The unit of analysis in this study is the smallholder vegetable farmers of King Sabata Dalidyebo Municipality. Then the household size has been measured in terms of an adult equivalent (AE) for comparison purposes because the households are not equal in terms of their composition. Data were collected from them using a formal survey. A questionnaire was used and administered in person.

3.5 Data collection

The research has used both primary and secondary data. For primary data, sample survey techniques were employed whereby enumerators were trained to administer questionnaires to the research subjects.

3.5.1 Primary data

In attempting to balance the requirement for capturing important details and unlimited applicability, both quantitative and qualitative research approaches were used in this research. A questionnaire was designed as the tool for data collection (Fidzani, 1993). According to Leedy (1994), the most important guideline for questionnaire construction is to inspect the assumptions underlying the question.

A structured questionnaire was designed and administered within the study areas. This was mainly used to collect data from individual farmers. More data were further collected from focus groups and crop farmers' associations. Regular interviews to group individuals were used to extract intrinsic information about the farmers' involvement and choice of market channels. The respondents were informed about the objectives of the study and before the interviews were conducted respondents assured that confidentiality will be maintained throughout the data collection process. IsiXhosa and English were the languages employed for purposes of administering the questionnaires. The questionnaire was composed of closed ended questions to make the coding of the responses easier and to extract as much information as possible from the respondents without taking too much of their time.

3.5.2 Secondary Data

Secondary data were obtained from published and unpublished sources particularly statistical data bases, trade associations, and farmers 'association's records. Information on the conceptual framework, variables and analytical tools was synthesized from the mentioned sources. In addition, secondary data was collected from district municipal offices, yearbook, and the internet, DAFF, Agricultural Research Council (ARC), and National Agricultural Marketing Council (NAMC) for statistical data. The purpose of the secondary data was to gain insights from successful marketing arrangements on other

crops and draw recommendations for improving choice of market channels by smallholder vegetable farmers.

3.6 Sampling procedure, sample frame and sample size

The probability sampling procedure allows for the possibility of including each element of the population which can be determined, whereas non- probability sampling refers to the possibility of including each element of the population in a sample is unknown (Bless and Smith, 2006).

The study adopted a multistage stratified sampling method. Multi-stage sampling was done in which the first stage involved selecting respondents from the different wards in the King Sabata Dalindyebo Municipality. This was done through stratification by separating vegetable smallholder farmers and homesteads within that area (different villages within the area). This was followed by employing purposive sampling through the different households and smallholder farmers within those areas in order to determine households and smallholder farmers that are able to provide the needed information concerning the choice of market channels.

The stratified random sampling was based on village, project membership and farmers, a sample of 110 heads of households was chosen for the study from eight different wards of KSD. The sampling for this study was based on a large sampling technique of $n \geq 30$ as there is no information regarding the population of the total number of homesteads and smallholder farmers that are under each traditional leader (chief) in these study sites. This sample comprises homesteads and smallholder farmers that took part in vegetable production. A structured questionnaire together with field observations and measurements were adopted for obtaining information from household respondents.

3.7 Data Analysis

This section seeks to answer the major objectives of the study, whose main aim is to economically analyze the choice of market channels and its factors by smallholder vegetable farmers in King Sabata Dalindyebo Municipality in the Eastern Cape Province of South Africa. This section presents the analytical tools used in this study. Data analysis

was done through the use of statistical software, Statistical Package for Social Science (SPSS24) and Microsoft Excel to run frequencies, descriptive statistics, and multinomial logistic regression model. Microsoft-excel was principally employed during coding and cleaning of data then transferred to SPSS for analysis of the data. MS-excel were further employed in the development of figures and graphs for presenting results. The study findings were analyzed and presented using an explanatory data analysis, which is a process of calculating descriptive statistics and frequencies to identify patterns and search for clues (Hair *et al*., 2010). Table 3.1 is a summary of study objectives and analytical tools.

Table3. 1: Summary of study objectives and analytical tools

OBJECTIVES	ANALYTICAL TOOLS
To describe the current market access status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality	**Descriptive statistics(frequencies and percentages)**
To identify factors influencing the choice of market channel of smallholder vegetable farmers	**Multinomial logistic model**

Source: Yokwana (2017)

3.7.1 Current market access status of smallholder vegetable farmers

The descriptive statistics tool was used to describe the current market access status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality. Descriptive statistics is defined as a set of brief descriptive coefficients that summarize a given set of data, which can either be an illustration of the entire population or a sample. Gujarati (1992) noted that descriptive statistics uses measures of central tendency and measures of variability or dispersion, where by measures of central tendency mean, median comprises and mode, while measures of variability consist of the standard deviation, the minimum and maximum variables and skewness.

3.7.1.1 Descriptive statistics specifications

Descriptive statistics specification illustrated the measures of location and measures of spread. To describe the average distribution and standard deviation of households by gender of household head, age, level of education, marital status, the mathematical symbols for mean and standard deviation wear estimated.

3.7.1.1.1 Measures of location

For measures of location mathematical symbol for mean was estimated by the following expression:

$$\text{Mean} = \frac{Sum\ of\ all\ observations}{Number\ of\ observation} = \overline{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Where:

$\overline{x}$ Is the population mean of smallholder vegetable farmers, and is calculated by adding up the values for each household and dividing by the total number of households.

x_i is the i[th] observation of smallholder vegetable farmers.

n *is the* sample size of smallholder vegetable farmers.

$\sum_{i=1}^{n}$ = Summation of all the observations from the first (*i* = 1) to the last (*n*) of smallholder vegetable farmers.

3.7.1.1.2 Measures of spread

For the measures of spread mathematical symbol for standard deviation was estimated by the following expression:

$$\text{Standard Deviation = SD} = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \overline{x})^2}{n-1}}$$

Where:

$\overline{x}$ Is the sample mean of smallholder vegetable farmers, and is calculated by adding up the values for each household and dividing by the total number of households of smallholder vegetable farmers.

x_i is the i[th] observation of smallholder vegetable farmers.

n is the sample size of smallholder vegetable farmers.

$\sum_{i=1}^{n}$ = Addition or summation of all the squared deviations from the sample mean from the first (*i* = 1) to the last (*n*th) observation of smallholder vegetable farmers.

3.7.2 Factors influencing choice of market channel by smallholder farmers.

Factors influencing choice of market channels by smallholder vegetable farmers were analyzed using a multinomial logistic regression. In the model, choice of market channel represented the dependent variable where participating in contract market channel had been set as the reference category. The choice of market channel described the decision to sell the vegetables to farm-gate market, direct to consumer or contract marketing channel.

3.7.2.1 Multinomial Logit (MNL) Model Specification.

The general form of the model was considered as follows:

$$prob(y = j) = \frac{l^{\beta_j x_i}}{1 + \sum_{k=0}^{j} l^{\beta_j x_i}}, j = 0,1 \ldots J \qquad (1)$$

Equation 1 can be normalized to remove the indeterminacy (explosion of options) in the model:

$$prob(y = j) = \frac{l^{\beta_j x_i}}{1 + \sum_{k=1}^{j} l^{\beta_j x_i}}, j = 0,2 \ldots \ldots J, \ \beta_0 = 0 \qquad (2)$$

Let:

J = Adoption options

X_i = Independent variables

B_j = Parameters to be estimated

$l^{\beta_j x_i}$ = Odd ratio that a farmer will adopt j

$\sum_{k=0}^{j} l^{\beta_j x_i}$ = Summation of the odd ratio that a farmer will adopt all channels.

Where:

Y_i Is the dependent variable representing choice of market channels by smallholder vegetable farmers and

$X_1, X_2, X_3, X_4, \ldots \ldots X_n$ Represents various independent variables such as; household size, gender, age, marital status, level of education, crops grown, seasonal income, transport used, farm organization, and access to extension.

For the purpose of this study the X's were included in the model as:

X_1 Household size

X_2 Gender

X_3 Age

X_4 Marital status

X_5 Level of education

X_6 Crops grown

X_7 Transport used

X_8 Farm organization

X_9 Extension services

μ_i = error or disturbance term

Using the SPSS computer software, beta values ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9$) were obtained. These values measured how strongly each independent variable (

$X_1, X_2, X_3, X_4, \ldots \ldots X_9$) influences the dependent variable (Y).Thus, the higher the beta value the greater the impact of the independent variable on the dependent variable.

3.8 Delineation

The study focused on vegetable smallholder farmers in KSD. There is poor access to roads in the villages resulting in significant challenges in accessing some of the farmers. The sampling frame is limited to one local municipality due to limited resources such as finances and time. This region is chosen because of its convenience as it demanded less of the limited resources.

3.9 Ethical considerations

Respect for respondents: Respect for the households/farmers was of high importance in the study.

Informed consent: Everything was explained before the respondents could participate in the study. In some cases where concepts were unclear to the household, questions was asked and explained in household's native language.

Confidentiality and anonymity: The households were assured about the confidentiality and anonymity of their responses. The clearance certificate to conduct the study was collected from the University of Fort Hare.

3.10 Chapter summary

The main aim of this chapter was to give an overview of the study area and to explain the methods used in data collection, data analysis, the research methodology and specifications with hypothesized variables that are used in the study. In order to answer the research questions stated in Chapter 1, quantitative techniques were used to better understand how prospects for improved choice of market channels by vegetable smallholder farmers in KSD Municipality in the Eastern Cape Province of South Africa for better economic growth and poverty reduction. The study area, where the primary data was collected from was described as well as the tool that was used to get such information

(questionnaire). The processes (steps) that were used in collecting data are elaborated in this chapter. The secondary data for the analysis of time series data was also well defined. The study made use of a cross-sectional research design. The analytical tools that were used in this study are well explained with the formulas that have been adopted to suit the study and brief history of the model used is explained. Data analysis was done using a combination of Microsoft Excel and SPSS version 24. The study used a multinomial logistic regression model to identify factors influencing the choice of marketing channels of vegetable smallholder farmers in the formal vegetable markets in KSD Municipality in the Eastern Cape Province of South Africa.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the analysis. The results are divided into two, namely the characteristics and profile of the sampled farmers using descriptive analysis, cross tabulation and the results of the inferential analysis which involves hypothesis testing. The chapter has been arranged in accordance with the specific objectives as outlined in chapter one and effort is made to directly answer each of them as much as possible. In each case the facts arising from the analysis are presented and then discussed in the light of contemporary experience and theoretical and empirical literature.

4.2 Demographic characteristics of study by respondents

Demographic characteristics of farmers and homesteads are essential when analyzing the economic data because such factors influences the farmer or homesteads economic behavior and decisions. As a result of such, it is advisable to include household demographic attributes in analyzing factors influencing choice of market channels by smallholder vegetable farmers. As indicated on chapter 3, the study sample consisted of 110 vegetable smallholder farmers. Bembridge (1987) opined that household demographic information is based on the characteristics of individuals within that particular household that condition their responses to economic incentives. Therefore, the study examined the farmers in terms of household size, age, gender, marital status, level of education, and source of income. All this demographic information will be discussed below using descriptive analysis which is presented in the form of tables, bar graphs and pie charts. The descriptive statistics and cross tabulations have been used to test and describe the farmers' choice of market channels and the results of analysis have been presented using charts, graphs, mean and tables.

4.3 Household information.

According to Jari *et al.* (2014), household information is essential when analyzing economic data because such factors influence the households' economic behavior. As mentioned in Chapter 3, the study sample consisted of 110 respondents.

4.3.1 Distribution of households according to household size

This study considered household size as the number of individuals who reside in the respondent's household. Mcata (2012) and Hayes *et al.* (1997) indicated that a large household size means that there is an increased labor capacity available in the form of elderly, middle aged and young members. There is comprehensive evidence to the effect that household size has a high influence on the marketing of agricultural productivity as it plays a huge role in consumption and production levels (Randela, 2005). Household size does have an important effect on both the production and consumption as it assists in terms of work from the start till the end of the value chain. Figure 4.1 summarizes the

distribution of household size of the interviewed smallholder farmers in the King Sabata

Marketing Channels	Household size					
	3 to 6	7 to 10	11 to 14	15 to 18	>18	Total
Farm gate	22 (51)	13 (30)	5 (12)	2 (5)	1 (2)	43 (39)
Direct to consumer	9 (22)	20 (49)	12 (29)	0 (0)	0 (0)	41 (37)
Contract	14 (53)	7 (27)	3 (12)	2 (8)	0 (0)	26 (24)
Total	45 (41)	40 (36)	20 (18)	4 (4)	1 (1)	110 (100)

Dalindyebo Municipality.

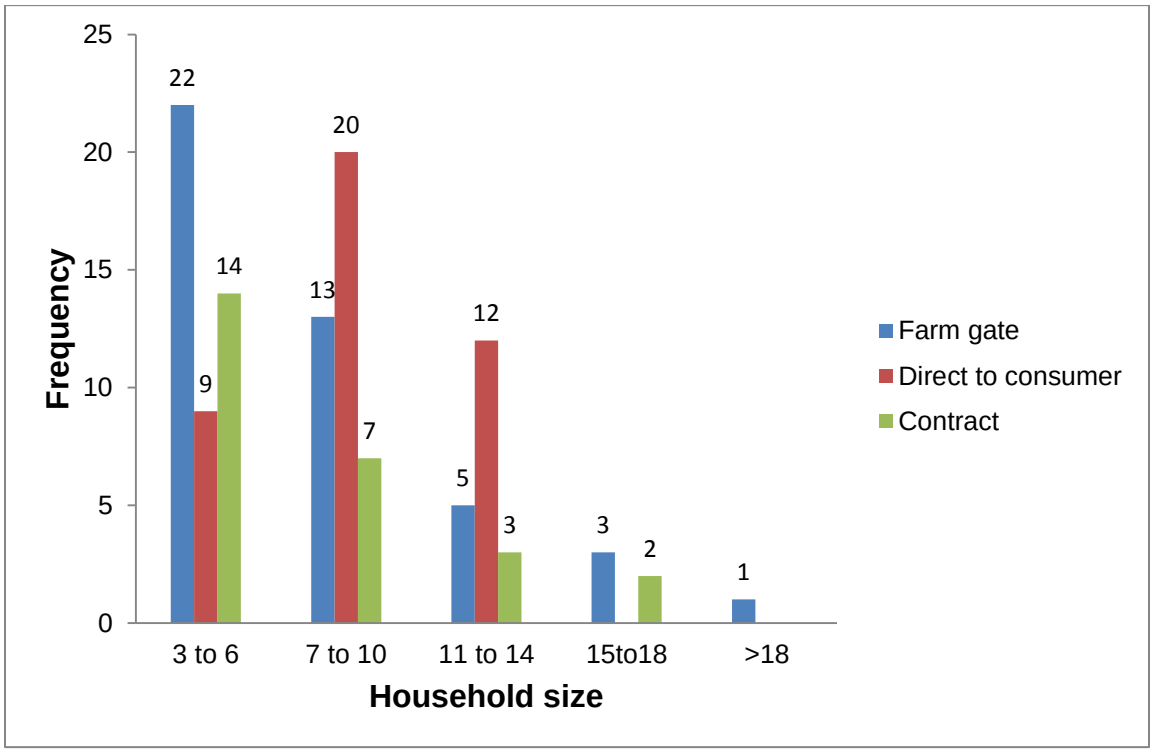

Figure4.1: Distribution of respondents by household size
Source: Field Survey (2016)

Table4.1: Distribution of respondents according to household size
Chi-square=17.357: p> 0.05
Figures in parentheses are % ages
Source: Field Survey (2016)

According to table 4.1 the total number of smallholder farmers using farm-gate marketing channel is 43, 51% of them have the household size of 3 to 6 members, 30% of them

have household size of 7 to 10 members, 12% have 11 to 14 members, 5% have 15 to 18 members and 2% have household size of >18 members. The total number of smallholder farmers that are using direct to consumer marketing channel is 41, 22% of them have household size of 3 to 6 members, 49% of them have 7 to 10 members, 29% of them have the household size of 11 to 14 members. Then the total of smallholder farmers that are using contract marketing channel is 26, 53% of them have household size of 3 to 6 members, 27% have 7 to 10 members, 12% have 11 to 14 members and 8% of them have household size of 15 to 18 members. The chi-square test shows that there is no significance between household size and marketing channels.

According to Aliber (2013) without any doubt, household size can be used as a proxy for labor availability from young, middle and elderly members. This implies that households and farmers would not have serious difficulties with regard to labor, which ultimately means and suggests that there would be more people to assist with farming which will in turn provide food to households. Generally, the results show that most of the households are large hence there is more labor available for farming. According to Paddy (2003), larger families with big household size can also be vulnerable to food insecurity due to a greater demand for food other than assisting with labor availability.

The results suggest that large household size will assist in providing labor for the households which will play a key role in improving vegetable productivity as there will be enough people to assist in farming, thus increase production levels of vegetable. The low household size will reduce labor which will have adverse effects on vegetable productivity compared to a large household size.

4.3.2 Distribution of respondents by gender of household head

The gender distribution of households is very vital for various reasons. One reason is that there are important culturally-determined differences in resource allocation in the farming system. It provides insight into the extent to which male and female farmers take risk and become tolerant enough to any kind of uncertain outcomes that may arise (Jari and Fraser, 2014). Theoretically, men and women differ in the extent to which they take risks and respond to uncurtains (Mcata, 2012). It is also crucial in the magnitude that there are

implications involved of the present and past socio-economic factors and standards which gender also influences the rate at which the individuals adopt new practices to enhance sustainability and profitability of the household farming (Mcata, 2012). Figure 4.2 is an attempt to summarize the gender distribution of the interviewed vegetable farmers in the King Sabata Dalindyebo Municipality.

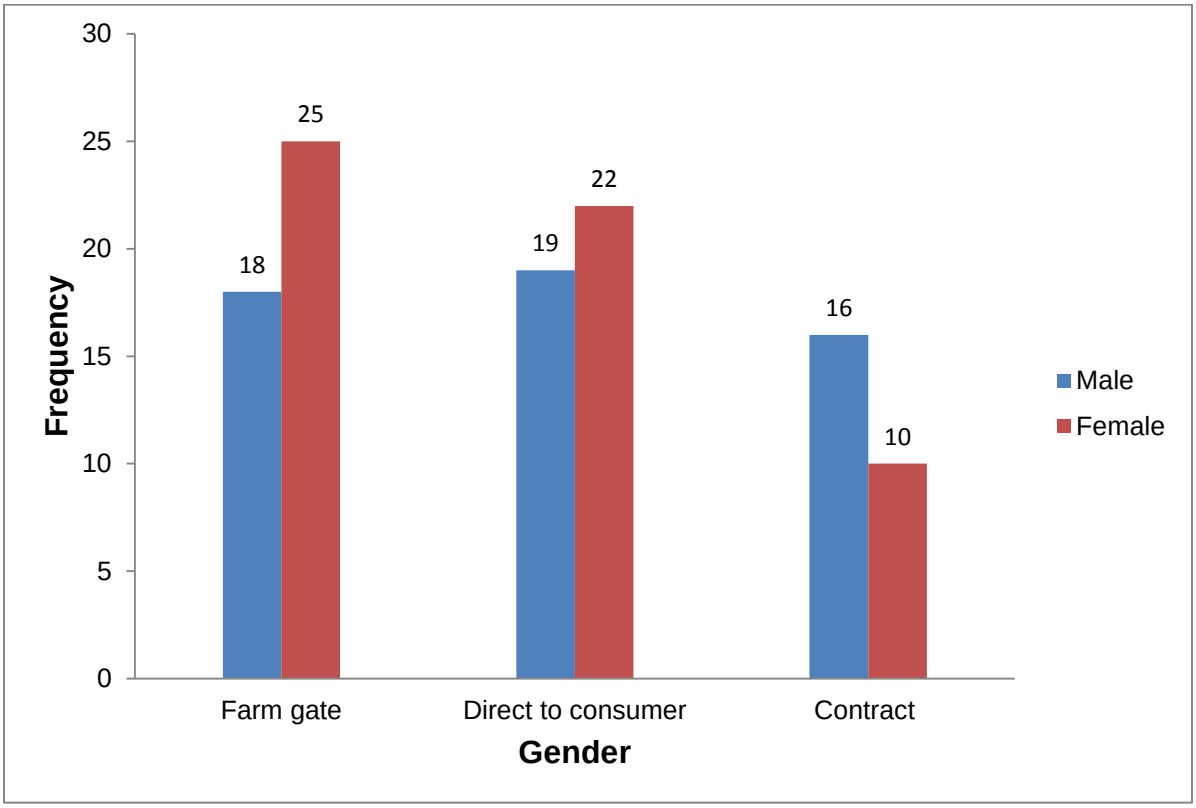

Figure 4.2: Distribution of respondents by gender of the household head
Source: Field survey (2016)

Table4.2: Distribution of respondents according to gender of household head

Marketing channels	Gender		
	Male	Female	Total
Farm gate	18 (42)	25 (58)	43 (39)
Direct to consumer	19 (46)	22 (54)	41 (37)
Contract	16 (62)	10 (38)	26 (24)
Total	53 (48)	57 (52)	110 (100)

Chi-square=2.602: p>0.05

Figures in parentheses ae % ages
Source: Field Survey (2016)

Table 4.2 shows that the total number of smallholder farmers using farm-gate marketing channel is 43, 42% of them are males and 58% of them are females, while the total of those using direct to consumer marketing channel is 41, with 46% males and 54% females. Then the total number of smallholder farmers that are using contract marketing is 26, 62% of them are males and 38% of them are females. The chi-square test shows that there is no significance between gender and marketing channels.

4.3.3 Distribution of respondents according to age of household head

Age is an important variable. It tends to establish the importance of experience, maturing or exposure on the decision making of the household head or respondent. It shows the extent to which households benefit from the experience of older people or their decisions on the risk taking attitude of younger farmers (Muchara, 2011). The farmers' age is not only important for experience but is also crucial aspect in agricultural productivity as it assists in determining the experience of the farmer, knowledge as well as physical environment. The Figure 4.3 and Table 4.3 summarize the age distribution of sampled vegetable smallholder farmers in KSD.

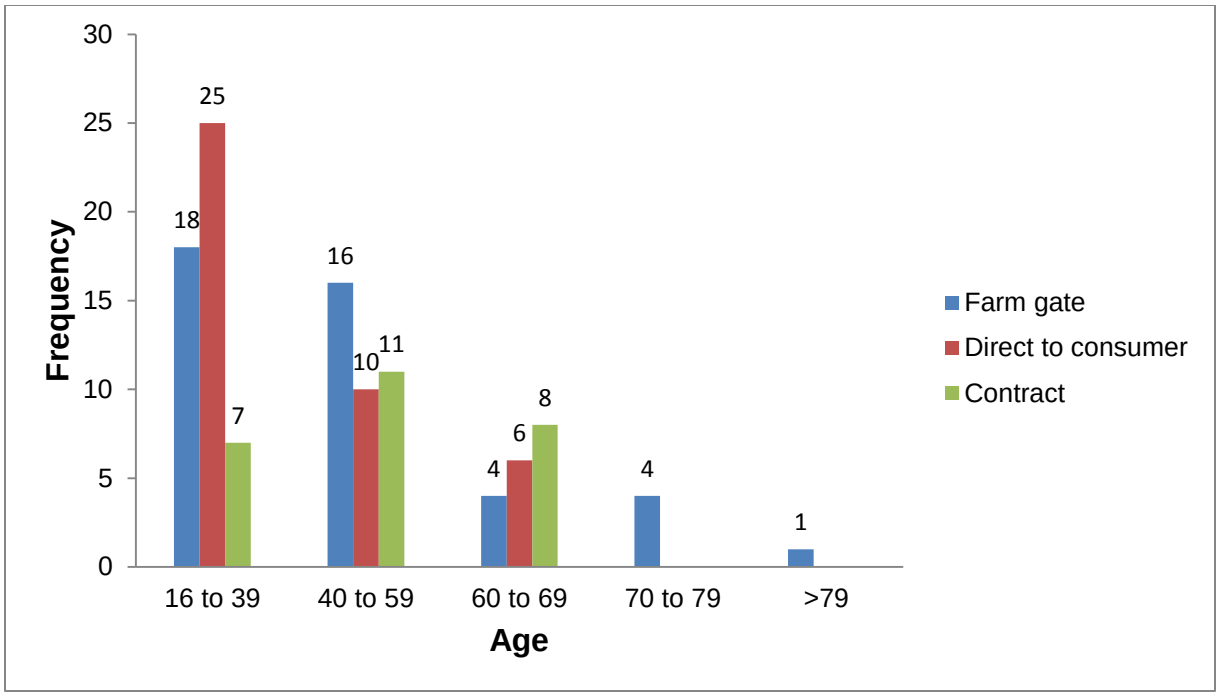

Figure 4.3: Distribution of age of household head
Source: Field survey (2016)

Table4.3: Distribution of respondents according to age of the household head

Marketing channels	Age (years)					
	16 to 39	40 to 59	60 to 69	70 to 79	>70	Total
Farm gate	18 (42)	16 (37)	4 (9)	4 (9)	1 (2)	43 (39)
Direct to consumer	25 (61)	10 (24)	6 (15)	0 (0)	0 (0)	41 (37)
Contract	7 (27)	11 (42)	8 (31)	0 (0)	0 (0)	26 (24)
Total	50 (45)	37 (34)	18 (16)	4 (4)	1 (1)	110 (100)

Chi-square=18.519: p>0.05
Figures in parentheses are % ages
Source: Field Survey (2016)

Table 4.3 above illustrates that the total number of smallholder farmers using farm-gate marketing channel is 43, 18 of them have their age ranging from 16 to 39 years, 16 of them have their age ranging from 40 to 59 years, 4 have age ranging from 60 to 69 years, another 4 have their age ranging from 70 to 79 years and 1 of them have age of >70 years. The total number of smallholder farmers using direct to consumer marketing channel is 41, 25 of them have their age ranging from 16 to 39 years, 10 with age from 40 to 59 years and 6 of them have their age ranging from 60 to 69 years. Then the total number of smallholder farmers using contract marketing is 26, 7 of them have the age ranging from 16 to 39 years, 11 with age from 40 to 59 years and 8 of them have their age ranging from 60 to 69 years.

According to table 4.3 the total number of smallholder farmers using farm-gate marketing channel is 43, 42% of them have their age ranging from 16 to 39 years, 37% of them have their age ranging from 40 to 59 years, 9% have age ranging from 60 to 69 years, another 9% have their age ranging from 70 to 79 years and 2% of them have age of >70 years. The total number of smallholder farmers using direct to consumer marketing channel is 41, 61% of them have their age ranging from 16 to 39 years, 24% with age from 40 to 59 years and 15% of them have their age ranging from 60 to 69 years. Then the total number of smallholder farmers using contract marketing is 26, 27 of them have the age ranging from 16 to 39 years, 42% with age from 40 to 59 years and 31% of them have their age ranging from 60 to 69 years. The chi-square test shows that there is no significance between age and marketing channels.

According to Muchara (2011) the age of the household head is very important and plays a vital role because it reflects whether the household is benefiting from the experience that the elderly person bears. These results suggest that the young people are the ones dominating the agricultural sector and they are the ones participating in agriculture compared to elderly people. This is likely to enhance household food security status because young people are more energetic and flexible enough to adapt easily to the advancing technology. This has a positive influence to the choice of market channels by smallholder vegetable farmers.

4.3.4 Distribution of households according to marital status of household head

According to Zenda (2002) and Mcata (2012) married households are able to diversify and share household activities (such as agricultural production, harvesting, fetching water, ploughing and herding livestock) among themselves. While it is stipulated that single, widowed and divorcees households heads found it difficult to share the activities as they all do the household activities by themselves as they do not have all the necessary support, unless they acquire some assistance from older children who are fit enough to assist with household activities. Married households are the ones who are more committed to agriculture than those single, divorced and windowed households due to result of the heavier load for family support than married household have on their shoulder (Mcata, 2012). In most of the African families, the priorities and stability of a household is usually judged based on the marital status and it is further believed that married farmers tend to be more stable in farming activities than unmarried heads.

The married households are the ones who improve agricultural productivity than divorced, single and widowed households as they have load of support from the family. This means that there are more labourers available to assist and improve productivity compared to singled, widowed and divorced households. Figure 4.4 illustrates the distribution by marital status of the interviewed vegetable smallholder farmers in the King Sabata Dalindyebo Municipality.

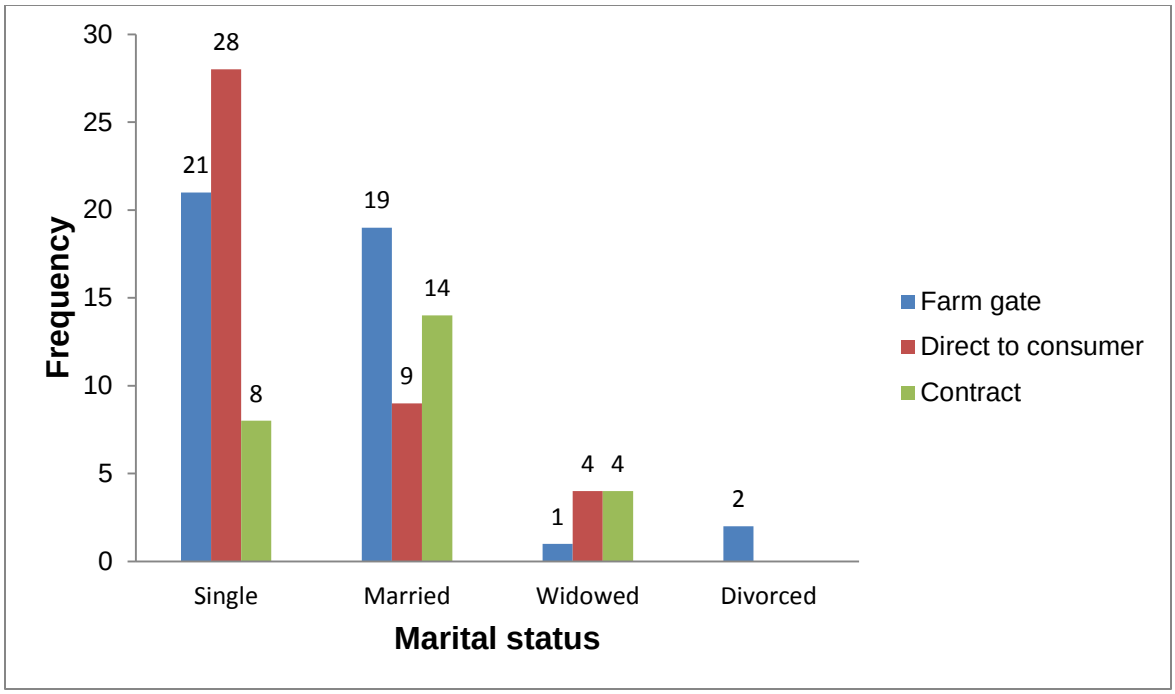

Figure 4.4: Distribution of respondents by marital status of household head
Source: Field survey (2016)

Table4.4: Distribution of respondents according to marital status

Marketing channels	Marital status				
	Single	Married	Widowed	Divorced	Total
Farm gate	21 (49)	19 (44)	1 (2)	2 (5)	43
Direct to consumer	28 (68)	9 (22)	4 (10)	0 (0)	41
Contract	8 (31)	14 (54)	4 (15)	0 (0)	26
Total	57	42	9	2	110

Chi-square=16.041: p>0.05
Figures in parentheses are %ages
Source: Field survey (2016)

Table 4.4 above shows that the total number of smallholder farmers using farm-gate marketing channel is 43, 21 of them are single, 19 married, 1 widowed and 2 of them are divorced. The total number of those using direct to consumer marketing channel is 41, 28

of them are single, 9 married, 4 widowed and none divorced. Then the total number of smallholder farmers using contract marketing channel is 26, 8 of them are single, 14 married, 4 of them are widowed.

According to table 4.4 above the total number of smallholder farmers using farm-gate marketing channel is 43, 49% of them are single, 44% married, 2% widowed and 5% of them are divorced. The total number of those using direct to consumer marketing channel is 41, 68% of them are single, 22% married, 10% widowed and none divorced. Then the total number of smallholder farmers using contract marketing channel is 26, 31% of them are single, 54% married, 15% of them are widowed. The chi-square test shows that there is no significance between marital status and marketing channels.

The results shows that there are many singe smallholder famers than married, which indicate a negative influence to the choice of market channels by smallholder vegetable farmers. As stipulated by Mcatha (2012), that single, widowed and divorcees households heads found it difficult to share the activities as they all do the household activities by themselves as they do not have all the necessary support, unless they acquire some assistance from older children who are fit enough to assist with household activities.

4.3.5 Distribution of respondents according to level of education

The level of education is vital because literacy which is obtained through education has been noted as one of the factors enabling farmers to obtain as well as process applicable information. It is also anticipated that the level of education does play a crucial role in influencing the adoption level of new innovations by farmers as well as translated to the human capital as well as the attitude to deal with modern farm decision making processes. The household heads that have obtained education and or have higher levels of education are better able to interpret information as (Muchara, 2011). For the purposes of this particular research; level of education is broken into four categories namely primary, secondary, tertiary and informal level of education. Figure 4.5 shows the distribution of respondents according to level of education.

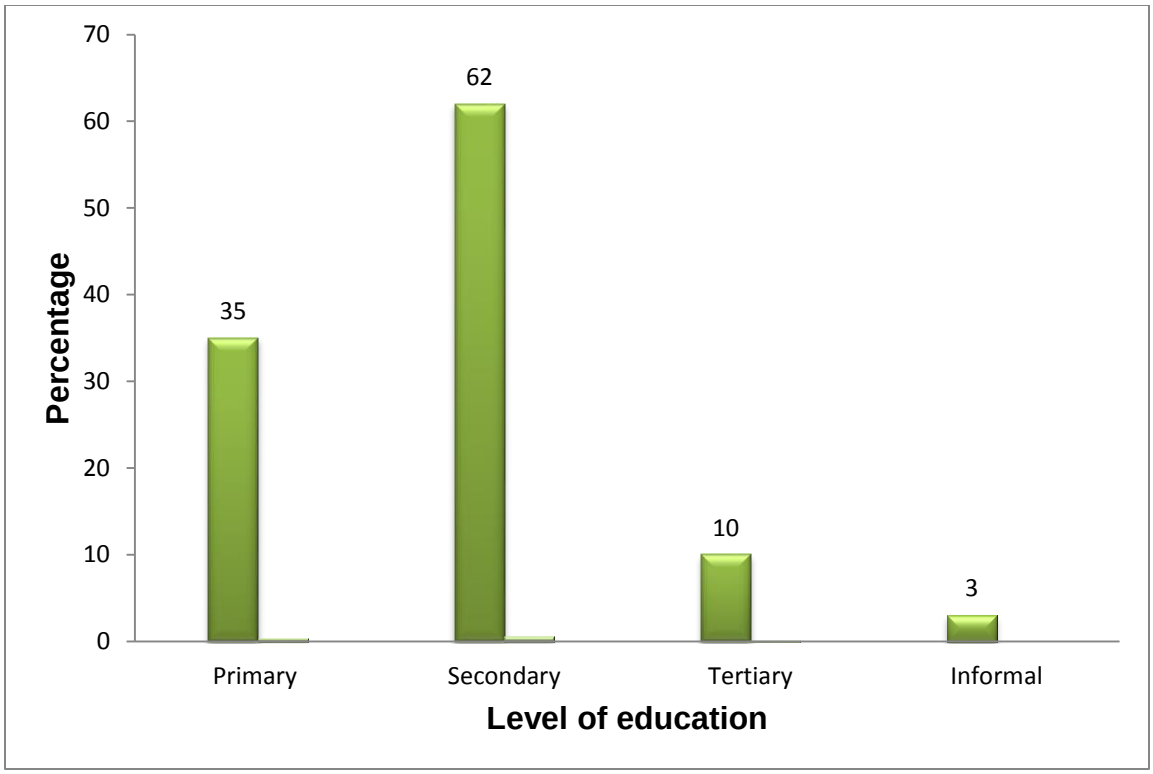

Figure 4.5: Distribution of respondents by level of education
Source: Field survey (2016)

Figure 4.5 shows the educational level of the interviewed vegetable smallholder farmers in the KSD Municipality. Figure 4.5 suggests that secondary education is the highest level of education attained by farmers in KSD Municipality with 62%. Farmers that attained primary education make up the second largest group of educated people with 35%, followed by those with a tertiary qualification constituting 10% where those who did not attend school made up 3% as the sample. The results indicate that there is a low margin of people in the municipality who undergo tertiary school to further their studies and acquire more skills and knowledge as revealed by the modest figure of 9% of the people having tertiary qualifications. The relatively low proportion of people with higher education might have been influenced by the movement of people away from agriculture into industry as they acquire more education. Lack of professional skills can also be linked to the low employment levels in the communities and municipality as whole. It is a well-known fact that South Africa has source of the highest levels of unemployment in the world.

The results show a greater proportion (62%) of the respondents with secondary level of education, which is indicating a positive influence to the choice of market channels by smallholder vegetable farmers. According to Muchara (2011), the high levels of literacy which are prevalent in KSD Municipality is consistent with the literature which states that people who reside in rural areas tend to be less educated than those in urban areas, for various reasons, including the four educational infrastructures in accessibility of educational activities.

4.3.6 Distribution of respondents according to type of crops grown

The study reveals that most of the households are involved in crop production. According to Baiphethi and Jacobs (2009), a number of households in South Africa engage in subsistence agriculture as a main source of food and income. Therefore, there is a rise in the number of households engaging in subsistence production as an extra source of food (Aliber 2009). Table 4.5 and Figure 4.6 bellow illustrates different types of crops grown by vegetable smallholder farmers in the KSD Municipality.

Table 4. 5: Distribution of respondents according to type of crops grown

Crops grown	Frequency	Percentage (%)
Pumpkin	16	15
Cabbage	70	64
Spinach	48	44
Potato	36	33
Carrot	6	5
Butternut	38	35
Onion	12	11
Beetroot	2	2
Tomato	36	33
Total	110	100

Source: Field survey (2016)

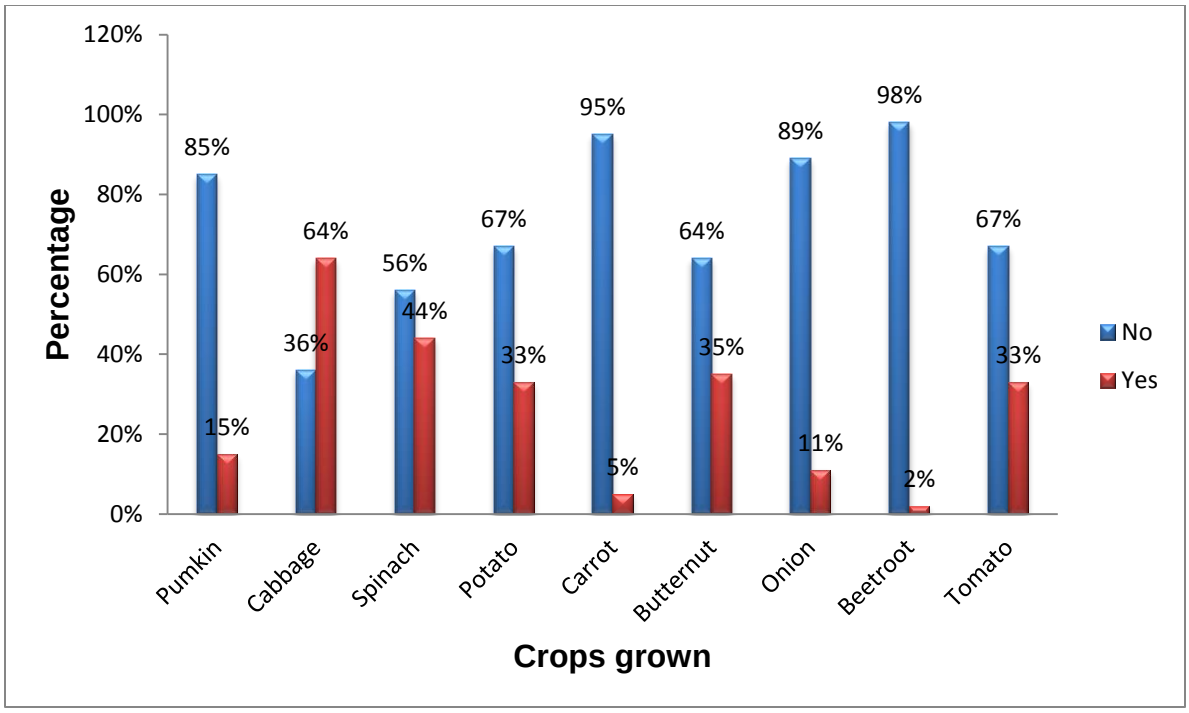

Figure 4.6: Distribution of respondents by crops grown
Source: Field survey (2016)

Figure 4.6 shows the crops grown by the respondents in the King Sabata Dalindyebo Municipality. From figure 4.6 it is shown that nine different crops were grown by the respondents, the most grown crop was cabbage as indicated by the majority (64%) of the respondents followed by spinach (44%), followed by butternut (35%), followed by potato and tomato (33%), then Pumpkin shown by 15% of the respondents, followed by Onion (11%) which is followed by Carrot (5%), lastly followed by Beetroot 2%. Furthermore, the survey shows that Cabbage is the most vegetable grown in the KSD Municipality, because it is mostly used as staple food as well as cash crop, while the least crop grown is Beetroot 2%. Beetroot is the least crop grown because mostly used for home consumption in the study area.

4.3.7 Distribution of respondents according to choice of marketing channels

Gausi *et al.* (2004) made a parallel observation and noted that the majority of smallholder farmers make use of different ways in marketing their products wherever they display them in order to attract customers. Figure 4.7 illustrates the distribution of respondents by choice of marketing channels.

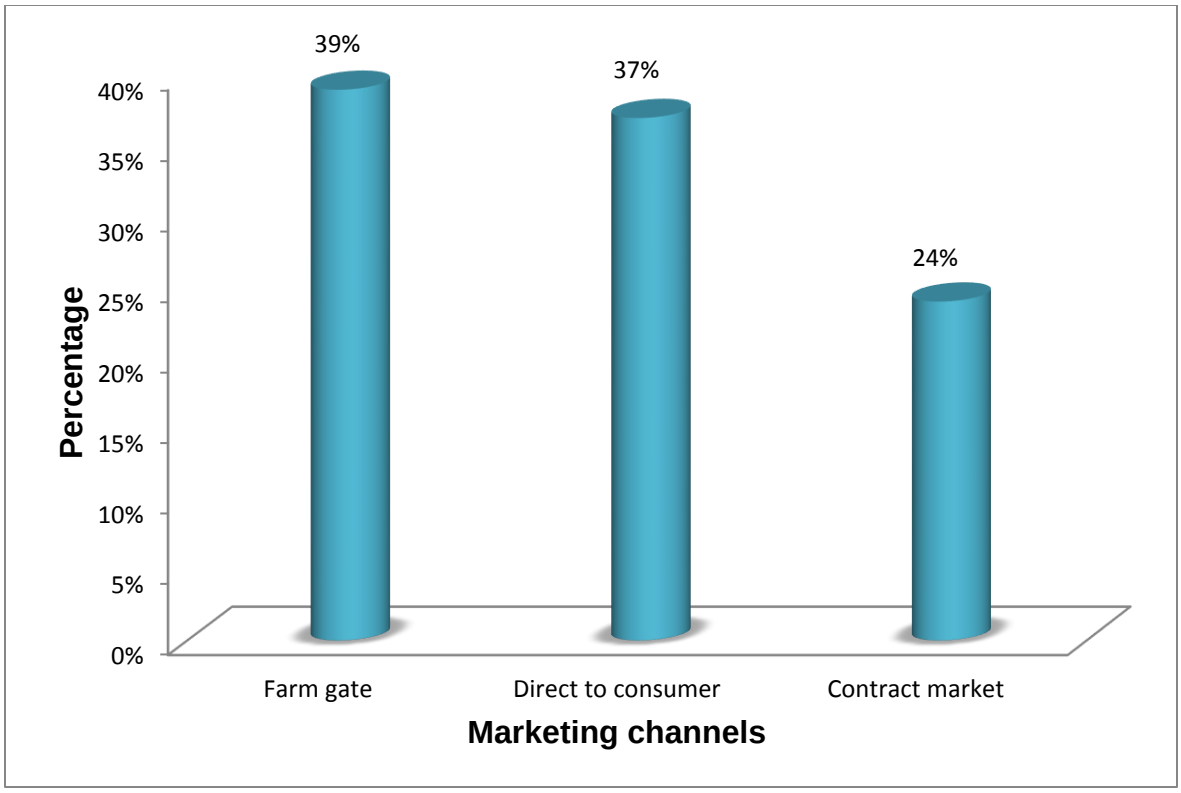

Figure 4.7: Distribution of respondents by choice marketing channels
Source: Field survey (2016)

Figure 4.7 illustrate the distribution of respondent by marketing channels in the KSD Municipality. The survey shows that a greater proportion of the respondents use farm-gate as their choice of marketing channel followed by direct to consumer marketing channel (37%) and lastly contract market (24%). This is because majority of the smallholder vegetable farmers do not own transport as others which is a contributing factor to such low formal market participation by farmers as they mostly use farm-gate market channel to market their produce. Long distance also play a major role in their participation and their roads are gravel roads and are in bad conditions which damages their produce and result in some of the farmers deciding not to sell as result of damaged produce and high cost of transport to reach formal markets as well as not enough output. As a result of cost of hiring and bad road condition as well as not travelling long distances, farmers prefer selling their produce at the farm gate.

4.3.8 Distribution of respondents according to seasonal income

The seasonal income is representing the amount of the household income that is received at the end of the season which includes only farming income. Figure 4.8 illustrates the seasonal income of the respondents in the King Sabata Dalindyebo Municipality.

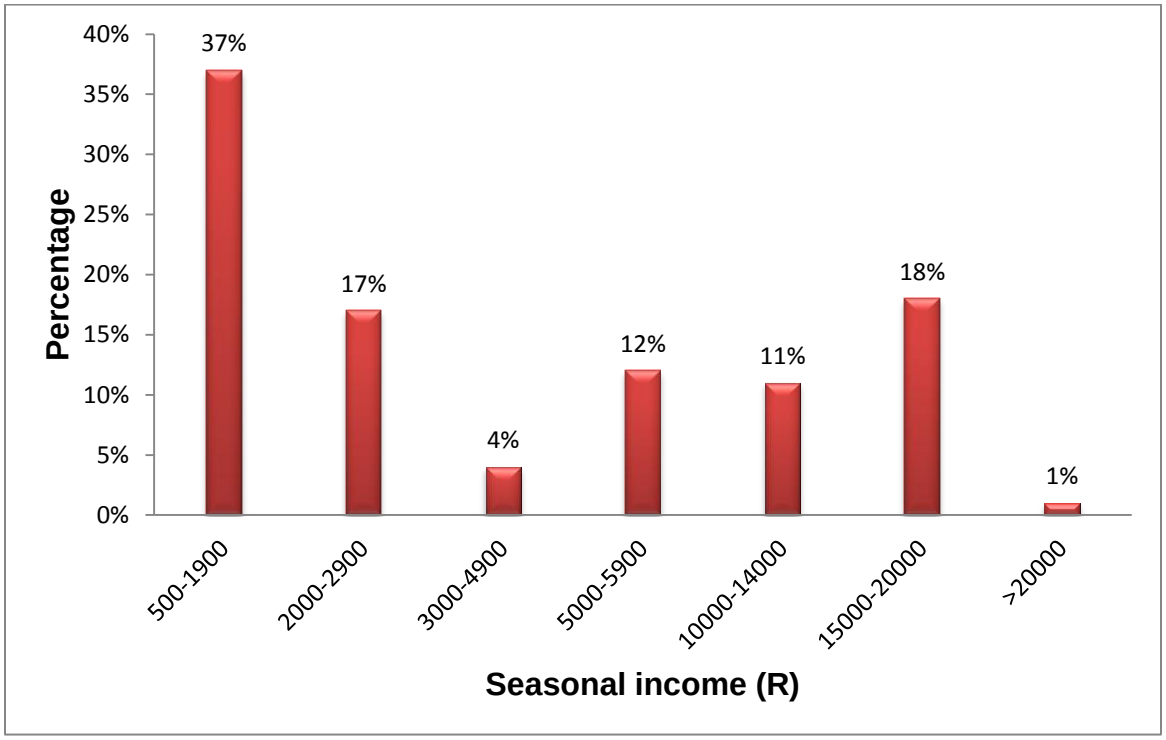

Figure 4.8: Distribution of respondents by seasonal income
Source: Field survey (2016)

Figure 4.8 shows the seasonal income of the respondents in the King Sabata Dalindyebo Municipality. The results in figure4.8 shows that those who received an income of R500-1900 accounted for 37% of the sample, those that received an income of R2000-2900 accounted for 17% of the sample, followed by those who received an income of R3000-4900 accounted for 4% of the sample, those who received an income of R5000-5900 accounted for 12% of the sample, those who received an income of R10000-14000 accounted for 11%, followed by those who received an income of R15000-20000 accounted for 18% lastly those who received an income >R20000 accounted for 1% of the sample. The results indicate that many respondents 37% receive the least amount of income which is R500-900 rends at the end of the season. The income received by respondents clearly complements the high levels of unemployment in the study area.

4.3.9 Training received by the respondents

Training is one of the important factors for agricultural practices and farming as it assists farmers in obtaining new techniques and skills which enhances productivity, marketing and other important skills needed in farming. Training is an agricultural technical skill which plays a vital role for human capital development. Figure 4.9 illustrate the distribution of training received by vegetable smallholder farmers in KSD Municipality.

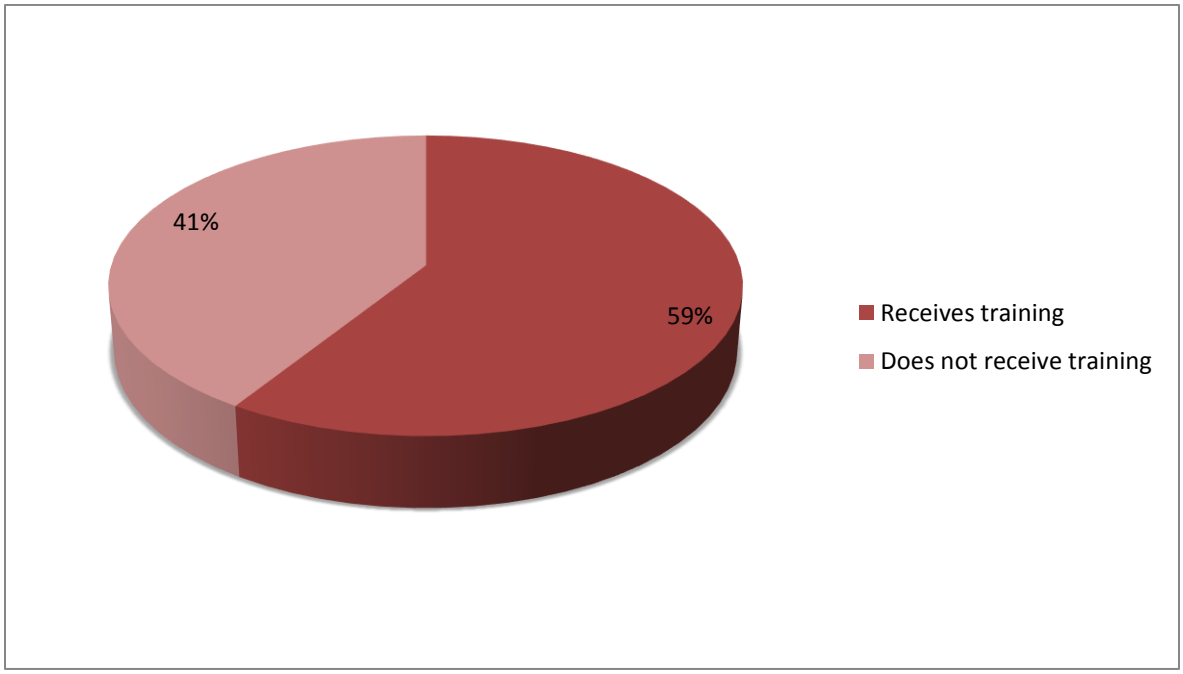

Figure 4.9: Distribution of respondents by training received
Source: Field survey (2016)

Figure 4.9 indicates that smallholder vegetable farmers in KSD Municipality receive training for farming and other related agricultural practices and is indicated by 59% of the respondents while those who do not receive farm training accounted for 41% of the sample. This rate of smallholder vegetable farmers not getting training is merely because government extension services mostly offer training and much help to co-operatives rather than to individual farmers. This is shown by training gaps in all farm operations in the sampled study area and as a result a majority of the smallholder vegetable farmers use indigenous knowledge, own experience and the knowledge received from farm organization which assist in some training to perform some operations but thus adversely affects their productivity and market participation greatly. The survey suggests that the majority of the farmers do not use chemicals such as pesticides, herbicides and other

chemicals to spray their crops to prevent pest and earth worm damages of crop which indicate lack of knowledge and resources for the farming. This comprises the farmers' yields and quality which is vital and thus consequently affects their market participation.

4.3.10 Transport used by respondents for their produce to the markets

Transportation is very important for farming as it is not only used for transporting produce to the markets but it is also used in the purchase of the inputs for the farm and carrying of other farming systems to be used in the farm as well as transportation of labor during sunny and rainy days. The Figure 4.10 illustrates transport used by respondents for their produce to the markets.

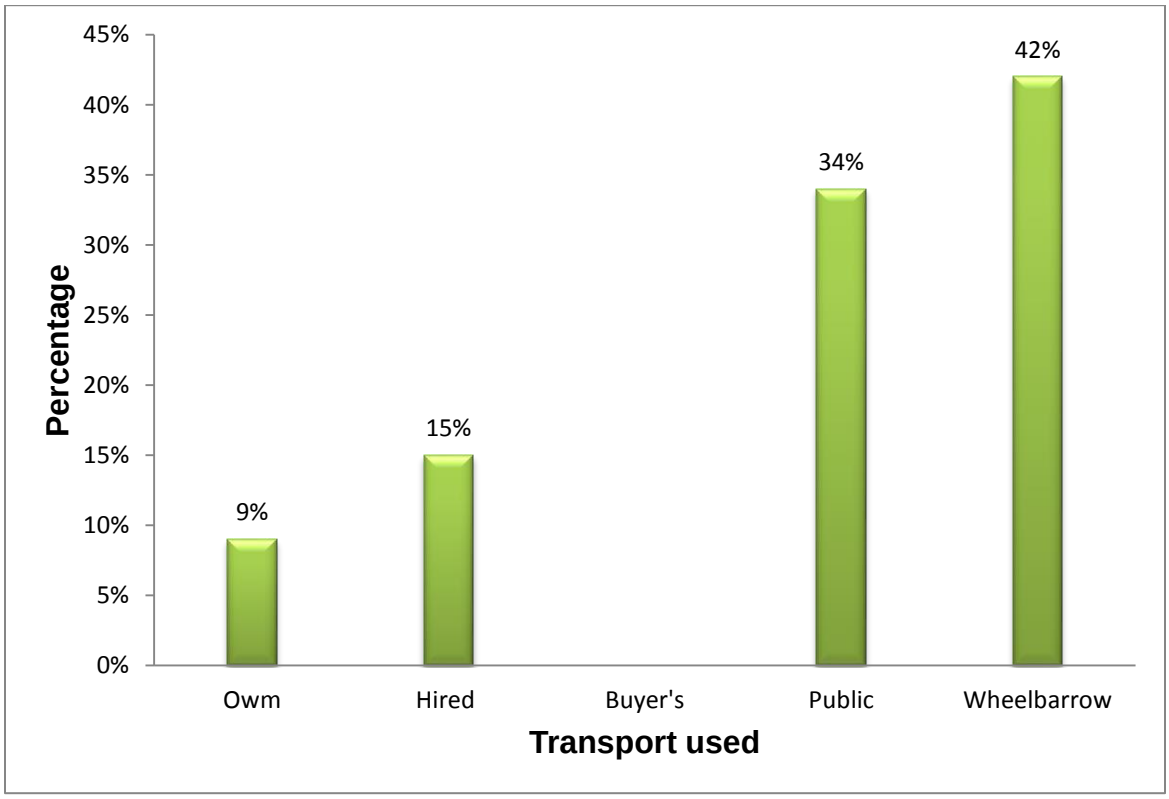

Figure 4.10: Distribution of respondents by transport used
Source: Field survey (2016)

The results in Figure 4.10 illustrate the transport used by respondents for their produce to various markets that were selected by the choice of farmers. From the results it is indicated that a greater proportion of smallholder vegetable farmers make use of wheelbarrow and public transport to transport their produce to the markets as indicated by 42% and 34% of the respondents, respectively; followed by hired transport (15%) and

lastly own transport (9%), respectively. None used buyer's transport. These results further explain that most farmers use farm-gate marketing channel as shown by the high value of wheelbarrow.

4.3.11 Distribution of respondents by membership of farm organization

The farmer organization is an organization made up of farmers and homesteads with common problems and understanding. This is a structure which farmers and homesteads join to be a member so that they can be assisted by organization members and extension agents regarding the challenges they encounter whether it is credit, access to markets, access to extension services and contract or agreement in selling their produce. The farmers' organization tries to close the gap that farmers find themselves into by providing them with other ways of solving their problems. The farmers' organization facilitates access to credit, markets, extension services and other services required by farmers and homesteads at a lower transaction costs. Figure 4.11 illustrates the distribution of respondents by membership of farm organization.

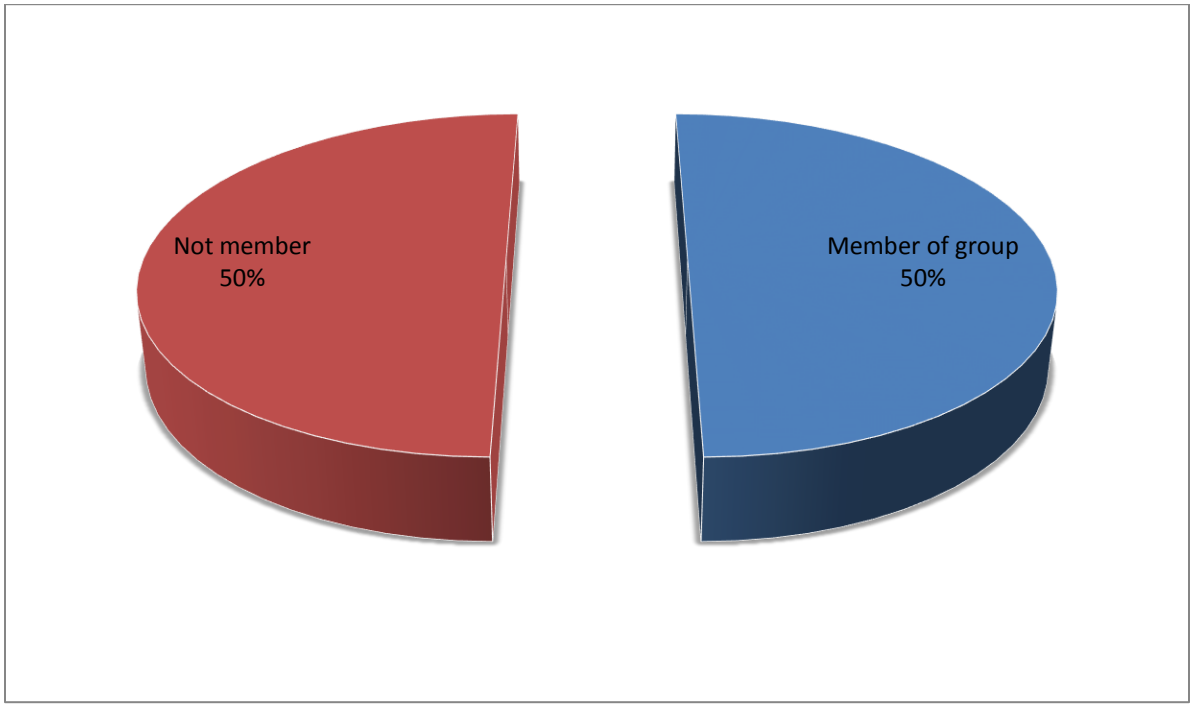

Figure 4.11: Distribution of respondents by membership of farm organization
Source: Field survey (2016)

Figure 4.11 illustrates farm organization membership of the interviewed vegetable farmers. The results indicate that from the sampled data about 50% of the respondents are affiliated and members of the farm organization while the other 50% of the respondents are not affiliated to any farm organization. The affiliated members of the farmers' organization are enjoying benefits of being members by receiving general information, training services, production, transportation and market information. The training these farmers receive is based on new technologies and changing farming practices as well as exposure to other agricultural services. Any kind of assistance that is required by farmers are presented and achieved through this farmer organization as it groups farmers in co-operatives so that they can easily find assistance from government.

4.3.12 Distribution of respondents by access to extension services

Extension services are the most fundamental services and they play a vital role in equipping farmers with the necessary farming knowledge, skills, and techniques in order to enhance, also increase productivity and use of marketing channels (Kaliba, Verkuijl and Mwangi, 2000). Access to agricultural extension services is likely to have conservative influence on the production and marketing behavior of the farmers. The higher access to the extension service, the more likely that farmers adopt new technology and innovation. Figure 4.12 below illustrates the distribution of access to extension services by respondents in KSD Municipality.

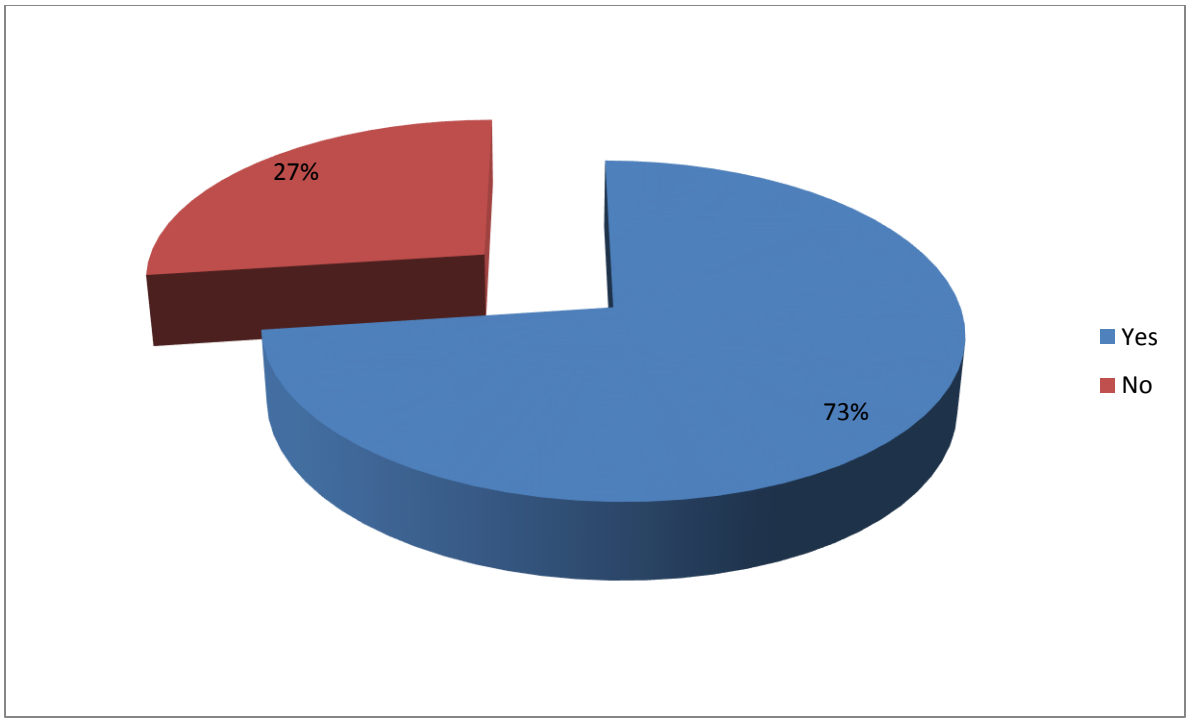

Figure 4.12: Distribution of respondents by access to extension services
Source: Field Survey (2016)

The results in Figure 4.12 illustrate access to extension services by respondents in the KSD Municipality. The study results indicate that respondents that do have access to extension services was 73% while a minimal (27%) of respondents indicated that they do not have access to extension services. The results illustrate that extension services are available for vegetable smallholder farmers in KSD Municipality and it is further shown that any farming or agricultural information is made available to the farmers. Thus indicate that information about anything related to agriculture whether marketing, production or packaging is available to farmers as they have access to such services through extension services. Market channels used are expected to increase among smallholder vegetable farmers as information about marketing is made available to them through extension services and further assist them in production techniques which will bear high yields and excess surplus for the farmers to participate in markets.

4.4 Factors that affect choice of marketing channels by vegetable smallholder farmers in KSD Municipality

The main aim of this section is to present the results of the inferential analysis. Multinomial logistic regression was used to analyze the farmers' decisions on choice of market channels and to determine the factors that influenced these choices. In the model, choice of market channel represents the dependent variable which consists of 3 categories namely: farm-gate, direct to consumer and contract market channel. Contract market channel have been set as the reference category. The choice of market channel describes the decision to sell the vegetables to wholesale market channel, other-wholesale market channel or non-wholesale market channel as explained in the research methodology section. Table 4.6 shows the estimated coefficient (β), standard error, significance value and odd ratios (Expβ) of the variables in the model.

Table4.6: Multinomial Logit regression results for the determinants of smallholder vegetable market choice in the study area

Market channel choice	Farm gate				Direct to consumer			
Variables	Coefficient	Std.Error	Significance	Odds Ratio	Coefficient	Std.Error	Significance	Odds Ratio
Farming experience	3.135	1.098	0.004***	22.985	3.942	1.337	0.003***	51.506
Household size	-1.424	0.818	0.082	0.241	-1.822	0.985	0.064	0.162
Gender	1.435	1.429	0.315	4.198	1.386	1.562	0.375	3.999
Age	-1.034	0.850	0.224	0.356	-2.078	1.010	0.040**	0.125
Marital status	-0.150	0.806	0.852	0.861	0.373	0.951	0.695	1.453
Educational level	0.973	0.716	0.174	2.646	2.198	0.883	0.013**	9.011
Input used	1.571	0.773	0.042**	4.809	1.878	0.933	0.044**	6.539
Transport used	-0.978	0.568	0.085	0.376	-2.978	0.655	0.000***	0.051
Extension services	0.942	1.147	0.412	0.390	-3.564	1.068	0.01**	0.025

Note: Asteriks denote the level of significance * *= 5%, while * = 1%**
Source: Computed from Field data Survey, 2016

From the Multinomial logistic regression results, farming experience shows a positive coefficient and significant on both farm-gate and direct to consumer market channel at

1% level (p=0.004 and 0.003 respectively). The multinomial logit estimate comparing farming experience of vegetable smallholder farmer's choice of farm-gate and direct to consumer market channel relative to contract market channel was found to have an odds ratio of 22.985 and 51.506 respectively. This implies that the odds of farming experience for both farm-gate and direct to consumer market channel are 23 and 52 times greater respectively. The odds ratios for both farm-gate and direct to consumer coefficients suggest a higher probability of choosing farm-gate and direct to consumer market channel than contract market channel with an increase in farming experience. A similar observation was made by Obi and Agbugba (2016) in their study on the causality and integration analysis of dry season tropical leafy vegetable markets in South-East Nigeria.

The age of vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level (p=0.040) with a negative coefficient. This shows that the age of household head has a strong influence on farmer's decision to choose direct to consumer market channel over contract market channel. The positive odds ratio suggests that the older smallholder vegetable farmers do appear to have a higher probability of choosing direct to consumer market channel by. A negative sign on coefficient indicates that the younger the smallholder vegetable farmers become the less likely they employ direct to consumer market channel. Hence, the illiteracy level of the vegetable farmers negatively affects direct to consumer choice of market channel. Jari and Fraser (2014) made a similar observation.

The level of education of the vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level (p=0.031). The multinomial logit estimate comparing level of education choice of direct to consumer market channel to contract market channel was found to have an odds ratio of 9.001, this supports the higher probability of variable influence on direct to consumer market channel. This implied that the more educated the smallholder vegetable farmers are, the more they employ the direct to consumers market channel than contract market channel. This is contrary to that of farm-gate level which had no positive relationship with the vegetable farmers' choice of market channel. Hence, the illiteracy level of the vegetable farmers negatively affects

direct to consumer choice of market channel. Adugna (2009) made a similar observation in his study on the analysis of fruit and vegetable market chains in Alamata, Southern Zone of Tigray.

Moreover, the results also showed that the inputs used are positively related to the choice of farm-gate as well as direct to consumer market channels at 5% significance level (p=0.042 and 0.044 respectively). The odds ratios for both farm-gate and direct to consumer coefficients suggest a higher probability of choosing farm-gate and direct to consumer market channel with an improvement on inputs used. This implies that inputs used are a strong variable which affected choice of market channels both at the level of farm-gate as well as that of the direct to consumer for smallholder vegetable farmers. Hence, the more inputs used by the smallholder vegetable farmers affected their choice of market channel at any level. This could be due to the input-output principle which affected the vegetable farmers' choice of marketing channel in relation to the inputs (such as improved seeds, fertilizer and agro-chemicals) which they employed during production. Jari and Fraser (2014) made a similar observation.

Similarly, means of transportation used and choice of marketing channel of the vegetable farmers are positively related at 1% significance level (p=0.000) at the direct to consumer choice of market channel. The value of odds ratio shows that there is less likelihood of choosing direct to consumer market channel over contract market channel by (0.051). The transportation means (owned, hired or public vehicles) employed significantly affected the choice for direct to consumer channel. A negative sign on coefficient indicates that the lesser the access on means of transport by the smallholder vegetable farmers become the less likely they employ direct to consumer than contract market channel. Hence, transportation is seen as a contributory factor to the smallholder vegetable farmers' choice of marketing channel. Mutura *et al.*, (2015) in their study on analysis of determinants of market channel choice among smallholder dairy farmers in Lower Central Kenya made a similar observation.

Furthermore, access to extension services indicated a positive relationship to the choice of market channel amongst the smallholder vegetable farmers for the direct to consumer at 5% level of significance (p=0.01). The value of odds ratio shows that there is less likelihood of choosing direct to consumer market channel over contract market channel by (0.025). This explains that extension services in the form of training or workshops on input use, agronomic practices, financial management, marketing and group formation, among others) received by the smallholder vegetable farmers contributed to their knowledge in their decision on the choice of market channel in the study area. A negative sign on coefficient indicates that the lesser the extension services rendered to smallholder vegetable farmers become the less likely they employ direct to consumer market channel than contract market channel. In other words, in strengthening this, extension information for farmers, according to Jari (2009) is an aspect of education received by a farmer affects market information interpretation and thereby influencing their market participation level of the farmers.

4.5 Chapter Summary

The main purpose of this chapter was to present the results of the analysis of the primary data. The results were divided into two, namely the characteristics and profile of the 110 sampled vegetable smallholder farmers using descriptive analysis and the results of the inferential analysis which involved hypothesis testing. The descriptive statistics and cross tabulations have been used to test and describe the farmers' choice of market channels and the results of analysis have been presented in the form of charts, graphs, mean and tables. From the cross tabulation results large household size will assist in providing labor for the households which will play a key role in improving vegetable productivity as there will be enough people to assist in farming, thus increase production levels of vegetables. The results have shown that the majority of farmers were female farmers.

The results indicated that there is low margins of people in the municipality who have undergo tertiary school to further their studies and acquire more skills and knowledge as revealed by the modest figure of 9% of the people having tertiary qualifications. From the results it is shown that nine various crops were grown by the respondents in the study

area. The survey shows that a greater proportion (39%) of the respondents use farm-gate as their choice of marketing channel followed by direct to consumer marketing channel (37%) and lastly contract market (24%). The results indicated that smallholder vegetable farmers in KSD Municipality receive training for farming and other related agricultural practices and is indicated by 59% of the sample while those who did not receive farm training accounted for 41% of the sample. The results indicated that from the sampled data about 50% of the respondents are affiliated and members of the farm organization while the other 50% of the respondents are not affiliated to any farm organization. The study results indicated that respondents that have access to extension services were 73% of the sample while a minimal (27%) of respondents did not have access to extension services.

From the Multinomial logistic regression results, farming experience is positively related to choice of farm gate market channel at 1% level of significance. The age of vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level. The level of education of the vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level. Moreover, the results also showed that the inputs used are positively related to the choice of farm-gate as well as direct to consumer market channels at 5% significance level. Similarly, means of transportation used and choice of marketing channel of the vegetable farmers are positively related at 1% significance level at the direct to consumer choice of market channel. Furthermore, access to extension services indicated a positive relationship to the choice of market channel amongst the smallholder vegetable farmers for the direct to consumer at 5% level of significance which is insignificant for that of the farm-gate.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter brings the summary of the research findings and conclusions based on the results of the study and recommendations put forward. The primary objective of the project was to investigate factors affecting vegetable farmers' choice of market channels in King Sabata Dalindyebo Municipality in the Eastern Cape Province. By stratified random sampling based on village, project membership and farmers, a sample of 110 heads of households was chosen for the study in eight different wards of KSD. A structured questionnaire together with field observations and measurements were adopted for obtaining information from household respondents. Data analysis was done through use of statistical software, SPSS and Microsoft Excel to run frequencies, descriptive statistics, and multinomial logistic regression model.

5.2 Summary

This section brings to light the major issues that were dealt with in the study. Chapter one presented the background of the study, problem statement, objectives of the study, research questions, hypothesis and justification of the study. Chapter two presented the literature review on the choice of market channels by vegetable smallholder farmers and its factors and constraints. Chapter three presented research methodology which included the description of the study area, research design, and unit of analysis, data collection, sampling procedure, data analysis, delineation, and ethical consideration. Chapter four presented the results of the study and discussed them. Chapter five is presenting the summary, conclusion and recommendations.

5.2.1 Background

The contribution of agriculture to the economy has been a point of discussion for quite some time, because it is of importance to know what drives the development of the economy. If agriculture is the sole or dominant sector, understanding its structure and workings will be helpful in planning programs to support those who are engaged in it (Segie *et al*., 2014). Vegetables as a group of horticultural crops are important for their

contribution as an income support to a large proportion of the rural households. However, enhancing vegetable farmers to reach markets and actively engage in the markets is a key challenge influencing vegetable production in South Africa. The perishable nature of vegetables demands effective marketing channels.

Smallholder farmers, therefore, can be described as those classes of farmers who own small plots of land in which they cultivate staple crops in addition to one or two cash crops which almost completely rely upon family labor (Yahya and Xiaohu, 2014). Global Food & Agriculture Investment Outlook (2015) noted that it is unfavorable for smallholders to participate in marketing in South Africa, due to the difficulties they face in their market access. Smallholder agriculture plays a crucial role in rural livelihoods as it is estimated that about 86% of rural dwellers in South Africa depends solely on the sector (Matsane and Oyekale, 2014).

Marketing can be described as the process of preparation and executing the consumption pricing, promotion and delivery of idea, goods and services to create exchange that satisfy individual and organizational goals (Urgessa, 2011). Moreover, marketing is described as the set of economic and behavioral actions that are involved in coordinating the various stages of economic activities from production to consumption. According to Moyo (2010), marketing is described socially as the societal process where individuals and groups obtain what they required and needed by developing, donating as well as generously exchanging services and merchandises of value with others. Furthermore, Moyo (2010) and Makhura (2001) describe market participation as earnings that a farmer receives from market activities and also as any market related activity which promotes the sale of produce and the volumes of produced traded explains market participation by the farmer or individual.

According to Africa Progress Report (2014), encouraging growth & development in choice of marketing channels of resource poor smallholder famers have been variously approached in many ways in order to enable them to raise their income levels. Due to the inherent problems of smallholder agriculture, featuring low production, lack of profit as well as poor market participation, the fortunes of the sector have remained unchanged for a long time (Makuvaro, 2014). Understanding such challenges among smallholder

farmers is important in identifying areas that need focus and direction for improvement. In the light of these challenges, suggestions can be made on how to improve smallholder farmers' market.

Various studies on smallholder transformation in South Africa and southern Africa have established that successfully linking emerging farmers to markets is an actual means to alleviate smallholder poverty and achieve meaningful transformation (Khaile, 2012). It is observed that factors preventing smallholder farmers from active market participation are numerous and varying from place to place and from one farm type to another (Fairtrade, 2013). Such information is crucial to the design of meaningfully intervene in the smallholder sector and influence the transformation process in a positive way. But this information is not readily available and requires systematic studies to be obtained and made accessible to policymakers.

5.2.2 Literature review

There is no clear-cut definition of smallholder farmers and these farmers are distinct in numerous ways depending on the context one is using, country and even ecological zone (Machingura, 2007, Pienaar, 2013). According to Machingura, (2007) the term smallholder is often used interchangeably with terms such as small-scale, resource poor and sometimes peasant farmer. The term small-scale is repeatedly and frequently used in South Africa to refer to black smallholder farmers who are characterized by non-productive, backwards, non-commercial and subsistence agriculture and it is generally related with black farmers, as if black farmers do not have the ability to become large-scale commercial farmers (Kirsten and van Zyl, 1998). Cousins (2013) mentioned that the lack of good quality data on smallholder farmers exacerbates this problem of smallholder definitions.

According to Oettle *et al*. (1998) as cited by Pote (2008), smallholder farming is South Africa is diverse and is challenging to define. Smallholder farming involves largely black households farming and producing relatively low production on small plots of land which is approximately less than 2.0 hectares with limited resources. Generally, smallholder farming on its own rarely provides a sufficient means of livelihoods in communal areas as more than 2.6 billion people dependent solely on agriculture for their livelihood (Ncube,

2014). Smallholder farmers are the main source of food for the rural population, an income generating occupation because it is the main activity for many rural dwellers' in many developing countries, especially South Africa. This infers that smallholder agricultural productivity is very fundamental in alleviating poverty and hunger which couples rural areas.

Chilundika (2011) argues that in order to stay competitive and functioning, there must be increase in reliance of the past decade markets as they become the foundation for developmental strategies in which they will increase the functioning of markets efficiently and that is shown in developing countries. There is still a problem of low participation to marketing by smallholder farmers in rural areas in most of Developing countries and thus have led to failures of market base developmental strategies to facilitate growth, wealth creation and poverty reduction, respectively as they are the pillars of economic development. Bellemare and Barrett (2004) and Chilundika (2011) noted that in rural areas there is existence of significant market frictions which commonly impede the market participation, dampening farmers and households' capacity and volumes to yield a benefit of market opportunities as well as the capacity of governments to influence microeconomic behavior through altering market incentives. There are many divergent channels employed by smallholder farmers in their product marketing. Gausi *et al* (2004) made a parallel observation and noted that a majority of smallholder farmers make use of different ways in marketing their products wherever they display them in order to attract customers.

Smallholder farmers face numerous constraints, which increases risk and uncertainty as well as hindrances for increased production and consequently preventing farmers from accessing agricultural markets. Despite growing new market opportunities for farmers, there is a risk that smallholder farmers will be enfolded out, even though they possess some competitive advantages over larger producers, especially in their low costs in accessing family labor and intensive local knowledge (Poulton *et al*., 2005). Dorward and Kydd (2005) further argued that smallholder farmers will be excluded in high value markets because of their historical colonial legacy, location and poor performance of their

production which is characterized by decaying infrastructure, high production costs and transaction cost as well as poor quality which make smallholder farmers less competitive.

5.2.3 Description of the study area

King Sabata Dalindyebo Local Municipality was established in December 2000 and KSD Local Municipality comprises two magisterial areas which are Mthatha and Mqanduli. KSD is one of the 7 Local Municipalities, located under the O.R Tambo District Municipality in the Eastern Cape (King Sabata Dalindyebo Local Municipality, 2009). The name KSD was chosen from King Sabata Dalindyebo who fought for freedom in Transkei. KSD Local Municipality is located in the Eastern Cape which is the second largest province of South Africa. KSD Local Municipality has a total population of around 451 710 and the majority of whom reside in rural settlements where rural household size is 105 240 (King Sabtha Dalindyebo Municipality, 2010).

King Sabata Dalindyebo Municipality has varied climatic conditions throughout the year and topography where Mqanduli region is a tropical region while Mthatha is a temperate climate region which plays important role and contributes to diversity of agricultural production in the municipality which includes bee keeping, beef farming, dairy farming, crop farming, wool farming, tropical and deciduous fruit farming, vegetable farming and it is excellent tourism region (King Sabata Dalindyebo Municipality, 2010).

5.2.4 Methodology

The study adopted a multistage stratified sampling method. Multi-stage sampling was done in which the first stage involved selecting respondents from the different wards in the King Sabata Dalindyebo Municipality. This was done through stratification by separating vegetable smallholder farmers and homesteads within that area (different villages within the area). This was followed by employing quota sampling through the different households and smallholder farmers within those areas in order to determine households and smallholder farmers that are able to provide the needed information concerning the choice of market channels.

By stratified random sampling based on village, project membership and farmers, a sample of 110 heads of households was chosen for the study in eight different wards of

KSD. The sampling for this study was based on a large sampling technique of n ≥ 30 as there is no information regarding the population of the total number of homesteads and smallholder farmers that are under each traditional leader (chief) in these study sites. This sample comprises homesteads and smallholder farmers that took part in vegetable production. A structured questionnaire together with field observations and measurements were adopted for obtaining information from household respondents.

Descriptive statistics (percentages, means, frequency tables and figures), cross tabulations and Multinomial logistic regression model have been used to analyze the data. Multinomial regression have also been used to analyze the farmers' decisions to participate in market channels, farm-gate market, direct to consumer market or contract market channels and the factors that influenced these choices. In the model, choice of market channel represented the dependent variable where participating in contract market channel had been set as the reference category. The choice of market channel described the decision to sell the vegetables to farm-gate market, direct to consumer or contract marketing channel.

5.2.5 Results

From the cross tabulation results large household size with will assist in providing labor for the households which will play a key role in improving vegetable productivity as there will be enough people to assist in farming, thus increase production levels of vegetable. The results have shown that the majority of farmers were female farmers. This was represented by percentage distribution of 52% to females and 48% to males. The results have shown that most of these farmers are elderly people with 55% while young farmers with 45% and indicates that the farmers have more experience when it comes to farming and handling farm duties and marketing issues because of much elderly people involved in farming.

The results indicated that there is low margins of people in the municipality who have undergo tertiary school to further their studies and acquire more skills and knowledge as revealed by the modest figure of 9% of the people having tertiary qualifications. From the results it is shown that nine various crops were grown by the respondents in the study

area. The survey shows that most of the respondents use Farm-gate as their choice of marketing channel with 39% followed by direct to consumer marketing channel with 37% lastly contract market with 24%. The results indicated that smallholder vegetable farmers in KSD Municipality receive training for farming and other related agricultural practices and is indicated by 59% while those who do not receive farm training is at 41%. The results indicated that from the sampled data about 50% of the respondents are affiliated and members of the farm organization while the other 50% of the respondents are not affiliated to any farm organization. The study results indicated that respondents do have access to extension services with 73% while minimal of respondents do not have access to extension services with 27%.

From the Multinomial logistic regression results, farming experience is positively related to choice of farm gate market channel at 1% level of significance. The age of vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level. The level of education of the vegetable farmers was positively related to the choice of direct to consumer market channel at 5% significance level. Moreover, the results also showed that the inputs used are positively related to the choice of farm-gate as well as direct to consumer market channels at 5% significance level. Similarly, means of transportation used and choice of marketing channel of the vegetable farmers are positively related at 1% significance level at the direct to consumer choice of market channel. Furthermore, access to extension services indicated a positive relationship to the choice of market channel amongst the smallholder vegetable farmers for the direct to consumer at 5% level of significance which is insignificant for that of the farm-gate.

5.3 Conclusion

The hypothesis of the study stated that current status of smallholder vegetable farmers in King Sabata Dalindyebo Municipality is poor, secondly there are no factors affecting the choice of marketing channels of vegetable smallholder farmers in the formal vegetable markets. Based on the findings the more educated the smallholder vegetable farmers are, the more they employ the direct to consumer market channel. Inputs used are a strong variable which affected choice of market channels both at the level of farm-gate as well as that of the direct to consumer for smallholder vegetable farmers. The transportation

means (owned, hired or public vehicles) employed significantly affected the choice for both the farm-gate and direct to consumer channel. Extension services in the form of training or workshops on input use, agronomic practices, financial management, marketing and group formation, among others) received by the smallholder vegetable farmers contributed to their knowledge in their decision on the choice of market channel in the study area.

5.4 Recommendations

Smallholder farmers have great potential of practicing agricultural and food production. They are faced with different challenges as the results revealed that given all the assistance they need, they could produce more and improve their choice of market channels and this may results to improve the standard of living. There is a need for government to improve service delivery in terms of infrastructure, monitoring and evaluation of the farm organizations. There is a greater proportion of young smallholder vegetable farmers in King Sabata Dalindyebo Municipality, they need to be involved in as marketing agents, transporters and keeping of records. Therefore, there is a need for a strong extension support to help them on how to diversify their production, provide market information thereby enhancing production and opening channels to the market. This may enhance rural households' livelihood outcomes from agricultural production thereby alleviating poverty and thus improve food security. The standard of education needs to be improved. However, this may bring about a reduction of the household size. Hence, the government and research institutes need to come up with workshops and extension programs to train smallholder farmers about input use, agronomic practices, financial management, marketing and group formation.

5.5 Suggestions for further research

Market access remains a crucial enabler for true emancipation of farmers and thus appropriate and effective market channels are crucial. The findings of the study indicate that the majority of smallholder farmers in King Sabata Dalindyebo Municipality are young and single people; more elaborate research is necessary to accurately quantify the effects of social, economic and environmental factors on choice of market channels. A similar study also has to be conducted at the provincial level as the choice of market channels

by smallholder vegetable farmers is important in the context of poverty alleviation and food security and local economic development in South Africa. In this light, the findings of this study, at this phase, should only be considered tentative and partial.

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APPENDIX ONE: QUESTIONNAIRE

UNIVERSITY OF FORT HARE

FACULTY OF SCIENCE AND AGRICULTURE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION

CHOICE OF MARKETING CHANNELS BY SMALLHOLDER VEGETABLE FARMERS IN KING SEABATA DALINDYEBO MUNICIPALITY IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA

1. Brief general information

1.1 Name of the interviewer:.....

1.2 Municipality: .....

1.3 Name of farmer (Optional):….....

1.4 Ward number……..

1.5 Questionnaire number……

1.6 Date of the interview…….……

1.7 Do you own a homestead food garden 1) Yes [ ] 2) No

1.8 For how long have you been a farmer?

A. BACKGROUND INFORMATION

1) Respondent's Name……..……..

2) Household size ……

1.0 Household Information

1. Gender

M	F

2. Age

3. Marital Status

Single		Married		Widowed		Divorced	

4. Education level

Primary education		Secondary education		Tertiary education		No formal education	

5. Number of years of schooling
6. Household size

No children above 15 years	
No of children below 15 years	
Other relations living with household	
Other	
Total	

B. Land utilisation

What is the average price of land in this area? …….R/ha

What is the average cost of renting land in this Area? …….R/ha

Who set the rules concerning land acquisition?

Traditional/Community	
Government	
Both Government & Traditional/community	
No rules	

How did you access the land you are cultivating on?

Restitution	
Redistribution	
Inherited	
N/A	

Land allocation (all in ha)

2nd season of 2015 July – December				1st season of 2016 January – June			
Land owned [ha]	Land hired [ha]	Land rented out [ha]	Total land cultivated [ha]	Land owned [ha]	Land hired [ha]	Land rented out [ha]	Total land cultivated [ha]

What crops do you grow? (Whether under home gardening, irrigation scheme or both in order of preference)

Crops Grown	Tick √ if grown

Land allocation to crops by order of preference

2nd season of 2015 July – December							1st season of 2016 January – June				
Qn.2.1 Crop	**Qn.2.2** Cropped Area (ha)	**Qn.2.3** Qty produced	**2.4** Qty sold	**Qn.2.5** Unit 1 =Kg 2=sack 3.Heads	**2.6** Unit price	**2.7** Total cost	**2.8** cropped area (ha)	**Qn.2.9** Qty Produced	**2.10** Qty Sold	**2.11** Unit 1=Kg 2=sack 3.heads	**2.** Un Pr
1) Tomatoes											

2) Cabbage											
3) Spinach											
4) Carrots											
5) Butternut											
6) Potatoes											
7 Onions											
8Pumpkins											
9 Peas											
10 Others											

C PRODUCTION INFORMATION

INPUT UTILISATION

3. Do you use the following inputs in your gardens? [Mark with X]

Qn. 3.1 Improved Seeds	**Qn.3.2** Fertilizers	**Qn.3.3** Agro-Chemicals	**Qn.3.4** Oxen-draught	**Qn.3.5** Tractor
1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No

4. Do you access inputs [refer to Qn. 3] from government agencies 1) Yes [ ] 2) No [ ]

5. If yes, how much was received [in Rand]

Qn.5.1 Improved Seeds	**Qn. 5.2** Fertilizers	**Qn. 5.3** Agro-Chemicals	**Qn.5.4** Oxen-draught	**Qn.5.5** Tractor

6. Input utilization in Production for past 2 seasons for the most preferred crops

2nd season of 2015 July – December						1st season of 2016 January – June					
Qn. 6.1	**6.2**	**6.3**	**6.4**	**6.5**	**6.6**	**6.7**	**6.8**	**6.9**	**6.10**	**6.11**	**6.12**

Type of crop Tomatoes=1 Potatoes=2 Cabbage=3 Spinach=4 Carrots=5 Butternut=6	Input type	Quantity used (Kg or litres)	Unit Price (R)	Distance to source (Kms)	Source indicate 1= cash 2 = credit	If credit: amount to be repaid (R)	Quantity used (Kg or litres)	unit Price (R)	Distance to source (Kms)	Source indicate 1= cash 2= credit	If credit: amount to be repaid (R)
[ ]	Seeds										
	Fertilizer										
	Pesticide										
	Herbicides										
[ ]	Seeds										
	Fertilizer										
	Pesticide										
	Herbicides										
[ ]	Seeds										
	Fertilizer										
	Pesticide										
	Herbicides										

7. Have you received any form of training on input use, agronomic practices, record keeping, and financial management, and marketing?

7.1 Input use	**7.2** Agronomic practices	**7.3** Record keeping	**7.4** Financial management	**7.5** Marketing	**7.6** Group formation
1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No	1 = yes 2 = No	1=yes 2=No

8 If yes, who provided the training?

Service Provider	Number of times they rendered service per season
Extension agent	
NGO	
Farmer	
other specify _____	

D. LABOUR INPUTS IN CROP PRODUCTION

15. What is the main source of labour?

Main source of labour	Tick √
Family labour	
Hired labour	
Both	

16. How many labour units worked in the field in the last two seasons of 2015/2016?

2nd season of 2015 July – December					1st season of 2016 January – June			
Type	Men	Women	Children		Men	Women	Children	
Family labour								
Hired labour								
Total								
Oxen/Tractor (No. of Times)								

17. Labour demands in crop production for last Season

Activity	**Type of Worker**			
	Men	**Women**	**Children**	**Oxen/ Tractor**

	No.	Days	Cost	No.	Days	Cost	No.	Days	Cost	No.	Days	Cost
Land prep 1st.												
2nd ploughing												
Planting												
Fertilizer application												
1st weeding												
2nd weeding												
Spraying												
Harvesting												
Post-Harvest (drying, packaging)												
Transport to market												

Key: men/ women = > 18yrs, children <18. 1 Man- day = 6 person hours for a man = (0.75*6) person hours for woman = 12 child hours.

E. CROP OUTPUT AND MARKETING

18. Do you participate in markets? Yes [ ] No [ ]

19. Do you have access to market information for the sale of crop in the 2015/2016 season? Yes [ ]

No [ ]

(**if no move to Q21**)

20. If yes, what kind of information?

Price [ ]

other [ ] (specify) _____

21. Who provided the information? (Multiple response possible)

Source of information	Tick √
Friends	
Relatives	
Market women	

Extension agents	
Radio	
Television	
Others	

22. Did you use any of this information to sell crops?

Source of information	Tick √
Friends	
Relatives	
Market women	
Extension agents	
Radio	
Television	
Others	

23. Did you have a mobile phone in the 2015/2016 season?

Yes [ ]

No [ ]

(**if no move to Q25**)

24. If yes, did you use it to access market information on maize/groundnut?

Yes [ ]

No [ ]

25. If no, why didn't you use it to access information? _____

26. If no, why don't you have a mobile phone? _____

27a Do you have access to road? Yes [ ] No [ ]

27b What type of road do you use to the markets?

Gravel road only	Tarred road only	Both

27c How do you rate the type of road use to the market?

Bad	Good	Both

28 Do you own a motor vehicle? Yes [ ] No [ ]

29a if not, how do you transport your produce to the markets? Tick

Own Transport	Hired (Individual)	Hired (Group)	Buyer transport	Public transport	Otherwise (Specify)

29b Type of transport used? Tick

Vehicle	Bakie	Truck	Tractor	Wheelbarrow	Otherwise, specify

29b Cost associated with each transport used per delivery/ unit measure used to the market?

Own Transport	Hired (Individual)	Hired (Group)	Buyer transport	Public transport	Otherwise (Specify)
R	R	R	R	R	R

30 Distance to markets in km_____

31 Point of selling? Market centre [ ] Farm gate [ ] Otherwise, _____

32 Do you sell any produce from your farm to formal markets 1) Yes [ ] 2) No [ ]

33. If yes, please fill the table below.

33.1 Crop 1=Tomatoes 2=Potatoes 3=Cabbage 4=Spinach 5=Carrots 6=Butternut	**33.2** Season 1=Summer 2=Winter	**33.3** Harvested area (ha)	**33.4** Quantity harvested (Kg, Sacks, Heads)	**33.5** Quantity sold (Kg, sack, Heads)	**33.6** Price/ Kg (R)	**33.7** Point of sale 1 = farm gate 2 = middlemen 3 = Supermarkets 4.Others_____	**33.8** Cost of sale (tax, transport) (R)	**33.9** Qty consumed at home (Kgs, Sacks, heads)	**33.10** Qty donated to friends/ relatives (Kgs, Sacks, heads)

33a. Is your produce graded before it goes for sales? Yes [ ] No [ ] (If no move to Q29)
33b. If Yes, do you have problems meeting the grading standards? **----------**

33c. What happens to the produce with poor grade**? ----------**

33c What happens to unsold produce?

Loose to spoilage	Eat as family and labours	Sell at low price	Store and sell later	Donate it	Otherwise, specify

34. Please estimate your total seasonal income (Rand) from the following sources.

Crop farming	Non –Farm income	Remittances from friends & family

35. Do you sell your whole produce to the markets?

Yes [ ]

No [ ]

36. If no, what is the reason? Specify_____

37. Did you have production and/marketing contracts with any company or wholesale for crops in the past 3 years?

Yes [ ]

No [ ]

37.a If yes, describe your arrangements----------

37.b If no, why not----------

F. CHALLENGES OF ACCESSING MARKET

38a. Which problems or constraints do you face in the production and marketing of agricultural produce?

Number	Constraint	Tick
1.	Lack Inputs	
2.	Lack of own capital	
3.	Lack knowledge on agronomic practices	
4.	low rainfalls and high temperatures	
5.	Lack of credit	
6.	Poor soil fertility	
7.	Unfavourable market prices	
8.	Poor storage facilities	
9.	Long distances to market centres	
10.	Poor road network to marketing centres	
11.	Market uncertainties	
12.	Buyers dictating prices	
12.	lack of access to market information	
13.	Lack of government policy to promote marketing	
14.	lack markets for produce	
15.	Inadequate access to means of transport	
16.	Taxes on marketing	

38b. What are the Possible Solutions to the above mentioned problems?

Government improves on roads and financial agricultural institutions	
Provide more irrigation schemes by Government and NGOs	
Provide input subsidies and farm implements	
More extension services	
Encourage more cooperatives and farmer groups	
NGOs & Government provide Market	
Linkage services to farmers	
Others(Specify) _____	

G. Farm organizations and Extension services

39. Are you a member of any association or farmer group?

Yes [ ]

No [ ]

(If no move to Q43)

40. If yes, what is the name of the group? ----------

---

41. When did you join the group *(year and month)*? ----------

42. Why did you join that group? ----------

42a. What are the group's activities? ----------

42b.If yes, what service do you receive from such an association?

Production labour	
Access to cheap inputs	
Collective marketing	
Others	

42c. If yes, how many times did you meet last month----------

---?

43. If No, why are you not a member of any group? ---
-

----

44. Do you have access to extension services?

Yes [ ]

No [ ]

45. If yes which organization renders the services?

Government	
NGOs	
private Companies	
others	

!!!!!!!The end!!!!!!!!! !!!!!!!!!! Ndiyabonga ngetsebenziswano yenu!!!!!!!!!!! Thank you for your kind participation!!!!!!!!!!!!!!!!Dankie!!!!!!! Enkosi!!!!!!!!

!!!!!!!!!! Thixo akusikelele!!