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Impact of Entrepreneurial Activities and Income Shocks on Poverty and Vulnerability among Homestead Food Gardeners in North West Province, South Africa

By

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Acronyms and Abbreviations

CASP- Comprehensive Agricultural Support Program

DSD- Department of Social Development

DTI- Department of Trade and Industry

ECD- Early Childhood Development

EPWP- Extended Public Works Program

ETS- Educational Testing Service

HFG- Homestead Food Gardens (ers)

GDACE- Gauteng Department of Agriculture, Conservation and Environment

MAFISA- Micro Agricultural Financial Institutions of South Africa

RDP- Reconstruction Development Program

SMMEs- Small, Medium and Micro-sized Enterprises

QCOSS- Queensland Council of Social Sciences

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Declaration

I declare that this dissertation is my own original work undertaken in partial fulfilment of my Master of Science degree in Agricultural Economics titled: "The Impact of Entrepreneurial Activities and Income Shocks on Vulnerability and Poverty among Homestead Food Gardeners in North West Province, South Africa". The dissertation has never been submitted to any other institution or journal, and all the sources that have been used or quoted have been acknowledged by means of complete references.

T.C. Maselwa

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Dedication

I dedicate this dissertation to my son (Leano) who inspires my ambition to success.

Abstract

Poor households are faced with several challenges which affect their income generating activities. In the North West Province, where this study was carried out, unemployment and food insecurity are prevalent. Hence, homestead food gardeners get involved in multiple income generating activities as a coping strategy. The respondents were selected using a multistep sampling method. The first stage involved selection of villages, where HFG are commonly found were randomly selected. In the second stage, a snowball sampling process was employed to identify and select people involved in homestead food gardening, lastly was to find a sample of 110 HFG.

The study found that HFG were experiencing different shocks. The regression coefficients in this study indicated that entrepreneurial income was significantly and positively affected by socio-economic characteristics and shocks while it was significantly and negatively affected by shocks and challenges. The marginal parameters of perceived vulnerability to poverty were significantly and positively affected by entrepreneurial activities. Socio-economic characteristics significantly and negatively affected marginal effects of perceived vulnerability to poverty. Factors that affected marginal parameters of relative poverty negatively were various entrepreneurial activities while religion and household size had a positive impact. Socio-economic characteristics and entrepreneurial activities negatively affected absolute poverty while household size had a positive impact. It can be concluded that farmers still need more training and awareness on how to run an agricultural businesses as well as non-farm businesses for increased entrepreneurial income, improved welfare and limited likelihood of poverty and vulnerability. It was recommended that government to intervene in matters that arose from this study by providing more awareness, opportunities and training for people in the study area in order to reduce and prevent poverty.

Keywords: vulnerability to poverty, HFGs, entrepreneurial activities, income shocks, entrepreneurial income,

CHAPTER ONE

INTRODUCTION

1.1. Background

Homestead food gardening refers to small-scale production structure that provides plant and animal consumption and useful products that are either not accessible, affordable or readily available in retail markets (Galhena *et al.,* 2013). These are the small backyard gardens that are usually managed by a family; this includes women, children and elders, women being the main managers (Sthapit *et al.,* 2004). Homestead food gardens are vulnerable to harsh environmental conditions like drought and floods (Sthapit *et al.,* 2004). According to Sthapit *et al.,* 2004, a role played by homestead food gardens is very vital regarding food insecurity, economic downturns and malnutrition since they provide diversified sources of food and it is a way of generating income.

The impact of entrepreneurial activities and income shocks on vulnerability and poverty in South Africa is not well recorded in literature. Attention has been paid to poverty studies in order to recognize the well-being of households. However, poverty is static and cannot predict what will happen in the future in the way that vulnerability can. For that reason, this study focuses on vulnerability and poverty. Recently, vulnerability has become an important concept in guiding the design, evaluation as well as targeting of programs and projects (Moret, 2014).

Vulnerability refers to the inability to withstand the adverse shocks, while poverty can be defined as a condition in which people's income ability is inadequate to meet their basic needs as well as that of their families (Dercon, 2001). Vulnerability to poverty however looks at the probability of a household if currently non-poor to fall below the poverty line, and if currently poor, to remain in poverty (Chaudhuri, 2003). Since poverty cannot be traced, researchers in development economics have therefore stressed that it is very important to go beyond a static ex-post assessment of who is currently poor (poverty) to a dynamic ex-ante assessment of who will become poor in the future (vulnerability). For that reason, contrasting poverty, vulnerability can forecast the possibility of something happening in the future, which is an ex-ante assessment of poverty risk (Megersa, 2015).

Households and communities are facing risks of suffering from different types of shocks. Some of these shocks such as economic, financial crises and natural disasters affect a community as a whole (covariate shocks). While other forms of shocks like death of a household member or job loss affect at least one household (idiosyncratic shocks). Shocks such as illness, flood and drought are the reasons households fall into poverty (Lechten & Felix, 2008). Risk is a major concern in the developing countries because farmers have imperfect access to information. They also are exposed to uncertainties of farm input prices, commodity prices and weather situations that may have adverse effect on their farms in the future (Nyikal & Kosura, 2005). Small farmers face a variety of agriculture-related risks such as drought, heavy and/or untimely rainfall, variable soil conditions, pest and disease outbreaks, and volatility in market prices.

Poor households usually have the least resources to deal with risks they are exposed to, leaving them vulnerable to poverty (Agbaje *et al.,* 2013). As a result, poor households often try to reduce being vulnerable to poverty by doing more and different things like producing food in their backyards, owning small tuck-shop, hairdressing, or fixing shoes/vehicles, among others (Osondu *et al.,* 2014). Because they are not getting enough food from their small gardens to feed their families and earn additional income, they practice entrepreneurial activities as an alternative (Osondu *et al.,* 2014). For that reason, this study analyses the impact of entrepreneurial activities and income shocks on vulnerability and poverty among homestead food gardeners.

According to Lechten and Felix (2008), it is possible for a household to move out of a vulnerable situation by having an increased level of income from good harvest, better paid work and remittances. Therefore, activities besides gardening are given attention in this study. An entrepreneur may be defined as someone who creates and owns his/her own enterprise, a risk taker who is innovative, enthused, determined and creative in transforming a situation into an opportunity (Weimer, 2008). Entrepreneurial activities in this study may be defined as farm and non-farm economic activities created to bring improved changes by creating additional income such as selling water, offering transportation services (own a taxi), repair of motor vehicles, own a small tuck-shop, and others, that are practiced by homestead food gardeners to generate supplementary income from so that they can reduce being vulnerable to poverty. Similar to in most developing countries, small enterprises are there to respond to challenges linked to poverty by generating income to add on farm income.

The majority of homestead food gardeners has insufficient income and is living in poverty. This in some way, forces them to engage in entrepreneurial activities in order to close the space of unsatisfactory income, vulnerability, poverty and failures in agricultural production. Therefore, it is essential to look at the kind of dealings or businesses that these gardeners are involved in as well as their assets ownership (Sscendi, 2013). Living in poverty involves a collection of resources which families should use to generate income. Households make use of their assets to undertake wide range of income generating activities. Since access to adequate and updated information is a major constraint to homestead farmers, extension workers are the key sources of production and marketing information for the poor and vulnerable homestead food gardeners. Nevertheless, because of inadequate training, extension workers are not well-equipped to provide the required information to these poor households (Mbusi, 2013).

Factors such as infrastructure, access to finance, and social, physical as well as human capital affect the household's entrepreneurship (Dercon, 2001). Homestead food gardeners may be vulnerable to poverty because some of them do not have access to these assets. They are faced with high unemployment rates, and they lack access to assets and education (Oyekale & Oyekale, 2008; Mpandeli & Maponya, 2014). On the other hand, these poor farmers are still lacking access to credit. There are increased imperfect market conditions which they are unable to participate in. Thus, these adversely affect their food security status and expose them to poverty and vulnerability.

According to Baiyegunhi and Fraser (2010), the majority of the country's population is unemployed and is trying to make their living through agriculture. However, agriculture has its issues alone. South Africa is faced with increased levels of poverty as data of hungry people remains way too high. In addition, poor families are likely to be vulnerable to poverty; with little food production in their backyards which is one of the alternatives to assure that they have meals daily. According to Statistics South Africa (2008), R322 which is 'lower bound' poverty line revealed that 47.1% of South Africa's population was poor. Regarding R593 of which is 'upper bound' poverty line, it was revealed that 67.6% of South Africans were poor.

In nature, homestead food gardens are subsistence and because gardeners do not meet the requirements to farm commercially, they prefer finding jobs or being involved in other entrepreneurial activities. They are intended to operate around a house to grow vegetables and

limited food crops (Weimer, 2008). Moreover, practicing different entrepreneurial activities reduces their exposure to risks and enables them to deal with the damages as well as reducing shocks and financial challenges of farming commercially. Regardless of a higher percentage of homestead food gardeners in South African provinces, there is lack of financial support and investment on food gardens as government funding often value commercial farmers (Jacobs, 2003). Homestead food gardeners are faced with unfair prices as well as market access. In the past, the significance of family farming has always been acknowledged. Government is investing in homestead food gardening projects to teach people (vulnerable groups) how to grow vegetables in their homesteads on their small land. However, homesteads are still in poverty and display vulnerability indicators. In addition, there are various micro sources of finance for farmers in the province. However, access to finance remains a big problem mainly to homestead farmers as they do not often meet the required standards.

1.2. Problem Statement

Vulnerable households are not only those who are poor now, but also those who are exposed to the risk of being poor in the future. Chaudhuri *et al.* (2002) indicated that today's poor may or may not be tomorrow's poor. The same applies to the non-poor. World-wide the problem of someone being poor or not poor is recognized and revealed through various programs and policies (Coley & Barker, 2013). However, determining who is currently poor is static and does not include risks that are or could be faced. Poverty is a universal problem and north West Province is not an exception. Areas in the North West Province are faced with higher unemployment rate, high food insecure households (Mafikeng Local Municipality, 2006). According to Mafikeng Local Municipality (2006), Ramotshere Moiloa has the largest portion of households that earn no income. In terms of the Economic Active Population, the municipality has about 19 115 people unemployed (53.6%). It should be noted that there are enormous indicators of poverty as well as vulnerability to poverty for those households that are currently non-poor. From this statement one can ask when 62.5% of people in are affected by poverty (Statistics South Africa, 2016); what is the number or percentage of those who are faced with the risk of being in poverty in the future?

To combat poverty, the gardeners are involved in entrepreneurial activities to limit poverty and being vulnerable, however they are faced with various challenges in those activities. Research to

date has never reported on the impact of entrepreneurial activities and income shocks on vulnerability and poverty in this Municipality. Homestead food gardeners are not only faced with higher probabilities of being poor in the future and entrepreneurial challenges. They are also faced with risks that they do not have the resources to deal with (Dercon, 2011). These risks are both on agricultural production as well as entrepreneurial activities.

South Africa as a country is faced with inequality issues. Majority of its population, especially those who were previously disadvantaged, lack access to credit, skills, land, have low and poor education level, are not knowledgeable (Otsuka, 2009). Therefore, it is very difficult for them to prosper in any activity they intend to participate in. The majority of homestead food gardeners reside in vulnerable environments (De Burgo-Jimenez *et al.,* 2011) which expose them to environmental deterioration that will affect their vulnerability status adversely. In addition, it becomes hard for them to handle such risks due to lower levels of asset ownership.

According to Dercon (2001), the poor have lower levels of financial, physical, natural, human and social assets which they can base their livelihood strategies on. Low levels of asset ownership are capable of restricting their livelihood strategies. They have little or no control over natural hazards. The poor have inadequate access to institutions and policies and they cannot even influence them. Homestead food gardeners also lack social protection, voice in decision making and are faced with of increasing populations that have a negative effect on their future consumption expenditure (Dercon, 2001). From the problems observed, it can be investigated by questioning the impact of entrepreneurial activities and income shocks on vulnerability and poverty in the North West Province. What are the demographic and socio-economic features of homestead food gardeners in the North West Province? What are the constraints and coping strategies encountered by homestead food gardeners of the North West Province in entrepreneurial activities they are undertaking? What are the determinants of homestead farmers' incomes realized from entrepreneurial activities? What are the determinants of perceived vulnerability and poverty?

1.3. Research Objectives

The main objective of this study is to examine the impact of entrepreneurial activities on perceived vulnerability to poverty among homestead food gardeners in the North West Province, South Africa.

The specific objectives are to:

1. describe the demographic and socio-economic characteristics of homestead food gardeners in the North West Province; of south Africa
2. describe the constraints facing the homestead food gardeners and their coping strategies.
3. analyse the determinants of homestead farmers' incomes realized from entrepreneurial activities.
4. analyse the effect of entrepreneurial activities and income shocks' exposure on perceived vulnerability and poverty; and
5. analyse the determinants of relative and absolute poverty among homestead food gardeners.

1.4. Research hypotheses:

- **H_0:** Involvement in entrepreneurial activities by homestead food gardeners in the North West Province does not significantly influence probability of being absolutely or relatively poor.
- **Ho:** Exposure to welfare shocks by homestead food gardeners does not significantly influence probability of being poor.
- **H_0:** Involvement in entrepreneurial activities by homestead food gardeners in the North West province does not significantly influence perceived vulnerability to poverty.
- **Ho:** Exposure to welfare shocks does not significantly influence entrepreneurial income among homestead food gardeners.
- **Ho:** Socio-economic and demographic characteristics of homestead food gardeners does not influence entrepreneurial income.

1.5. Significance of the Study

The purpose of this study was to analyse the impact of entrepreneurial activities and income shocks on vulnerability and poverty among homestead food gardeners in the North West Province. Once entrepreneurial activities that improve the households' well-being have been discovered, it is expected for government to fund relevant participants so that they can design relevant policies, provide support services to HFG as well as projects and programs that will improve vulnerability to poverty and profitability of entrepreneurial activities practiced.

It is also expected of this study to help policy makers in designing relevant small entrepreneurial policies, programs or projects for the poor in order to reduce their chances of being vulnerable to poverty. The study also aims to examine constraints faced by homestead food gardeners, as this will raise awareness to other homestead food gardeners about the challenges they could face as well as helping them to know how to handle them. The study will also reveal the importance of homestead food gardens since the point to which homestead food gardens contribute to households' additional incomes is not clear. In addition, the study will be useful as it will provide information on how best homestead gardeners, researchers, government with extension agents can connect for an improved food security status of the households as well as their welfare.

Homestead food gardening remains critically important to the province's economy, since the demand for food is inelastic and the population keeps on increasing. Involvement of homestead food gardeners in different entrepreneurial activities may enable them to empower themselves in different sectors, limit income shocks and become less vulnerable to poverty. Findings of this study may also avail some useful information in supporting the observed sources of vulnerability for farmers. This information can also be used by policy makers and other researchers.

Since vulnerability is an ex-ante approach, government and policies will no longer have to focus on poverty alleviation interventions to assist those who are labelled as poor (ex- post), but will also focus on preventing poverty to help those who will be poor (ex-ante) by preventing them from shocks so that they do not fall into poverty i.e. priorities for prevention will be identified and further research can be done. Furthermore, majority of these gardeners are not aware of agricultural policies. Therefore, this study will help family farmers concerns to be included in policy formulation processes as the policy makers will be fully aware of the challenges they face

as well as their needs. Government participants will see the importance of investing more on technology and training to unlock the full potential of these families as well as keeping them up to date with new methods mainly in an approach of climate change. Also, the study will reveal the importance of investing in youth to make family farming attractive as the future of family depends on them and making food gardens more appealing to encourage their participation. Homestead food gardeners can be advised to meet as communities to form informal finance, infrastructure cooperatives, etc.

1.6. Chapters Overview

The research is organized into five chapters, including introduction. Chapter two covers the literature review. Chapter three contains the research methodology, which describes the study area, population of the study, sample size and sampling procedures, method of data collection and analyses. It is clearly stated how the objectives of the study are achieved. Chapter four presents the results and discussion of the research. Therefore, it summarized the research, describes the major findings arising from it and finally states the recommendations arising from the research for the benefit of homestead food gardeners, policy makers as well as other researchers.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter presents the literature review on the impact of entrepreneurial activities and income shocks on vulnerability and poverty among homestead food gardeners. The chapter is broken up into several parts. The literature draws its attention to food gardens and government support in South Africa, entrepreneurship, its indicators and its relationship to vulnerability, poverty and food gardens, asset ownership among homestead food gardeners, livelihoods, challenges faced by homestead food gardeners and coping strategies as well as theoretical framework on poverty and vulnerability. The last part is a summarized literature review.

2.1.1. Food Gardens and Government Support in South Africa

Homestead food gardens may be defined as very small-scale production structures where crop and livestock consumption is provided and practical infrastructure is not available also not reasonably priced. These gardens are located close to the house for security and special care. Food production in backyards or homesteads is the oldest and continuing way of raising crops in both urban and rural areas as it plays a significant role in providing food and income for families (Nair, 1993). Since gardening is known as a family activity, homestead food gardens use family labour. They are usually managed by women, despite the fact that they are undermined. Benefits such as social change and development, better food nutrition and security, improved health, empowerment, united societies as well as preservation of indigenous knowledge are associated with home gardens. However, according to Turner, (1987), it is possible for home gardens to be vulnerable to unfavourable environmental complications like drought and floods leading to crop loss and soil erosion/degradation even though home gardens require fewer abilities.

According to Kubheka (2015), home food gardens offer the possibility of households to improve their food security status and alleviate poverty as gardening provide diverse nutritious food and reduce financial situation burden on households. In the past, food gardens were known to occur in rural areas, however, these days they are also in urban areas. When looking at those that are

involved in homestead food gardens, majority of them are women and people with disabilities and these are the very same people that are categorized under vulnerable groups.

South Africans depend on purchased foods, and that makes them more vulnerable to food price inflation (Schwabe, 2004). Household food production becomes realistic intervention to reduce vulnerability to price inflation, on the other hand having adequate nutrient intake. Homestead food gardens have a relationship with entrepreneurship as selling their surplus brings additional income. This shapes a proper ground of food production for the vulnerable. The GDACE (undated) has established that a homestead food garden project as a poverty alleviation strategy for food insecure households. Their basic aim is to provide household beneficiaries with the skill to grow vegetables on their homesteads on approximately $20m^2$ of land.

According to a report that was done by the Department of Trade and Industry (2008), MAFISA (Micro Agricultural Financial Institutions of South Africa) contributes to government's general obligations. This is a fund that benefits both farm and non-farm farmers such as farm workers, household producers, small-scale land owners, food garden producers and small entrepreneurs. It further added that Comprehensive Agricultural Support Program (CASP) is also a supplement for provincial funding and acts as a catalyst of service delivery of support services to farming communities. The program focuses on six pillars i.e. on and off-farm infrastructure, training and capacity building, technical advisory and assistance, marketing and business development, information and knowledge management as well as financing mechanism. There are EPWP and social development projects that promote food gardens b helping households with inputs and knowledge on how to grow vegetables as well as at schools and clinics.

2.2. Entrepreneurship, Its Indicators and Relationship to Vulnerability, Poverty and Food Gardens

The concept of entrepreneurship was first established in the 1700s, and the meaning has evolved ever since. According to Linna (2010), not much is known about entrepreneurship especially in developing countries; however, it is well-known that entrepreneurship plays a very important role in improving economic growth as well as reducing poverty. Implementation is the most important part of entrepreneurial activities. It is believed that environmental infrastructure, environmental instability and personal experience influence the level of entrepreneurial activity.

Factors such as household shocks, seasonality in agriculture, and household surplus also influence entrepreneurship.

These days farmers becoming entrepreneurs is what is being discussed and encouraged by government and private sector. One can ask what this "entrepreneurship" is. How does one become an entrepreneur as well as the skills needed to be an entrepreneur? According to Kahan (2012), an entrepreneur is someone who produces for the market. This someone is determined, creative leader, risk taker, passionate and innovative individual who is at all times looking for opportunities to improve and develop business and always looking for efficient ways to making profit, while others define it as an innovator who sells his/her innovation. According to Jackson and Rodkey (1994), entrepreneurial activity refers to all the efforts that are made to grow small firms into big businesses. These small businesses can be categorized as micro, very small, small or medium enterprises. Majority of these activities are informal. According to Statistics South Africa (2007), businesses in the informal sector are not registered in any way, generally, they are very small and do not operate in business principles or policies. They are run from homes, street pavements or other informal arrangements.

In a study done by the South African Presidency (2008), it is stated that the South African government has the advancement of entrepreneurship and small business as their foremost priority so that they increase their support towards growth and development of the country. It further indicated that these small businesses have the potential of bringing millions of people out of poverty into the mainstream economy. Majority of the businesses practiced by farmers or those individuals who want to incur additional income include small tuck-shops, transportation services, etc. and these have restricted scope for trade due to their target market having little money. In a report done by the Department of Trade and Industry (2008), it is stated that poor South Africans have always used collectives in communal and subsistence agriculture, or in urban areas 'stokvels'.

Entrepreneurial activities are a part of government's economic development, poverty- alleviation and a technique for job creation. The informal entrepreneurial activities in South Africa have a bigger impact compared to many other countries.

It is well known world-wide that entrepreneurial activities are the major contributors to economic growth as well as employment. From 2002 to 2011, it has been emphasized that poorer ranks of entrepreneurial activities have been experienced compared to other developing countries (Simrie *et al.,* 2011). They further explained that in 2008 entrepreneurial activities of South Africa were at 7.8% in contrast to 5% in 2006. Small or informal enterprises contribute to income and they make it possible for majority of people to take part in these activities. With an additional income, families can afford to buy nutritious food; therefore, these activities also make a contribution by improving their vulnerability to being poor. Majority of economists have acknowledged that entrepreneurship is an ingredient for encouraging the growth of the economy as well as increasing employment opportunities.

High levels of unemployment have encouraged the majority of South Africans to become entrepreneurs due to the fact that entrepreneurship is essential for economic development and growth and decrease the large numbers of unemployment. In order for one to gain understanding in numerous features and properties of entrepreneurship, having knowledge of what an entrepreneur does is important as well as realizing new opportunities by using available limited resources. Personality traits such as being competitive, self-confidence, willpower, humour, authoritative, individuality, brainpower, energetic ability to adjust moral values, religion and work ethic were reported by Morrison (2001) as indicators of entrepreneurship.

According to Kahan (2012), farmers are vulnerable to economic shocks such as low yields due to crop failure, price changes and requirements of the market. He also mentioned that entrepreneurial farmers need skills for profit making business as well as long-term growth to increase their ability to handle risks or shocks. Individuals that have ill health, according to Adger *et al.,* (2004), cannot actively participate in the economy. Moreover, families caring for the sick have less time, energy and money to invest in activities that might reduce the impact of external hazards. One can also add that the less educated who are involved in any entrepreneurial activity are vulnerable due to the fact that their ability to make decisions will be weak, they will not be able to calculate risk and most of the time do not have any of the entrepreneurial indicators.

According to Dockel & Lighthelm (2005), there are socio-economic constraints and matters of high unemployment rates and poverty reduction that hinders entrepreneurship which the

government of South Africa has been unable to resolve. They emphasize that entrepreneurship has the capability of resolving socio-economic problems to fight growing poverty rates as well as offering employment opportunities promoting economic growth and development. Ncube & Ahwireng-Obeng (2006) mentioned entrepreneurial activities as the most influential technique to decreasing levels of poverty. Through the provision of individual labour, entrepreneurial activities allow poor households to earn income (Ncube & Ahwireng-Obeng, 2006).

In today's world it is still debatable whether entrepreneurship is led by poverty as the numbers of the poor are increasing in entrepreneurial activities engagement. According to Bosma *et al.* (2008), researchers have argued that individuals are pushed into entrepreneurship due to unemployment to make a living. The larger the poverty status, the more entrepreneurship is required, for that reason; there are lots of entrepreneurial activities (Reynolds *et al.,* 2001). Poverty and survival is what drives poorest people leaving them with no choice but to start small businesses. There is poor research or literature on entrepreneurship and poverty connection (Naude, 2009).

In order to eradicate poverty, populations have seen entrepreneurship as a solution and that can be done through contribution to economic growth as well as income through employment (Peredo & Chrisman, 2006). According to Ali and Ali (2013), entrepreneurship development contributes to poverty reduction when it creates employment through the start-up of new entrepreneurship or the expansion of existing ones and they increases social wealth by creating new markets, new industries, new technology, new institutional forms, new jobs and net increases in real productivity, increases income which culminates in higher standards of living for the population then it is logically to state that if the number of entrepreneurs of any given country increase the poverty indicators will decrease (Ali and Ali, 2013). Throughout the developing countries, it is well known that rural financial practicality is not only agricultural and homesteads earn an increasing percentage of their income from entrepreneurial activities. According to Kaschula and Arbuckle (2007), promotion of home gardens is a way of enhancing enterprises, nutrition as well as self-sufficiency to strengthen food security.

2.3. Asset Ownership among Homestead Food Gardeners

According to Thitiwan (2011), economists recognized that a household's state of well-being does not only depend on its average income or expenditures, but risk plays an important role in defining welfare, mainly in households with fewer resources. Vulnerability is closely connected to the ownership of assets i.e. the more assets the household have the less vulnerable they are (Philip & Rayhan, 2004). Analyses of poverty have revealed that people's ability to escape from poverty is critically reliant on their access to assets (Booth *et al.,* 1998). According to Sichone (2007), quality and quantity of assets are essential since they can choose to change their assets into productive activities. Household assets are used to generate well-being and these assets may be tangible (physical, natural, human and financial assets) or intangible (social capital, market access and access to health and education facilities and empowerment (adequate infrastructure, political and institutional assets). Assets may be classified into four categories namely physical capital, human capital, financial capital, social capital and natural capital.

2.3.1. Physical Capital

Physical capital includes tools and technology. These tools and technology may refer to buildings, irrigation openings, roads, machines as well as telecommunications. Poor infrastructure is regarded as an indicator to poverty (Mbusi, 2013). According to Gidi (2013), not only land and water availability are important for agricultural production then again the use of machines as well as irrigation schemes are essential. These tools, according to Dercon (2001), may be lost from war, crime and other environmental factors like floods, drought etc.

2.3.2. Human Capital

According to Mbusi (2013), this is the kind of capital that involves skills, knowledge, ability to labour as well as good health and education. In addition, knowledge and skills are developed via education and training. The experience that an individual has on a particular activity may also contribute to having certain skills and knowledge.

2.3.3. Social Capital

Social capital refers to the degree, nature of social networks as well as environmental assets. This involves networking, social rights, relations used by individuals in order to improve their living

conditions (Mbusi, 2013). Mercedes (2001) stated that a household can experience increased levels of poverty when they have the tendency of weakening their social networks, support systems as well as team spirit with relative members, friends and neighbours. Some of the times trust can be violated.

2.3.4. Natural Capital

Natural capital consists of physical and non-physical goods where there are environmental services which resources and livelihoods are derived from (Mbusi, 2013). According to Gidi (2013), this is one of the most important resources because without them production will ever occur. They are important since they provide the poor with various resources that can support their well-being. Livelihoods of the poor as well as their vulnerability to poverty can be adversely affected if there are unfavourable changes in the natural resources.

2.3.5. Financial Capital

This is capital centred on cash or equipment that can be easily transformed into cash i.e. when an individual or a household has cash or savings they can be able to use them to buy food therefore alleviating poverty. According to Gidi (2013), it is the stock of money which the household can access and it may be in the form of savings or access to credit. This capital may contribute to both production and consumption. According to Kabir *et al.* (2012), it is important for an individual to have formal education as it is positively related to financial capital as it enables these educated individuals to take part successfully and resourcefully in various entrepreneurial activities as they are risk takers, fall under the early adopters category and have access to updated information regarding these activities.

2.4. Livelihoods

According to Mbusi (2013), the term livelihoods refer to the different methods that households use to get their basic needs of life or means people use to make a living. These needs include food, water, shelter, clothing, recreation as well as access to healthcare and education services. Livelihood strategies are categorized as adaptive and coping strategies (Thitiwan, 2011).

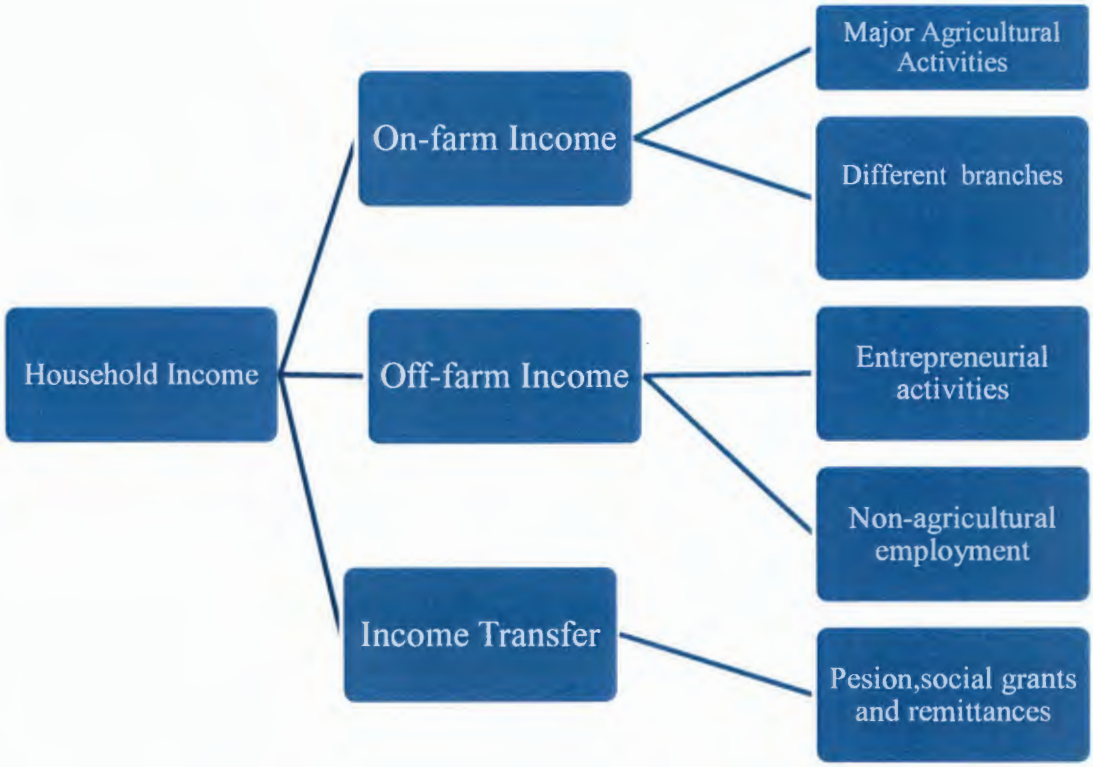

Figure 2.1: Sources of income.

Source: Davis & Pearce (2001).

2.5. Challenges Faced by Homestead Food Gardeners

According to statistics South Africa (2011), there are 22 437 employed persons, 12 743 unemployed person and 9 030 are classified as discouraged work-seekers. The unemployment rate is 36, 2%.Amongst the youth aged 15–34, 9 329 are employed while 5 609 are unemployed. The unemployment rate for this group is 45, 8%. Different programs were introduced in South Africa since it became a democratic country, such as the Community Based Public Works Program, the Working for Water Program and Land Care, and land reform program, among others. These currently represent the government's primary and practical wide-ranging response to poverty reduction. A comparison of poverty rates as measured from the Income and Expenditure Surveys of 1995 and 2000 indicates a worsening of poverty over that five year period, particularly among the poorest of the poor (Hoogeveen & Ozler, 2006),

A report on the evaluation of Government's poverty reduction programs (2007), found that there is small capability in government to apply poverty reducing projects. Projects that can assist very poor people who need continued support to make a success of the projects. They gave land redistribution projects as an illustration where projects are often seen as completed as soon as the land has been transferred to the beneficiaries. The projects/programs are in some instances not handed over appropriately to provincial agriculture departments. Therefore, the provincial departments lack the ability to appropriately support projects. This is revealed in poor entrepreneurial skills, lack of basic financial skills, lack of technical skills in the area of business of the project as well as lack of skills to materialize and implement poverty reduction programs that address the multi-dimensional nature of development.

Although homestead food gardens are important by providing source of food to poor households and give them additional income when production is good, they are still facing a numerous constraints. Female homestead food gardeners are faced with so many challenges that hinder them from improving their production, livelihoods, income as well as making it difficult for them to recover. Majority of these challenges include lack of access to natural resources, finance, inputs, advisory services and information as well as poor infrastructure. A study conducted by Mbusi (2013) suggests that constraints faced by smallholder farmers have a greater capability of strengthening the risks in which these farmers operate under, making it difficult for them to make money in their small businesses.

Lack of start-up capital is a well-known restriction for small scale farmers around the world. Like any other business, irrigation farming calls for financial capital to enable the purchase of seeds, fertilizers, irrigation pipes, sprinklers and other production inputs. Unfortunately, farmers lack finance to buy these tools (Chazovachii, 2012). Moreover, farmers are faced with the major challenge of meeting the marketable requirements like quality and quantity. This may be because of their location's poor infrastructure e.g. roads that disable them to transport their produce. Sometimes these farmers do not have their own transport therefore they hire transport that charge very high transaction cost.

2.6. Homestead Food Gardeners Coping Strategies to Shocks

There are various techniques used by households for them to reduce their inadequate nutritional status as well as unavailability of food. According to Kahan (2012), coping or risk management strategies can be referred to as actions that farmers take to increase the chances of success of the farm. Coping strategies to shocks are used to reduce the chance of a bad outcome occurring. Since female homestead food gardeners have many options of managing gardening risks, it is their decision to decide how they can cope with a potential risk. The size of the farm, age of the farmer, his innovativeness and attitude toward risk can determine the choice of risk management strategy that the farmer can use (Pennings, *et al.,* 2008).

2.6.1. Ex-Ante Strategies

Ex-ante risk management strategies can be defined as measures taken before experiencing shocks and they are for continuing survival. According to Valdivia *et al.* (1996), the coping strategies attention is mainly on income levelling. One of the techniques taken by farmers is practicing different entrepreneurial activities. Other strategies include marrying children off, saving, off-farm employment while some try diversifying their production.

2.6.2 Ex-Post Strategies

Ex-post risk coping strategies can be defined as measures taken after experiencing shocks and they are only for short-term survival. Ex-post coping strategies focus on consumption smoothing (Valdivia *et al.,* 1996). Poorer households have to rely primarily on (ex-post) risk coping strategies; for instance, the sale of livestock. Other strategies may involve borrowing money from relatives or neighbours, and of selling assets, among others.

2.7 Theoretical Framework on Poverty and Vulnerability

There are three approaches identified by Hoddinot and Quisumbing (2003), namely Vulnerability as Expected Poverty (VEP), Vulnerability as Expected Utility (VEU) and Vulnerability as Uninsured exposure to risk (VER). They further explain that all these approaches have common traits since they all have a model that predicts a welfare measure. VEP approach which is used in this study has an advantage of identifying households at risk. The major aim of this forward looking estimation is to enable the measurement of expected consumption expenditure and

variance (Azam and Katsushi, 2009). The term vulnerability to poverty has been given emphasis by experts from different disciplines. Different authors have different meanings worldwide. The definition used in this study is that of Chaudhuri (2003), which refers to vulnerability to poverty as the ex-ante risk that a household will, if currently non-poor, fall below poverty line, or if currently poor, will remain in poverty. It is also stated that the presence of risk is what tells apart poverty which is an ex-post measure of well-being and vulnerability which is an ex-ante measure of well-being with what is happening currently and what the future holds. Kumar *et al.* (2006) define vulnerability to poverty as the people's potential of falling into poverty. Dercon's (2001) conceptual framework states that the starting point of assessing vulnerability to poverty is to check asset ownership among households and those assets must be able to be used or turned into something to provide income.

Figure 2.2: Framework for Vulnerability to poverty

Source: Dercon (2001)

2.7.1. Vulnerability Concept

The concept of vulnerability indicates risk combined with the level of social and economic liability as well as the ability to deal with the effects. It is often used in widely divergent ways (Alwang et al., 2001). According to Philip and Rayhan (2004), vulnerability may be defined as

the exposure to unforeseen events and stressful situations as well as hardship in dealing with them. They further explain that it has two sides which are the external (risks, shocks and stress) and internal side (powerlessness). Vulnerability is perceived as dynamic concept that identifies and captures change while poverty is seen as static (Moser, 1998).

According to Adger *et al.,* (2014), Vulnerability is discussed as having three pillars:

- Exposure- refers to the nature and level of exposure.
- Sensitivity- the level of being affected either beneficially or adversely.
- Adaptive Capacity/resilience - the ability to adjust, moderate potential damages and coping with the effects.

One of the most important components in the concept of vulnerability to poverty is risk. Households are faced with numerous risks which are regularly connected (Chatterjee, 2010). These risks may be experienced in farming and entrepreneurial activities practiced by homestead food gardeners. These risks are way far from their control and vary from time to time. Sources of risks can be categorized as natural, health, social, economic, political and environmental. For policy makers, researchers as well as extension agents to assist households to reduce poverty, they must be able to identify the risks faced by households that have the ability to make them fall into poverty in the future (Landau *et al*, 2012).

2.7.2. Vulnerability Indicators

Developing vulnerability indicators and adaptive capacity is highly necessary to determine the strength of coping strategies and have a better understanding of the fundamental methods (Adger *et al.,* 2004). One of the indicators mentioned by Adger *et al.* (2004) is economic well-being. They emphasized that poor people are often located on unstable hill slopes and flood plains, majority of them are ling in slums or inadequate housing with little or no sanitation which indicates vulnerability to extreme winds or rains as well as exposing them to physical injuries. Another indicator that they mentioned was health and nutrition, i.e. malnourished individuals are more vulnerable to physical injuries and food shortages and starvation. Physical infrastructure such as transportation roads inhibits farmers to transport their products and access markets.

When it comes to fencing, in an area that has majority of the vulnerability indicators, like high levels of crime, farmers are exposed to theft or crime victimization.

Poor institutions, governance, conflict as well as social capital are the other important indicators of vulnerability. Adger *et al.* (2004) mentioned that reducing or handling risks require a collective action like risk sharing, mutual assistance and other collective actions. However, with corrupt institutions, that neglects physical infrastructure, poor health care and housing and sanitation results in inefficient and insufficient responses to disaster events. Demographics and geographic features also indicate level of vulnerability e.g. people living in coastal areas are vulnerable to coastal hazards and people living at the cities where everyone is migrating to and it is overcrowded, they are exposed to diseases, human waste, etc.. The other indicator of vulnerability is dependency on agriculture as it is a climate sensitive sector and the world is currently faced with climate change problems.

2.7.3. Vulnerability Versus Poverty

According to Katja *et al.* (2012), poverty is a static situation at a point in time that is commonly measured ex post using household income or expenditure studies, while vulnerability to poverty brings up a possible situation in the future. Poverty and vulnerability have been defined differently by numerous researchers. According to Alwang *et al.* (2001), poverty and vulnerability are interlinked whereas poverty is clarified as profit inefficient and vulnerability involves the link between poverty, risks and efforts to manage risk. In other words, vulnerability may be explained as the impact of risks in addition to the ability of an individual to handle those risks as well as improving worsening of his/her present position (Maxwell *et al.,* 2000). Moreover, vulnerability to poverty is an ex-ante condition in other words, no one is aware of the definite shocks that will occur in the future.

Poverty as an outcome revealed via hunger, illness as well as helplessness and explains vulnerability as a process of poverty that is continuous and forward looking situation of expected outcome. Vulnerability is a forward looking concept as it makes a statement about the future i.e. it usually refers to the possibility of something adverse happening (Chaudhuri *et al.,* 2001; Novignon *et al.,* 2012; Dercon, 2001). Therefore, households are vulnerable if a shock worsens their well-being status. It is better understood as lack of resources, which exposes households to

increased risk of suffering. The larger the number and range of resources the household has, the lesser the vulnerability, while fewer resources indicates increased risk of poverty (Moser, 1998).

2.7.4. Poverty Concept and Theories

Poverty is a universal concept and is defined in different ways by different authors. The first definitions of poverty are addressed on the inadequacy to get sufficient food and other necessities. Definition of poverty is very complex one as it is a public incident that is unsurprisingly multidimensional. According to Sarshar (2010), in order to understand the poverty concept, there should be a purpose as to who to include in the concerned subject as well as the determining factor of estimating poverty. Poverty may refer to inadequate access to material, economic, social, political or cultural resources required for the fulfilment of basic needs (Philip and Rayhan, 2004). According to the World Bank (2000), it is the economic state in which individuals lack adequate income to obtain a minimal level of health services, food, housing, clothing and education which are necessary to ensure sufficient standard of living. According to Meth (2006), poverty relates to the distribution of resources and is the mirror-image of the impact of the past and presidency choices, for that reason poverty is political. Poverty may be interpreted in a narrow or broad sense. The narrowest sense means insufficient income. While a broader sense may be understood as multidimensional, surrounding additional concerns such as housing, health, education, access to services and other opportunities of gain access to wealth.

2.7.4.1. Theory of Absolute Poverty

Absolute poverty is based on the assessment of minimal survival requirements. These requirements include physical basic needs such as nutrition (calories and protein intake measurement), shelter (dwelling type), health (child mortality rate and quality of medical facilities available), cultural needs (education level, security, recreation). This theory was criticized due to the fact that people in different divisions cannot have the same level of basic desires and requirements. In addition some of the protein and calorie consumption were based on incorrect and unrealistic assumptions.

2.7.4.2. Theory of Relative Poverty

According to Townsend (1979), relative poverty refers to the lack of resources to withstand food intake, standard of living, accomplishments, undertakings as well as accommodations that an individual is comfortable in the society in which they belong or reside. In contrast to absolute poverty, the concept of relative poverty clearly relates poverty to a reference group. In its finest logic, relative poverty is abstracted with regard to the national distribution of income/expenditure (e.g. May, 1998). Application of relative poverty is much enlightening and compound compared to absolute poverty in terms of economic deprivation in the society. This approach is very important as it identifies poor households as their income being below average (Poswa, 2008).

2.7.4.3. Theory of Overall Poverty

Different forms are taken when it comes to overall poverty. These include inadequate income or no income at all, poor useful resources to guarantee maintainable standard of living, starvation and malnutrition, unpleasant health, lack of education access, higher numbers of deaths, homelessness, begging, inadequate housing (shacks), unsafe surroundings, public exclusion and discrimination, higher levels of crime and other necessities. An individual with overall poverty is also characterized by lack of participation in public and traditional life.

2.7.4.4. Capability Approach

This approach is based on what are concrete capabilities of individuals or what they can do. It desires to emphasize that people differ when it comes to values. An example was given by Sen (2001), which states that there is a difference between someone who is starving the other one who is fasting, this adds to an individual choosing whether they want to eat or not. Capability approach highlights the importance of independence of choice.

2.7.4.5. Cultural Poverty

The term culture of poverty appeared in 1959 to give details why individuals remained poor. The concept explains aspects connected with poor people's behaviours, and reasons that their beliefs are unique from participants of the middle class (Dana-Ain, 2012). The concept of culture of poverty enlarges the indication of poverty circle. Individuals in this kind of poverty are having a strong feeling to helplessness and dependency. These are individuals that believe that institutions

existing saying that they aspire to help them do not serve their requirements and comforts. In the case of South Africa there is culture of poverty since some people do not want to exercise their right to vote as they believe that politicians are just interested in their own benefits and not helping people. There are still issues of racial, gender, tribal discrimination.

2.8. Poverty Indicators

According to Statistics South Africa (2008), poverty line is used as a statistical illustration of the value of all goods and services measured necessary for households/individuals. According to Gordon (2005), if a household or individual lacks the following, it indicated that they are living in poverty: food, safe drinking water, sanitation facilities, health, shelter, education, information as well as access to services. Birth weight is the other indicator of poverty. According to the QCOSS (2013), it was indicated that economic indicators of poverty include being below the poverty line, children living under unemployed households, financial stress and exclusion. According to the Coley & Barker (2013), parent unemployment is associated with household poverty. Success in education begins in early childhood and participation in ECD programs because that has an impact in a person's entire life. Shelter is also an essential human right in the South African constitution as well as equal access to services and housing to enable economic inclusion.

In the QCOSS (2013) report the following were mentioned as indicators of poverty:

- Health- Obstacles to health services access, Mental or behavioural condition, Long term health condition and low birth weight.
- Education- ECD, difficulty in reading and numeracy and school exclusion.
- Housing- Social housing, housing tenure and ownership.
- Family and Community- Volunteering, social unity, imprisonment, crime victimization, child maltreatment and suicide.

According to the UN statement quoted by Gordon (2005), poverty denies choices and opportunities andl that is violation of human dignity. He further explained the challenge of being in poverty i.e. an individual that is poor lacks simple ability to effectively take part in the society

he is living in. Being poor means that you do not have sufficient income to feed and buy clothes for your family. There is no school and clinic to go to, no land to grow food on and no access to credit. This results in an individual being insecure, vulnerable and excluded in taking part in the economy. Individuals are left open to violence/crime and living in marginal environment.

Poor health is a challenge since an individual involved cannot function effectively in any activity that can bring income to the family; it also results in higher mortality rates. Individuals with poor education find reading and communicating difficult. These individuals also find it very hard to make decisions and most of the time they are risk adverse for that reason they cannot take loans for their businesses and expand them making it impossible for them to realize their ambitions. Moreover, these kind of people most of the time are discouraged to do better in life. According to Banerjee and Duflo (2007), to be poor implies having poor quality of life i.e. instead of individuals to be playing, working and learning they are busy fetching water at very long distances. According to Human Sciences Research Council Report (2014), it is very difficult for food insecure and unemployed populations to afford any medication, even the less expensive treatment. Besides that, in cases where medication or treatment is free, populations still cannot access those treatments due to long distances and cannot afford transportation cost. Children in South Africa go to schools with an empty stomach. According to Brooks-Gunn and Duncan (1997), this results in poor health of children and adverse effects on their cognitive ability. Being homeless and living in the streets is not pleasurable and expose individuals to crime, consequently, increasing the number of crime victimized people.

2.9. Programs to Address Poverty in South Africa

The South African democratic government inherited an enormous legacy of discriminations in 1994. Since then, it has been doing everything within its means to address inequalities and poverty. Now we are on the 22nd year of democracy however poverty is still an issue. According to Manuel (2006) revenue support to vulnerable households through social security and social assistance grants increased from R10b in 1994 to R70b in 2006.

2.9.1. Social Security Reform Program

Social development has a set of programs to improve health care, education, water and sanitation as well as other social welfare services to alleviate poverty in both rural and urban areas of South

Africa (Agriculture and Rural Development). This program aims to alleviate poverty among households with low incomes or no incomes at all as well as preventing them to fall into poverty. This is done through provision of social grants that covers elderly people (>60years), people with disabilities, orphans and child support grants. Death and disability benefits are also included for formally employed individuals. According to the Social Development report (2015), 16.8 million people are benefitting from social grants. There is also social work scholarship offered to deserving individuals. It is also noted from this report that DSD research has revealed the impact of grants in reducing poverty, improving wealth distribution as well as generating economic growth in communities. Statistics South Africa "Poverty Trends in South Africa" reported successes of pro-poor policies that revealed decline in poverty between 2006 and 2011.

2.9.2. Extended Public Works Program

Due to South Africa's developmental issues of unemployment and poverty, one of the government development programs to alleviate poverty and reduce unemployment is the EPWP. The program has a goal of alleviating unemployment at least one million people by generating work opportunities in four sectors of the economy: infrastructure, environment, social and economic (McCutchheon and Parkins, 2007). Rural and urban communities are assisted with basic services like ensuring clean environments and cleaning for elderly people who are staying alone. There is free education in rural areas schools and learners are provided with free stationery and food. There are also land reform programs trying to address poverty and inequality.

Table 2.1: Summary of Government Programs to Reduce Poverty

PROGRAM	TYPE OF PROGRAMS
Social security	Child support grant
	Old age pension
	Disability grant
	Food parcels
Free/subsidized basic household	
Services	
	Water and sanitation
	Electricity
	Transport
	Refuse removal
	Subsidized individual services
	Education and training
Housing	RDP housing
Land reform	Land redistribution
	Land restitution
	Land tenure reform
Income generating projects and	SMMEs
	Programs by DTI (e g Technology for Women in Business,
	Small Medium Enterprise Development Program, Skills Support
	program, Micro Credit Outlets (Khulastart), Tourism Development Finance)
	Various departmental programs (DSD, etc.)
Public works	Working for Water
	Land Care
	Cost Care
	Other 'components' of the EPWP, etc.
	CBPWP

Source: Poverty report (2007).

2.10. Determinants of Vulnerability and Poverty

According to Philip and Rayhan (2004), vulnerability is influenced by various factors. Factors that affect vulnerability include rapid growth in population, poverty and starvation, inadequate health, lower levels of education, inequalities amongst genders as well as delicate and hazardous location. They further explained that poor knowledge and access to information, lacking public

awareness as well as having poor political power and representation affects vulnerability adversely. Bogale *et al.,* (2005) indicated that the possibilities of a household to become poor are likely to decrease when age increases. They further explained that the reason behind this is because as age increases, asset ownership is likely to increase and as family arrangements changes, children grow up and become involved in different farm activities and others get married leaving the household.

According to Khan (undated), infrastructure was indicated as a main determinant of poverty. Due to the fact that with paved roads small farmers can transport their produce, availability of clinics and schools will support access to health and education services. Moreover, households will never travel long distances and there are possibilities for human resource development, employment and land distribution. Trade and foreign change, international prices as well as investments affect vulnerability (Philip and Rayhan, 2004). Vulnerability is also affected by land degradation, soil erosion as well as droughts (Philip and Rayhan, 2004). Khan (undated) also mentioned shelter as one of the determinants of poverty where he indicated that living in less sanitary environments threatens health and productivity of households.

In a study conducted by Babu and Afera (2016), environmental shocks, access to non-farm generating opportunities were mentioned as factors affecting the vulnerability of farmers as well as reducing it. Oyekale and Oyekale (2008) indicated illness as a determinant of vulnerability. They revealed that illness of a family member reduced transient poverty while increased chronic poverty. It was also mentioned in the same study (Oyekale and Oyekale, 2008) that education affects vulnerability and it was expected to increase the capability of escaping future poverty. Social grants were revealed in Vuk'uzenzele newspaper by Naidu (2014), to reduce vulnerability. It was also indicated that social grants increased school attendance as children get pocket money from grants. The other factor that makes households vulnerable is death of a family member. It leaves households with negative finance and economic effects due to changes in sources of income, responsibilities as well as implications for budgeting (Corden and Hirst, 2013).

Literature Review Summary

Literature has been reviewed, in brief, it can be said that poverty and vulnerability are really complex issues. One has to go through all kinds of poverty and vulnerability theories in order to get informed results in the studies. Indicators (which can also be determinants) are also very important concepts to give attention as well as knowing what people perceive as vulnerability or poverty indicators. The challenges and displeasures of being in poverty or vulnerable to poverty were also given consideration in literature. It was acknowledged that since 1994 the government is trying by all means in all national, provincial and local departments to eradicate poverty and vulnerability through various programs and project, however, the country is still faced with poverty and vulnerability issues. Food gardens and their relationships to vulnerability, entrepreneurship and poverty were also observed in the literature. Absolute, relative, capability, overall as well as culture of poverty are experienced in South Africa. Vulnerability is not static due to the fact that people become more or less vulnerable overtime. Asset ownership is also criticized by culture of poverty as different people have different preferences and behaviours to make a living.

Entrepreneurship and its relationship to poverty, vulnerability and household food gardens were given attention to show their relationships and it can be said that majority of the people are not born entrepreneurs i.e. they do not have the skill, drive nor good characteristics of entrepreneurs. It was also mentioned that vulnerability most of the time is influenced by asset ownership i.e. the less assets a person has, the greater the vulnerability or ability to handle shocks. For that reason different types of assets were reviewed. In conclusion one can say in order to overcome this great issue on vulnerability, poverty as well as entrepreneurship, there is a great need for inclusion of marginalized groups and previously disadvantaged populations in the economy. Those that are concentrated in the economy need to give to the ones that are not involve for equality and economy growth.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

Generally, the objective of this study is to analyse the impact of entrepreneurial activities and income shocks on vulnerability and poverty among homestead food gardeners. Therefore, this chapter presents the study area where the research was conducted, the research design, population of the study, sampling size and procedures, how data was collected and analyzed is discussed in detail.

3.2. Study Area

The study took place at Lehurutshe, a town in in Ngaka Modiri Molema District Municipality in the North West province of South Africa. It is situated 26.6639°S and 25.2838°E. Villages such as Dinokana, Gopane, Motswedi, Borakalalo and Ntsweletsoku were consulted. There are about 40 740 households, with an average household size of 3.6 persons per household (Stats SA, 2011). Temperatures in the North West province range from 17° to 31 °C (62° to 88 °F) in the summer and from 3° to 21 °C (37° to 70 °F) in the winter. Annual precipitation amounts to 360 mm (about 14 in), with more or less all of it dropping during the summer months, i.e. between October and April.

According to Statistics South Africa (2011), 19% of households have access to piped water in their dwelling and 38.2% have access to piped water in the yard. Only 8.3% of households do not have any access to piped water. Approximately 81.9% of households have access to electricity for lighting. People residing at Lehurutshe are engaged in profitable activities such as agriculture, hunting, fishing and retail facilities. According to Statistics South Africa (2011), has a total population of 155 513 people, of which 99.6% are black African, with the other population groups making up the remaining 0. 4%.

Figure 3.1: Map of .

Source: https://www.google.co.za/maps/place/Zeerust

3.3. Research Design

According to Maree (2007), research design is a strategy from the researcher's theoretical expectations to identifying how he/she will select the respondents, data collecting techniques and instruments to be used as well as how that data will be analysed. The research design expresses what data is required and the methods to be used to collect it. In this study, quantitative methods are used to collect and present data. Suitable quantitative methods were used to explore the benefits and the impact of entrepreneurial activities; descriptive statistics were used to determine the entrepreneurial activities undertaken by HFG. The research used the quantitative methods so as to know the socio-economic and demographic features, determinants of entrepreneurial income, perceived vulnerability to poverty measure as well as determinants of vulnerability relative and absolute poverty. Moreover, primary and secondary data was used. In this study, primary data was used, meaning that the researcher undertook data collection by the use of a structured questionnaire and used other existing data (books, articles, journals, etc.) collected from previous studies. A well designed questionnaire was used as well as face-to-face interviews.

3.4. Population of the Study

Population of the study is a group of elements whether individuals, objects or events that confirm specific measures to which the researchers intend to generalize the research results (Maree, 2007). For the purpose of this study, population included all the homestead food gardeners (whether involved in entrepreneurial activities or not) in the North West Province. Population size determines whether there is a possibility of including all participants of the population.

3.5. Sampling Size and Procedures

Sampling may be defined as the process that is used in a study to choose a proportion of the population of the study (Maree, 2007). Since there is lack of data on the homestead food gardeners as some of them are not even known to the department of agriculture, Statistics South Africa has a general approach of populations that are involved in agricultural activities and not specifically homestead food gardening. Respondents in this study (110) were selected using a multistep sampling method. The first stage involved selection of villages, where HFG are commonly found were randomly selected. In the second stage, a snowball sampling process was employed to identify and select people involved in homestead food gardening, lastly was to find a sample of 110 HFG.

3.6. Ethical Consideration

Ethics are responsible for guiding a researcher with proper behaviour in order to prevent scientific misbehaviour. Following the North West University ethics guideline, ethical considerations and guidelines were addressed at all stages of this research. Respondents were consulted and informed about the objective of the research study. Respondents' information was treated as confidential and the results was be utilized for the purpose of the research only. The respondents were treated with respect and the research objectives were outlined and interviews occurred for a better understanding between the researcher and respondents. Consent form (Appendix 1) for participation was given with subjects containing the right to accept voluntarily participation and free from pressure. When there are any discomforts the respondents have the right to withdraw from research free and it was made clear on the information sheet and verbally repeated at the time of the interview

3.7. Method of Data Collection

A well-designed interview guide was developed based on the research objectives and administered homestead food gardeners of the North West Province (Lehurutshe). Incomplete questionnaires were discarded. Therefore Interviews were arranged by the researcher between the respondents to explain questions and answers thoroughly, correctly fill the questionnaire as well as to create a better understanding between the two. Interviews were face-to-face. 110 questionnaires were administered from homestead food gardeners who were interviewed and the respondents who correctly filled the questionnaire. The questionnaire in appendix 2 was inclusive of the following sections: socio-economic and demographic features of the respondents, entrepreneurial activities practiced and their income levels, constrains, coping strategies, asset ownership as well as the shocks they have or are currently experiencing.

3.8. Method of Data Analysis

3.8.1. Descriptive Statistics

The descriptive statistics that was used includes tables, pie chart, frequency and percentages. The descriptive statistics was used to analyse socio-economic and demographic features of the respondents, challenges, shocks they faced as well as their coping strategies. Hypothesis 5 is tested using descriptive statistics.

3.8.2. Perceived Vulnerability to Poverty, Relative and Absolute Poverty Measure

Probit Model: According to Amemiya (1985), Probit or Logit models are most appropriate for binary choice problem. He recommended using Probit model since the choice of continuous probability distribution for generating predictions cannot be theoretically vindicated. The Probit Model was used when the dependent variable Y (perceived vulnerability to poverty, relative and absolute poverty) are binary i.e. it can have only two possible outcomes which are indicated as 1 and 0 with a vector of explanatory variables (X). The explanatory variables (entrepreneurial activities and socio-economic characteristics) are assumed to influence the outcome i.e. perceived vulnerability to poverty, relative and absolute poverty (Y).

In order to analyse the determinants of perceived vulnerability to poverty i.e. testing the 1st, 2nd and 3rd hypothesis, Probit model was used i.e. to test the second hypothesis. The model took entrepreneurial activities, shocks and socio-economics characteristics of homestead food gardeners to consideration. The model can be specified as:

$$Yi^* = xi^T\beta + u_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i1} + \beta_3 X_{i3} + \ldots\ldots \beta_n X_{in} + u_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where X_{i1} to X_{in} are explanatory variables: vegetable farming (0=none, 1=Income in Rands), hairdressing (0=none, 1=Income in Rands), motor repairs (0=none, 1=Income in Rands), transport (0=none, 1=Income in Rands), hawker (0=none, 1=Income in Rands), shoe repair (0=none, 1=Income in Rands), poultry (0=none, 1=Income in Rands), tuck shop (0=none, 1=Income in Rands), sell water (0=none, 1=Income in Rands), gender (0=female,1=Male), age (In years), marital status (0=married, 1=otherwise), education level (none, primary, secondary, tertiary), religion (0=Christian, 1=otherwise), household size (Size in numbers), land (In hectares), employment status (0=employed, 1=unemployed) and years of experience (In years).

Representing the observed outcomes of binary choice by an indicator variable Y_i related to variable Y_i^* as follows:

$$Y_i = 1 \text{ if } Yi^* \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$Yi = 0 \text{ if } Yi^* \leq 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Binomial probabilities Pr (Y_i =1) and Pr (Y_i =0) are represented in terms of standard normal cumulative distribution function ϕ (Z):

$$Pr\,(Yi = 1) = Pr\,(Yi^* > 0) = \phi\,(xi^T\beta) = \phi\,(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i1} + \beta_3 X_{i3} + \ldots\ldots \beta_n X_{in}) \ldots\ldots\ldots (4)$$

$$Pr\,(Yi = 0) = Pr\,(Yi^* \leq 0) = 1 - \phi\,(xi^T\beta) = \phi\,(\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i1} + \beta_3 X_{i3} + \ldots\ldots \beta_n X_{in}) \ldots\ldots (5)$$

$$\text{Marginal probability effect of } X_1 = \phi\,(xi^T\beta)\,\frac{\partial(xiT\beta)}{\partial Xij} = \phi\,(xi^T\beta)\,\beta_1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

$$\text{The marginal parameters of } X_2 \text{ to } Xn = \phi\,(xi^T\beta)\,\frac{\partial(xiT\beta)}{\partial Xi2} = \phi\,(xi^T\beta)\,(\beta_2 + 2\,\beta_3 X_{i2n} + \beta_n X_n) \ldots (7)$$

3.8.3. Determinants of Entrepreneurial Income

Tobit model: The 4th hypothesis was tested using Tobit model. The Tobit regression model was employed to quantify the extent and direction of the impact of factors affecting entrepreneurial income among homestead food gardeners. A Tobit econometric model was applied in determining the factors affecting entrepreneurial income; and is specified in the equation below:

$Y^* = \beta 0 + \beta 1X1 + \beta 2 X2 + ...\beta nXn + \mu I$ .....(8)

$Y = 0$ if $y \leq 0$, $y = Y^*$ if $y > 0$.....(9)

Y^* = Homestead food gardeners entrepreneurial income

βs = estimated parameter or coefficient

Xi= Explanatory variables

μi = error term and is normally distributed with zero mean and constant variance.

The dependent variable i.e. entrepreneurial income (y) equals 0 if the latent variable y * is below a certain threshold, usually 0. If the values of the latent variable are positive, the dependent variable is equal to the latent variable.

$Y = \beta + x\beta + \mu, \mu / x \sim N, 0\ \delta$ .....(10)

Y max, 0 y= y

The latent variable y* in equation (13) satisfies the classical linear model assumptions (y max, 0 y = y) in particular, it has a normal, homoscedasticity distribution with a linear conditional mean while equation (3) indicates that the observed variable, y, equals y* when $y^* \geq 0$, but y= 0 when $y^*<0$. Since y* is normally distributed, y has a continuous distribution over strictly positive values. In particular, the concentration of y given x is the same as the density of y* given x for positive values.

$P(y = /0\ x) = P(y < /0\ x) = P\ (\mu < -x\beta)$.....(11)

$P(\mu /\delta < -x\beta /\delta) = \Phi(- x\beta /\delta) = 1- \Phi(x\beta /\delta)$.....(12)

Since μ / σ has a standard normal distribution and is independent of x; the intercept is absorbed into x for notational simplicity (Wooldridge, 2009 and Cameron and Pravin, 2005). The maximum likelihood estimates for β and σ are obtained by maximizing the log-likelihood which is easily executed in Stata (Cameron and Pravin, 2005). Tobit model for this study is as specified below:

$$Y = \beta + \beta X + \beta X + \beta X + + \beta k Xk + \mu i \quad (13)$$

where Y* is the dependent variable (total of entrepreneurial income), and x is a vector of independent factors, and μ is the error term. The dependent variable is the total of different entrepreneurial income earned through sales formula while the explanatory variables are as specified below:

X1 = Gender of household head (0=male, 1=female), X2 =Age of household head (in years), X3= marital Status (0=married, 1=otherwise), X4= Education level (none, primary, secondary, tertiary), X5= Religion of household head (0=Christian, 1=otherwise), X6= Household size , X7=Land (ha) , X8= Employment status (0=employed, 1=unemployed), X9=Years of experience, X10=Training (0=yes, 1=no), X11=Lack market (0=yes, 1=no), X12=Crop diseases (0=yes, 1=no), X13=Soil degradation (0=yes, 1=no), X14=Water shortage (0=yes, 1=no), X15=Climate change (0=yes, 1=no), X16=Lack of storage (0=yes, 1=no), X17=Soil erosion (0=yes, 1=no), X18=Lack of finance (0=yes, 1=no), X19=Crop loss (0=yes, 1=no), X20=Drought (0=yes, 1=no), X21=Fire (0=yes, 1=no), X22=Cancer (0=yes, 1=no).

3.9. Determinants of Relative and Absolute Poverty

All the variables in this study included the personal characteristics of homestead food gardeners, the determinants of entrepreneurial income, the determinants of relative and absolute poverty and the impact of entrepreneurial activities on vulnerability to poverty and determinants of perceived vulnerability to poverty. The levels of measurement and their analysis are indicated in the table below.

Table 3.1: Observed variables in the study

Dependent variable	Unit	Variable type	Expected Sign
Perceived vulnerability to poverty	Yes= 0 or No= 1	Interval	
Independent variable	**Unit**	**Variable Type**	**Hypothesis**
Soil Erosion	Yes= 0 or No= 1	Interval	-
Water Shortages	Yes= 0 or No= 1	Interval	-
Educational level	None=0 or primary-tertiary=1	Continuous	+
Crop Diseases	Yes=0 or No=1	Interval	+/-
Entrepreneurial activity (Hairdressing, Poultry, transport, hawker, sell water etc.)	Nature of activity and Income	Continuous	+
Drought	Yes= 0 or No= 1	Interval	+/-
Soil degradation	Yes= 0 or No= 1	Interval	-
Years of Experience	Specific years	Continuous	+
Age of Household Head	Specific age	Continuous	+
Employment Status	Yes=0, No=1	Interval	+
Marital Status	married=0, otherwise=1	Interval	+
Gender	Male=0, Female=1	Interval	+/-
Cancer	Yes=0, No=1	Interval	-
Fire	Yes=0, No=1	Interval	-
Crop Loss	Yes=0, No=1	Interval	-
Lack of Finance	Yes=0, No=1	Interval	-
Lack of Storage Facilities	Yes=0, No=1	Interval	-
Climate Change	Yes=0, No=1	Interval	+/-
Lack Market	Yes=0, No=1	Interval	-
Received Training	Yes=0, No=1	Interval	+
Land (ha)	Specific Hectares	Continuous	+/-
Household Size	Specific Number of people	Continuous	+/-
Religion	Christian=0, otherwise=1	Interval	+/-

3.10. Limitations of the Study

Even though the study's aims were achieved, the researcher was faced with inescapable restrictions. Firstly, HFG did not have a formal way of doing things i.e. record keeping, information on their enterprise and farm income was recorded based on what they remember. Secondly, it was very difficult to find the random selected respondents and other questionnaires had to be thrown away due to their incompleteness. Lastly with regard to data, cross-sectional data was used since the study took only two years.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Introduction

In this chapter, the results of data analysis are presented and discussed. These focus on socio-economic and demographic characteristics of homestead food gardeners, coping strategies used by homestead food gardeners to deal with vulnerability and poverty, income shocks experienced by homestead food gardeners, constraints faced by homestead food gardeners, the determinants of entrepreneurial income, determinants of perceived vulnerability to poverty and determinants of relative and absolute poverty.

4.2. Socio-Economic Characteristics

According to ActionAid Report (undated), women are more likely to live in poverty due to inequalities. They have less power, money as well as the ability to protect themselves from violence. Regardless of these discriminations, women are standing up to claim their rights and fight poverty (ActionAid report, undated). Results in table 4.1 show that 67.3% of the respondents were females compared to 32.7% males that were involved in homestead food gardening. The results indicate migration of men in the study area to urban areas to look for employment. The results of this study also revealed that 16.4% of the respondents were youth (under 36), 66.4% fell between 36 and 60 years of age and 17.2% were above 60. This indicates that there is still lack of youth participation in agricultural enterprises. According to Anyanawu (2013), it was disputed that as old age escalates, poverty also escalates due to decreased levels of productivity of an individual and the possibility of having less savings.

Table 4.1: Descriptive: Selected Characteristics of Homestead Food Gardeners

Characteristic	Frequency	Percent
Gender		
Male	36	32.7
Female	74	67.3
Age		
Under 36	18	16.4
Between 36 and 60	73	66.4
Above 60	19	17.2
Population Group		
African	107	97.3
Coloured	1	0.9
Indian	2	1.8
Marital status		
Married	62	56.4
Single	37	33.6
Widowed	9	8.2
Divorced	2	1.8
Educational Status		
Primary	17	15.5
Secondary	45	40.9
Tertiary	38	34.5
Household size		
Under 5	20	18.2
Between 5 and 10	75	68.2
Above 10	15	13.6
Number of Dependents		
Under 5	65	59.1
Between 5 and 10	42	38.2
Above 10	3	2.7
Land (ha)		
Below 1ha	75	68.2
Between 1 and 2	33	30
Above 2	2	1.8
Employment status		
Employed	56	51
Unemployed	54	49
Income		
None	54	49.1
Below 20000 p/a	21	19
Between 20 000 and 70 000p/a	22	20
Above 70 000p/a	13	11.8
Source: Own work out		

In a study conducted by Babu and Afera (2016), it was pointed out that households' vulnerability to poverty decreases as the age of the household head increases due to more skills acquired over the years as well as experience in farming activities. The results of this study revealed that 97.3% of the respondents were Africans, 0.9% coloured and 1.8% Indians. This indicates that the majority of people involved in HFG were Africans. Being married influence vulnerability and poverty. The results in table 4.1 revealed that respondents that were married in the study area were 56.4%, 33.6% of those who were single, 8.2% of widows and 1.8% that was divorced. In a study conducted by Anyanwu (2013), it was found that those households under polygamous marriages experienced higher levels of poverty and vulnerability, while those with one person showed the least incidence of poverty.

Since education helps in formation of skills that can result in higher productivity of labour as well as engagement in other recompensing activities, household standard of living can be greatly affected by education (Yusuf *et al.,* 2011). In this study, education level refers to educational accomplishment of household head. When it comes to the educational status of the respondents, those who did not have education, left school at primary level, secondary and those who went to tertiary were 15.5% (17), 40.9% (45) and 34.5% (38), respectively. Attainment of lower levels of education can be associated with unemployment, low income and poverty (Poswa, 2008). The higher the education levels of an individual, the lesser their chances of getting into poverty. In the case of South Africa, that is not the case due to the fact that majority of the individuals have higher levels of education, nevertheless for employment is not the same as the municipality is faced with higher levels of unemployment.

Household size has different impacts on the welfare of households. It is expected for households with large sizes to be more vulnerable to poverty compared to those with small numbers; the same applies to number of dependents. In this study, the results in table 4.1 indicated that households that had less than five people were revealed to be 18.2%, those between 5 and 10 were 68.2% and those above 10 made 13.6% of the respondents. According to Babu and Afera (2016), it was found out that dependency ratio has a positive relationship on the household's vulnerability to poverty.

Results in table 4.1 revealed that 59.1% fell under less than five dependents, 38.2% between five and ten and 2.7% above ten dependents. The HFG also mentioned that people between the ages of 14-64 years had higher levels of vulnerability due to the fact that the large number of dependents increases the burden of active household members having to take care of them. It can be expected of households with more land to be less vulnerable to poverty while those that have small piece of land can be expected to be vulnerable to poverty. However, it may be argued that land size does not matter, what matters is the land fertility. The results in table 4.1 revealed that homestead food gardeners that had land size below1 hectare of land were 68.2% of the sample, those between 1 and 2 hectares 30% (33) and above 2 hectares 1.8%.

Unemployed individuals lack financial stability, as a result cannot participate in social endeavours leading to being in poverty. They usually have a lower standard of living than those who are employed (Agbaje *et al.,* 2013). In this study, the results in table 4.1 showed that a percentage of employed family members were 51% and 49% were unemployed. According to Ndobo (2013), household income is the total monthly income of households from all sources. Contrasting this definition, the study observed annual income from employment and it was realized in table 4.1 that 49.1% was earning nothing from employment while those who were employed (19%) earned below R20 000 per annum, 20% earned between R20 000 and R70 000 per annum and 11.8% of those who earned above R70 000 per annum.

4.3. Income Shocks Experienced By The Respondents

Figure 4.1 below presents the results on the shocks that were experienced by homestead food gardeners over the past one year. It was revealed that 15% of the respondents experienced theft of their assets and garden crops. It also showed that 4% experienced fires outbreak due to electricity shocks, and 16% were affected by drought as they did not have access to water and water that was provided by government stopped running on daily basis but on certain days. Consumers were also affected by high prices. It was also revealed that 18% of the respondents lost their crops due to drought and getting more sunlight than they should.

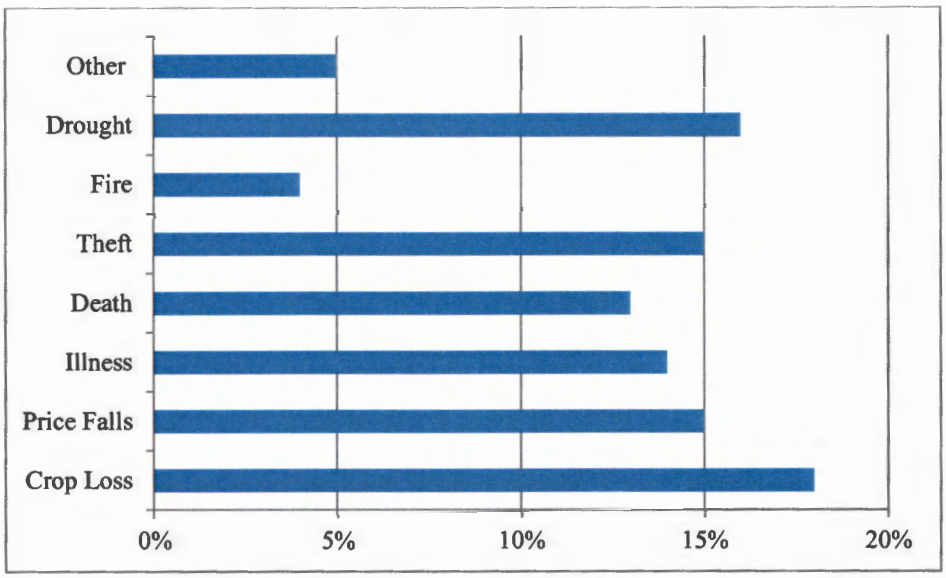

Figure 4.1: Income Shocks Experienced By Homestead Food Gardeners

Source: Own Computation

Price falls on agricultural products affected 15% of homestead food gardeners as they stopped gaining profit and running at a loss which could have an adverse impact on their current and future poverty. People in poverty suffer from hunger and starvation, and are prone to diseases (Pogge, 2010). Illness in the families affected 14% which drains labour, since they can no longer work effectively or work at all. Food nutritional requirements will be high forcing the family members to buy more expensive and nutritious food as well as forcing them to sell their assets which could help in generating income to spend money on medication and clinic/doctor visits.

Death of household members was experienced by 13% of the respondents. Some of the family members who died were bread winners and 5% of the respondents were faced with other shocks such as their children being cut-off the grants, having to pay bail to release family members from jail, having to organize and pay for funerals, etc. The results of this study reject the second hypothesis because the probability of being poor is influenced by exposure to welfare shocks.

4.4. Coping Strategies Applied By Homestead Food Gardeners

Coping strategies are those actions that are taken by individuals or households to minimize or stand traumatic occasions. The results in table 4.2 below show the coping strategies that were

employed by the homestead food gardeners to deal with the shocks they experienced. It was revealed that 60% were looking for piece jobs. While 27.3% received government food which they applied for. For those who substituted their meals (62.7%), they had to buy much cheaper food to substitute the usual and that can have a negative impact on their nutritional status as well as future poverty.

Table 4.2: Coping Strategies Used By Homestead Food Gardeners

Coping Strategy	Frequency	Percent
Piece Job	66	60
Government Food	30	27.3
Substitute Meals	69	62.7
Reduce Meals	42	38.2
Government grants	69	62.7
Reduce Household Items	23	20.9
Informal Borrowing	29	26.4
Formal Borrowing	43	39.1
Pull children out of School	2	1.8
Vending	38	34.5
Sale of Assets	28	25.5
Ask Friends	36	32.7
Help from Religious Organizations	31	28.2

Source: Own Computation

Respondents who reduced meals a day make (38.2%). This shows that meals per day were not affected that much by the income shocks experienced since the minority reduced their meals. Government grants are there to take care of the less fortunate and the results have shown that majority of the respondents were using them (62.7%). Household items were found to have affected smaller households because only 20.9% reduced household items like soap, snacks etc. Households that were informally borrowing from neighbours and relatives were 26.4% of the households and formal lending from banks and loan sharks (39.1%).

The results in table 4.2 showed that 1.8% of the respondents pulled children out of school. Vending (34.5%), sale of assets (25.5%), were asking from friends (32.7%) and those who got help from religious organizations (28.2%). This confirmed that homestead food gardeners are doing something about the shocks they face.

4.5. Constraints Faced By Respondents

The descriptive results presented in table 4.3 below shows constrains that were faced by the homestead food gardeners. Access to labour and capital is limited by insufficient access to markets. It is shown that the respondents that lacked market were 63.6% which shows that even though government is trying to address market access of small or household producers it is still not enough. Respondents were affected by crop diseases (48.2%), soil degradation (62.7%). The results also revealed that availability of water was a problem in the study area since the majority of the respondents (66.4 %) were experiencing water shortages.

Table 4.3: Constrains Faced by Homestead Food Gardeners

Constraint	Frequency	Percent
Lack Market	70	63.6
Crop Diseases	53	48.2
Soil Degradation	69	62.7
Water Shortage	73	66.4
Climate Change	75	68.2
Post-Harvest Management	61	55.5
Lack of Storage	64	58.2
Theft	65	59.1
Lack Finance	62	56.4
Lack Incentive	45	40.9
Lack Information	54	49.1
Lack Resources	56	50.9
Lack Infrastructure	56	50.9
Lack Inputs	62	56.4
Lack Technical Knowledge	52	47.3

Source: Own Computation

Climate change is a threat to agricultural production and greatly affects those who have limited resources and knowledge to adapt. The results in table 4.3 revealed that 68.2% of the respondents were affected by climate change. It is also shown that farmers still lacked knowledge on how to handle their produce after harvesting because 55.5% of them were faced with post-harvest management problem. South Africa is a developing country and has long been faced with a challenge of storage facilities even for commercial farmers. Similar problem faced homestead food gardeners as 58.2% of them lacked a place to store their produce in a way that can have a long life since the products they are producing (vegetables) are highly perishable. Crime has always been regarded as a sign of poverty and the results in table 4.3 revealed that 59.1% were

faced with a challenge of not only their produce but valuable assets were stolen. Starting a small business is an easy thing to do. However, individuals are faced with a great challenge in sustaining those activities with finance as a major one. It is presented in table 4.3 that 56.4% of the respondents were in short of finances. Being motivated can change a lot of things and encourage others to be motivated too. However, 40.9% of the respondents lack motivation and the drive to start something new and increase their knowledge on how to sustain their activities.

Updated information on production, innovation, policies as well as funding can have a great impact on farmers' production. Poor infrastructure is a product of poverty that limits development. Communities are often concerned with the necessity of roads development as they perceive that as an improvement to market access, health, jobs as well as education facilities (Farhat and Hayes, 2013). However, almost half of the respondents (49.1%) had inadequate knowledge regarding these. Resources are perceived to have a positive influence on preventing someone from falling into poverty since these resources may be turned into something that can bring income. The results in table 4.3 also revealed that 50.9% of homestead food gardeners did not have resources which increases the likelihood of being in poverty and vulnerable to poverty. Without adequate infrastructure a producer cannot be successful in their business since infrastructure is needed to support production activities e.g. roads to access markets and about 50.9% of the respondents do not have adequate infrastructure.

Input is one of the factors that increase production. The results in table 4.3 revealed that 56.4% of the respondents lacked an input which means that their production is not that efficient. It was also revealed that 47.3% of the respondents lacked practical knowledge on farming and technology use. Thus, lack of technical knowledge such as tilling, ploughing till harvesting cannot yield well-intentioned results with inappropriate application.

4.6. Determinants of Entrepreneurial Income

To examine the factors affecting entrepreneurial income Tobit regression model was used. The results are summarised on table 4.4.Table 4.4.The model showed a good fit between the dependent and explanatory variables with a log likelihood of -1019.74, likelihood ratio of 81.07, ($p<0.01$). The computed VIF related individually to the predictors indicated small VIF values

ranging from 1.16 to 1.64 which revealed the absence of multicollinearity among the explanatory variables.

Table 4.4: Determinants of Entrepreneurial Income

Variables	Coefficient	t Values	Significance Level	VIF
Constant	1810.675	0.49	0.623	1.40
Gender	-1149.34	-0.94	0.352	1.41
Age	79.19	1.85	0.068*	1.64
Marital Status	-151.899	-0.14	-0.893	1.30
Education	1452.007	1.05	.0296	1.46
Religion	-5887.34	-2.56	0.012**	1.55
Household Size	474.1623	2.37	0.020**	1.58
Land(ha)	-3.379724	-0.45	0.653	1.23
Employment Status	-1498.327	-1.34	0.183	1.31
Years of Experience	300.3032	2.31	0.023**	1.48
Training	1651.566	1.48	0.143	1.16
Lack Market	137.4161	0.12	0.906	1.33
Crop Diseases	2241.196	1.87	0.065*	1.48
Soil Degradation	-3578.23	-3.11	0.003***	1.32
Water Shortage	2366.566	2.04	0.045**	1.27
Climate Change	2313.068	2.04	0.045**	1.19
Lack of Storage	-1840.14	-1.67	0.100	1.25
Soil erosion	4097.671	3.76	0.000***	1.23
Lack of Finance	-2881.93	-2.43	0.017**	1.46
Crop Loss	3564.526	2.88	0.005***	1.58
Drought	-2337.372	-1.84	0.070*	1.57
Fire	1305.758	0.62	0.534	1.51
Cancer	-1006.085	-0.35	0.724	1.50
LR $Chi^2(22)$	81.07			
Prob $>Chi^2$	0.0000			
Pseudo R^2	0.0382			

Source: Own Computation

*Significant at 10%, **significant at 5% and ***significant at 1%

The results in table 4.4 indicated that entrepreneurial income was affected by age of a household head (t=1.85), religion of a household head (t=-2.56), household size (t=2.37), and years of experience (t=2.31), crop diseases (t=1.87), soil degradation (t=-3.11), water shortages (t=2.04), climate change (t=2.04), soil erosion (t=3.76), and lack of finance (t=-2.43), crop loss (t=2.88) and drought (t=-1.84). It was revealed in table 4.4 that age affected entrepreneurial income positively. It was revealed that an increase in age by 1 year resulted in an increase in entrepreneurial income by R79.19. The results are in line with that of Olale and Hussen (2012),

who revealed that the age of the household head is positively associated with income from non-agricultural activities. The results in table 4.4 also revealed religion as a determinant of entrepreneurial income ($p<0.05$). The results revealed a negative relationship between religion and entrepreneurial income. As a number of Christians increase by one member, entrepreneurial income decreased by R5 887.34. It was mentioned in a study conducted by Janowski and Bleahu (2002) that religion can have both negative and positive implications. Despite the fact that it can provide resources for building up connections which may help in livelihood activities (Janowski and Bleahu, 2002), it also limits income generating activities.

The results of this study are also supported by a study conducted by Lipford and Tollison (2003), who revealed that religion has been further advanced by economists on the understanding of human behaviour. They found out that religion slightly decreases level of income as it sticks to principles on preferences towards afterlife consumption as well as discouraging acquiring material wealth. The results in table 4.4 revealed a positive relationship between an increase in household size and entrepreneurial income. It was revealed that as household size increased there was also an increase in entrepreneurial income by R474.16 ($p<0.05$). The results are not in line with that of Yunez –Naude and Taylor (2001), who found out that an increase in family size decreases income. However, a study conducted by Wouterse and Taylor (2008), is in line with the results of this study. They found out that larger family sizes were associated with higher levels of primary crop income.

In addition, that makes the connection between entrepreneurial income and household size ambiguous. In contradiction with the results is a study conducted by Ozigbo (2015) and Xaba (2013), who revealed that smaller household sizes expect increased income from crop sales. They further reasoned that in greater family sizes, greater portion of produce goes to them and may discourage selling because the farmer has to supply the household consumption needs before selling. Ovwigho (2014) also mentioned that an increase in household size increases number of non-farm income generating activities. The years of experience involved in entrepreneurial activity significantly affected entrepreneurial income ($p<0.05$). The results in table 4.4 revealed that an increase in experience by 1 year resulted in an increase in entrepreneurial income by R300.32. The results of this study are in line with that of Xaba (2013), who revealed that as farmers become more experienced in production and marketing of

vegetables through their involvement, their possibility of participating in profitable businesses will be higher, resulting in more profits. The results of this study revealed that socio-economic characteristics of HFGs influence entrepreneurial income. Therefore the fifth hypothesis of this study is rejected.

Various crop diseases affected entrepreneurial income among HFGs. The results in table 4.4 revealed that crop diseases increased entrepreneurial income by R2 241.196 ($p<0.1$). The results of this study are in conflict with a study conducted by Harvey et al., (2013) who revealed that farmers were regularly exposed to pests and diseases outbreak which caused major crop and income losses. The results in table 4.4 revealed that, soil degradation has a negative influence on entrepreneurial income ($p<0.01$). The more soil degraded, the less entrepreneurial income was earned, it decreased by R3 578.23. The results are in line with that of Oladeji (2016), who also found out that there was a significant difference in income generating activities of farmers' before and after land has degraded.

Moreover, the results of this study support the views of Uzokwe (2000), who indicated that soil degradation adversely affect production level, food security as well as income level and socio-economic status of farmers. The results in table 4.4 revealed that, water shortages increased with entrepreneurial income by R2 366.57 ($p<0.05$). The results of this study are supported by Ovwigho (2014), who indicated that the majority of farmers engage in different secondary income generating activities to prevent falling short in income during low production seasons. Climate change is one of the factors that affected entrepreneurial income ($p<0.05$). It was revealed that a change in climate increased entrepreneurial income by R2 313.07. The results of this study are in line with that of a study conducted by Bobojonov and Aw-Hassan (2014), who revealed that farm income was expected to increase under climate change circumstances. They further explained that expected increase in temperature as well as precipitation may create more favourable conditions for production and yields which has additional possibilities to increase farm income in the future.

Soil erosion forms a part of the major threats to agricultural production as it can lead to reduced crop yields that will threaten farmers' level of income (Borrelli et al., 2016). However, in this study it was revealed in table 4.4 that soil erosion affected entrepreneurial income positively ($p<0.01$). The results revealed that soil erosion increased with entrepreneurial income by

R4 097.671. The results of this study are different from that of Hediger (2003), who found that in the long run, soil erosion will result in decline in production, resulting in lower agricultural yields and income. Lack of finance is one of the factors that affected entrepreneurial income. The results in table 4.4 revealed that an increase in poor finance resulted in a decrease in entrepreneurial income by R2 881.93 ($p<0.05$). According to Tsyganova and Shirokova (2010), availability of financial capital is one of the main issues when starting and growing business.

The results in table 4.4 revealed that an increase in crop loss resulted in an increase in entrepreneurial income by R3 564.53 ($p<0.01$). The results of this study are supported by that of Seng (2015), that farmers reported damage to their crops due to excessive rainfall, birds and drought. Adding to agricultural production profits, other sources of income from non-farm activities such as self-employment and salary paid employment contribute positively to households' level of income. Drought affected entrepreneurial income in this study. The results in table 4.4 revealed a negative relationship between drought and entrepreneurial income. It was discovered that an increase in drought decreased entrepreneurial income by R2 337.37 ($p<0.1$). The results of this study are in line with that of a study conducted by Goodwin and Smith (2013), who indicated that farm income diminished due to drought. Exposure to welfare shocks significantly influence entrepreneurial income in this study. Therefore, the fourth hypothesis of this study is rejected.

4.7. Determinants of Perceived Vulnerability and Poverty

The marginal parameters of perceived vulnerability to poverty are presented in table 4.5 below. To measure the impact of entrepreneurial activities on vulnerability and poverty, the results of this regression analysis included entrepreneurial activities. Applying the method detailed in the methodology, perceived vulnerability to poverty was measured in table 4.5 The model shows a good relationship between the dependent and independent variables with a log likelihood of -47.260038, LR =42.97, $p< 0.0005$. Perceived vulnerability to poverty were significantly affected by factors such as an entrepreneurial activity of offering transport services by a family member ($z=2.43$), poultry by a family member ($z=1.66$), marital status of household head ($z=-1.79$), educational level of household head ($z=-3.47$) as well as household size ($z=-2.87$).

Table 4.5: Determinants of Perceived Vulnerability and Poverty

Variables	Coefficient	t Values	Marginal Effects	Significance Level
Constant	5.042074	3.76	.0000231	0.000
Vegetable Farming	.0000758	1.24	-.0000333	0.216
Hairdressing	-.0001091	-0.61	.0000177	0.543
Motor Repairs	.0000582	0.56	.000122	0.575
Transport	.0004004	2.02	-.0000248	0.043**
Hawker	-.0000814	-0.93	.0000611	0.353
Shoe Repair	.0002006	1.09	.0000499	0.274
Poultry	.0001639	1.70	.0000244	0.090*
Tuck Shop	-.0000802	-1.14	.1526295	0.254
Gender	.541795	1.46	-.0051914	0.145
Age	-.0170391	-1.20	-.1671868	0.231
Marital Status	-.5649123	-1.76	-.3027632	0.079*
Education	-1.35558	-2.74	-.1970804	0.006***
Religion	-.9259629	-1.05	-.0612091	0.293
Household Size	-.2008972	-2.87	-.0988116	0.004***
Land(ha)	-.3243138	-1.09	.0961391	0.277
Employment Status	.3154759	0.89	-.0161809	0.375
Years of Experience	-.0531079	-1.10		0.271
Log Likelihood	-47.260038			
LR chi2(17)	42.97			
Prob> chi2	0.0005			
Pseudo R2	0.3125			

Source: Own computation

*Significant at 10%, **Significant at 5%, ***Significant at 1%

Transport as an entrepreneurial activity affected perceived vulnerability to poverty. It was revealed in table 4.5 that offering transport services increases perceived vulnerability to poverty ($p<0.05$). The results revealed may hint at competition, i.e. the more transport services offered, the smaller the income earned and increased perceived vulnerability to poverty. It is revealed in table 4.5 that poultry had a positive relationship on the marginal parameters of perceived vulnerability to poverty. As poultry ownership increases, perceived vulnerability to poverty also increased ($p<0.1$).

It was revealed in table 4.5 that marital status had a negative influence on the marginal parameters of perceived vulnerability to poverty. It was revealed that the likelihood of married

people to fall into future poverty is 17% lower than for unmarried people ($p<0.1$). The results of this study are in line with that of Adepoju and Okumadewa (undated), who found that marital status (being married) reduced vulnerability to poverty. The simplicity of sharing risk and combining resources together as well as catering for households' needs in cooperation was provided as a possible reason. Educational level was another factor that affected the marginal parameters of perceived vulnerability to poverty. It was revealed in table 4.5 that an increase by one level in education resulted in a decrease on marginal parameters of perceived vulnerability to poverty ($p<.0.01$). The results of this study are in line with a study conducted by Hanna (2004), who also revealed that higher levels of education reduce possibility of being poor. It was revealed in table 4.5 that religion had a negative influence on the marginal parameters of perceived vulnerability to poverty. It was indicated by the results in table 4.5 that growth in religion resulted in a decrease in marginal parameters of perceived vulnerability to poverty ($p<0.1$). It was also discovered by the results in table 4.5 that household size had a negative influence on perceived vulnerability to poverty. It was revealed that an increase by one member in household resulted in a decrease in marginal parameters of perceived vulnerability to poverty ($p<0.01$). The results of this study are in line with that of (Megersa, 2015), who revealed that as households size increases, so does the workforce. As a result, there will be less incidence of probability of households to be vulnerable to poverty. The results of this study reject the third hypothesis of this study due to the fact that entrepreneurial activities influence perceived vulnerability to poverty.

4.8. Determinants of Relative Poverty

The results presented in table 4.6 show the determinants of relative poverty. It was revealed that factors that affected relative poverty at a certain statistical level were vegetable farming ($z=-2.71$), Hairdressing ($z=-1.77$), transport ($z=-2.19$), poultry ($z=-2.05$), religion ($z=1.81$) and household size ($z=3.49$). With log likelihood= -47.288193, LR= 29.04 and $p< 0.0342$ which shows that the model is good.

Table 4.6: Determinants of Relative Poverty

Variables	Coefficient	t Values	Marginal Effects	Significance Level
Constant	-1.695201	-1.62	-.0000452	0.106
Vegetable Farming	-.0001729	-2.63	-.0001439	0.008***
Hairdressing	-.0005506	-1.71	-.0000173	0.088*
Motor Repairs	-.0000664	-0.71	-0.0000509	0.477
Transport	-.0001947	-2.03	-.0000348	0.043**
Hawker	-.0001332	-1.42	-.0000602	0.156
Shoe Repair	-.0002303	-1.18	-.0000639	0.237
Poultry	-.0002446	-2.03	-5.14e-06	0.042**
Tuck Shop	-.0000197	-0.42	.0221994	0.671
Gender	.0838325	0.24	-.0050508	0.812
Age	-.0193309	-1.32	-.0069133	0.186
Marital Status	-.0264239	-0.08	-.0751241	0.935
Education	-.2704544	-0.69	.1507608	0.490
Religion	.8403088	1.13	.0587827	0.260
Household Size	.2249801	3.26	.0815254	0.001***
Land(ha)	.312024	1.01	-.00949554	0.312
Employment Status	-.363311	-0.11	.0151613	0.915
Years of Experience	.0580271	1.24		0.214
Log Likelihood	-47.288193			
LR chi2(17)	29.04			
Prob> chi2	0.0342			
Pseudo R2	0.2349			

Source: Own computation

*Significant at 10%, **Significant at 5%, ***Significant at 1%

The results in table 4.6 revealed that an increase in vegetable farming reduced absolute poverty ($p<0.01$). The results of this study are in line with that of (Masashua et al., undated) who in their study recognized a significant contribution of vegetable production to poverty reduction. Hairdressing was another entrepreneurial activity that decreased relative poverty ($p<0.1$). The results of this study may point toward the fact that hairdressing activity increases with income. As a result, households are able to acquire more resources. The results of this study are in line with that of Mpye (2013), who also indicated that the relationships created by hairdressers present them with the potential of self-constitution of their work as well as livelihoods. It was further mentioned that the skill of this activity provides critical income as well as support to the lives of the poor and unemployed, thus reducing relative poverty. There has not been much studies carried out on transport services and poverty implications. The results in table 4.6 also

revealed a statistically significant relationship between owning transport and relative poverty ($p<0.05$). It was revealed that offering transport as an entrepreneurial activity minimizes relative poverty. This may imply with a slight income from transport services, relative poverty is reduced. The results of this study are supported by that of Porter (2013) who indicated that transport services have negatively impacted poverty alleviation among rural populations in various ways. It was further indicated that populations obtaining their income from providing transport services have reduced poverty status. Another entrepreneurial activity that had a negative impact as well as significant relationship ($p<0.05$) on marginal parameters of relative poverty was poultry. The results correlate with that of Hanna (2004), who found out that the effects of having poultry decreased being in poverty and has four times strong positive effect.

The results of this study revealed that religion was one of the factors that affected relative poverty. It was revealed that an increase in religion caused an increase in relative poverty. Household size was also one of the factors that influenced relative poverty. The results in table 4.6 revealed a statistically significant relationship between relative poverty and household size ($p<0.01$). It was revealed that increase in number of household members increased relative poverty. The results of this study are in line with that of MuhammedHussen (2015), who also found out that as the size of the household increases by one unit, the likelihoods of the household to fall into poverty increases. He further explained that the results implied possibility of being in poverty to be very high for large family houses. Involvement in entrepreneurial activities significantly has an influence on the probability of being absolutely or relatively poor. Therefore, the first hypothesis of this study is rejected.

4.9. Determinants of Absolute Poverty

The results of the factors that affected marginal parameters of absolute poverty are presented in table 4.7. The calculated VIF related to each of the predictors indicated small VIF values ranging from1.07 to 1.83 which discovered the absence of multicollinearity among the descriptive variables. The factors affecting marginal parameters of absolute poverty were revealed to be hairdressing ($z=-3.16$), transport ($z=-2.47$), poultry ($z=-201$), age ($z=-2.07$), education ($z=-1.85$) and household size ($z=3.77$). With log likelihood= -47.49637, LR= 41.07 and $p< 0.0009$. The results in table 4.7 revealed that hairdressing had a negative relationship on absolute poverty as an increase in dressing hairs reduced absolute poverty ($p<0.01$). The possible reason for the

results of this study may be that income that households are getting from hairdressing enables them to buy food to meet their nutritional requirements. Moreover, with that income households are able to access health services as well as paying for their children school fees. Transport was an entrepreneurial activity that affected absolute poverty. The results in table 4.7 revealed that offering transport services had a positive impact on absolute poverty ($p<0.05$). Income from transport services also enables household to feed their families, send them to school as well as accessing better health services.

Table 4.7: Determinants of Absolute Poverty

Variables	Coefficient	Z Values	Marginal Effects	VIF	Significance Level
Constant	.3381547	0.29	-.0000167	1.41	0.770
Vegetable Farming	-.0000498	-0.80	-000329	1.07	0.424
Hairdressing	-.0009815	3.15	-3.97e-07	1.35	0.002***
Motor Repairs	-1.19e-06	-0.01	-.0000668	1.30	0.993
Transport	-.0001993	-2.55	-.0000322	1.22	0.011**
Hawker	-.0000962	-1.13	.0000191	1.16	0.258
Shoe Repair	.0000569	0.30	-.0000657	1.39	0.767
Poultry	-.0001959	-2.02	7.70e-06	1.48	0.044**
Tuck Shop	.000023	0.41	.0322386	1.26	0.684
Gender	.0971849	0.28	-.0103211	1.83	0.783
Age	-.0307892	-2.07	.0581147	1.16	0.039**
Marital Status	.17255353	0.54	-.2051281	1.51	0.589
Education	-.6978481	-1.57	.2105433	1.54	0.116
Religion	.5673756	0.79	.0966133	1.70	0.431
Household Size	.288209	3.71	-.0202123	1.47	0.000***
Land(ha)	-.0602957	-0.21	.1200775	1.30	0.835
Employment Status	.3587651	1.01	-.0028093	1.74	0.314
Years of Experience	-.0083804	-0.19			0.849
Log Likelihood	-47.49637				
LR chi2(17)	41.07				
Prob > chi2	0.0009				
Pseudo R2	0.3018				

Source: Own computation

*Significant at 10%, **Significant at 5%, ***Significant at 1%

The results in table 4.7 revealed that poultry decreases absolute poverty ($p<0.05$). The results of this study are in line with that of Pica-Ciamarra and Otte (2009), who found that backyard poultry, had the capability of enhancing nutrition and reducing poverty. However, it did not

appear to be a promising approach to accomplish extensive poverty reduction in rural areas. Another factor that affected marginal parameters of absolute poverty was age of a household head. It was revealed in table 4.7 that increase in age by a year resulted in a decrease in absolute poverty ($p<0.05$). The results are in line with that of Sekhampu (2013) who also found that increase in age of a household head reduced the possibility of being poor. Level of education affected absolute poverty. It was revealed in table that an increase in level of education will decreased absolute poverty ($p<0.1$). The results in table 4.7 revealed that household size affected absolute poverty positively. It was indicated that an increase in household size by one member increased absolute poverty. The results of this study are in fitting together with that of Hanna (2004), who indicated that nutrition poverty increases with household size. Involvement in entrepreneurial activities significantly has an influence on the probability of being absolutely or relatively poor. Therefore, the first hypothesis of this study is rejected.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

The purpose of this research project was to analyse the impact of entrepreneurial activities and income shocks on vulnerability and poverty among homestead food gardeners in . Therefore, this chapter presents the summary on the results of the study. The study looked at the socio-economic and demographic characteristics of the HFG, the constraints they were faced with and shocks they experienced. Determinants of entrepreneurial income, perceived vulnerability to poverty as well as relative and absolute poverty were analysed using methods specified in the methodology.

5.2. Summary

The results of this study indicated that women were empowered since 67.3% of the respondents were females compared to 32.7% of males. It was also revealed that 16.4% of the respondents were youth (under 36), 66.4% fell between 36 and 60 years of age and 17.2% were above 60. When it comes to population groups, it was found out that 97.3% of the respondents were Africans, 09% coloured and 1.8% Indian. With regard to marital status the results revealed that respondents that were married in this study were 56.4%, 33.6% of those who were single, 8.2% of widows and 1.8% that was divorced. When it came to the educational status of the respondents, those who did not have education, left school at primary level, secondary and those who went to tertiary were 15.5%, 40.9% and 34.5%, respectively. Concerning household size and number of dependents, the results indicated that households that had less than five people were revealed to be 18.2%, those between five and ten were 68.2% of the respondents and those above 10 were 13.6% of the respondents and that 59.1% fell under less than five dependents, 38.2% between five and ten and 2.7% above ten dependents. Homestead food gardeners that had land size below 1 hectare of land were 68.2% of the sample, those between 1 and 2 hectares 30% and above 2 hectares 1.8%.

Furthermore, the results of this study showed that a percentage of employed family members were 51% and 49% were unemployed. It was realized that 49.1% was earning nothing from employment while those who were employed 19% earned below R20 000 per annum, 20% earned between R20 000 and R70 000 per annum and 11.8% of those who earned above R70 000 per annum. Lack of market was faced by 64.5% of the respondents. Crop diseases affected 48.2%, soil degradation 62.7% and (66.4 %) were experiencing water shortages. With regard to climate change 68.2% of the respondents were affected and after poor postharvest management was faced by 55.5% while 58.2% of them were short of storage facilities. The results also revealed that 59.1% were faced with a challenge of not only their produce but valuable assets were stolen. Finance was a problem to 56.4% of the respondents. Incentives were lacked by 40.9% whereas 49.1% had inadequate knowledge on entrepreneurship, HFG support, etc. it was also revealed that 50.9% of homestead food gardeners had limited resources. 50.9% of the respondents did not have adequate infrastructure. Furthermore, 56.4% of the respondents did not have inputs and 56.4% had inadequate technical knowledge.

It was found out that 15% of the respondents experienced theft on their assets and food gardens. It was also shown that 4% experienced fires due to electricity shocks and 16% were affected by drought. Regarding crop loss, it was revealed that 18% of the respondents lost their crops. Price falls affected 15% of homestead food gardeners and illness in the families affected 14%. Death was experienced by 13% of the respondents, 5% were faced with other shocks such as their children being cut-off the grants, having to pay bail to release family members from jail as well as taking care of HIV/AIDS family members. It was revealed that 60% of HFG were looking for piece jobs, while 27.3% were given government food which they applied for. For those who substituted their meals, it was revealed that (62.7%) of HFG did it. Respondents who reduced meals a day were (38.2%). respondents were using government grants (62.7%) and 20.9% reduced household items. Informal borrowing from neighbours was done by 26.4% of the households and formal lending from banks and loan sharks by (39.1%).Only two respondents pulled children out of school 15.5%. Vending (34.5%), sale of assets (25.5%), asking from friends (32.7%) and help from religious organizations (28.2%).

5.3. Conclusions

In conclusion, it can be decided that the issue of women empowerment is achieved in this study area. The main issues that still need attention include education, which can make a huge difference in other problems. Firstly, education can solve the problem of populous household sizes as well as number of dependents. Secondly, employment problem will decline. Lastly, with regard to entrepreneurial activities, HFG will be able to make informed decisions as well as taking calculated risks that will decrease chances of falling into poverty. With regard to constraints, the main problems include market access, crop diseases, soil degradation, post-harvest management, storage facilities, theft, finance, incentive, knowledge and resources. Crime, climate change and knowledge are responsible for these constraints due to the fact that theft reduces resources, knowledge affects management of produce after being harvested as well as lack of incentive and climate change grounds crop diseases, market access as the quantity and quality of HFG will not meet the market requirements. Storage facilities are a result of poor support for HFG.

Shocks have a great impact on vulnerability to poverty status of HFG. However, from the results of this study it is indicated that HFG are not just sitting around and doing nothing about that problem. They are trying by all means to mitigate future poverty by doing all the accomplishments mentioned earlier in this study. Entrepreneurial income was revealed to have been affected by numerous factors. Hence, it ca n be concluded that farmers still need more training and awareness on how to run an agricultural business as well as non-farm businesses for increased entrepreneurial income and limited likelihood of poverty and vulnerability.

Factors affecting vulnerability to poverty were observed in this study and clarified. The results as far as this study is concerned make sense. Therefore, HFG can learn from them as well as trying all techniques available to avoid them. Entrepreneurial activities had a negative relationship on perceived vulnerability to poverty due to various factors. For that reason, it can be concluded that homestead food gardeners are not yet where they are supposed to be in making profits, acquiring skills and assets they need to improve their status regarding future poverty. It was revealed by the results of this study that entrepreneurial activities, education level and age of household heads had a positive influence on relative and absolute poverty. In brief, it can be said that entrepreneurial activities are assisting homestead food gardeners to operate daily and have their

needs met. However, that does not secure their poverty status in the future. Entrepreneurial activities revealed an encouraging situation on both relative and absolute poverty. Therefore, it can be concluded that non-farm generating activities reduce relative and absolute poverty.

5.4. Recommendations

1. Socio-economic Characteristics of HFGs

- Since the results of this study realized that participation was mainly among the elderly, more youth should be encouraged to participate in homestead food gardening as this will assist young people with farming skills while they are still young and lively to do the work. This could also promote young black commercial farmers. In addition, information on funding programs should be provided to make youth aware and more interested in farming. With increasing number of unemployed people in the study area, it is the extension officers' duty to make these people aware of a big potential of agriculture to create jobs and this could limit migration of men in the study area.
- With regard to HFG's educational level, majority (40.9) had secondary level. They could not further their studies due to financial constraints. Therefore, it is recommended that government, state-owned entities as well as private companies to provide bursaries to dedicated and deserving individuals and information on how to access those bursaries. This will assist in improving scares skills, improve livelihoods and will assist HFGs in making sound decisions as well as being able to solve cost-effective problems. Moreover, this will assist in decreasing larger household size and dependants.
- Regarding a higher percentage of unemployment among HFGs, government needs to support HFGs in their entrepreneurial activities to create more employment and improve HFGs standard of living.

2. Income Shocks faced by HFGs

- Other measures that can empower HFG should be established. It can be brought up that income shocks are important and HFG should be protected from them even though it's only a few numbers affected. The number of healthcare facilities that are close should be taken extremely serious as they adversely affect the HFG vulnerability to poverty.

- Income shocks were experienced by the minority in this study. It is recommended that HFGs should form unions or associations in order to address these shocks and advice each other on the shocks they experience and how they deal with them.

3. *Constraints faced by HFGs*

- Government needs to assist HFGs in finding/accessing markets that are well established as this will assist them to expand their production and not to rely on pension days and surrounding communities. Moreover, HFGs will get improved profit on their production and find the courage to produce more quantity and quality leading to HFGs meeting market requirements and attracting global market.
- Regarding soil degradation, HFGs should be advised by extension officers to apply the correct amount of fertilizers, humus or organic matter as well as practising crop rotation. This will assist in rejuvenating the soil and more production will be achieved.
- Government should provide water tanks and water/boreholes to minimize water shortages. Awareness on climate change adaptation strategies/techniques should be provided by extension officers.
- Government should invest in post-harvest technologies, storage facilities as well as training HFG on managing their produce. This will assist in minimizing post-harvest losses and covering HFGs cost of production.
- Infrastructural developments such as storage facilities, post-harvest technologies, transportation, roads as well as fencing should be prioritized. This will assist in reducing theft, crop losses and destruction of HFGs property.

4. *Entrepreneurial Income*

- Government is doing all it can for small-scale or emerging farmers through various programs and projects. However, little or no progress in some regions is observed. The problem with these interventions may be because support is just given for the sake of saying support was given without considering sustainability of the supported population. Government needs to enforce intensive care (monitoring), reporting on poverty alleviation programs carried out whether they achieved their goals as well as taking sustainability into consideration e.g. After giving HFG equipment they should be taught how to use it effectively and efficiently and make sure they will not sell that equipment through policy creation. The programs should also consist of accountability of parties involved in implementation.

- Moreover thorough mentoring and training on entrepreneurship should be carried out. Lastly, involvement of black people in the economy should be prioritized for equality as well as a growing economy. In addition, poverty alleviation programs and policies should consider prevention of future poverty. This should include the non-poor as they could increase the number of poverty levels in the future. The respondents should also bear in mind that no matter how hard government works in getting them out of poverty; it is also up to them to be committed and work hard.
- Change or transformation begins with positive, energetic and passionate approach. Moreover, homestead food gardeners should consider what will happen in the future and secure it for rainy days. It is also recommended to HFG to participate in various entrepreneurial activities as they have the capability of eliminating current and future poverty as well as acquiring more knowledge and skills to enhance their vulnerability to poverty status. Moreover, the majority of HFG reported to have financial constraints. Information on funding programs in the agricultural sector could be made available to farmers as well as helping them to access such funds. It is also the extension officers' duty to inform farmers on how to deal with drought and about drought resistant seeds and crops. In addition, there are drought relieve programs in the departments that farmers are not aware of and need to know about for better production as well as limited effects of drought.

5. *Absolute and Relative Poverty*

- The results of this study revealed that entrepreneurial income decreases absolute and relative poverty. Therefore it is recommended for government to encourage entrepreneurial activities through various programs and projects, provide training and funding to eradicate the country's developmental problem.

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Appendix 1: Consent for participation in Research Interview

CONSENT FOR PARTICIPATION IN RESEARCH INTERVIEW

I volunteer to participate in a research project conducted by Miss Maselwa T.C from the North West University. I understand that the project is designed to gather information about analysing the impact of entrepreneurial activities on vulnerability to poverty in the North West province. I will be one of approximately 120 farmers being interviewed for this research.

- My participation in this project is voluntary. I understand that I will not be paid for taking part. I may withdraw and discontinue at any time without penalty.
- I understand that most interviewees will find the discussion interesting and thought-stimulating. If, however, I feel uncomfortable in any way during an interview session I have the right to decline to answer any question.
- Participation involves being interviewed by researcher from the North West University. The interview will last approximately 20 minutes.
- I understand that the researcher will not identify me by name in any reports using information obtained from this interview and my participation as a respondent is secure.
- Department of Agriculture or stakeholders will not be present at the interview as this will prevent respondent comments from having negative results.
- I have read and understood the explanation provided to me. All my questions are answered to my satisfaction and I voluntary agree to participate in this study.
- Copies have not been given to participants since majority are illiterate; however, the contents were explained to households.

Respondent signature .....

Date .....

Location .....

Appendix 2: Questionnaire

DEAR RESPONDENT

THIS QUESTIONNAIRE IS FOR DATA COLLECTION FOR RESEARCH ON "THE IMPACT OF ENTREPRENEURIAL ACTIVITIES AND INCOME SHOCKS ON VULNERALITY AND POVERTY AMONG HOMESTEAD FOOD GARDENERS IN NORTH WEST PROVINCE, SOUTH AFRICA". THE INFORMATION PROVIDED WILL BE TREATED AS CONFIDENTIAL, HENCE, NO NAMES ARE REQUIRED AND ANALYSIS WILL BE GROUP REFERENCED. COULD YOU SPARE SOME OF YOUR VALUABLE TIME IN RESPONDING TO THE QUESTIONS. **(YOUR EXPECTED COOPERATION IS HIGHLY APPRECIATED).**

GENERAL INFORMATION

Date of interview
Location

SECTION A

SOCIOECONOMIC CHARACTERISTICS OF FEMALE HOMESTEAD FOOD GARDENERS

Please indicate by marking with an ''X'' where appropriate.

1. Gender

Male ☐ Female ☐

2. Age of respondent_____

3. Population group?

African ☐ Coloured ☐ Indian ☐ Other (please specify)_____

4. Marital status

Married ☐ Single ☐ Widow ☐ Divorced ☐

5. Educational qualification

None ☐ primary ☐ secondary ☐ tertiary ☐

6. Your religion

Christianity ☐ Traditional ☐ Muslim ☐ Islamic ☐ Other (please specify) _____

7. Household size_____

8. Number of dependent(s) _____

9. Land (in hectares). _____

10. Which enterprise(s) is any member of the household is involved in and income from each enterprise?

Activity or Enterprise	Income (within six months)
Vegetable farming	
Irrigated crop production	
Hairdressing	
Motor vehicle repairs	
Provide local transport	
Hawker	
Shoe repairs	
Poultry	
Own small tuck-shop	
Design pots/chairs	
Sell water	
Other (please specify)	
_____	_____
_____	_____

12. Years of farming experience _____

13. Have you received any training related to farming? Yes ☐ No ☐

14. If yes, please specify the kind of training received_____

15. Income from farming _____per annum/per production cycle

16. Expenditure on the farm_____ per annum/production period

17. Is farming making any profit? Yes ☐ No ☐

18. Have you ever received financial assistance from government? Yes ☐ No ☐

If no, what are the reasons for not receiving Funding? _____

19. If yes, how much was the funding? _____

20. Was the funding provided sufficient to do all intended enterprise? _____

21. Have you received a loan from any institution? Yes ☐ No ☐

22. If yes, specify the source

Bank ☐ NGOs ☐ Other

23. How much from each source? _____

24. Are you able to meet the monthly loan repayments/instalments? Yes ☐ No ☐

25. Does the farm or enterprise have adequate infrastructure? Yes ☐ No ☐

26. If yes, please specify

Water ☐ Electricity ☐ Transport ☐ Schools ☐ Clinic/Hospitals ☐ Tar-road ☐

Other (specify) _____

27. Do you communicate with extension officers? Yes ☐ No ☐

28. If yes, how often

Regularly ☐ Occasionally ☐ Rarely ☐

29. Sources of information

Newspapers ☐ Radio ☐ TV ☐ Other (specify) _____

30. Do you have an established market for your products? Yes ☐ No ☐

If yes, please specify_____

If no, what are the reasons? _____

31. How will you rate the overall success of your farming?

Successful ☐ Unsuccessful ☐

32.If successful, what factors contributed to the success?_____

_____

_____

_____

_____

33. If unsuccessful, what factors contributed to that? _____

34. In general, do you think your household is vulnerable to poverty?

Yes ☐ No ☐

35. How many meals do you and your households eat per day?

_____

Did you and your household ever cut the size of your meals or skip meals? Yes ☐ No ☐

36. How often did this happen? _____

37. Did you and your household not eat for the whole day because there wasn't enough money for food? Yes ☐ No ☐

38. If yes, how often did this happen? _____

39. Did you and your household ever eat less than you felt you should because there wasn't enough money to buy food? Yes ☐ No ☐

40. Do you afford to buy food for your household? Yes ☐ No ☐

41. How much do you spend the following per month?

Service	Amount (Rand)
Housing	
Food	
Transport	
Health Care	
Personal expenditures	
Clothing	
Business	
Entertainment	
Other (please specify)	

42. Which of the following describes your main objective of growing irrigated produce? Please circle.

1. Main cash income for household

2. Extra cash for household

3. Income for future investment in another business or new one

4. Other (please specify)

SECTION B

CONSTRAINTS FACING FEMALE HOMESTEAD FOOD GARDENERS

Kindly mark with an ''X'' the level of severity

Possible constrains	Yes No
Land scarcity	
Social dynamics	
Drought	
Low price of products	

Lack of market	
Crop diseases	
Soil degradation	
Shortage of water	
Climate change	
Lack of market	
Water quality	
Post-harvest management	
Lack of storage facilities	
Low price of farm products	
Theft	
Soil erosion	
Water borne diseases	
Other (specify)	
General	Yes No
Lack of finance	
Lack of incentives	
Lack of information	
Lack of resources	
Lack of infrastructure	
High Inputs cost	
Lack of leadership skills	
Lack of technical knowledge	
Other (specify)	

HOMESTEAD FOOD GARDENERS COPING STRATEGIES AGAINST VULNERAILITY TO POVERTY

Household coping strategies against poverty vulnerability	Yes No
Piece jobs	
Relief food from the government	

Substituting ordinary meals
Reducing the number of meals
Government grants
Reducing other household items (soap, tissues)
Informal borrowing from friends, neighbours
Formal borrowing in cash or kind
Pulling children out of school
Vending
Sales of assets
Begging from streets
Asking from friends, neighbours or relatives
Help from religious or charitable organization

SECTION C

ASSET OWNERSHIP AMONG FEMALE HOMESTEAD FOOD GARDENERS

Do members of the household own any of the following? Please mark with an X

Asset	Yes	No
Car		
Fridge		
Tractor		
Television		
Radio		
Toilet		
Sickle		
Wheelbarrow		
Watering can		
Access to water		
Shovel		

Cash
Wheel barrow
Friends
Neighbour's assistance
Roads
Savings
Irrigation system
Mobile telephone
Trees
Access to credit

INCOME SHOCKS EXPERIENCED BY FEMALE HOMESTEAD FOOD GARDENERS

Income Shocks experienced (within six months)	Yes	No
Death of a family member		
Illness of a family member		
Price falls		
Crop loss		
Drought		
Fire		
Theft		

Your anticipated cooperation is highly appreciated.