

ASSESSING THE EFFECTS OF SOCIAL SAFETY NETS ON POVERTY IN  
NAMIBIA: ANALYSIS OF FOOD EXPENDITURE OF ELDERLY PERSONS

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## **ABSTRACT**

Poverty amongst elderly persons is a phenomenon experienced worldwide, Namibia included. The government of Namibia has come up with various social safety nets programmes which include old age pension, disability grant and child maintenance grant to alleviate poverty. Although these interventions were introduced to reduce poverty among the targeted groups, statistics reveal that poverty still exists amongst those receiving old age pension. The aim of the study was to examine factors influencing poverty (food poverty, obtained using the food poverty line) among elderly headed households in the country using statistical modelling, namely quantile regression. Descriptive and regression was explored (used) to obtain the required results using the 2003/4 and 2009/10 Namibia Household Income and Expenditure Survey (NHIES).

The results show that in 2003/4 most elderly persons heading households (50.8 percent) relied on subsistence farming as a source of income. However in 2009/10 most of the elderly people heading households (41.3percent) in Namibia relied on state old pension as their main source of income. At the 25<sup>th</sup> quantile which represents those with lower expenditure levels (ranges between N\$0 and 5755.75 in 2003/4 and between N\$0 and N\$8759.35 in 2009/10) on food and beverages, elderly persons heading households in all the regions except Karas and Otjozondjupa were spending more on food and beverages than Kavango region as recorded in the 2003/4 NHIES. In

some regions such as Omusati and Oshana region, the analysis also shows that households headed by elderly persons in these regions spend more than 20 percent on food and beverages than households headed by their counterparts in Kavango region, which indicates that households headed by elderly persons in Omusati region are much better off than those in Kavango region.

Furthermore, the analysis shows that for each additional educational attainment such as a primary, secondary, and tertiary education of an elderly person heading a household would spend more on food and beverages than those with no formal education at all quantiles, hence they will be better off than an elderly person with no formal education. This study concluded that factors such as education and farming as a main source of income have a greater effect on poverty of a household headed by an elderly person, hence the more educated an elderly person is the higher their chance of spending more on food and beverages and moving out of poverty and an elderly person heading a household whose main source is derived from farming was found to be more well off than an elderly heading a household whose main source of income is derived from state old pension .

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## **DEDICATION**

*I dedicate this work to my two daughters Anna and Jenet who are precious gifts given to me by God.*

## **DECLARATION**

I, Frieda Naituwe Magano Shimpanda, hereby declare that this study is a true reflection of my own research, and that this work, or part thereof has not been submitted for a degree in any other institution of higher education.

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Frieda N.M. Shimpanda

Date

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## **LIST OF ABBREVIATIONS**

DP	Disability Pension
ILO	International Labour Organization
NDP4	Fourth National Development Plan
NGO	Non-Governmental Organization
NHIES	Namibia Household Income and Expenditure Survey
NPC	National Planning Commission
NSA	Namibia Statistics Agency
OAP	Old Age Pension
P1	Poverty gap
P2	Severity of Poverty
PSU	Primary Sampling Unit
QR	Quantile Regression
RCPE	Real per Capita household consumption Expenditure
SSA	Sub-Saharan Africa
UN	United Nations

UNAM University of Namibia

UNFPA United Nations Population Fund Agency

WVS War Veteran Subvention

# CHAPTER 1

## INTRODUCTION

### 1.1 Orientation to the study

Social safety nets are pivotal for many countries' development agendas and have existed for decades in Africa. Ellis, Devereux and White (2009) state that the existence of social safety nets in low-income countries has always been there in one form or another for a long time. Moreover they claim that in Africa the governments and their development partners including the private sector have been engaging in social protection initiatives which have been running alongside local and informal schemes of social support. Chiripanhura and Niño-Zarazúa (2013) add on that because of the inequality which is always prominent in many countries, the need for social protection arises immensely.

On the African continent, many countries including Namibia implement social safety nets. Extensive evidence exists on the types of social safety nets and their positive effects on standard of living in some African countries such as South Africa, Ethiopia, Zimbabwe, Kenya, Tanzania and Namibia, (Omilola and Kaniki, 2014; Devereux, 2012; Levine, 2001; Steward and Yermo, 2009; Kpessa, 2010). Help Age International (2006) showed that in South Africa, families receiving pensions are less likely to be

poor, whereas in Zambia, a social safety net scheme to older people caring for orphans was found to improve school attendance and in Tanzania, only a small number of children orphaned by HIV/AIDS and being taken care of by their grandparents not receiving any pension completed secondary education. This points to the importance of social safety nets in alleviating poverty and other vulnerabilities faced by the societies. Steward and Yermo (2009) claim that old age pension systems are actively operational in Botswana, Mauritius, Lesotho, Senegal and Namibia, whilst a means tested public pension is available in South Africa. The South African Social Security Agency (2016) defines means testing as a process of assessing the value of assets and income of a grant recipient where one is only eligible for a grant if the income and assets fall below a certain threshold. Van der Berg, Sieberits & Likeezwa (2009) asserts that means testing are important aspects of the South African social protection system because one of the social protection system's aim is to channel resources allocated to social security programmes to those in greatest need. In Namibia, the old age pensions are not means tested.

According to Devereux (2001) the social pensions in Namibia can be traced back to South Africa's Old Age Pensions Act of 1928 and the extension of eligibility to "white" residents of colonial South West Africa in 1949. In the early 70s the social pension was extended to other races. In 1973 the eligibility was extended to all residents even though it was not the same at the same amount for the different races (Devereux, 2001). Social safety has been evolving over the years in Africa. Barrientos

and Hulme (2008) states that the initial ideas about social protection as social risk management has been stretched over by approaches grounded in basic human needs and capabilities but these have changed from a focus on short term social safety nets and social funds to a much broader variety of policies and programmes aimed at the poor and poorest households.

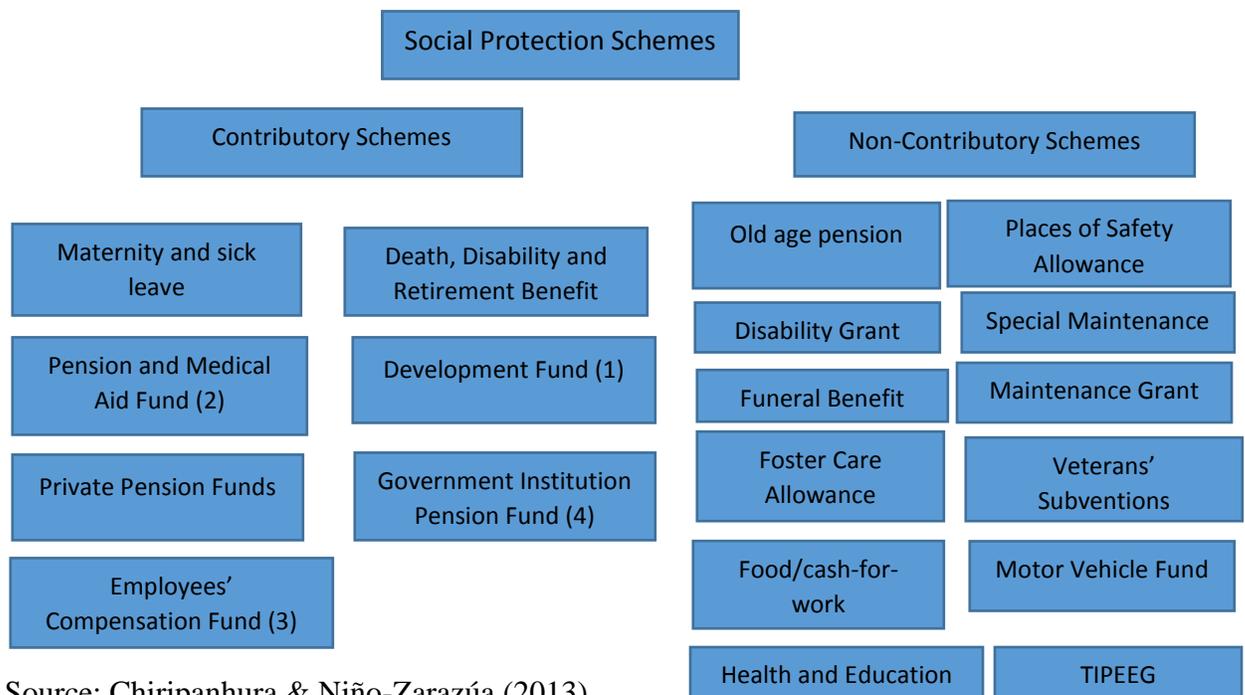
Before the formal social safety nets, African communities had different ways of helping those in need, this referred to informal social safety nets by some. In Namibia, Devereux (2001) identified that the informal social safety nets consist of help from the extended family, taking care of orphaned children of relatives; sharing food, draught power and other productive assets with neighbours etc. In addition, there are also remittances from household members in urban areas to members in rural areas, and food transfers in reverse (Devereux, 2001).

Namibia is one of the few countries in Africa to administer a social pension program for every individual after attaining the age of 60, a formal safety net with significant poverty-reducing impacts (Subaro, 1997). Other countries where social pension is mandatory include Botswana, South Africa and Mauritius. Before Namibia's independence, whites earned a pension of R382 per month whereas 90 percent of blacks received a minimum pension of R55 (Subaro, 1997). This state of affairs did however not remain the same after independence because the pension was equalized to a minimum of N\$ 135 for both white and black elderly (Subaro, 1997). In 1996 the pension was increased to N\$160 then rose to N\$ 450 in 2010 and N\$ 600 in 2013

(Chiripanhura & Niño-Zarazúa, 2013). Currently the old age pension stands at N\$1100 for every citizen that is 60 years and above, with a possibility of increasing it in the future (Augetto, 2015).

Figure 1 illustrates all the type of social safety nets in Namibia including those not previously explained. Social protection schemes can either be contributory or non-contributory. Contributory schemes are based on contributions made by employees deducted by employers and include private pension funds, development fund and maternity and medical aid fund. According to Chiripanhura & Nino-Zarazua (2013) non-contributory social transfers are often called social safety nets and include the old age pension, disability grant, foster parent allowance and maintenance grant among others. These are schemes provided for by the state to reduce the burden of vulnerability among targeted groups.

**Figure 1 Types of Social Safety Nets in Namibia**



Source: Chiripanhura & Niño-Zarazúa (2013)

The old age pension is part of the three non-contributory social pensions in the country which Levine et al. (2009) identified along with the Disability Pension (DP), which has the same value as the Old Age Pension (OAP) and administered to those 16 years and older who have been diagnosed by a medical doctor as being temporarily or permanently disabled. The War Veterans Subvention (WVS) is also part of the non-contributory scheme and is administered to those who took part in the armed struggle for the liberation of Namibia (Levine et al., 2009).

Despite the enforcements of social safety nets made to alleviate poverty among vulnerable groups, Namibia continues to be characterized by high levels of poverty among certain groups of the society. Official statistics from the 2003/4 NHIES report revealed that while 13.8 percent of all households were classified as severely poor, the proportion of severely poor households reached as high as 23 percent among households headed by 60+ year olds. By 2010 the percentage of households that were classified as severely poor and headed by 60+ year olds increased to 28.2 percent from the 13.8 percent recorded in 2004 (NSA, 2012). To determine who is poor or how poor people are, a poverty line is used. According to the National Planning Commission (2008) the process of setting the poverty line can be split into two major stages, firstly using the NHIES data for households with low consumption expenditure, a food basket was used based on actual consumption patterns of low income households. Secondly, taking into account non-food requirements in addition to food needs, two poverty lines

are established for “poor” and “severely poor” households where consumption levels per adult equivalent are lower than N\$ 262.45 and N\$ 184.56, respectively for the 2003/2004 NHIES. The “poor” and “severely poor” is currently standing at 377.96 and N\$262.45 respectively as estimated from the 2009/2010 NHIES. Notwithstanding the extensive research done internationally on the effectiveness and coverage of safety nets, less has been done in understanding the factors influencing poverty among the elderly receiving the state old age pension in the country.

## **1.2 Statement of Problem**

Many social protection measures support the poor and vulnerable groups, which includes the (non-working) young, unemployed, working poor, non-working elderly, special groups (sick, disabled, elder and minorities) to cope with different hardships, (Subaro, 1997). The government of Namibia has come up with various social safety nets programmes which include old age pension, disability grant and child maintenance grant to alleviate poverty. Although these interventions were introduced to reduce poverty among the targeted groups, statistics reveal that poverty still exist amongst those receiving old age pension. In addition even though the economic growth has been positive, with an average of 5 percent from 2013 to 2015 (NPC, 2015), the country still experiences high poverty rates especially amongst the elderly. Critical towards the reduction of poverty amongst the elderly persons is to identify factors influencing them to be vulnerable to poverty.

## **1.3 Objectives**

### **1.3.1 Main Aim**

The main aim of the study is to examine factors influencing poverty among the elderly receiving the state old age pension in the country using quantile regression in order to show conditional distribution of household expenditure on food/beverages and determine if the education, region, the number of children in the household, gender, rural/urban and the household size of the elderly persons differ across expenditure quantiles.

### **1.3.2 Specific Objectives**

**The specific objectives are:**

- a) To explore factors influencing poverty among the elderly receiving the state old age pension using 2003/2004 and 2009/2010 Namibia Income Housing and Expenditure Surveys (NHIES) data.
- b) To identify and investigate the food poverty levels (expenditure levels) of households headed by elderly persons.
- c) To examine the possible trends using 2003/2004 and 2009/2010 Namibia Income Housing and Expenditure Surveys (NHIES) by analyzing the education and region, gender, and well as household size of elderly persons heading households.

#### **1.4 Significance of the Study**

Social safety nets are an important aspect to the wellbeing of a country's vulnerable people. Even though the old age pension has been introduced to reduce poverty among the elderly people, elderly people still experience high levels of poverty in Namibia. This study will be important to the field of social protection as it will help in the understanding of the drivers of poverty among elderly households in Namibia.

#### **1.5 Organizations of Chapters**

This thesis contains six (6) chapters of which the first chapter is giving the introductory part of the research which includes: background information, statement of the research problem, research questions, and the significance of this study. The second chapter discusses the relevant empirical scholarly literature upon which this study is based. The third chapter discusses and justifies the quantitative research methodologies used in this study, it contains the type of the research design used for this study, the types of data sources used in the study, as well as an elaboration on the types of data analysis procedures and types of variables being used to obtain the results presented in this paper. The fourth chapter presents the nature and severity of the factors influencing poverty amongst households headed by elderly people in Namibia. The fifth chapter presents results found in chapter four and brings in what other authors found in comparison to the study, the chapter aims to compare results with findings of other writers in the same field. The sixth and last chapter draws conclusion and makes recommendations based on the study findings.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Social safety nets**

The International Labour Organization (2001), defines social safety nets as “an entitlement to benefits that society provides to individuals and households through public and collective measures aimed to protect against low or declining living standards arising out of a number of basic risks and needs” (page, 8). Similarly the United Nations defines social safety nets as policy interventions that are intended to reduce poverty and vulnerability (including transitory poverty and vulnerability due to economic or other shocks) and to improve human welfare (UN, 2001). Many social protection measures support the poor and vulnerable groups of people, which includes the young, unemployed, working poor, non-working elderly, special groups (sick, disabled, elder and minorities) to cope with economic hardships ( Zhang, Thelen & Rao , 2010).

##### **2.1.1 An overview of social safety nets**

Social safety nets have been evolving and developing around the world over the years. Kpessa (2010) indicated that the welfare systems in Sub-Saharan African (SSA)

countries were the product of interaction between pre-colonial norms, colonial influence, and post-colonial development efforts.

Coudy (2004) found that it is widely accepted that effective social safety nets are an important components of any comprehensive poverty alleviation strategy, in fact, for many of the world's poor, such programmes are the only hope of a life free from chronic poverty, malnutrition, and disease. Barrientos and Hulme (2008) demonstrated that in developing countries, social protection has a strong focus on poverty reduction and on the poor and poorest.

In addition, Barintos (2006) showed that social pension can reduce poverty among the elderly and their households and in the processes insure poorer rural communities against the adverse effects of agricultural reform, and encourage local economic activity. Khan and Arefin (2013), also states that the positive impacts of social safety net and social protection programmes in the developing countries are quite evident in terms of reducing poverty and inequality, as well as increasing enrollment at primary and secondary levels, promoting school attendance, reducing drop-out rates, and increasing educational attainment.

Namibia has a variety of legislations that provide for social protection in the country and these measures have been documented and identified extensively (Chiripanhura and Niño-Zarazúa, 2013; Devereux, 2001; Subaro, 1997). Social safety nets are crucial interventions for curtailing poverty for many countries including Namibia. According to the 2009/2010 Namibia Household Income and Expenditure Survey, the Namibian

social safety nets comprised of the following: old age pensions 12.1 percent; state child maintenance grant 0.8 percent; disability grant 0.7 percent; foster care 0.3 percent; war veterans 0.1 percent. These are the most common non-contributory social safety nets found in the country.

### **2.1.2 Impacts of social safety nets**

Devereux (2009) conducted a multi-country study examining alternative social safety nets for poverty alleviation in southern Africa. These countries included Mozambique, Namibia and Zambia. A holistic impact assessment of the effectiveness and broader consequences of three contrasting safety net programmes in those countries was conducted. The study found that in all three countries, safety net programmes have more extensive impacts than is commonly supposed and this was confirmed by the variety of impacts that were recorded in fieldwork in all three country case studies. In addition, Barintos (2005) showed that social pension can reduce poverty among the elderly and their households. Even though this study was important in addressing the effectiveness of social safety nets, the emphasis was placed more on providing possible policy recommendations in designing new or improved social safety nets to deliver cash transfers to targeted beneficiaries.

In the same vein, Faye (2007) investigated the role of basic pensions in alleviating poverty in sub-Saharan Africa where he observed that poverty is more pervasive

amongst households comprising elderly and by all measures (aspects), these households have the highest levels of poverty. For example, Faye (2007) also found that the poverty incidence for households comprising elderly is 10 points higher than that of the average population, also households are poorer when they comprise elderly and children where almost two-third of households of this type are poor. Hence households headed by the elderly tend to be effected by poverty more than non-elderly headed households.

Furthermore, Case and Deaton (1998), investigated whether different kinds of income have different effects on behavior. Their aim was to investigate if there is a correlation between age and poverty, including the degree of poverty among those who live with a pensioner. To examine the effect of pension transfers on the income distribution, they ran an exercise to show the household income with and without old age pension. They found that the old age pension reduces the poverty and the result is independent of choice of poverty line, this study was mostly done concentrating on age and poverty and did not consider other factors which will be addressed by this study.

## **2.2 Population Ageing**

Empirical evidence shows that the elderly population will continue to grow over the years. Globally, the population of people aged 60 years or over tripled from just over 3 million in 1950 to 600 million in 2000, and by 2006, that number had surpassed 700

million, this implies that their number will once again triple over a span of 50 years, (Mba, 2010). In addition Maharaj (2013) states that the number of persons aged 60 and over has been increasing at an unparalleled rate, whereby by 2050 the number is projected to rise almost threefold to 2 billion people. The increase in the population of the elderly worldwide is linked to demographic changes. Mba (2010) identified that the numerical growth of elderly persons (population aged 60+ years) around the world is a powerful testimony not only of reductions in fertility but also of reductions in infant and maternal mortality, improved nutrition, reduction in infectious and parasitic diseases, as well as improvement in health care, education, and income.

According to the United Nations Population Fund Agency (2008), the increasing number of ageing people in Africa is a demographic phenomenon linked to decreases in fertility and mortality and is not merely the consequence of economic development. In addition to the reduction in fertility and mortality, Maharaj (2013) attributes the growth of the ageing population in Africa to an increase in the median age of the population, together with changes in the dependency ratio, resulting in a decline in the proportion of the population composed of children, and an increase in the population aged 60 years and older. Ramashala (2003) on the other hand attributes the growth of population ageing to improvements in hygiene and water supply together with the control of infectious diseases during the past century which have greatly reduced the risk of premature death.

## **2.3 Poverty among elderly persons**

### **2.3.1 International Situation**

In as much as an increase in the growing elderly population may be a good sign of quality of life (high life expectancy) for a country, there are some problems experienced more by the elderly persons than any other group of the population. For instance in the developed world, Ramashala (2003) found that in the United Kingdom older people were found to be the biggest group in the population living in poverty and hence poverty amongst the elderly is not peculiar to industrialized countries.

In support of the above, Nabalambaa & Chikoko (2010) states that economic indicators for the elderly show that households headed by older persons are among the poorest. They gave an example of Kenya and Tanzania where households headed by older people have a poverty rate that is over 20 percent higher than the national average. Another example given is Sierra Leone and Uganda where the poverty rate of these households is 8 percent and 5 percent higher than the national average, (Nabalambaa & Chikoko, 2010)

Gasparini et al. (2007), also points out that poverty has a relevant age dimension. Their research focused on the situation of the elderly relative to the rest of the population, where they discovered that in most cases, non-elderly adults are less likely to be poor than either children or the elderly, and this is true no matter what

assumptions are made about child costs, economies of scale, or the level of the poverty line. Furthermore Gasparini et al. (2007) state that there is a life-cycle shape to the probability of one being poor, high in childhood, lower in adulthood, and higher again in the old age population. Similarly, Barrientos & Lloyd-Sherlock (2002) assert that the process of population ageing will accelerate in the developing world in the first half of this century, and that the association existing between old age and poverty is as prominent as in industrialized countries after the aftermath of industrialization.

### **2.3.2 Namibian Situation**

The situation is no different in Namibia. Using Namibia's last three household income and expenditure surveys, the Namibia Statistics Agency reviewed poverty and inequality developments over the last 17 years. The review discussed changes in the levels and composite of poverty and inequality between 1993 and 2010. It examines the trends and patterns of poverty by locations and population characteristics. It further discusses consumption or income deprivation, and attempts to relate poverty to other domains of deprivation, such as access to services and ownership of assets (NSA, 2012). In the Poverty Dynamics Report (2012), the NSA suggests that the ability of Namibians to escape poverty could depend on their ability to obtain wages and salaries from employment. Poverty is more prevalent among pensioners and subsistence farmers, at 44 and 39 percent, respectively while about a quarter of those with household business income as their main source are poor.

To examine the impact of social safety nets on poverty, Levine et.al. (2009) used survey data that combines household income and expenditure. The results showed that the social transfers have large effects on poverty reduction especially amongst the poorest of the poor. The discussion relied on three measures of welfare, namely; household income, household expenditure and the difference between the two.

In Namibia, few studies have been conducted to assess the impact or effect of social safety nets on poverty. For instance, Levine et al. (2009) analyzed the effects of social safety nets on poverty and inequality in Namibia. They found that the poverty reducing impact of the social transfers can be discerned by comparing these results with the results obtained by subtracting transfers from the welfare variable. They further found that the poverty levels without the social transfers are higher. This effect is statistically significant especially at the lower bound poverty line...the greater positive impact of the social transfers on the poorest of poor was reflected in the significantly lower levels of the poverty gap (P1) and the severity of poverty (P2), when comparing household expenditure with and without social transfers at the lower bound poverty line.

### **2.3.3 Factors effecting poverty amongst elderly**

Levine et al. (2009) also assessed the impact of the social transfers on household welfare, given differences in income levels that result from demographic and other characteristics, they ran a multivariate probit regression to determine what factors

contributed to households being in poverty. They controlled the impact of other factors such as region, marital status, gender, education, age, employment status of household head, household size, the number of employed in the household and the number of children and the number of elderly. The results of the study showed that the old age pension had a clear and significant negative effect on poverty (i.e. the pension reduces poverty), both at the lower and upper bound poverty lines.

According to Choi (1996) as cited in Lee (2014), the most significant factor contributing to elderly poverty in Korean society is mandatory retirement, where the mandatory retirement age for most employment contracts is 55 years. She reports that, after retirement, the most common and major source of income comes from retirement benefits given under the Labor Standards Act. Therefore, without any additional support, a large number of Korea's elderly are forced into poverty and do not have the means needed to get out of it (Lee, 2014). In addition, a study by Eboiyehi (2013) found several factors that influences poverty among elderly widows in Nigeria which included spousal loss, lack of property inheritance, ill health and lack of jobs.

#### **2.4 Studies on Household Expenditure**

Various studies have been conducted in the area of household expenditure, for instance, Andreou (2012) investigated household expenditure on education in Cyprus and analysed factors affecting the level of education using data from the Family Expenditure Surveys 1996/7, 2002/3 and 2008/9. The results were obtained using a

descriptive analysis and then investigating the factors affecting expenditure on education using econometric analysis. The results showed that the level of education expenditure increases with income across years, the results also showed that the most profound factors affecting the level of household expenditure on education are income, number of children in household, region of residence and head's age and education. Although the study was well articulated and well undertaken, it would have been more richer if the researchers had analyzed the effects of the above mentioned factors on other household expenditures and not only education.

It appears that poor households tend to have different expenditure patterns than non-poor households. Grobler and Sekhampu (2009) supports this claim by evidently suggesting that poor households have a fundamentally different expenditure pattern to non-poor households and that expenditure patterns differ significantly with the source of income. They ran a regression model on the factors that affect household food expenditure are shown which showed that the most important variables explaining variations in food expenditure are household income, the age of the head of the household and the size of the household. They found that the coefficients for the variables are significant and were found to exert a positive impact on food expenditure.

In addition, other authors found that the socio-demographic characteristics of consumers, such as age, gender, married status, education and family structure, were

significantly correlated with food expenditure, (Davis et al., 1983; Meng, Florkowski & Kolavali, 2012; and Jolly et al., 2008).

In another research, Sekampu & Niyimbanira (2013) showed that household income, household size, the number of people employed, employment status, and the educational attainment of the household head significantly influence household expenditure. They found that these factors exert a positive impact on household expenditure, whereas the marital status of the head of household is negatively associated with household expenditure. Although the main objective of the study was to identify and quantify the relationship between household expenditure and the socio-economic and demographic characteristics of the household, it lacked in-depth analysis of important factors such as source of income, age and the gender of head of household.

## **2.5 The use of quantile regression to study poverty**

To estimate the effects of the selected independent variables on the different quantiles of the dependent variables, quantile regression (QR) was used. A normal regression would give us how on average the independent variables will affect the dependent variable, it will not give us a deeper understanding of the relationship. According to Koenker & Hallock (2001), quantile regression enables us to specify changes in the

quantiles of the response...it allows one to see how an independent variable influences a dependent variable at different levels.

Furthermore, quantile regression is a method mostly used to find the effect of some covariates on the distribution of the dependent variable. First developed by Koenker (1978), QR is a non-parametric approach that was developed to estimate a full range of conditional quantile functions (also referred to as percentile functions in some literature) by minimizing asymmetrically weighted absolute errors.

Mtambo, Masangwi and Kazembe (2014) outline the conditional quantile model as given by:

$$Q_{Y_i|x_i,z_i}(\tau|x_i,z_i) = \eta_{\tau i} = x_i^T \beta_{\tau} + \sum_{j=1}^q g_{\tau j}(z_{ij}) \quad (1)$$

Where  $Q_{Y_i|x_i,z_i}(\tau|x_i,z_i)$  is the conditional  $\tau^{th}$  quantile response given  $x_i$  and  $z_i$ ,  $\eta_{\tau i}$  is the semi parametric predictor,  $\tau \in (0,1)$  is the  $\tau^{th}$  quantile response,  $\mathbf{x}_i = (x_{i1}, x_{i2}, \dots, x_{ip})^T$  is the vector of  $p$  categorical covariates (assumed to have fixed effects) for each individual  $i$ ,  $\mathbf{z}_i = (z_{i1}, z_{i2}, \dots, z_{iq})^T$  is the vector of  $q$  metric/spatial covariates (variables),  $\boldsymbol{\beta}_{\tau} = (\beta_{\tau 1}, \beta_{\tau 2}, \dots, \beta_{\tau p})^T$  is the vector of  $p$  coefficients for categorical covariates at a given  $\tau$ ,  $\mathbf{g}_{\tau} = (g_{\tau 1}, g_{\tau 2}, \dots, g_{\tau q})^T$  is the vector of  $q$  smoothing functions for metric/spatial covariates at a given  $\tau$ .

Serino and Kim (2011) used quantile regression to investigate the effect of a surging increase in international remittances on poverty in developing countries. They analyzed panel data for 66 developing countries from 1981 to 2005.

To capture the effect of remittances on poverty, their study utilized an empirical model :

$$P_{it} = \alpha_{it} + \beta_1 \ln(Gini_{it}) + \beta_2 \ln(GDP_{it}) + \beta_3 \ln(Remit_{it}) + \beta_4 \ln(X_{it}) + \varepsilon_{it} \quad (2)$$

where  $P_{it}$  represents such poverty measures as the headcount ratio, the poverty gap, and the squared poverty gap;  $Gini_{it}$  is an index of income inequality;  $GDP_{it}$  refers to the per capita gross domestic product at constant 2000 prices;  $Remit_{it}$  is the total amount of remittances that flow through banks, measured as a ratio to gross domestic product;  $X_{it}$  is a set of control variables for external funding such as foreign direct investment and official aid;  $\varepsilon_{it}$  is the error term. The subscript  $t$  refers to year, while  $i$  denotes an individual country.

To analyze the impact of international remittances on poverty, the method of quantile regression was employed.

Based on Equation (1), the quantile regression model is postulated as follows:

$$P_i = \ln(Z_i)' \beta_\theta + u_{\theta i} \quad (3)$$

with

$$Quant_\theta(P_i | \ln(Z_i)) = \ln(Z_i)' \beta_\theta \quad (4)$$

where  $Quant_{\theta}(P_i|ln(Z_i))$  denotes the  $\theta^{th}$  conditional quantile of poverty ( $P$ ) given the set of independent variables ( $Z$ ) expressed in logarithmic form and the subscript  $i=1, 2, \dots, n$  indexes the individual country and  $u_{\theta i}$  represents the error term.

Based on QR Serino & Kim (2011) found that international remittances have an uneven effect across poverty quantiles for developing countries. They further found that the poverty alleviating effect of remittances was more pronounced in the worst off group or those in the highest quantile (90<sup>th</sup> quantile) of poverty.

Using the Vietnam Living Standards Surveys from 1993 and 1998 Nguyen et al. (2007) examined inequality in welfare between urban and rural areas in Vietnam. They used the log of real per capita household consumption expenditure (RPCE) as a measure of welfare.

They used the basic quantile regression for quantile  $\tau$ :

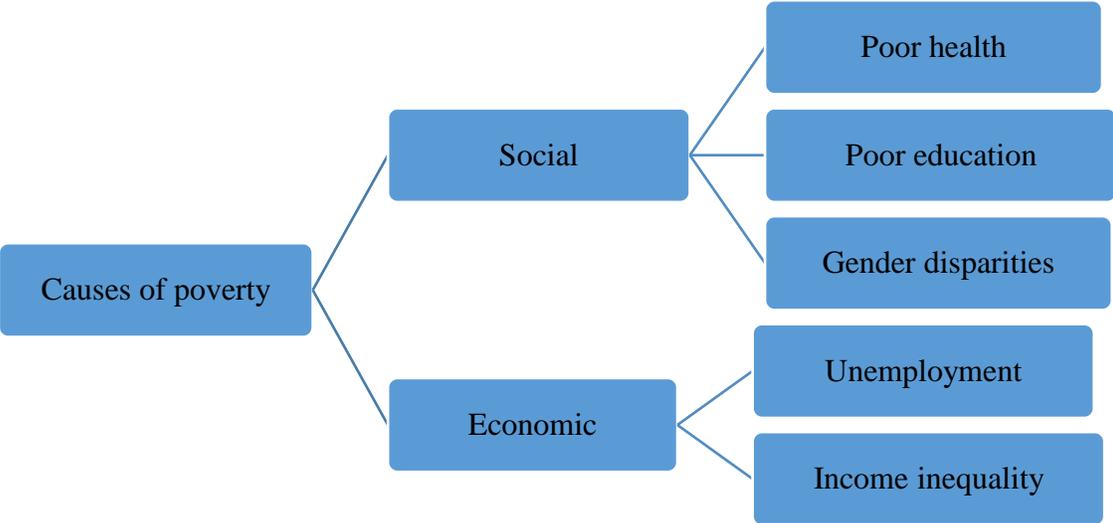
$$q_{\tau}(y|x) = \beta_{\tau}^0 + x'\beta_{\tau} + urban(\gamma_{\tau}^0 + X_{\gamma\tau}) + south(\delta_{\tau}^0 + X\delta_{\tau}^0) + urban \times south\theta_{\tau}^0 \quad (5)$$

where  $y$  is the log of RPCE. They first ran a regression with included only regional and urban dummies to highlight the differences. They then included the other explanatory variables later on. The coefficients labeled *base* are estimates of log RPCE for the base case: a northern rural household. They found that poverty is the same in both regions as the 5th quantile for the dummy south is not significant.

## **2.6 Theoretical framework**

The theoretical framework given in this section provides a close summary of the literature review in the previous sections in the chapter. Various theories on causes of poverty have been identified by different authors (Austin, 2006; Price, 2008; Bradshaw, 2006). The theory related to this study is called structural theory and suggests that poverty is caused by economic, political, and social distortions or discrimination. These theorists do not look at poverty as caused by individuals but by the economic, social and political system which might cause inequality. According to Elesh (1970), structural theories explain poverty in terms of the conditions under which the poor live which may include unemployment, underemployment, poor education, and poor health. Sameti, Esfahani & Haghighi (2012) in the same vein concluded that larger economic and social structures have accounts for poverty and that capitalism creates conditions that promote poverty. In addition Bruenig (2014) states that poverty is a structural phenomenon and that people are in poverty because they find themselves in holes in the economic system that deliver them inadequate income. This study will therefore be based on structural theory of poverty because factors causing poverty being studied are socio-economic in nature.

**Figure 2: Causes of poverty**



**2.7 Conclusion**

In summary the empirical evidence indicates that the population of the elderly has been increasing over the years due to demographic factors, for example declining deaths. Social safety nets which includes pensions for the elderly are introduced to reduce the burden of the vulnerable and reduce poverty among these groups, however the elderly population continues to be the poorest. It is evident from the literatures that poverty amongst the elderly people is a social problem, and is a phenomena experienced worldwide, more prominent in SSA. Despite the numerous studies done, limited

literature exists on finding out what factors influences poverty of the elderly using the food poverty line as a measure of being poor. This is critical in order to develop, implement and evaluate policy intended to reduce poverty among the elderly.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Research Design**

This study employed a quantitative panel design where data from the 2003/2004 and 2009/2010 NHIES was analyzed to measure the effect of social safety nets on poverty with a specific focus on the old age pension as a source of income. The data from the 2003/2004 and 2009/2010 NHIES was explored using descriptive statistics and quantile regression. The main objective of the NHIES is to provide a comprehensive description of the levels of living standards of Namibians using actual patterns of consumption and income and other socio-economic indicators based on collected data (NSA, 2012). According to the NSA (2012) the targeted population of NHIES 2009/2010 was the private households of Namibia, the population living in institutions, such as hospitals, hostels, police barracks and prisons were not covered in the survey. However, private households residing within institutional settings were covered. The final sample for the 2003/2004 NHIES consisted of 10,920 households in 546 PSUs. The selected PSUs were randomly allocated to the 13 survey rounds so that each survey round would constitute a random sample of 42 PSUs and 840 households, whereas the final sample for the 2009/2010 NHIES consisted of 10 660 households in 533 PSUs, (NPC, 2008; NSA, 2012). All methodological approaches for the two

surveys were kept the same; however changes were made to the 2009/2010 questionnaire. Detailed explanations on the two surveys can be found in (NPC, 2008; NSA, 2012)

### **3.2 Population**

The population of this study is all households in Namibia.

### **3.3 Sample**

The sample used for this study is all persons in the population who are 60 years of age and above and were heads of households in Namibia.

### **3.4 Data Analyses**

The data was analyzed using STATA 14. Descriptive and multivariate analyses were carried out to determine the association between the independent variables and the dependent variable. The descriptive analysis using tables and graphs is used in summarizing elderly persons by education, region, household size and rural/urban for both the 2003/04 and 2009/10 NHIES. Firstly a weights variable was applied to all variables in order for the survey to be representative of the whole population of Namibia, thereafter that the data was sorted by creating a new variable called Pensioners. This variable was recoded from the variable age group in the 2003/4 NHIES and age cohorts in the 2009/10 NHIES. The initial variable had more than ten categories of age groups. It was then recoded to only have three categories, the first

being from age 0 to 59, the second was age 60 and over and lastly the missing cases. After the recoding, a conditional variable was then created which is the Elderly persons which is the combination of all persons who are over the age of 60 and are heads of households, this was the variable used to get all the required analyses. Another new variable was also created called Poor, this variable was created using the variable “household consumption on food/beverages”. For this study the poverty line has been set following the food poverty line by NSA. The food poverty line estimate for 2003/2003 is N\$ 127.15 while for 2009/2010 is N\$ 204.05 monthly. The lower bound poverty line for 2003/2004 was N\$ 184.56 for the lower bound and N\$ 262.45 for the upper bound. In 2009/2010 the lower poverty line is estimated at N\$ 277.54 monthly and the upper bound poverty line at N\$ 377.96 monthly. The upper bound poverty line identifies those households that are considered to be poor; while the lower bound poverty line identifies those households that are food poor since their total consumption expenditures are insufficient to meet their daily calorific requirement. For this study the focus is going to be on the lower food poverty line.

Secondly, the data was analyzed using continuous quantile regression in STATA to find the effect of different selected factors on poverty. Quantile regression has an ability to examine the impact of predictor variables on the response distribution (Hao & Naiman, 2007). The dependent variable is the “household consumption on food/beverages” and the independent variables are the education, region, number of children in the household and household size. This technique will show conditional

distribution of household expenditure on food/beverages and determine if the education, region, the number of children in the household, gender, rural/urban and the household size of the elderly persons differed across expenditure quantiles. The results were compared between the two surveys. Some variables were generated to get new variables and regrouped, annexure 1 and 2 clearly shows what has been done through Stata codes (commands).

Household consumption on food and beverages which is the response variable is recorded in Namibian dollars, the dependent variable was log transformed in order to better model the relationship with the independent variables. The region of the elderly persons is divided in 13 parts: Caprivi, Erongo, Hardap, Karas, Kavango, Khomas, Kunene, Oshana, Oshikoto and Otjozondjupa. The regions were rearranged in such a manner that Kavango region would be first on the list of the region in order for it to be a reference category and because of the empirical evidence which have shown that it is the poorest region in the country. The sex of the elderly is divided into two categories, the females and males. The reference category is females so coefficients will be interpreted relative to females. The education of the elderly is divided into three categories and the reference category is the Primary education, hence the coefficients will be interpreted using this category. The household size variable has a lot of categories, however the reference category is the first one which has one person in the household.

Table 1 gives an overview of the key variables used and Annexure 1 and 2 gives an overview of commands from the Stata do file used to get the results.

**Table 1: Description of variables used in the analysis**

Variable	Description
Pensioners	All persons 60 years of age and over
hCons1	Household's annual expenditure on food and beverages
income_source	Main source of income
hhsiz	Household size
education_attainmentdet	Primary School=1, Secondary, School=2, Tertiary=3, Not stated=4 Dont know=5
sex	Female=1, Male=2
region	The region in which the household is situated (1= Kavango, 2=Erongo, 3= Hardap, 4=Karas, 5= Caprivi, 6= Khomas, 7=Kunene, 8= Ohangwena, 9=Omaheke, 10=Omusati, 11=Oshana, 12=Oshikoto and 13= Otjozondjupa)
location	Rural=1, Urban=2
poor	All those that spend less than N\$ 1525.8 in the 2003/4 NHIES and less than N\$2445 on food and beverages annually.

### **3.5 Research Ethics**

This study ensured that all the data and information that was used was treated with utmost confidentiality and respect, since some the data used has been anonymized, the researcher made sure to only use the data for its intended purpose. In addition permission from the National Planning Commission and the Namibia Statistics Agency was requested and it was freely granted for the data sets that will be used for this study.

### **3.6 Limitations to the study**

Few limitations were encountered during this study. The study used two data sets from two surveys that were collected at different periods. Some variables had more categories or reduced categories. The fact that the variables in the two data sets did not have the same names for a similar variable was also a limitation. This led to some alteration of some variables and creation of some new variables in order for proper comparisons to be made between the two surveys, this however did not have any effect on the results obtained because the data was available.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 Introduction**

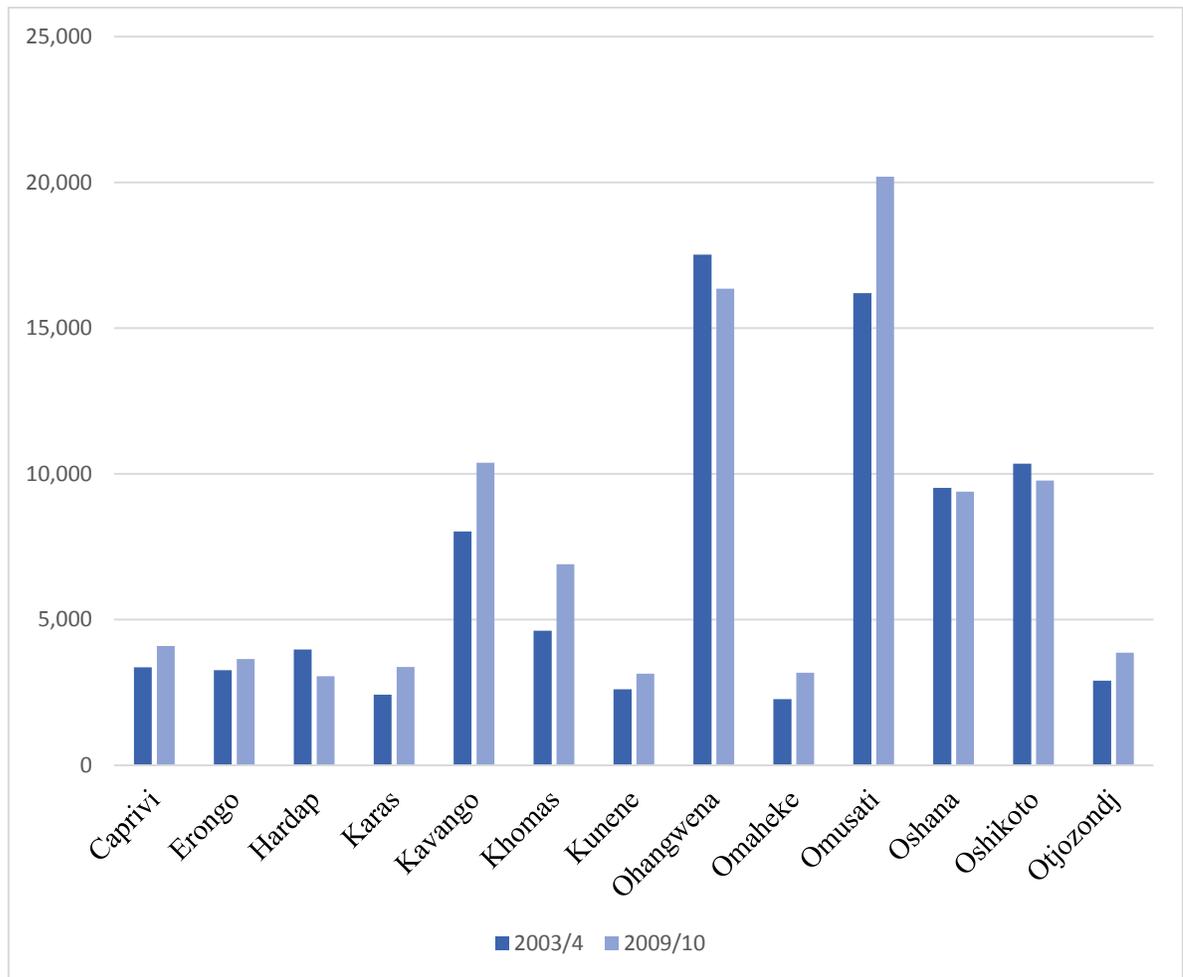
The foregoing chapter has explained the methods employed in this study. This chapter therefore presents results of the study. The chapter will show what factors may influence poverty amongst households headed by an elderly person. A descriptive profile is followed by the detailed quantile regression results.

#### **4.2 Descriptive analysis of the elderly in Namibia**

A total of 63 percent out of 127 315 elderly people were recorded to be heading households in the 2003/4 NHIES and the number had increased to 69 percent out of 141 764 elderly people in the 2009/10 NHIES. In Namibia these are the people eligible for the state old age pension. Figure 3 shows that Ohangwena and Omusati region had the highest number of households headed by elderly persons. Ohangwena region had 16 346 elderly persons heading households, while Omusati region had 20 189 elderly persons heading households as recorded in the 2009/10 NHIES. The regions with the lowest number of elderly persons heading households are Hardap and Kunene regions with 3059 and 3138 elderly persons respectively. Further regional differences can be observed in Table 2. Khomas region had recorded an increase of 2285 elderly persons

between the two survey periods while Ohangwena region had recorded a decrease of 1178 among elderly persons although it is still one of the region with the highest number of elderly people.

**Figure 3: Distribution of elderly persons heading households by region**



When location is taken into consideration, the elderly persons tend to live more in rural areas than in urban areas. Table 3 illustrates that more than 80 percent of the elderly population lives in the rural areas of the country and this has always been the trend

between the year 2003 and 2010. The urban areas often tend to have more economically active persons than the elderly persons.

**Table 2: Descriptive analysis of the elderly heading households**

	<b>2003/4</b>		<b>2009/10</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Locality</b>				
urban	12 165	14	16 370	17
rural	74 856	86	80 945	83
<b>Household Size</b>				
3 and less	22 701	26.1	26 195	26.9
4-10	54 195	62.3	60 413	62.1
11-15	8 472	9.7	8 964	9.2
16-20	1 475	1.7	1 610	1.6
21 and more	1 122	0.2	133	0.1
<b>Employed Elderly Persons</b>				
Female	26 381	54.5	9 875	36.9
Male	22 048	45.5	16 919	63.1

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**Poor and non-poor elderly**

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Non-poor	85 152	97.9	95 602	98.2
Poor	1 869	2.2	1 713	1.8
Total	87 021	100	97 315	100

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**Sex of the poor and non-poor elderly**

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Female(Non-poor)	46 028	54.1	49 426	51.7
Male(Non-Poor)	39 124	46.0	46 176	48.3
Female(Poor)	719	38.5	577	33.7
Male(Poor)	1 150	61.5	1 136	66.3
Total	87 021		97 315	

---

Table 2 also shows the number of people in the household headed by elderly persons. Most of the elderly persons are heading households with 4 to 10 people. The 2003/4 NHIES recorded that 62.3 percent (54 195) of elderly persons were heading household with 4 to 10 people, and this was the same trend by 2009/10. About 26 195 elderly persons headed households with 3 and less people as recorded in the 2009/10 NHIES, meanwhile as the household size increases to over sixteen, the number of elderly become smaller as evident from the table.

Furthermore, Table 2 shows that a total of 48 429 elderly persons who were head of households, were employed in 2003/4 which was about 56 percent of those who were head of households. In 2009/10 however, the number of employed elderly decreased to 26 794 elderly persons and was 28 percent of the elderly persons who were head of households. The results show that in 2003/4 more female elderly head of households were employed than their male counterparts, as can be observed from Table 2, 54.6 percent of the elderly persons who were employed were females and the rest were males.

Following the approach of the 2003/4 NHIES, a household that spend less than N\$ 1525.8 annually on food and beverages will be considered to be poor while those that spend more than N\$ 1525.8 annually will be considered non-poor. Meanwhile, for the

2009/10 NHIES, households that spend annually on food and beverages will be considered to be poor while those that spend beyond N\$ 2428.6 annually will be considered non-poor. Table 2 indicates that a very small percentage (2.2 percent) of the elderly population were poor in 2003/4, whereas the percentage of poor households headed by elderly persons decreased in 2009/10. The 2003/4 NHIES recorded that 2.2 percent of the elderly population heading households were poor while the 2009/10 NHIES recorded that 1.8 percent of elderly persons heading households were poor in the country, which shows a slight decrease in the number of poor elderly persons.

Table 2 also shows the gender disparities of the poor and non-poor elderly persons heading households. While the numbers of the poor elderly has shown a slight decrease, the percentage of poor female elderly heading households has decreased to 34 percent from 39 percent while that of male elderly persons heading households increased to 66 percent from 62 percent between 2004 and 2010.

#### **4.3 Main sources of income of households headed by elderly persons**

Table 3 below shows the main sources of income of households headed by the elderly persons in Namibia. Table 3 shows that in 2003/4 most elderly persons heading households in Namibia relied on farming as their main source of income (50.8 percent), followed by pensions (34.6 percent) and salaries and wages (8.5 percent). In 2009/10 the results as observed in table 3 shows that most elderly persons who were heading

households relied on state old pension as their main source of income followed by farming, then salaries and wages. Out of the total elderly persons heading households 41.3 percent relied on state old pension as their main source of income while 39.1 percent relied on farming as their source of income.

**Table 3 Main source of income of households headed by elderly persons 2003/4 & 2009/10**

2003/4			2009/10		
Main source of income	N	percent	Main source of income	N	percent
Salary/Wages	7,309	8.5	Salaries and/or wages	9139	9.39
Subsistence Farming	43,884	50.8	Farming	38019	39.07
Commercial Farming	531	0.6	Business activities, non-farming	2697	2.77
Non-Farming	1,728	2.0	Pensions from employment	3688	3.79
Pensions	29,893	34.6	Cash remittances	774	0.8
Other	3,010	3.5	State old Pension	40212	41.32
Total	86,355	100.0	Other, specify	2786	2.86
			Total	97315	100

It is evident from Table 3 that pensioners in the country do not only rely on state old pension as their main source of income but there are also other sources of income derived from farming (subsistence/commercial), Business activities which excludes farming activities, pensions from employment, cash remittances and others. The constitution of Namibia limits the working age to 59, except for jobs with scarce human resources/expertise and academia. However, a sizable number continue to earn

an income through wage employment, 8.5 percent in 2003/4 and 9.4 percent in 2009/10.

Annexure D and E shows the distribution of logarithm of expenditure on food and beverages for households headed by elderly persons by their main source of income, namely state old pension and farming. The distribution for households whose main source of income is state old pension lies to the left of households whose main source of income is farming. This implies that households headed by elderly persons with state old age pension as their main source of income are generally much poorer than those whose main source of income is derived from farming. This trend is observed for both 2003/4 and 2009/10. Also observed from annexure D and E is that more households that are below the food poverty line are the ones headed by elderly persons whose main source of income is derived from state old age pension.

#### **4.4 The relationship between selected geographical and social factors and the food poverty of an elderly person using the 2009/10 NHIES**

Table 4 illustrates the results of a normal linear regression which shows relationship between the sex, location, marital status and educational attainment and the food poverty of an elderly person heading a household. There is a positive significant association between poverty and a male elderly person heading a household. This indicates that male elderly person heading a household is more likely (3 percent more)

to be in poverty than a female elderly person heading a household. Elderly persons heading a household in rural areas are significantly less likely to be poor than an elderly person heading a household in urban areas. Table 4 also shows that when it comes to the main source elderly persons heading households whose main source of income is old age pension are more likely to be poor than any other category of main source of income. Although the difference is small but statistically significant, the results show that an elderly person heading a household whose main source of income is farming is 1 percent less likely to be poor than an elderly persons heading households whose main source of income is old age pension

**Table 4: Relationship between selected factors and the poverty of elderly persons**

<b>Factor</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;t</b>	<b>[95% Confidence Interval</b>	<b>Interval</b>
<b>Sex</b>						
Male	0.032	0.001	24.11	<0.001	0.029	0.034
<b>Location</b>						
Rural	-0.034	0.002	-20.5	<0.001	-0.037	-0.031
<b>Main source of Income</b>						
Farming	-0.006	0.001	-6.16	<0.001	-0.008	-0.004
Bussiness Activities	-0.030	0.003	-11.31	<0.001	-0.036	-0.025
Pension from Employment	-0.009	0.002	-3.62	<0.001	-0.014	-0.004
Salaries and Wages	-0.025	0.002	-14.74	<0.001	-0.028	-0.021
Other	0.048	0.002	20.32	<0.001	0.043	0.053
<b>Marital_status</b>						
Traditionally /customary	-0.015	0.002	-10.04	<0.001	-0.018	-0.012
Consensual union	-0.003	0.003	-1.11	0.267	-0.008	0.002
Widowed	0.023	0.002	15.34	<0.001	0.020	0.026
Divorced or separated	0.012	0.002	6.73	<0.001	0.009	0.016
Never married	0.026	0.002	13.82	<0.001	0.023	0.030
<b>Education_attainment</b>						
Primary	-0.003	0.001	-3.38	0.001	-0.005	-0.001
Secondary	-0.013	0.001	-10.18	<0.001	-0.016	-0.011
Tertiary	-0.008	0.003	-2.71	0.007	-0.014	-0.002
Not stated	-0.007	0.003	-2.59	0.01	-0.012	-0.002

Table 4 further shows that elderly persons who are heading households and are single (divorced or separated, widowed and never married) are more likely to be poor than a

married elderly person heading a household. A never married elderly person heading a household is 3 percent more likely to be poor than a married elderly person. Finally the table illustrates that elderly persons with no formal education at all are likely to be poor than elderly person who have obtained higher level of education.

#### **4.5 Factors influencing poverty amongst the elderly**

This section deals with finding factors that influences poverty for the elderly persons heading households using quantile regression. The dependent variable ( household expenditure on food and beverages) is divided in four quantiles (25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> and 95<sup>th</sup> ) which represents four different levels of expenditure. The lowest quantile (25<sup>th</sup>) includes the food poverty line, N\$ 1525.8 and N\$ 2445.00 for 2003/4 and 2009/10 respectively. Annexure B and C shows the range of the four quantiles where the minimum and maximum expenditure amount is clearly indicated.

**Table 5: Summary of factors influencing poverty on elderly persons based on quantile regression**

	Quantile							
	2003/4				2009/10			
	25percent	50%	75%	95%	25%	50%	75%	95%
<i>Region(reference: Kavango)</i>								
<i>Erongo</i>	-0.17*	0.10*	0.04*	0.52*	0.07*	0.26*	0.21*	0.39*
<i>Hardap</i>	-0.06*	-0.10*	0.13*	0.50*	-0.10*	0.14*	0.14*	0.53*
<i>Karas</i>	-0.40*	-0.20*	-0.10*	0.00	-0.48*	0.03	0.16*	0.80*
<i>Caprivi</i>	0.27*	0.26*	0.12*	0.15*	-0.24*	-0.21*	-0.07*	-0.16*
<i>Khomas</i>	0.02	0.17*	0.32*	0.55*	-0.08*	0.05*	0.35*	0.76*
<i>Kunene</i>	0.28*	0.28*	0.27*	0.27*	-0.05*	0.18*	0.32*	0.79*
<i>Ohangwena</i>	0.05*	-0.02	-0.13*	-0.15*	0.12*	0.21*	0.28*	0.35*
<i>Omaheke</i>	0.20*	0.14*	0.19*	0.53*	-0.26*	0.23*	0.28*	0.43*
<i>Omusati</i>	0.39*	0.32*	0.20*	0.13*	0.40*	0.40*	0.32*	0.28*
<i>Oshana</i>	0.39*	0.28*	0.30*	0.44*	0.27*	0.33*	0.39*	0.45*
<i>Oshikoto</i>	0.24*	0.13*	0.01	0.05	0.12*	0.15*	0.06*	0.04
<i>Otjozondjupa</i>	-0.37*	-0.34*	-0.20*	0.32*	-0.24*	-0.01	0.07*	0.57*
<b>Sex(refence: Females)</b>								
<i>Male</i>	0.01	-0.01	0.06*	0.01	0.06*	0.06*	0.16*	0.15*
<b>Income(reference: state old age pension)</b>								
<i>Farming</i>	0.20*	0.23*	0.20*	0.14*	0.17*	0.16*	0.21*	0.26*
<i>Commercial Farming</i>	0.82*	0.92*	0.70*	0.47*		+		
<i>Bussiness Activities</i>	0.02	0.10*	0.20*	0.23*	0.04	0.17*	0.22*	0.02
<i>Pension from Employment</i>		+			0.23*	0.13*	0.37*	0.18*
<i>Salaries and Wages</i>	0.22*	0.14*	0.08*	-0.09*	-0.12*	-0.01*	0.13*	-0.01

<i>Other</i>	0.01	-0.03	0.03	-0.16*	-0.25*	-0.02	0.02	-0.21*
<i>Household size( 1 person)</i>	0.10*	0.09*	0.09*	0.08*	0.08*	0.07*	0.07*	0.06*
<i>education_attainment(no formal education)</i>								
<i>Primary</i>	0.08*	0.07*	0.02*	-0.11*	0.09*	-0.01	0.06*	0.02
<i>Secondary</i>	0.21*	0.25*	0.28*	0.27*	0.24*	0.24*	0.26*	0.35*
<i>Tertiary</i>	0.85*	0.89*	0.96*	0.49*	0.54*	0.78*	0.64*	0.79*

\*: Significantly different quantile regression coefficient from zero at the 5percent significance level

Table 5 shows the coefficient results of the independent variables at different quantiles of the dependent variable which is the household's annual expenditure on food and beverages. The dependent variable is divided into four quantiles, the first one being the 25<sup>th</sup> and the last one is the 95<sup>th</sup> quantile. The 25<sup>th</sup> quantile represents those with lower expenditure on food and beverages which includes those elderly persons heading households that are below the food poverty line. The higher quantiles, the 75<sup>th</sup> and 95<sup>th</sup> quantile represents households headed by elderly persons with high expenditure levels on food and beverages and are above the food poverty line. Table 5 further show that at the 25<sup>th</sup> quantile, elderly persons heading households in all the regions except Karas, Hardap and Otjozondjupa spends more on food and beverages than Kavango region in 2003/4. For instance at the 25<sup>th</sup> quantile an elderly person heading a household in Oshana region could spent 39 percent more on food and beverages than an elderly person living in Kavango region. At the same quantile in 2009/10, an elderly person heading a household in Oshana region could spent 27 percent more on food and beverages than an elderly person heading a household in Kavango region. As can be observed in Table 5, in most cases the magnitude increases with the quantiles. For instance at the 75<sup>th</sup> quantile where expenditure levels are beyond the food poverty line, an elderly person heading a household in Oshana region spends 44 percent more on food and beverages than an elderly person living in Kavango region as recorded in 2003/4 and 39 percent in 2009/10. Similarly at the 75<sup>th</sup> quantile in 2009/10, elderly persons heading a household in Erongo region with high expenditures on food and beverages spend 52 percent more than those heading households in Kavango region.

When it comes to the sex of the elderly, Table 5 shows that there was no significant difference between males and females elderly persons heading households. At all quantiles in 2003/4 except for the 50<sup>th</sup> quantile, males spent between 1 percent and 6 percent more on food and beverages than females whereas in 2009/10 male elderly persons heading households spent between 6 percent and 16 percent more on food and beverages than their female counter parts.

In 2003/4, with each additional person in a household headed by an elderly person an additional 10 percent is predicted to be spent more on food and beverages for those with lower expenditure (25<sup>th</sup> quantile) than those heading a households with one person only, while an additional person at the same quantile in 2009/10 means an elderly person heading that household would spend 7 percent more on food and beverages. For those elderly persons heading households with higher expenditures on food and beverages (75<sup>th</sup> quantile) an additional person in the household would mean spending 8 percent more in 2003/4 and 7 percent more in 2009/10 on food and beverages.

Table 5 further show that at all levels (all quantiles) of food expenditure, elderly persons whose main source of income is farming, and business activities spend more on food and beverages than those elderly persons whose main source of income is state old age pension. For example an elderly person heading a household which has low expenditure on food and expenditure (25<sup>th</sup> quantile) whose main source of income is farming would spend 20 percent and 17 percent more on food and beverages than

elderly persons heading households with state old age pension as the main source of income in 2003/4 and 2009/10 respectively on food and beverages. The results further show that in 2003/4, at the all quantiles elderly persons heading households with commercial farming as a source of income spent significantly more on food and beverages than an elderly person heading a household with state old age pension as a main source of income.

As can be observed from table 5, for each additional educational attainment such as a primary, secondary, and tertiary education an elderly person would spend more on food and beverages than those with no formal education at all quantiles. For elderly persons heading a household with lower expenditures on food and beverages (25<sup>th</sup> quantile) with a secondary education would spend 21 percent in 2003/4 and 24 percent in 2009/10 more on food and beverages than an elderly person with no formal education, the effect becomes bigger with the quantiles. The amount spent more on food and beverages increases significantly with those elderly persons heading households and have tertiary education. For instance, at the lower quantile, an elderly person heading a household with tertiary qualification would spend 85 percent more on food and expenditure than an elderly person heading a household with no formal education. There seems to be a less significant difference between those elderly persons heading a household and have no formal education and those with a primary education.

## **4.6 Conclusion**

In conclusion, this chapter presented the results obtained from the descriptive analysis as well as from the regression model and the results were compared between the 2003/4 and 2009/10 NHIES. The results indicate an increase in the number of elderly people between the two surveys and also shows some demographic as well as some social disparities. A quantile regression was run to show what factors influences poverty amongst elderly people in Namibia. The next chapter will elaborate in detail on the results presented in this study.

## **CHAPTER 5**

### **DISCUSSIONS**

This study aimed to examine factors influencing poverty among the elderly receiving the state old age pension in the country using statistical modelling, namely quantile regression. The data from the 2003/4 and 2009/10 NHIES was analyzed using descriptive and regression, the analysis is therefore discussed in this chapter.

#### **5.1 Regional Disparities**

Regional disparities show that most elderly people who are heading households reside in Oshana and Oshana-Namaland region. The analysis shows that there has been an increase in the number of elderly persons between 2004 and 2010. In 2003/4 there were 87 021 elderly persons heading households and the number increased to 97 315 elderly persons in 2009/10. The regions with the highest number of elderly people heading households are the regions which are highly populated while those with the least number of elderly persons (Hardap and Kunene) are also the least populated regions if all the population's age groups are considered. In the same vein the 2001 Population and Housing Census recorded that the population for Oshana region was 12.5 percent

of the total national population, while that of Hardap region was 3.7 percent of the total population.

## **5.2 Locality**

With regard to the location where an elderly person heading a household resides, the study found that most elderly people heading households live in rural areas in Namibia, about 80 percent of all elderly persons heading households live in rural areas, this can be attributed to migration of the working age population. A study by Anriquez and Stloukal (2008) also found that on average in all developing and developed regions the proportion of older people is lower for urban areas. A study in Ghana by Mba (2003) attributes the reason in addition to migration to why more elder people live in rural areas to the effect of decreasing fertility rate coupled with decreasing mortality.

## **5.3 Education**

This study found that over 40 percent of the elderly population heading households had no formal education. The number of the elderly persons with a primary schooling education as well as those with a tertiary education has however increased between 2004 and 2010. Similarly another research by Mba (2003) also found that an overwhelming majority of older people in Ghana had no formal education and where

engaged in agricultural activities. The situation is not different for Namibia's neighboring countries, for instance in South Africa Lehohla (2014) found that the education profile of elderly persons shows that most elderly persons have no formal education although the number has been decreasing over the years.

#### **5.4 Gender**

Gender disparities were also analyzed in the study and it was found that in Namibia, there are more female elderly headed households than male elderly headed households. Over 50 percent of households are headed by elderly females as recorded by both surveys. This can be attributed to many factors such as that women tend to live healthier lifestyles than men and thus they live longer (Ram et al., 2012). Similarly, statistics in South Africa show that the old age in that country is highly feminized, having more female elderly than males (Lehohla, 2014). In agreement, Maharaj (2013) found that in Africa there are more women aged 60 years and older than men, with 68 men for every 100 women or in other words slightly 25 percent males. This is mainly due to the fact that women generally have a higher life expectancy than men. According to WHO (2013), women live longer than their male counterparts all around the world and that the gap in life expectancy between the sexes is as much as 5 years.

#### **5.5 Living Arrangements**

The study also looked into living arrangements of the elderly in the country, the analysis found that most of the elderly persons in Namibia are heading households in extended family units, that is they are heading households with more than 4 people. In 2009/10 about 60 413 (62.1 percent) elderly persons were heading households with 4 to 10 persons in a household, this showed a decline from 2003/4 where 54 195 (62.8 percent) elderly persons headed households with 4 to 10 persons in a households. These findings agreed with those of Lehohla (2014), which observed that more than half (50.6 percent) of elderly persons heading households live in extended households of which 19.9 percent were heading households. Similarly Bongaarts & Zimmer (2001) also found that in 43 developing countries the average households are large. The results of this study and those of Lehohla (2014) found that there is an upward trend in the prevalence of single member households.

## **5.6 Main source of income**

A study by Maharaj (2013) found that the labour force participation still remains higher in some African countries which can be attributed to difficulties in securing a pension in their old age. This study also found that a significant number of elderly were still part of the labour force, about 40 percent of elderly persons heading households in 2003/4 were employed, however this figure declined in 2009/10 where 36 percent of elderly persons heading households were employed. Of those elderly people employed and are heading households, there were more females (58 percent) employed than their

male counterparts in 2003/4, however by 2009/10 there were more male elderly (63 percent) employed than females. A study by Moller & Fereira (2003) agreed with these findings where they observed that in South Africa, the decline in the number of elderly being employed might be attributed to the accessibility of a pension point which might have improved. Although the distance to a pension pay point was not covered by the 2003/4 NHIES but was covered by the 2009/10 NHIES, a conclusion can be made that access to a pension pay point might have improved taking in mind that all the other a sharp decline in labour force participation for both men and women around the age of 60 and older. Research in Kenya and South Africa also show that more than two thirds of employed elderly are males and that women are mostly involved in informal activities which pushes up their employment levels (Ezeh et al., 2006; Lehohla, 2014).

This study found that a large number of elderly persons heading households rely on farming as their main source of income. Farming was found to be the main source of income (48.9 percent in 2003/4) and the second most main source of income (38.7 in 2009/10) for most elderly persons in Namibia. State old age pensions which plays a crucial role in alleviating poverty was the second main source of income for elderly persons heading households in 2003/4 but constituted the highest percentage in 2009/10 where 41 percent of all elderly persons who were heading households relied on state old age pensions as their source of income. Also a notable issue stemming from the study is that when it comes to the whole population, the number of people who rely on state old pension as a source of income increases. For instance by the year

2004, 10 percent of the population relied on state old age pension as their main source of income while by the year 2010, 12 percent of the population relied on state old age pension as their main source of income. Farming mostly subsistence farming is very important and is mostly undertaken in the rural areas of the country where the majority of the elderly lives. Other studies also found similar trends where state old age pensions and farming are considered the main source of income for most elderly persons. A study by Mba (2003) also found that in Ghana the majority of the rural elderly rely heavily on agriculture. Another study by Machethe (2004) also found that farming contributes 41 percent of the total household income in South Africa, whereas pensions contribute to 24.8 percent of household income.

### **5.7 Food poverty**

Regarding food poverty, the study found that 2.2 percent of the elderly persons which translate to 1 869 elderly persons heading households were poor, they were spending below N\$ 1525.8 on food and beverages in 2003/4. By 2009/10 the proportion of elderly persons who were poor slightly decreased to 1.8 percent. In 2009/10 a total of 1713 elderly persons heading households were below the food poverty line. A study by NSA (2012), however show that the proportion of severely poor households headed by the elderly increased between 2004 and 2010. The study by NSA (2012) showed that in 2004, 13.8percent of all households were classified as severely poor, the proportion

of severely poor households reached as high as 23 percent when it came to the subcategory of households headed by 60+ year olds. In addition, in 2010 the percentage of households that are severely poor headed by 60+ year olds increased to 28.2 percent.

### **5.8 Factors influencing poverty on elderly persons based on quantile regression**

This study found that elderly persons in all regions except Karas, Omaheke and Otjozondjupa spend more in household expenditure on food and beverages than elderly persons in Kavango region. This shows that elderly persons in those regions are better off than elderly people in Kavango region. The effect on those with higher expenditure levels (75<sup>th</sup> quantile) is much bigger than those elderly persons heading households with low expenditure levels (25 percent quantile). This study shows that in 2003/4 at the 25<sup>th</sup> quantile, an elderly living in another region such as Ohangwena region is estimated to spend 5 percent more on food and beverages while those with high expenditure levels (75<sup>th</sup> quantile) on food and beverages and heading households in Ohangwena region were estimated to spend 12 percent more on food and beverages than an elderly person heading a household in Kavango region. Notable evidence from the results reveals that at all quantiles (except the 25<sup>th</sup> quantile) in 2003/4, an elderly person who was in Kavango region was estimated to spend more on food and beverages than an elderly person heading a household in Ohangwena region. This is not surprising considering that Ohangwena region was the poorest region by 2003/4,

(NPC, 2015). On the other hand, results show that an elderly person in Karas and Otjozondjupa region spends less on food and expenditure at the lower quantile (25<sup>th</sup> quantile) which shows that an elderly person heading a household in Kavango region is better off than an elderly heading a household in those regions. A study by the NPC (2015) revealed that in 2003/4, Kavango region was not the poorest but it was Ohangwena region. However in 2009/10 Kavango region became the poorest region with a poverty headcount rate of 53.2 percent and having the poorest constituency in the country with 34 percent of its population severely poor. On the other hand in 2009/10, most (20 percent) elderly persons living below the food poverty line were in Karas region.

All the other factors that were analyzed such as education attainment and household size were found to have a greater effect on those elderly with higher expenditures levels (75<sup>th</sup> and 95<sup>th</sup> quantiles) and a small effect on those with low expenditures levels (25<sup>th</sup> quantile) on food and beverages. The effects becomes stronger with quantiles, hence it has a stronger effect at a higher quantiles. This study showed that in 2009/10 for any additional person in a household headed by an elderly person, an additional 10 percent is predicted to be spent more on food and beverages for those with low expenditure levels (25<sup>th</sup> quantile) than those elderly persons heading households with one person only. For the same year those with higher expenditures levels (95<sup>th</sup> quantile), an additional person in the household would mean spending 80 percent more on food and beverages. This clearly indicates that large households spend more on food

and beverages and the amount increases even further for those with higher levels of expenditure on food and beverages. Mbuli (2008) agrees that large households are worse off than small households because of the extra burden on household expenditure.

When it comes to the sex of the elderly, this study reveals that there is no big difference in how much elderly males and females spend on food and beverages for those with low expenditures in 2003/4 as well as in 2009/10. However at the higher quantiles, male elderly persons spend more on food and beverages than their female counterparts. In 2009/10 male elderly persons heading households with higher levels of expenditure (75<sup>th</sup> quantile) were predicted to spend 16 percent, more than female elderly heading households, this shows an increase from 2003/4 at the same quantile. One notable thing to remember is that in 2003/4 there were more male elderly below the food poverty line (61.5 percent), however in 2009/10 the situation changed where more female elderly heading households were below the food poverty line (55.4 percent). Similarly Ramashala (2011) found that in South Africa female elderly persons are more vulnerable to poverty than male elderly persons where a higher number of female elderly persons were found to be poor than their male counterparts. This he attributes to women's lifelong disadvantages in health and nutrition, limited labour force participation and discrimination in property ownership.

A study by Moller & Ferreira (2003) found that having access to a state old age pension decreases the probability of such a household to be on the lowest quantile of expenditure in South Africa. The results of this study however shows that those elderly persons heading households whose main sources of income is not state old pension such as salaries and wages and farming spend more on food and beverages than those who rely on state old age pensions as their main sources of income. This implies that elderly persons heading households with state old age pensions as a source of income are less well off. In 2009/10, an elderly person with low expenditure levels (25<sup>th</sup> quantile) on food and beverages and whose main source of income is farming is predicted to spend 17 percent more on food and beverages than an elderly person heading a household whose main source of income is state old age pension. The effect becomes bigger at the higher quantile.

Education also has a great effect on poverty, more significantly in 2009/10. A study by Ramashala (2003) found that the prevalence of poverty among older people is also linked to a lack of education, while Eyal & Woolard (2011) found that in South Africa there is a strong correlation between educational attainment and standard of living, where 58 percent of adults that have no education are poor. The results of this study shows that having some form of education can lift an elderly person out of poverty. The effect becomes bigger when an elderly person has attained secondary education and tertiary education. An elderly person heading a household with lower

expenditures (25<sup>th</sup>) and has secondary education is estimated to spend 21 percent more on food and beverages than an elderly person heading a household and has no formal education in 2003/4, this increased to 24 percent in 2009/10. The results further show that in 2009/10 those elderly persons heading a household and has attained some form of education and have higher expenditure levels (75<sup>th</sup> quantile) on food and beverages are estimated to spend 26 percent more than those elderly persons with no formal education.

## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Conclusion**

The study has shown that there are some socio-economic as well as demographic disparities with regard to poverty amongst elderly persons heading households in Namibia. The exploration of certain factors namely, the main source of income, sex, educational attainment, region and locality were important in the study to ascertain whether they influence poverty amongst people who are 60 years of age and older heading households in Namibia. One cannot deny that elderly persons are the backbone of any society having gone through different stages of life and they are often vulnerable to poverty than any other age group in the population. It is evident that some factors such as the educational attainment and main source of income of an elderly person has a bigger effect on poverty. This points to education being an important well-being indicator lifting people out of poverty. Agricultural farming is considered to be the main source of income for a high number elderly persons heading households where in 2003/4 it was the main source of income and in 2009/10 it was the second main source of income for most elderly persons who are heading households in Namibia. Therefore we need to work towards measures to tap into or improve the agricultural sector which has a potential of lifting people out of poverty. More elderly persons now have more

access to the state old age pension as the number of those elderly persons whose households main source of income is state old pension has increased between 2004 and 2010. This points to the effectiveness of the state old pension system in the country. Considerable changes with regard to the demographic and social aspects of the elderly persons had taken place between 2004 and 2010, however the food poverty levels of the elderly persons has declined. Hence, there is a need to continue working towards the betterment of the elderly persons in the country and finally lifting more elderly persons out of poverty.

## **6.2 Recommendations**

The study observed factors that influences poverty amongst elderly persons in Namibia. These factors are both important for policy formulation and planning in the country. Hence this study recommends that both planners and policy makers use these findings to improve the socio-economic status of the elderly persons in the country and re-evaluate programmes and projects aimed at lifting the elderly persons out of poverty. It is the hoped that factors identified such as having a higher educational attainment than a primary education could be incorporated in development programmes aimed at improving the socio-economic wellbeing of the whole population. The coverage of the old age pension and access to it has increased and improved between 2004 and 2010, therefore government can be commended for this and encouraged to continue and further improve all the other social safety nets aimed at alleviating

poverty amongst all vulnerable groups. Agricultural farming is the second main source of income for the majority of elderly persons and is also one of the priority sectors for economic growth in NDP4. Therefore greater emphasis should be placed on this sector which has an enormous potential of improving the well-being of the population. Notwithstanding the effort that the government is doing to reduce vulnerability to poverty by increasing the state old age pension, further research could be done to see the effect of old age pension on poverty. Alternatively, a different method could be used to improve this research and using bigger measurement such as the adjusted per capita expenditure as an indicator of wellbeing because this study only measured food poverty. It is however hoped that with the latest significant increase in the amount of the old age pension, more households headed by elderly persons with state old age pension as their source of income will be moved out of poverty and hence be moved to higher expenditure quantiles of food and beverages.

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## ANEXURE A: STATA CODES

**Below is some of the STATA codes used for the explanatory analysis for the thesis:**

### **2003/4 NHIES**

```
> gen int_weight=round(pweight)

>gen age_60=1 if (age>59 & age<=95 & relationship==1)

>tab age_60 income_source[w=int_weight], row

>tab age_60 hhsiz [w=int_weight],row

>gen Education_level=education_level

>recode Education_level (98=1)(1=2)(2=3)(3=4)(99=5)

>gen Education_levellabel=Education_level

>label define Education_levellabel 1"No formal Education" 2"Primary Education"
3"Secondary education" 4"Tertiary education" 5"Dont Know"

>label value Education_level Education_levellabel

>tab age_60 Education_level [w=int_weight],row

>tab age_60 gender [w=int_weight],row

>tab age_60 region [w=int_weight],row

>tab age_60 location [w=int_weight],row

>tab age_60 hhgender [w=int_weight],row
```

```

>tab age_60 marital [w=int_weight],row
>tab age_60 hhgender [w=int_weight]
gen employed=cond(empl==1,1,0)
>tab employed gender if age_60==1 [w=int_weight], row
>poor=cond(cons1<=1525.8,1,0)
>tab poor[w=int_weight]
>tab poor gender if age_60==1 [w=int_weight],row
>tab poor age_60 [w=int_weight], col
>tab poor marital if age_60==1 [w=int_weight], row col
>gen Income= income_source
>recode Income (1=5)(5=1)
>gen Incomelabel=Income
>label define Incomelabel 1 "Old age pension" 2"Subsistence Farming" 3"Commercial
Farming" 4"Non-Farming Business Activities" 5"Salaries and Wages" 12"Other",
replace
>label value Income Incomelabel
>tab Income
>gen Region=region
>recode Region (1=5)(5=1)
>gen Regionlabel=Region

```

```

label define Regionlabel 1"Kavango" 2"Erongo" 3"Hardap" 4"Karas" 5"Caprivi"
6"Khomas" 7"Kunene" 8"Ohangwena" 9"Omaheke" 10"Omusati" 11"Oshana"
12"Oshikoto" 13"Otjozondjupa",replace
label value Region Regionlabel

>tab Region

>gen lfood=log(food)

>qreg lfood i.Region i.gender i.Income hsize i.Education_level if age_60==1
[fweight = int_weight], quantile(.25)

>qreg lfood i.Region i.gender i.Income hsize i.Education_level if age_60==1
[fweight = int_weight], quantile(.50)

>qreg lfood i.Region i.gender i.Income hsize i.Education_level if age_60==1
[fweight = int_weight], quantile(.75)

>qreg lfood i.Region i.gender i.Income hsize i.Education_level if age_60==1
[fweight = int_weight], quantile(.95)

```

## 2009/10 NHIES

```
>gen int_weight=round(pweight)

>gen age_60=1 if (age_cohorts>12 & age_cohorts<=20 & relhead==1)

>tab age_60 [w=int_weight]

>tab age_60 income_source[w=int_weight], row

>tab age_60 marital_status [w=int_weight]

>tab age_60 hhsiz [w=int_weight],row

>tab age_60 hhhead_sex [w=int_weight]

>tab age_60 education_attainment [w=int_weight],row

>tab age_60 sex [w=int_weight],row

>tab age_60 region [w=int_weight], row

>tab age_60 location [w=int_weight],row

>gen employed=cond(employment_status==1,1,0)

>tab employed sex if age_60==1 [w=int_weight], row

>tab employed hhsiz if Pensioners==2 [w=int_weight]

>gen poor=cond(hCons1<=2445,1,0)

>gen nonpoor=1 if(age_cohorts>12 & age_cohorts<=20 & relhead==1 &
hCons1>2445)
```

```

>gen poor1=1 if(age_cohorts>12 & age_cohorts<=20 & relhead==1 &
hCons1<=2445)
>tab poor[w=int_weight]
>tab poor age_60 [w=int_weight]
>tab poor Income if Pensioners==2 [w=int_weight], row
>tab poor age_60 [w=int_weight], col
>tab poor sex if age_60==1 [w=int_weight], row
tab poor region if age_60==1 [w=int_weight], row
>tab poor if Region==1 [w=int_weight]
>tab poor marital_status if age_60==1 [w=int_weight], row
>gen Income= income_source
>xtile abd =hCons1,nq(4)
>bysort abd: sum hCons1 Region sex Income hhsz education_attainment
>recode Income (1=9)(9=1)
>recode Income (6=18)(19=18)(99=18)
>gen Incomelabel=Income
>label define Incomelabel 1 "Old age pension" 2"Farming" 4"Bussiness Activities"
5"Pension from Employment" 6"Cash Remittances" 9"Salaries and Wages" 18"Other"
19"No income" 99"Not stated", replace
>label value Income Incomelabel
>gen Region=region
>recode Region (1=5)(5=1)

```

```

>gen Regionlabel=Region

>label define Regionlabel 1"Kavango" 2"Erongo" 3"Hardap" 4"Karas" 5"Caprivi"
6"Khomas" 7"Kunene" 8"Ohangwena" 9"Omaheke" 10"Omusati" 11"Oshana"
12"Oshikoto" 13"Otjozondjupa",replace

>label value Region Regionlabel

>gen lhCons1=log(hCons1)

>qreg lhCons1 i.Region i.sex i.Income hhsz i.education_attainment if age_60==1
[fweight = int_weight], quantile(.25)

>qreg lhCons1 i.Region i.sex i.Income hhsz i.education_attainment if age_60==1
[fweight = int_weight], quantile(.50)

>qreg lhCons1 i.Region i.sex i.Income hhsz i.education_attainment if age_60==1
[fweight = int_weight], quantile(.75)

>qreg lhCons1 i.Region i.sex i.Income hhsz i.education_attainment if age_60==1
[fweight = int_weight], quantile(.95)

```

**ANNEXURE B: Quantiles of the variable household expenditure on food and beverages- 2003/4**

->

25percent

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>cons1</b>	11,635	3723.561	1337.237	0	5755.75

-> 50%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>cons1</b>	11,633	7505.967	1050.987	5756.4	9369.75

-> 75%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>cons1</b>	11,635	11731.42	1494.577	9371.05	14583.92

-> 95%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>cons1</b>	11,633	23088.51	10343.1	14592.63	196793.7

**ANNEXURE C: Quantiles of the variable household expenditure on food and beverages- 2009/10**

> bysort abd: sum hCons1

-> 25%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>hCons1</b>	11,154	5831.246	1944.029	0	8759.27

-> 50%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>hCons1</b>	11,158	11319.71	1506.78	8759.4	13974.35

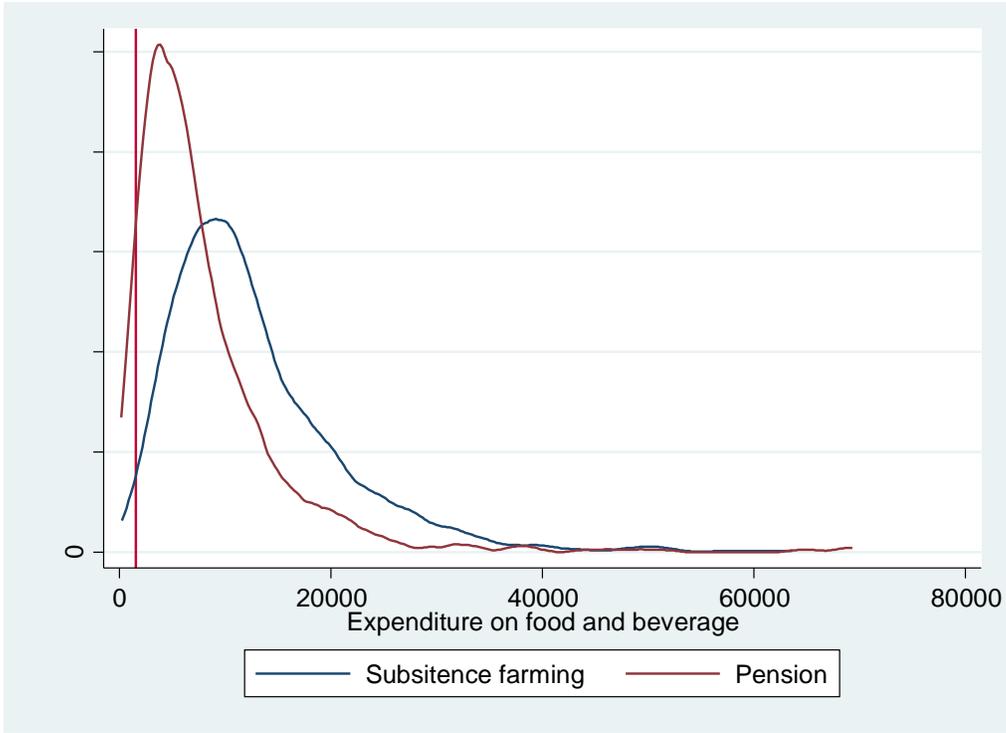
-> 75%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>hCons1</b>	11,151	17471.56	2193.284	13978.77	21687.25

-> 95%

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>hCons1</b>	11,151	35820.41	18674.6	21695.44	279157.7

ANNEXURE D: 2003/4 Kernel density of expenditure on food and beverages for elderly persons heading households with pensions and farming as a source of income



**ANNEXURE E: 2009/10 Kernel density of expenditure on food and beverages for elderly persons heading households with pensions and farming as a source of income**

