IMPACT OF SOCIAL GRANTS ON FOOD SECURITY: EVIDENCE FROM NEIGHBOURHOODS IN THE GAUTENG PROVINCE OF SOUTH AFRICA

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DECLARATION

I, Mandisa Nozibele Andrea Putuma Mokwena

Student number: 20463189, declare that the thesis

IMPACT OF SOCIAL GRANTS ON FOOD SECURITY: EVIDENCE FROM NEIGHBOURHOODS IN THE GAUTENG PROVINCE OF SOUTH AFRICA

is my own work and that all the resources used or quoted herein have been duly acknowledged by means of complete references, and that I have not previously submitted the dissertation for a degree at another university.

Mandisa Nozibele Andrea Putuma Mokwena

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ABSTRACT

The extent of household food insecurity in South Africa varies from 20 percent to 80 percent, although food security for all citizens is guaranteed in sections 26 and 27 of the constitution. The urban poor face particular challenges especially of increased urbanization, high unemployment, escalating food prices and lack of access to land. The long-held belief that urban households are relatively food secure relative to their rural counterparts has exposed the recent challenges of urban food insecurity in developing countries, also South Africa. Despite all these positive intervention by governments, global food insecurity remains a challenge although the South African government has invested considerable attention to rural support in recent years urban areas has witnessed rampant urban food insecurity. Rural food insecurity has improved in recent years due to concerted interventions placed rural poor households. The urban poor households have experienced an increase in food insecurity despite various government interventions. This study seeks to address the following fundamental question “What influences do social grants have on improving household food security levels in South Africa?”

Food security presents many complex approaches with differing approaches for mitigation and South Africa is challenged to explore all these differing views. Hence, the primary aim of this study was to determine the impact of social grants on food security in South Africa. In the process, this study examines and presents the findings of salient factors determining food insecurity of sampled households in Atteridgeville, Soshanguve in the City of Tshwane and Tembisa in Ekurhuleni. This study explored the following objectives:-

Firstly, a review of the literature on food security and social security was conducted; secondly, food security literature was extensively reviewed; thirdly, the determinants of food security among households receiving government grants in a suburb of Gauteng were established and lastly available policies and programmes were equally explored to determine the areas for further improvements and their relevance.

Primary data collected from a survey of 900 randomly selected poor households were used in the study. Only data from 827 households were used during analysis following the conduct of rigorous coherence tests. Profiling of households in the three locations was essential to identify any effect

that social grants might have on food security. Different statistical tools were used in interpretation of results. These include descriptive statistics, correlation analysis, Analysis of Variance and binary logistic regression analysis. Descriptive statistics were used to examine the socio-economic characteristics of the selected households.

The USAID developed Household Food Insecurity Access Scale (HFIAS) was used in the study. This scale was used to determine if households became vulnerable to food access in the past 30 days. Basically the scale comprises of nine specific questions which questions the changes that a household has undergone with reference to their diet or consumption patterns that are related to the lack of resources to purchase or produce food. The generic nine HFIAS questions were posed to all households surveyed and their responses were computed and analysed. The administered questionnaire consisted of twenty-seven questions relating to their first-hand experience on food insecurity. This was followed by a frequency of occurrence questions, which determined the regularity of consumption by respondents.

The findings of the analysis of variance highlights that there are significant variations in the population means of recipients of social grants by gender and location of beneficiaries. Variances are lowest among those receiving other grants. It is easy to explain this. Other grants cover a support for war veterans, who are disabled or older than 60, and whose numbers are known. It also covers a disability grant, whose eligibility for support has to be proven, perhaps with medical certificates. Qualification for Grant-in-Aid also requires a good amount of documentary support. The fact that there is a minimum variance in the population means of beneficiaries of old age pension is simply due to the fact that it is expected for one to attain a designated old age (60 years and above) in order to qualify.

Variances in the population means of food secure households, households experiencing food insecurity and those experiencing the other extreme form of severe food insecurity are significant by categories of social grants that households receive. On the other hand, variances in the population means of mildly food insecure households are significant only among those that receive old age and child grants. These variances increase as the household becomes better food secure

in their location. On the contrary variances in the population means of households' experiences of food insecurity also vary by gender of the head of households; such variances decrease as the household becomes better food secure. This might underpin the important role of women in ensuring low variability in household food security as experiences of food insecurity improves.

The study also reports differences in the variances of population means of households by categories of food security. It may also be an indication that social grants may not be directed, in the main, towards food purchases, thus lowering the ability of social grants to creating food secure households in South Africa. The right of citizens to access sufficient food is embedded in sections 26 and 27 of South Africa's Constitution. In the same light, the 2030 National Development Plan (NDP) outlines food security as an important component to the country's vision for economic growth. There are particular challenges in relation to urban poverty and rampant urban food insecurity in South Africa. This study contributes to the limited understanding and research on the main determinants of food insecurity among the urban poor and the contribution that social grants can make towards alleviating it.

Results from the logistic regression model demonstrate Household income is important in explaining food security. The coefficient of household income is 0.448 and has a p value of 0; the result shows that increases in household income contribute positively to food security. For a one percent increase in income the likelihood of households being food secure increase by 56.5 percentage. Thus, an increase in total income of the household increases the likelihood of being food secure by 56.5 (1.565 -1) percent.

In the model under study, the coefficient of the age of household is negative and a p value of 0.001. With a p-value of 0.001, it implies that age does have a significant effect on food security status. The odds ratio of 0.893 suggests that an increase of one unit in age is expected to decrease in the odds of food security by 0.893, holding all other variables constant. This means that an increase in age of the household head decreases the probability of being food secure by 10.7 (0.893 -1) percent.

Educated households are expected to have a sustainable supply of food for their families. In this study, education of the household head in each of the three locations is an interaction term between educational attainment of the household head and the specific location under consideration. The education coefficient is 0.065 with a p-value of 0.001 and the odds ratio of 1.067. The p-value indicates that education has a significant impact on food security and the odds ratio confirms that there is a strong association between food security and education. A one percent increase in the level education, the odds of food security increase by 1.067, holding all other variables constant. This means that an increase in level of education tends to increase the likelihood of being food secure by 6.7 (1.067 -1 percent).

The study results show there is a significant relationship between the marital status of the household head and household food security. The coefficient of household marital status is 0.503 and has a p-value of 0.002 showing that being married contribute positively to food security. The coefficient of marital status is significantly different from zero. Marital Status has the odds ratio of 1.654, which suggests that being married raises the odds of being food secure. This means that households with a married head are 65.4 percent (1.654-1) more likely to be food secure compared to those headed by unmarried households.

The coefficient of household gender is 0.006 and has a p value of 0.278. The coefficient of gender is not significantly different from zero. This suggests that gender has no impact on food security. This means that food security status is similar in male-headed households and those headed by females. Having a backyard garden means that a household can increase their access to food by planting vegetable and other basic food. This variable was used to check if backyard gardens or any other garden could increase the food security status. The coefficient of household backyard garden is -0.71 and has a p-value of 0.669. The coefficient of backyard garden is not significantly different from zero. This suggests that having a backyard garden has no impact on food security. In other words, food security status of households with a backyard garden is similar to those without backyard garden.

The coefficient of household Employment Status is 0.551 and has a p value of 0.002, the result shows that being employed contribute positively to food security. The coefficient of employment status is significantly different from zero. Employment Status has the odds ratio of 1.735 which suggest that being employed raises the odds of being food secure, i.e. the presence of food security is strongly associated with being productive and hence employed. Households with employed heads are 73.5 percent (1.735 -1) more likely to be food secure compared with unemployed heads. This is expected, as employment is a stable source of consistent income that can assure a steady supply of food.

Three investigated areas may differ due to their structure; Tembisa and Atteridgeville are more of urban townships, while Soshanguve although also urban has a large population of low-income households, compared to the other two suburbs. Thus a dummy variable for location, comparing Soshanguve to other affluent urban townships, was created. The coefficient of household location is -0.415 and has a p-value of 0.017 meaning that the coefficient of geographical location is significantly different from zero. Location has the odds ratio of 0.660 which suggest being located in Soshanguve, compared to being more affluent townships (Tembisa and Atteridgeville) decreases the likelihood of being food secure by 34 (0.66 -1) percent. Households who reside in upmarket location are more likely to be food secure than those from low-income neighbourhoods.

The logit regression results displayed that the significant importance of the demographic variables in explaining food security, with four variables being highly significant. These variables include education, household size, marital status, and household income (other market income) all highly significant.

Keywords: food security, social security, urban poor, Gauteng Province, neighbourhoods, South Africa

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LIST OF ACRONYMS AND ABBREVIATIONS

- AfDB: African Development Bank
- AFSUN: African Food Security Urban Network
- AIDS: Acquired Immune Deficiency Syndrome
- ANC: African National Congress
- BIG: Basic Income Grant
- CDG: Care Dependency Grant
- COMESA: Common Market for Eastern and Southern Africa
- COSATU: Congress of South African Trade Union
- CPI: Coping Strategy Index
- CSOs: Civil Society Organisations
- CSG: Child Support Grant
- DG: Disability Grant
- DSD: Department of Social Development
- EC: European Commission
- ECP: Eastern Cape Province
- EPWP: Expanded Public Works Program
- EU: European Union
- FANTA: Food and Nutrition Technical Assistance
- FAO: Food and Agriculture Organisation
- FCG: Foster Child Grant
- FDI: Future Directions International
- FHH: Female-Headed Household
- FSR: Free State Region
- GAU: Gauteng Region
- GDP: Gross Domestic Product
- GEAR: Growth, Employment and Redistribution

- GIA: Grant in Aid
- HAT: Harmonised Assessment Tool
- HDD: Household Dietary Diversity
- HFIAP: Household Food Insecurity (Access) Prevalence
- HFIAS: Household Food Insecurity Access Scale
- HIV: Human Immune-deficiency Virus
- ICESCR: International Covenant on Economic, Social and Cultural Rights
- IFSS: Integrated Food Security Strategy
- IICA: Inter-American Institute for Cooperation on Agriculture
- IRM: International Reconsideration Mechanism
- KZN: Kwa-Zulu Natal Region
- LIM: Limpopo Region
- MDG: Millennium Development Goal
- MerSETA: Manufacturing, Engineering and Related Services SETA
- MHH: Male-Headed Household
- MPU: Mpumalanga Region
- MQA: Mining Qualification Authority
- NCP: Northern Cape Region
- NPC: National Planning Commission
- NWP: North West Region
- OAG: Old Age Grant
- OECD: Organisation for Economic Co-Operation and Development
- POSTNOTE: Parliamentary Office of Science and Technology
- RAF: Road Accident Fund
- RDP: Reconstruction and Development Programme
- RSA: Republic of South Africa
- SACN: South African Cites Network
- SACP: South African Communist Party

- SANHANES: South African National Health and Nutrition Examination Survey
- SAIRR: South African Institute of Race Relation
- SASSA: South African Social Security Agency
- SIU: Special Investigative Unit
- SPII: Studies in Poverty and Inequality Institute
- SROD: Social Relief of Distress
- STATS SA: Statistics South Africa Determining the food security status of households in a South African Township Page xiii
- UIF: Unemployment Insurance Fund
- UN: United Nations
- UNEP: United Nations Environment Programme
- UNICEF: United Nations International Children's Emergency Fund
- USAID: United State Agency for International Development
- WCP: Western Cape Region
- WFP: World Food Programme
- WHO: World Health Organisation
- WVG: War Veteran's Grant

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

There is a general interest shown by developing countries especially in Africa, to understand the linkage between social protection programmes and food security at a household level. Food security may be interpreted at different levels, namely nationally, in the community and in the household (Anderson, 1990; Hunter & Twine, 2011; Kirkland *et al.*, Kemp, Oldewage-Theron *et al*., 2006). Food security at national level refers to a state where a country is able to support and sustain households with minimum and adequate nutrients sufficient to sustain acceptable living standards (Du Toit *et al.* 2011; Manyamba *et al., 2012)*. At community level, food security is measured establishing acceptable food supply norms that are set to support the community at a sustainable level (Grobler, 2015; Grobler, 2013).

Food security at household level denotes satisfactory supply of quality food for sustainable living (Du Toit *et al.*, 2011; Grobler, 2015). While South Africa is perceived as being relatively food secure on national level, scholars alike support the view that, at household level, there is a significant level of severe food insecurity (Grobler & Dunga, 2015; Grobler, 2014). It is also of concern that South Africa has focused aggressively on exporting agricultural produce and relied heavily on imports for its general consumption (Shisana *et al.*, 2013). The large scale study on national assessment of food security, the South African National Health and Nutrition Examination Survey (SANHANES), paints a concerning picture. According to the SANHANES' comparison data, the food security levels in South Africa have increased depicting persistent severe and moderate food insecurity in the country (Shisana *et al.*, 2013).

The country has also displayed regional variation in terms of food insecurity. The General Household Survey indicates that certain Province exhibit highest inaccessibility to food with North West at (37.3%); Northern Cape (30.7%); Eastern Cape (29.4%) and Mpumalanga (29.4%) (Shisana *et al.*, 2013). Since South Africa's transformation to democracy in 1994, the situation in the country has been contradictory. Inequality, unemployment and food security remain remarkably high, though GDP growth has fundamentally exhibited characteristics similar to its peers (Grosh *et al.*, 2008; De Haan, 1997; Moser, 1996; UNICEF, 1994).

South Africa's historic past has left it entrenched in serious inherent developmental challenges that will require several years to redeem itself. Unemployment remains stubbornly high at 28 percent (Stats SA, 2015; World Bank, 2015; National Treasury, 2015). A major concern is youth unemployment, which remains stubbornly high, especially amongst African youth (Stats SA, 2015). Despite various government interventions to stimulate growth, broadening export markets and removing trade barriers to allow companies to be more competitive, very little has trickled down to the majority of poor households (SASSA, 2015; National Treasury, 2015). Equally the number of new graduates completing universities and entering the job market is very high (Stats SA, 2015; World Bank, 2015). This continues to create the mismatch of job opportunities and labour supply numbers. Continued perception of inequality is still stubbornly high and certain households continue to survive purely through the provision of grants (SASSA Report, 2015; National Treasury Report, 2015). The numbers of dependents that are receiving social grants have been increasing at a rapid rate (Pauw & Mncube, 2007; Brockerhoff, 2013; Grobler, 2015a).

The South African Constitution promotes better forms of social protection for all households (NPC, 2011; RSA Constitution, 1996). The long-term objective for majority of households remains employment, but in the short term, social programmes by government play a crucial role. Social grants thus play a bridging gap role to addressing these social ills, addressing food security challenges and livelihood strategies (Altman *et al.*, 2009; Pauw & Mncube, 2007; Brockerhoff, 2013; Grobler, 2015a).

Hunger and food security challenges remain stubbornly high in low-income urban areas. (Grobler & Dunga, 2015; Grobler, 2014; Grobler, 2013; Manyamba *et al.*, 2012). Food security, therefore is particularly interested in determining the ease of availability of food at market places. (FANTA, 2003; FAO, 2015; World Bank, 2015). However, global challenges are determined by the country's infrastructure and its supply. Other low-income economies are inhibited structurally by the performance of their currencies at world markets. Their foreign currency performance is relatively low causing serious currency conversion for food acquisition from the world market (World Bank, 2015; FAO, 2015; Manyamba *et al.2012*).

The World Bank defines food security as "access by all people at all times to enough food for an

active and healthy life" (World Bank, 2010). This encompasses mostly food production in its definition; accessibility, supply, as well as consumption of healthy food with sufficient nutrients at a sustainable level to meet basic needs (FANTA, 2003; USAID, 1992; Moser, 1998; Tawodzera, 2011). Food security definition has evolved considerable over the years to encourage serious policy and technical debates, for promoting better response to challenges experienced in the world (Brockerhoff, 2013; Stats SA, 2015). Social security therefore includes not only direct cash transfers mostly from government social grants but also other food related exemptions provided by government. These include, food exemptions on value added tax (VAT), public works employment programmes to facilitate income generation (Grosh *et al.*, 2008; National Treasury, 2015; SASSA, 2015).

During the past decade, a consistent trend has been witnessed as sub-Saharan African (SSA) governments have launched cash transfer programmes as part of their social protection strategies. Many of these government-led programmes originated from a concern about population that was unable to sustain itself, often in the context of food insecurity and HIV/AIDS. This has driven the setting of objectives and targeting towards an emphasis on the extremely poor households with limited work and/or households with abandoned and highly dependent children to care for (OVC). Community participation has contributed greatly in ensuring the upliftment of the broader communities from their vulnerabilities. This in turn promoted interventions that promote cash transfers to communities (Taylor, 2013; World Bank, 2015).

The results from these SSA studies have highlighted positive benefits of social grants. These studies have reflected positive spinoffs of cash transfers towards alleviating food insecurity (Taylor, 2013; FAO, 2015; World Bank, 2015). The literature indicates an increased spending on food by grant recipients (Sekhampu & Ndobo, 2013; Van der Berg, 2006). This is in line with the thinking of (Van der Berg, 2006; Shisana *et al*, 2013) that reflected the increased usefulness social grants on food security. With respect to South Africa, Grobler (2015) finds that the more a household relies on social grants from government, the higher the level of food security. The author also shows that the more a household relies on grants, the lower their dietary diversity. He concludes that, although social grants alleviate food insecurity and increase dietary diversity, there are still challenges at household level in low-income neighbourhoods. Thus this study aims to investigate further the

correlation between social grant and food security contrasting in the urban areas of Gauteng Province.

1.2 PROBLEM STATEMENT

The long-held belief that urban households are relatively food secure compared to their rural counterparts has exposed the recent trend of urban food insecurity in developing countries, also South Africa. According to the SANHANES findings, the highest food insecurity risk was in urban informal areas (36%), while only 32% were in rural areas (Shisana *et al.*, 2013). Food security targets in Millennium development goals target were not achieved (FAO, 2015; Grobler, 2015). The 2014 Global Food Security Index (GFSI) displays these improvements, disclosing certain developments within every area (FAO, 2015; Grobler, 2015). Despite all this positive involvement of governments, food insecurity remains a challenge worldwide (World Bank, 2012; SASSA, 2013).

There is a vast amount of literature on the problems of measuring food security in South Africa (Sekhampu, 2013; Pauw & Mncube, 2007; Brockerhoff, 2013; Grobler 2015). In South Africa, the urban population increased from 19.15 million in 1990 to 30.86 million in 2010, and forecasts suggest that this figure will increase to 38.20 million by 2030 (UNHABITAT, 2014). The available analysis by Bond and Desai (2012) reflects serious challenges of food security in urban areas. The results highlights, diversion of the problem from rural areas to urban areas. Rural food insecurity improved during the 1993-2008, because people moved away from rural areas in seeking employment in urban areas. As explained by Leibbrandt *et al.* (2010) and Shisana *et al.* (2013), the occurrence of poverty in rural areas basically remained the same, while it expanded in urban areas. However, because of substantial urbanization from under resourced and impoverished areas, the overall occurrence of poverty declined (Bond & Desai, 2012).

Thus this study intends to address the following fundamental question “What influences do social grants have on improving household food security levels in South Africa?”

1.3 OBJECTIVES OF THE STUDY

1.3.1 Primary objective

The study's primary objective is to determine the effectiveness of social grants on food security with case studies from various neighbourhoods in the Gauteng Province of South Africa. The study aims to critically understand the role played by certain variables in understanding food security status. It aims at unpacking and analysing the significance of demographic variables in explaining food security.

1.3.2 Theoretical objectives

In establishing the stated objectives, primary research objectives were stated as follows:

- A comprehensive literature review of social security and food security;
- A comprehensive review of determinants of household food security, in Gauteng neighbourhoods;
- Establish the food security determinants of households receiving social grants in a suburb of Gauteng; and
- Revisit existing social security policies and the application of the various programmes in South Africa.

1.3.3 Empirical objectives

The following empirical objectives are formulated, for the purpose of this study: -

- Establish the extent of urban food insecurity in low income households of Gauteng neighbourhoods;
- Determine if different social grants assist in the achievement of household food security;
- Determine the strategies adopted by food insecure households in Gauteng neighbourhoods;
- Provide policy strategies to address food security challenges in urban areas.

1.4 RESEARCH DESIGN AND METHODOLOGY

The study comprises quantitative research. The survey was conducted in three Gauteng neighbourhoods of the City of Tswane and the City of Ekurhuleni.

1.4.1 Literature Review

Various studies on cash transfers as well as social security interventions have been widely researched in Latin American countries and Northern Africa (Van der Berg, 2006; Battersby, 2011). These have mostly reflected short outcomes of food security. They have also displayed the importance of sustainability of these interventions in the long term, and had reduced the widespread presence of micronutrient deficiencies in these areas (Quinn, 2009; Ndobo & Sekhampu, 2013). Programmes in Mexico and Nicaragua showed advancement in the height of children, but Brazil and Honduras displayed no significant improvement based on these cash transfer intervention. Other countries like Mexico, observed a positive iron status, on their nutrition based on these interventions. Countries like, Honduras and Peru, on the other hand, where this outcome was investigated**,** reflected no positive linkage (Taylor, 2013; World Bank, 2015).

This section highlights the South African food security challenges by vulnerable households. An extensive literature review on social security programmes and food security interventions worldwide was undertaken to augment the study: secondary and primary sources of data were explored and analysed to strengthen this research work.

1.4.2 Empirical study

The Household Food Insecurity Access Scale (HFIAS) was chosen for this study. The Food and Nutrition Technical Assistance (FANTA) programme of the Food and Agriculture Organization (FAO) (Coates *et al*., 2006) developed this. A quantitative research was employed in three neighbourhoods of Gauteng, being Atteridgeville, Soshanguve (from the City of Tswane) and Tembisa (from Ekurhuleni City). For data collection purposes, a random sampling technique was employed from 727 households. Well-trained enumerators administered the survey. Swindale and Bilinsky (2006) developed the tool owing to challenges of collecting household data. The HFIAS is

premised on that food insecurity elicit often similar reactions from households and can. This measure can be universally applied for quantification purposes for ease of measuring and monitoring purposes (Grobler, 2015).

The HFIAS is a useful measurement tool for food security. This tool is useful as a measure to capture the general experience of access to food across cultures and countries (Swindale & Bilinsky, 2006). The formula and approach used are seen as generally applicable, but customised to suit the needs of each region or country (Sekhampu, 2013).

The HFIAS consists of nine items that encircles understanding the level of food security relevant for a household. It is grounded on experience that reflects regular occurrence and also estimated over a recollection period of 30 days (Grobler, 2015; Sekhampu, 2013). These questions are set to determine the consistency of supply of food, equally the inadequacy of food experienced by the household (Grobler, 2015). This study determined the main diet of food secure, mildly food insecure, moderately food insecure and severely food insecure households in the three residential locations. The results are presented along demographic lines. The results showed which group consumed the highest proportion (and the frequency of consumption) of staples, vegetables, sugar, oil and fat and proteins etc.

This study opted for the following sequence in its approach: -

1.4.2.1 Target population

The study population included three areas, namely Tembisa, Soshanguve and Atteridgeville (all three are low-income neighbourhoods of Gauteng Province and exhibit both urban and rural characteristics). These three areas notably display high levels of unemployment, and a high number of households in informal settlements. There are many recipients of social grants in these areas and this formed the basis of their selection (SASSA, 2013). (The map of City of Tswane and Ekurhuleni is attached as an Appendix B and C respectively).

The primary data from these three areas was collected by means of a questionnaire. The household head or the spouse was interviewed for the purpose of the study. Data on socio-demographics,

food intake, and household food security – was collected. One-to-one interviews by a trained enumerator were used. This choice is also in line with the subject of research requiring minute and detailed descriptive phenomenal report of the research problem. The study focused on 900 randomly selected households from the three identified neighbourhoods.

1.4.2.2 Sampling frame

The study only adopted mainly in-depth interviews by well-trained enumerators. Also, an extensive literature review was commissioned to support the study: primary and secondary sources of data were analysed. A total of 900 households were randomly sampled, however only 827 were used for interpretation purposes. Based on the data, in the logistic regression model, was developed.

1.4.2.3 Sample method

Sampling is a scientific way of learning from a selected portion of a greater population (Ndobo, 2013). Generally sampling is useful in order determine the unknown variables (Neelankavil, 2007). Because it is generally demanding to extract information from a broad segment of the study area or population, samples therefore offer a useful means for information gathering (Sekhampu, 2013). For the purpose of this survey, the chosen selected households were evaluated to determine their food security status. The study area comprised three community areas in the City of Tshwane and Ekurhuleni, the Gauteng neighbourhoods through a self-administered questionnaire.

The study only adopted questionnaire completion by well-trained enumerators for accessing the information from the three sampled areas. Primary data was collected from 900 randomly selected households. However, from the survey, only data from 827 households were kept for interpretation purposes following the conduct of rigorous coherence tests. The survey was conducted in Atteridgeville, Soshanguve, and Tembisa, two of the poorest residential areas of the City of Tshwane Metropolitan Municipality, and in Ekurhuleni Municipality, Tembisa was chosen, all in the Gauteng Province of South Africa.

1.4.2.4 Sample size

The study used detailed primary household survey data from 900 households from randomly selected from Tembisa, Soshanguve, Atteridgeville and it's neighbouring informal settlements, however only 827 questionnaires were utilised for analysis. The sample size of this study is regarded as representative and covers the sampled area well. Similar studies on the same topic have dedicated a similar sample in their investigation and research on the topic. The enumerator's chosen were all comfortable with English, IsiZulu and Isi Tswana, the languages spoken in these three areas. The purpose of this was to enable them to comfortable interpret the information contained to recipients in their own vernacular language. The questionnaire had a covering letter explain to the participants the purpose of the research, and the scientific benefits that will be delivered.

Both male and female respondents were targeted, as head of the household, was identified as the key person to complete the questionnaire. Every third household was chosen for the sample in the street.

1.4.2.5 Measuring instrument and data collection method

A questionnaire was used to gather data from the three Gauteng Province neighbourhoods. Well-trained enumerators were used for the purpose of conducting the research. The questionnaire included information on demographics, socio-economic characteristics of households, their experiences of food security, income generation activities, understanding different coping strategies of the households, survivor tactics of the households and their overall view about social grants in general.

The survey questionnaire consisted of questions covering household's background socio-economic information, household composition and profile of household head, household assets, sources of income and household expenditure by type of expenditure and survival strategies. In order to measure food security, the household head or other household members were asked to assess their own access to food, considered sufficiency of consumption. The full sample consists mainly of poorer households in the study areas.

Households differ in their degree of vulnerability to food insecurity and some households; tend to devise better ways of dealing with their situation better than others (World Bank, 2015. As such, in order to determine household food security status, this study administered a questionnaire that sought to probe individual respondent's behaviours and experiences associated in meeting food challenges (Swindale and Bilinsky, 2006). The Household Food Insecurity Access Scale (HFIAS) as explained earlier was used for collection of information from respondents.

1.4.3 Statistical analysis

The study adopted four statistical methods in the interpretation of its results. These statistical tools are: -

- Descriptive statistics;
- The Correlation Analysis;
- The Analysis of variance (ANOVA) model and;
- The logit regression model.

Data were captured in Microsoft Excel (MS Excel 2010). This was later analysed using sophisticated but user-friendly statistical packages for ease of interpretation. Descriptive analyses were completed. Pearson correlations were run to determine bivariate linear relationships between variables that were continuous variables. T-tests or two-way ANOVA with post-hoc tests were used for comparisons of continuous variables between groups. Two-Way ANOVA was used for comparison between the three different locations and households' food security statuses. The significance level was set at $P<0.05$ or higher.

The USAID developed Household Food Insecurity Access Scale (HFIAS) was used in the study. This scale establishes if households became exposed to low levels of food insecurity in the last 30 days. Basically this incorporates nine detailed questions, which questions certain aspects that a household has undergone with reference to their diet or consumption patterns that are related to inadequacy or poor food production. The generic nine HFIAS questions were posed to all households surveyed and their responses were computed and analysed.

The administered questionnaire consisted of twenty-seven questions relating to their first-hand experience on food insecurity of respondents (Swindale & Bilinsky, 2006). The portfolio collection method in fact sets out to evaluate the extent of household food insecurity. It uses the frequency of occurrences and limitations in classifying each case of food insecurity. In order to determine food security, it is a requirement that the answers to the nine questions are 0 or 1; and if there are such answers as 2 or 3, they may not occur more than once. In brief we expect answers here to be mostly no (= 0) with some tolerance for yes (= 1) and really no more than one question whose alternative responses are spread over of 2 or 3 options.

1.4.3.1 Analysing the variance of impact of social grants on food security

An Analysis of Variance (ANOVA) was performed on the data for ease of comparing results amongst variables selected (Arimond & Ruel, 2004; Ruel *et al*., 2004). An ANOVA determines the variability in the response amongst the different factors measured (Ruel *et al*., 2004). Hence, the study seeks to analyse the variation associated with the receipt of social grants in relation to household food security in the three locations covered by this study and to try to determine the important sources of that variation. The study seeks to determine whether the variance in the impact of social grants on food security is affected by residential location in one of the three locations under study or belonging to one of the age groups, gender, income class or employment statuses.

A variance in household food is reflected when the outcome of food security measured reflects deviations from expected results. The outcome of the results could either be negative or positive. For instance, a positive variance could be interpreted to imply that means for achieving household food security are lower than predicted or that food security is higher than expected given the same level of main determinants. By contrast, an adverse variance might arise because the means for achieving household food security are higher than predicted or that food security is lower than expected given the same level of main determinants.

1.5 ETHICAL CONSIDERATIONS

Ethics can be described as the code of moral principles according to which standards of good or bad and right or wrong are set and whereby the behaviour of a person or group is guided (O'Reilly *et al.,* 2006). Researcher should guarantee confidentiality of the use of extracted information, thereby allowing participants to be open and honest. It should aim to encourage participants to participate freely, without coercion or likely opportunity of reward for completing the questionnaire (O'Reilly *et al.,* 2006).

Ethical considerations have a connection on the likely outcome of the research. The following ethical considerations were observed during this study:

- Firstly, permission was requested from North West University for Ethical clearance.
- Secondly, confidentiality was ensured and maintained when dealing with respondents especially where income issues were discussed.

The consent of participants was sought upfront. A covering letter setting out the objectives of the study was translated into all vernacular languages. The researcher made it clear at the beginning of the interview that their consent included the right to use the data generated through the interview in whichever way they saw it fit including the right to interpret, analyse and publish the data.

At all times, participants were informed of their right to terminate the interview or not answer questions that they felt were uncomfortable to answer. The ultimate objective of the research was shared with the participants. Overall, the researcher highlighted and overemphasised, the importance of confidentiality in the research, the use of data extraction as well as interpretation of findings from the research.

1.6 CHAPTER OUTLINE

This thesis follows this sequence of chapters:

Chapter 1: Introduction and Background

This chapter presents the introduction and the background of the study. This includes very high-level presentation of the literature of food security and social security. It further covered, the high level background of the study, problem statement, research questions, and objectives of the study. In essence, it is the foundation of the entire study.

Chapter 2: Theoretical Analysis of Social Security

This chapter highlights the theoretical considerations of social Security internationally. It highlights the evaluation of European social security systems and also focuses on efficiency. The chapter also analyses the social security system in South Africa.

Chapter 3: Theoretical Linkages between Social Security, Social Grants and Food Security

This chapter explores the literature on food security and also incorporates the understanding of food security levels in South Africa. The discussion was presented in statistical formulas. Tables and graphs are incorporated to strengthen the viewpoint. The primary objective was to display theoretical linkages between social security and food security.

Chapter 4: Background to the Study Areas

This chapter presents the background to the study areas of the three neighbourhoods: Atteridgeville, and Soshanguve from City of Tswane and Tembisa, from Ekurhuleni City. First, the study presented socio economic characteristics of the two cities. This was accompanied by highlighting the geographic spread of the study area. Finally, the chapter elaborated on food security status of the study area.

Chapter 5: Research Methodology

This chapter present the methodology used in the study, and include the explanation of the various statistical tools used in the interpretation of the data collected. In this regard, three statistical methods were employed, namely, Descriptive Statistics, Regression Analysis, Analysis of Variance

and Correlation Analysis. Finally the chapter presents the data sources and measurements.

Chapter 6: Analysis and Interpretation of Results

This chapter presents detailed discussion and findings of the study. This forms the core of the thesis and presents the findings from employing the different statistical tools. This enabled the researcher to make logical conclusions that are summarised in Chapter 7.

Chapter 7: Summary and Conclusions

This chapter provides a summary, and draws conclusions for the study. The findings are presented in the form of recommendations. Furthermore, the chapter highlights the attainment of objectives as well as contributions made by the researcher. The chapter ends by suggesting areas for further research.

CHAPTER 2: THEORETICAL ANALYSIS OF SOCIAL SECURITY

2.1 INTRODUCTION

In modern industrialised counties, social security presents a crucial link in the policy of the welfare state. Generally, social security sets out to act as insurance for workers and their families from (extreme) employment losses and therefore minimises the impact of unfortunate risk to families and individual's alike (Lagarde *et al.*, 2008; Dufflo, 2000; Miller *et al.*, 2007.) Social security theory is centred on aspect of solidarity and risk minimisation. Moreover, it is not a private sector strong point to ensure the general protection of citizens to some form of risks (e.g. seasonal unemployment). This then puts considerable pressure on government to ensure that social security plays this crucial role (Daidone *et al.*: 2014; Kirkland *et al.*, 2011; Oldewage-Theron *et al.*, 2006).

This chapter therefore presents a comprehensive literature on social security as well as the application of various social security practices in South Africa. The gist of this study has been the complexity fixed firmly in the interdependent relationship between the social protection and the economic welfare of those impacted and the ensuing relevance for economic growth at macro-level. This chapter also explores the different social security systems adopted in South Africa in response to the socio-economic context as explained in detail in the previous chapter.

2.2 SOCIAL WELFARE

In the broadest sense welfare is preoccupied with satisfactory living of the general household (Daidone *et al.*: 2014; Kirkland *et al.*, 2011; Oldewage-Theron *et al.*, 2006). Within the context of the state the word can be taken to refer to the range of public services that the state may provide to its citizens or residents within the confine of her state to ensure that they all, have acceptable, respectable way of living (Spicker, 1988). This includes access to a safe drinking water, proper health care facilities, and respectable standard of education, decent living and habitable environment. The health care may be curative in that they provide care to the sick and vulnerable member of the society (Daidone *et al.*: 2014; Kirkland *et al.*, 2011; Oldewage-Theron *et al.*, 2006). The role of social security cannot be undestimated especially for the elderly and disabled. It should act as a comforter for this group. In terms of education, social security should provide learning

centres that seek to promote development. The National Health Insurance Scheme (NHIS) is an example of an institution that was created through state intervention to make sure that citizens could access a minimum standard of health facilities in Nigeria (Sillars, 1988). The majority of citizens who currently experience exorbitant costs of medicines have welcomed talks in South Africa to roll out NHIS (Treasury, 2015).

According to Spicker (1988), Social services often play a crucial redistributive role, by ensuring the transfer of resources from one group to the other (Spicker, 1988). Taxation is an important tool often at the disposal of the State to affect this role. It puts pressure on high-income earners to support those who are unable to sustain themselves. The provision of social welfare is a debatable issue, and attracts different response from private and public sector (Rudolph *et al*. 2012; Grobler, 2015a).

2.3 SOCIAL SECURITY

Social security system has played a crucial role throughout the lower and middle-income countries like South Africa (De Haan, 1997; Moser, 1996; UNICEF, 1994; Daidone *et al.*: 2014; Kirkland *et al.*, 2011; Oldewage-Theron *et al.*, 2006). The social security system therefore includes elements of economic and socio-political encounters at a national level and household level. In response to these various interventions of social security, the International Labour Organisation (ILO) reflects a commitment of societal protection to all its members. It guarantees pursuit of better way of living to all its citizens (De Haan, 1997; Moser, 1996; UNICEF, 1994; Daidone *et al.*: 2014; Kirkland *et al.*, 2011; Oldewage-Theron *et al.*, 2006).

The importance of social-protection policies in the development policy agendas of many countries has grown, given that such policies tackle poverty and food vulnerability directly at the household level (Committee on World Food Security, 2012). Thus social protection is defined by Midgley & Kaseke, 1996 as:

> “All initiatives that: (1) provide income (cash) or consumption (food) transfers to the poor; (2) protect the vulnerability against livelihood risks; (3) enhance the social status and rights of the excluded and marginalized”.

European influenced social security programmes in most countries of Africa. The British social security systems (Midgley & Kaseke, 1996) and South Africa system adopted certain elements of the European in the early formulation of their social security system.

2.4 SOCIAL PROTECTIONS AND GRANTS

The South African Constitution, Section 26 and Section 27, declared "everyone has the right to sufficient food" government should endeavour to allocate enough resources to support the basic human right within its budgetary process (RSA Constitution, 1996). The department of Agriculture responded by the development of the Integrated Food Security Strategy (IFSS) in 2002. With the establishment of the National Planning Commission in 2011, it further recommended the incorporation of food security as a key driver for economic upliftment of its poor underserved households (NPC, 2011). In August 2014, the National Policy on Food and Nutrition Security for South Africa was adopted (Government Gazette, 2014). According to this National Plan, food-assistance networks, nutrition education, local economic development, market participation and food nutrition risk management are at the core of the policy to alleviate food insecurity.

These initiatives paved the way for South Africa's expansion of its social security programmes after 1994 and have resulted in large number of households relying on social grants is increasing from 2.4 million in 1989 to 16.7 million people in 2016. The distribution of these social grants in 2014 was 18.56 percent for the old age grant, 0.001 percent for the war veteran's grant, 6.59 percent for the disability grant, 0.71 percent for the grant in aid, 70.27 percent for the child-support grant, 3.09 percent for the foster child grant and 0.76 percent for the care-dependency grant (Department of Social Development, 2015; Van der Berg, 2006; Grobler, 2015).

Cash transfers (CTs) form an important and growing part of social protection programming in particularly, the so-called underserved and under resourced world (Van der Berg, 2006; World Bank, 2015; Taylor, 2015). Cash transfers evolve differently over time throughout the world over and there are significant variations in the designs and objectives of programmes across countries and regions. While there may be considerable evidence that cash transfers are an effective state-

led intervention into poverty, also there are many arguments against it. There exist two main arguments against cash transfers (Stats SA, 2011; Taylor, 2015; World Bank, 2015).

- There is the argument that poverty may be better reduced through pursuing the state's broader economic growth rather than through the provision of cash transfers (World Bank, 2015). Developing states need to focus more on the development of basic infrastructure like housing, schools, roads and hospitals, improve governance and administration of state resources (Taylor, 2015). According to this view while social security programmes may have a positive effect on the living standards of individuals, the effect is far more short term and directed only at a smaller group of people than the investment in public infrastructure and the economy (Fiszbein & Schady, 2009; Devereux & Sabates-Wheeler, 2004)
- They may create dependence on the state rather than promote individual work and effort. If the government provided individuals with a basic income that provided for all basic needs then there is no incentive for people to invest in their own development, find employment or change the circumstances of living.

The second argument against cash transfers is becoming increasingly difficult to argue that the market is sufficient as a redistributor of resources. As a result of markets failure in developing countries poor people are prevented from being productive and thus reinforce poverty cycles that could lead to vicious circle of poverty as viewed by Nurkse theory of underdevelopment (Das, 2004; Lund *et al.*, 2009). More importantly the disparities that manifest itself exist in low income countries are as a result of past government inactions, with little or have nothing to do with the actions of individuals. Inequality of opportunity may exist on the bases of one's race, gender, social context or family history. State-led interventions like social grants directed at people with particular need for redress and access to opportunity are better placed than the market to address such issues (Das, 2004).

2.5 THEORETICAL FRAMEWORK OF SOCIAL SECURITY

The contrasting role between the State and the Markets has always attracted serious debates. The State has been viewed essentially to play the redistributive role and policy making (Fiszbein &

Schady, 2009). The role of markets on redistribution and welfare have been consistently questioned by Social Scientists (Devereux & Sabates-Wheeler, 2004) .The modus operandi and arguments made by civil society, non-governmental, all institutions which may fund social grant programmes, are premised on varying platforms and approaches (World Bank, 2015). Two principles are considered essential to income distributions: Pigou-Dalton condition of transfer and Regressive sensitivity to transfer (Fiszbein & Schady, 2009; Devereux & Sabates-Wheeler, 2004). Thus, income inequality measurement is developed on the basis of efficient social welfare in the society. Therefore, social welfare is measured as

$$w = \frac{1}{1-\alpha}\sum_i^n y_i^{1-\alpha} \qquad (1)$$

Where w = social welfare, n = number of people in the society, y = income and α = income distribution parameter. Thus, $0 < \alpha < \infty$

Atkinson Index

The Income inequality measurement by Atkinson model is developed from (1) as;

$$I = 1 - \left[\sum_i^n \left(\frac{y_i}{\bar{y}}\right)^{1-\alpha}\right]^{\frac{1}{1-\alpha}} \qquad (2)$$

Where I= income inequality coefficient ranges between 0 and 1 i.e. $0 \leq I \leq 1$. This implies that the closer the Atkinson coefficient to 1, the more income disparity the society becomes and the more the required for income redistributive programmes like social grants, subsidies etc., so as to reduce the income gap (poverty rate) at the upper income end and lower end spectrum of society.

The nature of social grant is the improvement of the living standards of the poor households. This role is essentially played best by the state. While improving the low-income group's situation, the high-income group does not need to be disadvantaged. Cognisance has to be taken not to extremely tamper with the welfare of the high-income group, which are the normally the source of wealth. It is a common cause that taxes levied to upper income earners have a discouraging effect. Equally taxes inhibit lower income earners for rendering their services (Devereux & Sabates-

Wheeler, 2004). However, a balance has to be established to improve income levels between these two opposing forces for Pareto Efficiency.

Simple model of optimal income tax

Max ω = $\frac{1}{\alpha}\sum_i^n u_i^2$ (3)

st: $\sum_i^n t\, w_i H_i$ = n$\overline{T}$ +G (4)

Forming the Lagrangian equation by making (4) equal zero first, then multiplied by λ

$\sum_i^n t\, w_i H_i$ - n$\overline{T}$ - G = 0 (5)

λ [$\sum_i^n t\, w_i H_i$ - n$\overline{T}$ - G] (6)

Forming a composite equation in which optimal income tax can be deduced, thus subtract (6) from (3)

Φ = $\frac{1}{\alpha}\sum_i^n u_i^2$ - λ [$\sum_i^n t\, w_i H_i$ - n$\overline{T}$ - G] (7)

ω = gross social welfare, α = degree of aversion to inequality in the society, U = individual utility in the society, t = tax rate, w = wage rate, H = labour supply measured by number of hours devoted for production, n = population, $\overline{T}$ = cash hand-out (social grants) and G = government investment spending. The equation (3) is the target of the government but constrained by (4). Equation (4) is the income ($\sum_i^n t\, w_i H_i$) and expenditure (n$\overline{T}$ +G) capacity of the government; these determine the gross societal welfare in the state. Since the income capacity of the government have greater influence on the expenditure capacity of the government and income is generated through the administered tax on hourly wages. Thus, from (3) and (4), composite social welfare was arrived at i.e. (7) and the optimal income tax is derived by optimizing (7) through partial differential. Therefore, optimal tax function is:

t = ti(α, wi, Hi, G) (8)

Therefore, from (8), we can conclude that:

- The stronger the inequality aversion (α), the lower the elasticity of substitution in the gross social welfare (ω) in the society.
- The wider the income inequality in the society, higher the marginal tax rate.
- The lower the elasticity of substitution in the utility function (ui), the higher the marginal tax rate.
- The higher the government revenue requirement, the higher the marginal tax rate.

From this simple optimal income tax, cash hand-out/subsidies (social grants) is included in the expenditure of the government that determines the gross social welfare of the society. Thus, revenue capacity of the government determines the marginal social grants in the state.

2.5.1 Empirical Literature on Social grants

The literature assessing the effectiveness of social grants in South Africa and around the world is extensive. These studies have covered issues such as labour participation, food security; social security, education, health and nutrition programmes and strategies (Dufflo, 2000; Lagarde, Hainnes & Palmer, 2008). It is expected therefore that the significance of cash transfers (CTs) on improvements of living of households depend largely on its utilization by recipients. Since cash is liquid and easily usable, there are concerns that the poor might allocate prominence to non-essentials, including alcohol and drugs. This argument has sometimes been used to advocate 'in-kind' transfers rather than CTs (Battersby, 2011; Quinn, 2009; Crush & Caeser, 2014). Despite these divergent views, social scientists alike have alluded to the significant role played social grants on food security. They provide the framework for creating stability. This they do by establishing the necessary certainty to households (Reilly *et al*., 1999; Crush & Caeser, 2014). According to literature, grant recipients show an increased spending on food (Battersby, 2011; Quinn, 2009; Crush & Caeser, 2014). This is confirmed by other studies (Grobler, 2015; Sekhampu & Ndobo, 2013; Van der Berg, 2006) that highlighted significant and positive contribution of social grants on general standard of living of households.

However, studies have begun to show that CTs can also lead to a promotion of better livelihood for households that are financially depressed (Crush & Caeser, 2014; Ndobo & Sekhampu, 2013). Hence, it has become important to understand, via various methods, the impacts of various social grants on economies. Many of the studies found a positive impact of social grants on various socio-economic outcomes (Taylor, 2015; World Bank 2015; UNHABITAT, 2014). Their findings suggest that cash transfer benefits lead to uneven distribution in areas where they are applied in various countries. However, similar results from other countries have alluded to benefits of cash transfers (UNHABITAT, 2014). Furthermore, cash transfers may contribute significantly to food security especially for those who are economically active as they have additional sources of income (Taylor, 2015; World Bank 2015; UNHABITAT, 2014).

Evidence is mixed for the effects of cash programmes and food consumption. Brazil's health and nutrition conditional cash transfer (CCT) programme Bolsa Alimentacao in 2001, provided eligible households with a monthly cash transfer on condition that they complied with various compulsory programme activities (Taylor, 2015). The programme was targeted at pregnant women, breastfeeding mothers with children below six months (Veras *et al*., 2007; Bassett, 2008; World Bank, 2015). Yamauchi (2005) studies reflected positive link between nutrition and school performance. Children on school feeding scheme performed better and attended the school more than their counterparts who were not receiving feeding scheme. They progressed to higher classes better than those who were not on school nutrition (World Bank, 2015; Taylor, 2015; Fiszbein & Schady, 2009). The main argument with regard to conditional or unconditional cash transfers is that no government appreciates high dependency by social grant recipients on fiscus, as this results in unnecessary budgetary demands for government prioritisation (Ferro *et al*., 2010).

There are a number of studies that seem to collaborate the significance of social grants on food security at household level (World Bank, 2015; 2008; Stats SA, 2015; Ndobo, 2013). However, a study by Grobler (2015b) revealed that the existing grant allocations might not be sufficient to alleviate food insecurity significantly. This is purely because in South Africa, social grant is the main source of household income in 45.7 percent of households (Stats SA, 2015; Grobler, 2015).

2.6 SOCIAL SECURITY STATUS IN SOUTH AFRICA

South Africa is regarded as a semi industrialised and middle income country. It has a well-respected constitution as its compass of governance and morality (RSA Constitution, 1996; World Bank, 2015; Stats SA, 2015). Global economy performance contributes to the general outlook of the South African economy in a number of ways. As an international player, with open borders, South African has been subjected to international external shocks (World Bank, 2015; Stats SA, 2015).

For the South African economy to achieve its desired objective, a desired growth path of 5 percent is necessary (National Treasury & SARS, 2015). External global factors have made this objective unattainable. Rampant labour strikes and deficiency in electricity supply nearly crippled the South African economy in the year 2010 to 2014 (World Bank, 2015; Stats SA, 2015). In 2016, the economy is expected to grow only by 0.9 percent, and remain weak, reaching 2 percent in 2017. As a result of slow growth, resources are limited and responsible choices are thus made in allocating those limited resources (National Treasury & SARS, 2015).

South Africa is credited for having a well-established social grant system in Africa (SASSA, 2015; National Treasury & SARS, 2015). In 2014/2015, about 16 million people, or 31% of the population, received a social grant (National Treasury & SARS, 2015), compared to 2.5 million beneficiaries in 1998. Social grants are considered as playing a crucial buffer role on cash trapped or unemployed South Africans (Subbarao *et al*., 1997: Grobler & Dunga, 2015a).

2.6.1 Types of Social Security adopted in South Africa

South Africa has embraced two forms of social security. These are social insurance and social assistance (SASSA, 2015). Social assistance is a system funded by the state and instrumental for sustaining the livelihood of the aged, disabled and the young citizens It is solely financed entirely from government revenue (Agarwals & Drinkwater, 1972; Allen & Bowley, 1955; Jolly *et al*., 2008; Lund, 2006; Sampson *et al*., 2004; Duflo, 2003; Maitra & Ray, 2003; Case & Deaton, 1998). To qualify for the grant , It is premised on the ability of applicants to display their inability to support themselves (SASSA, 2015). The number of households dependent on social grants is estimated

at over 16,7 million (SASSA, 2015). This is a major shield of survival for the larger part of households, who normally would not have survived (Subbarao *et al*., 1997; Grobler & Dunga, 2015a; Ndobo & Sekhampu, 2013).

Social insurance usage is activated during period of loss of income (SASSA, 2015). Contribution to the fund is made by both employers and employees and is wage-related (SASSA, 2015; Treasury 2015). It is compulsory for members to contribute to social insurance whilst working (SASSA, 2015; Treasury 2015). The common forms of this insurance are Medical aid, Pension fund and Provident funds. There are various laws in the country governing the accessing of these funds (Treasury 2015).

2.6.2 Administration Social Grants in South Africa

It is the responsibility of the department of Social development (DSD) to set the rules for qualification of poor households for social assistance. The (DSD) sets the agenda and rules for disbursements of social grants (Department of Social Development, 2003; RSA Constitution, 1996). The Social Assistance Act in South Africa is the crucial piece of legislation to create harmony in distribution of social grants. The main objective of the Act to set, a fair assessment process for qualification and adjudication of new applicants. It also ensures a transparent disbursement process (Act No. 13 of 2004) (Department of Social Development, 2003; RSA Constitution, 1996)

Table 2.1: Percentage of households and persons in South Africa who benefited from social grants (2003 to 2013)

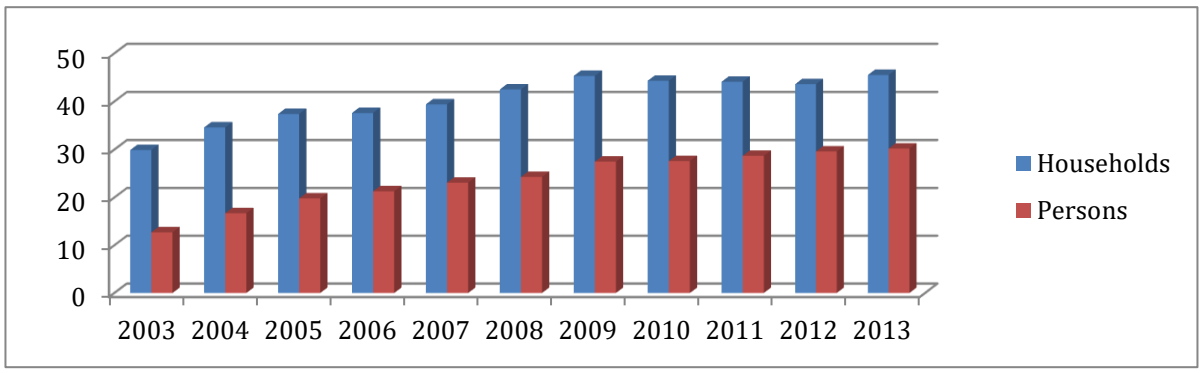
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Households	29.9	34.6	37.4	37.6	39.4	42.5	45.3	44.3	44.1	43.6	45.5
Persons	12.7	16.7	19.8	21.3	23.1	24.3	27.5	27.6	28.7	29.6	30.2

Source: Stats SA, (2015).

From the table above it shows an increase in social grants recipients by households from 29 percent in 2003 to 46 percent in 2013. The pattern is the same for individual recipients. There has been a steady growth of individuals from 13 percent in 2003 to 30.2 percent in 2013. The graph (Figure

2.1) below depicts this gradual increase in grant disbursements.

Figure 2.1: Percentage of households and persons in South Africa who benefited from social grants (2003 to 2013)



Source: Stats SA, (2015).

Table 2.2: Distribution of Social grants in South Africa

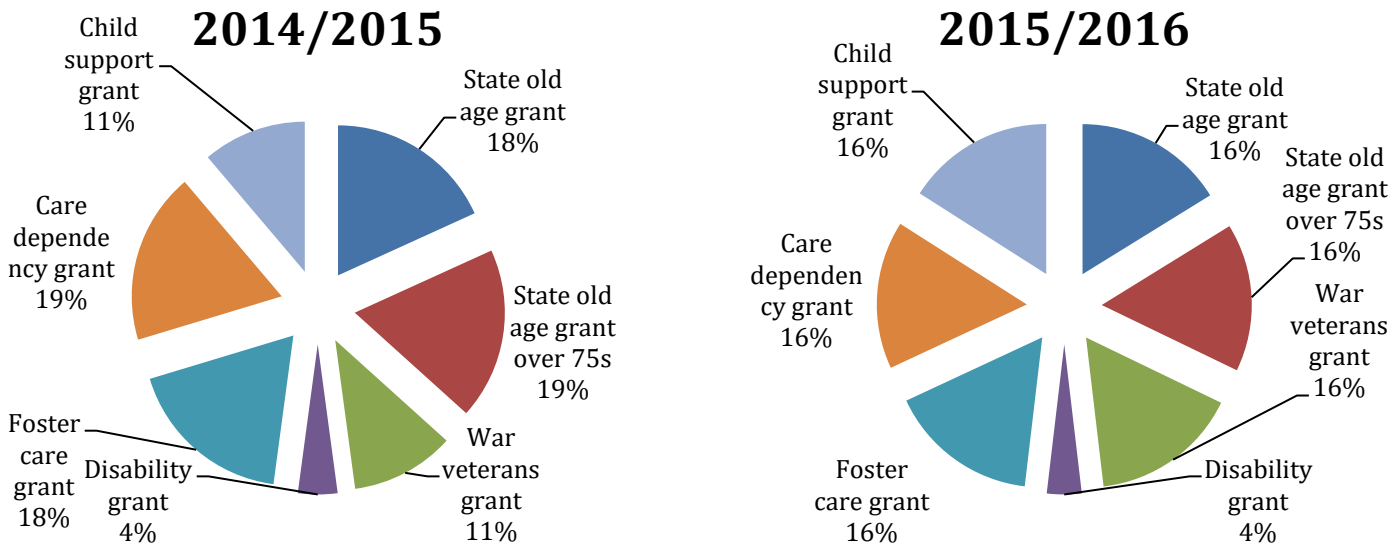
Grants/Year	2014/2015	2015/2016	% Change
State old age grant	R1, 350	R1, 430	5.93
State old age grant, over 75s	R1, 370	R1, 410	2.92
War veterans grant	R830	R, 1,410	69.88
Disability grant	R315	R330	4.76
Foster care grant	R1, 350	R1, 430	5.93
Care dependency grant	R1, 370	R1, 410	2.92
Child support grant	R830	R1, 410	69.88

Source: National Treasury & SARS, (2015)

Table 2.2: Distribution of Social grants in South Africa shows types of social grants palliative benefits put in place by the South African government to cushion the effects of the income inequality in the society. The table shows the distribution of the grants among types of social grants for periods between 2014/2015 to 2015 /2016. From the table, it can be deduced that state old age grant increased by 5.93 percent, state old age grant, over 75 years of age and care dependency grant

rise by 2.92 percent each. Also, war veteran grant and child support grant shifted positively by 69.88 percent each, while, disability grants and foster care grant increased by 4.76 percent and 5.93 percent respectively. The results above reveal that all the grants types increased in the nominal value in 2015/2016 when compared to the preceding financial year of 2014/2015.

Figure 2.2: Social grants distribution by types in South Africa



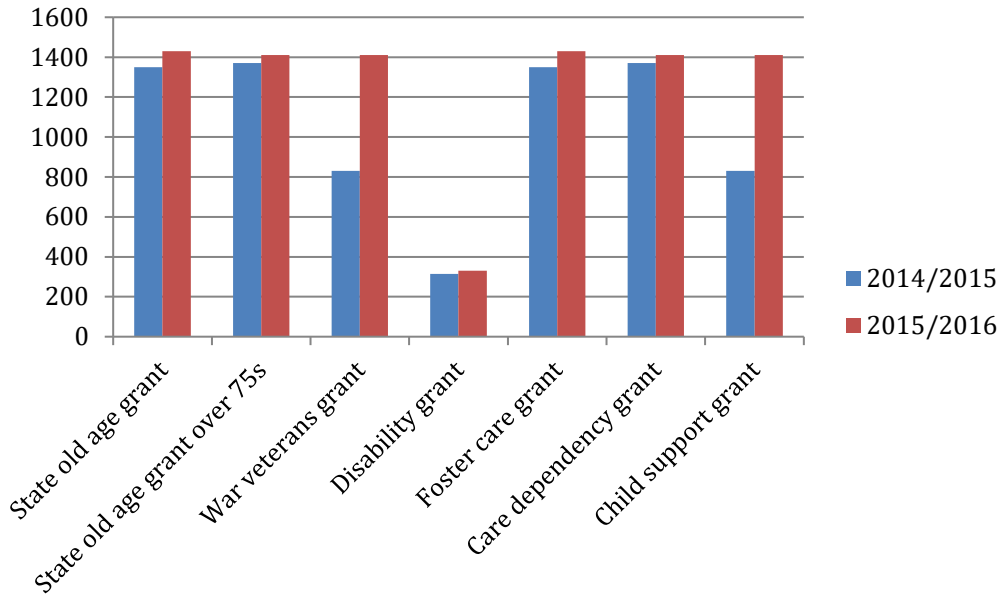
Source: SASSA, (2014

Figure 2.2: Social grants distribution by types in South Africa depicts the distribution of social grants by types in South Africa for 2014/2015 and 2015/2016 financial years. In 2014/2015, the care dependency grant and state old age grant over 75 years took the large share of the total social grants with 19 percent each. While, state old age grant and foster care grant had 18 percent of the total social grants but child support grant and war veteran grant had 11 percent each of the total social grants. The disability grant took the lowest share of 4 percent in 2014/2015 financial years.

In 2015/2016, the social grants distribution took the equilibrium dimension in terms of shares in the total social grants. The child support grant, care dependency grant, foster care grant, state old age grant, state old age grant over 75 years and war veterans grants had 16 percent each of the total

share of the individual social grants, while disability grant had 4 percent of the individual social grant and the lowest in the financial year.

Figure 2.3: Social grants change in South Africa



Source: Stats SA, (2015

Figure 2.3: Social grants change in South Africa shows the changes in the social grants types in 2014/2015 and 2015/2016.

Figure 2.3: Social grants change in South Africa depicts that state old age grant increased from R1350 in 2014/2015 to R1430 in 2015/2016, also states that old age grant over 75 years rose from R1370 in 2014/2015 to R1410 in 2015/2016. The trend of increment continues with war veterans' grant of R830 in 2014/2015 to R1410 in 2015/2016 and disability grant followed same suite of rise in 2014/2015 from R315 to R330 in 2015/2016. The foster care grant stood at R1350 in 2014/2015 but rise to R1430 in 2015/2016 and Figure 2.2 also reveals that care dependency grant rose from

R1370 2014/2015 to R1410 in 2015/2016. The child support grant had massive increase from R830 2014/2015 to R1410 in 2015/2016.

From **Figure 2.3: Social grants change in South Africa**, it can be deduced that child support grant and war veterans' grant had the highest percentage increase of about 70 percent in the 2015/2016 financial year when compared to the preceding year of 2014/2015 and other social grants (SASSA, 2015).

Table 2.3: Number of Social Grants by Type and Region as of 28/02/2013

Provinces	Old Age Grant	War Veteran Grant	Disability Grant	Grant In Aid	Foster Child Grant	Care Dependency Grant	Child Support Grant	Total
ECP	507,573	75	184,459	9,261	115,133	18,264	1,841,399	2,677,164
FSP	171,320	8	86,522	1,185	40,118	5,835	633,776	948,754
GAU	422,265	148	123,880	1,609	57,826	15,630	1,573,790	2,195,148
KZN	589,547	86	313,946	29,079	134,024	35,875	2,751,183	3,853,740
LIM	394,150	47	88,784	11,044	56,909	11,782	1,581,874	2,144,590
MPU	226,558	28	81,211	2,832	34,594	8,566	1,048,041	1,401,830
NCP	216,524	19	86,296	4,043	41,832	8,278	748,365	1,1401,907
NWP	74,604	17	49,319	4,180	13,885	4,435	275,935	422,475
WCP	260,029	161	153,047	9,534	28,310	10,729	859,765	1,321,575
Total	2,862,570	589	1,168,464	72,767	522,181	119,383	11,314,128	16,060,083

Source: National Treasury, (2015).

Eastern Cape Province (40.44%) is the largest province claiming social grants followed by Limpopo (38.87%), KwaZulu-Natal (36.85%) and Northern Cape Province (36.32%). Northern Cape Province (at 36, 32% and Gauteng (17.25%), on the other hand, has the lowest number of grant claimants.

Table 2.4: Proportion of the Population claiming grants by Region

	ECP	FST	GAU	KZN	LIM	MPU	NCP	NWP	WCP	South Africa
Male	3,118,215	1,332,826	6,432,053	4,974,281	2,583,572	2,022,885	574,162	1,827,662	2,957,614	25,823,270
Female	3,501,922	1,420,316	6,296,385	5,482,627	2,934,395	2,105,085	588,752	1,769,928	3,059,312	27,158,721
Total Population	6,620,137	2,753,142	12,728,438	10,456,907	5,517,968	4,127,970	1,162,914	3,597,589	6,016,926	52,981,991
Grants Claimed	2,677,167	938,754	2,195,148	3,853,740	2,144,590	1,401,830	422,375	1,104,907	1,321,575	16,060,083
% of Population claiming Grants	40.445	34.09%	17.25%	36.85%	38.87%	33.96%	36.32%	30.71%	21.96%	30.31%

Source: National Treasury Report, (2015).

Table 2.5**: Social Grant Expenditure as a percentage of GDP 2009/10 – 2015/16** (below) illustrates patterns of spending on social grants has consistently increased over time.

Table 2.5: Social Grant Expenditure as a percentage of GDP 2009/10 – 2015/16

R Million	2009/10	2011/11	2011/12	Revised Estimates 2012/13	Medium Term Estimates 2013/14	2014/15	2015/16
Social Grants Transfer	79,260	87,493	95,962	104,239	113,007	121,482	129,493
SASSA Administration	5,550	5,313	5,358	5,848	6,683	6,961	7,160
Total	84,810	92,806	101,320	110,087	119,690	128,443	136,653
As percentage of GDP	3.4%	3.4%	3.4%	3.4%	3.4%	3.3%	3.2%

Source: National Treasury, (2015).

2.6.3 Impact of Social grants on Livelihood in South Africa

The social grants as a dependence tool for the majority of households without income has continued to be a source of livelihood (low income groups) to jump over the barriers of economic social exclusion (Hassim, 2005). Grants have thus played a crucial role in assisting poor households who had absolutely no other sources of income to survive. The trend is that social grants have played a significant role in also elevating access to education and health outcomes in South Africa (Samson *et al.*, 2008).

Samson *et al.*, (2008) study reflects general improvement in children wellbeing due to child grants. He found them were well-targeted and effective instruments for child support. McEwen *et al*., (2009) indicate that social grant could play a key role in elevating many households from the poverty. In most instances, the majority of households who are unemployed survive solely on social grants (Samson *et al.*, 2008).

Understandably, the major recipients of child grants (96%) (Van der Berg, 2006; Quinn, 2009). This accords power to women on contributing to raising their children. It equally allows them to participate in decision-making relating to the welfare of the children (Eyal & Woolard, 2011; CSDA, 2015; Ndobo & Sekhampu, 2013). Also important to note the findings by United Nations Children's Fund (UNICEF), reflecting the positive spin off of child grants. It reflects the important role attributed to grant on school attendance (UNHABITAT, 2014). The same report displayed significant benefits that prevented unwelcomed adolescence behaviour (Taylor, 2013; Eyal & Woolard, 2011; CSDA, 2015; World Bank, 2015). It attributed reduction in gang violence, and reduction in alcohol consumption as benefits of child grants.

In the same vain some few enrolees of social grants like old age grants continue to be actively employed despite their eligibility for old age. And, there are quite number of negative impacts associated with the receipts of the social grants on the society (Eyal & Woolard, 2011; CSDA, 2015; World Bank, 2015).

2.7 CONCLUSION

The survey of the theoretical literature on institutional aspects of social security schemes and the review of practical experiences in European countries with these institutions provide the following lessons for setting up social security.

- There is no need for developing countries to follow the same historical pattern of of progression of its system as the European countries did. Ahmad (2009) states that the three stages in the implementation of European social security systems are misleading if used as a guide to policy. The history of European welfare states, learns that the development of social security systems is not linear and thus the direction of the developments, for example towards insurance- dominated systems or redistribution-dominated systems, depends on many political, economic and social circumstances. This applies also to the development of the two social security concepts that can be distinguished in Europe: there is no need for other countries to develop similar systems.

- Social security systems should be customised to specific social structure and properties of the market in the country. There exists no uniform blueprint for an optimal system of social security.
- Social security systems may exhibit both elements of the insurance and redistribution concept. The priority should be the protection of poor households. The insurance component also ensures the protection of households during period of emergencies.
- The redistribution inherent to social security systems is bound to reduce income inequality to some extent. Despite anecdotal concerns that child grants promotes child bearing, there has been no scientific results that support this view. On the contrary social grants have been widely applauded as having assisted numerous households on the brink of complete vulnerability (Kennedy & Haddad, 2004).

The following chapter explores the link between social grants and food security.

CHAPTER 3: THEORETICAL LINKAGES BETWEEN SOCIAL SECURITY, SOCIAL GRANTS AND FOOD SECURITY

3.1 INTRODUCTION

Social security systems have been established and evolved through time to provide essential respite in times of dire need and a cushion against utter destitution. Hunger and food security have been elevated in the recent summits and debates internationally (Du Toit, 2011: 56; FAO, 1999; FAO, 2015). The Constitution of South Africa (RSA Constitution, 1996) endorses the right to food for all households. This right alone does not guarantee that all households easily access food in their homes. This challenge is compounded by continued increase in transport cost. The difficulty in food access triggers other challenges like malnourished children and adults consuming food with inadequate nutritional standards. Long-term malnourished children usually suffer from decreased physical structure (bone formation) and poor immune system (RSA Constitution, 1996; UNHABITAT, 2015; FAO, 2015).

South Africa food access score continues to deteriorate**.** (Du Toit, 2011: 123). The recent survey by Statics South Africa revealed rising levels of inadequate and severe food insecurity to an estimated level of 20 percent (STATS SA, 2015: 56; FAO, 1999). The country had set itself the overarching goal of reducing poverty by half between 2004 and 2015 as well as implementing the South African Constitution recommendation of access for all households (MDG Goals, 2004; FAO, 2015). To assist in the attainment of this goal the South African government through the Department of Agriculture, had embarked on a drive to reduce food insecurity (DoA, 2002; Hart, 2009). Despite the non-achievement of the MDG goals in 2015, the South African government has now revised these goals and set new target for an improved food security status further.

This chapter therefore explores the literature on food security and also incorporates the current statistics of food security levels in South Africa.

3.2 UNDERSTANDING THE DEFINITION OF FOOD SECURITY

Between 2009 and 2011, the exposure and availability to food by households varied considerably

(John-Langba, 2012). According to Smith *et al.,* "[N]ational food security is defined within the context of national food self-reliance. It entails that a country is able to produce and distribute adequate food that is needed by all its citizens" (Smith *et al*., 1992). Worldwide, have experienced a consistent shift of emphasis in understanding food security from "(1) the global and national level to the household and individual level, (2) from a food first perspective to a livelihood perspective and (3) from objective indicators to subjective perspective." (Sekhampu, 2015; Grobler & Dunga, 2015; Grobler, 2014; Grobler, 2013; Manyamba *et al*., 2012; Van der Berg, 2006; Du Toit, 2011).

The North West, Eastern Cape and Mpumalanga provinces have displayed significant levels of vulnerabilities to food. The estimated food insecurities in these Provinces were 33%, 25% and 26%, respectively (John-Langba, 2012). In establishing the National food security of a country, the method of estimation employed is by using the equal balance production and consumption trends. Despite concerted effort by government to assist households to lift their food security status to new and better heights, disparities continue to exist along racial lines (Ndhleve & Obi, 2011).

Food security is a multifaceted and a complex concept that encompasses consistency of supply and the quality of the food delivered (Evans 2009; Sekhampu, 2015, Grobler, 2015). Despite food surpluses that are experienced in other parts worlds, developing country continue to bear the brunt of food insecurities (FAO, 2015). Escalated food production in one region does not automatically increase access to food by society's poorer groups. Large sections of society are food insecure because of restricted access to food, rather than the availability of food - a very important difference that policy makers might find misleading (FAO, 2015; World Bank, 2015). Alternatively and rather simplistically it could mean the availability of food to survive but not having food to sustain a healthy life that comprises sufficient nutrients. There is a general focus on food availability whilst paying lip service on the nutritional value and quality of the food made available to households for consumption (Van der Berg, 2006; Deitchler *et al*., 2010; FAO, 2015). *"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." (FAO, 1996 World Summit)*

Food security has been a critical issue in the current regime of high food prices globally (Del Ninno, *et al*., 2003:123; Van der Berg, 2006). The international price hikes experienced in 2008 on rice,

initiated a spiralling effect on international food prices. This impact was made worse by the international price of oil in the global markets. Against this backdrop, it became evident that there is a need to understand the food security situation in South Africa and its determinants since the food price is one of the most dominant factors in determining food security of households (Heady & Fan, 2008; World Bank, 2015; FAO, 2015; Van der Berg, 2006; Kemp *et al*., 2011; Oldewage-Theron *et al*., 2006). An often-confusing issue is that food availability is synonymous with food access. Availability of food when applied strictly does not guarantee access because other mitigatory factors needs to be relooked at as well. These mitigatory factors include policies set by government, market frameworks, and business support has a decided impact as well. In the final analysis all these factors have significant effect on food security at a household level (Devereux & Sabates-Wheeler, 2004; Battersby, 2011).

Inequality challenges experienced in South Africa further exacerbates challenges of food insecurity to a limited extent (Labadarios *et al.,* 2008; Van der Berg, 2006). Researchers and scholars alike have canvassed the importance of using cash transfers or some form of social assistance in bridging the gap. Social assistance therefore could play an important redistributive tool. This could accelerate the process via taxation of collecting revenue from the wealthy to lift the standard of living of the poor households**,** to cushion them from food security challenges (Kemp *et al*., 2011; Oldewage-Theron, *et al*., 2006; Van der Berg, 2006). Concurrently a growing and developing economy could play a crucial role in harnessing people into employment and thus promoting independence. (Devereux, 2009; Altman, *et al*, 2009; Quinn, 2009).

3.3 OVERVIEW OF FOOD SECURITY

A food insecurity phase varies from extreme low level to high impact level. The two terms often associated with food insecurity either chronic or transitory in terms of experience. The distinction between these two terms is that chronic food insecurity is experienced when prevalence of food insecurity continues over a protracted period while transitory food insecurity occurrence is for rather shorter period (Mitiku *et al*., 2012; Bogale & Shimelis, 2009; Obamiro *et al*., 2003; Sekhampu, 2013), gender of the head of the household (Joshni & Maharjan, 2011; Knueppel *et al*., 2009; Horell & Krishnan, 2007; Mutuonotzo, 2006; Amaza *et al*., 2006). The extent of food insecurity can vary within households as well as between households (FAO, 2009; FAO 2015). Chronically food

insecure households are the most impacted by shocks in the economy, and their coping strategies are normally limited (Hart, 2008; Battersby, 2011, Hampwaye, 2008; May & Rogerson, 1995).

Although countries have experienced a downward trend in terms of food security at a national level (Labadarios *et al.*, 2008:103), there is more fluctuation into and out by poorer households. Household's hunger status oscillates from lower to higher levels of during a year (Labadarios *et al.*, 2008). Household hunger status is not static and at times depends on the level of family support to cushion the family (Sekhampu and Ndobo, 2013)

3.3.1 What Is Food Security?

The varying definitions of food security, its manifestation usually vary by experience either household or community (FAO, 2015). Others ascribe more weight in understanding food security to nutritional value of the food. On the other hand food insecurity is often used with reference to household or individual levels (SADHS, 2003; 2008; FAO, 2015). Researchers usually restrict their formulation of the term food insecurity to manifestations of quantity (not enough food) and a narrower view of quality (food low in nutrients and cheaply produced) when they discuss the possible health consequences thereof for a specific population. When viewing food security in this format, community issues of health are neglected. Even implications of food security on health system are avoided. In this chapter, an attempt has been made to elucidate the specific uses of the term to avoid uncertainty. Food insecurity is essentially connected to the structure of food systems (World Bank, 2015).

Although Gentilini identified about two hundred and five definitions of Food Security and Smith, Pointing and Maxwell counted about two hundred different definitions, this thesis shall refer to the most commonly accepted definition that was approved by the 1996 World Food Summit (WFS) and remains one of the important achievements of the meeting (Gentilini, 2002; Smith *et al.*, 2003).

3.2.2 Food Insecurity

A specific interpretation of what food insecurity comprises, distinguishes between two specific possibilities regarding food, namely the short production and delivery on one hand or, deficient

quality based on norms and standards, of the particular community (Battersby, 2011; Hampwaye, 2008; May & Rogerson, 1995). Throughout the years people who concerned themselves with the phenomenon of food insecurity, have shifted the emphasis of what is regarded as food insecurity with the result that the definition of food insecurity has evolved considerably (Maxwell & Smith, 1992:115; Battersby, 2011; Hampwaye, 2008; May & Rogerson, 1995).

During the mid-1970s a worldwide food crisis was experienced that prompted discussions about international food problems and it was with these discussions that the concept of food security was born (FAO, 2014; Battersby, 2012). Two aspects of basic foodstuffs' supply problems, namely guaranteed availability and to some extent variability at international as well as national levels, initially drew attention (WFP: white paper, 2009). When conference was held, focus was placed on the supply of food to households and also on households' experience of restriction in the delivery of food (John Shaw, 2007; Bailey, 2013; Baird *et al*., 2010; Gitter, 2010; Gentilini, 2007; Shisana *et al*., 2013; Battersby, 2012).

The redefinition therefore focused more on understanding the dynamics beyond the control of households particularly hunger and famine. These are challenges particularly experienced by households from low and underdeveloped countries (Rogerson, 1995; Thornton, 1998; Webb, 1996; Du Toit, 2011; Battersby, 2012). The 1986 conference on the other hand, focused on introducing the widely accepted distinction between chronic food insecurity (normally caused by low income, or retrenchments) and transitory food insecurity (normally caused by disaster). This resulted in the redefinition of food security on continuous access to food of nutritional standard (FAO/WHO, 2008; Van der Berg, 2006).

The period of the nineties, food security was elevated as a burning platform at a global platform, which spanned the varying continuum of national to a lower individual level. The broader definition was adopted to include elements of sufficient food (combining elements of protein-energy). The definition was broadened to take into cognisance serious health concerns. This then encompassed nutritional value and the type of food consumed focussing more on protein rich foods (Lokosang *et al.*, 2011; Battersby, 2012).

3.3.3 Highlights of Food Insecurity areas in South Africa

According to the study by SANHANES, the following could be extracted:

- Levels of food insecurity in South African cities have increased considerable.
- The study found national prevalence of household at risk of hunger to be 28 % and those experiencing hunger to be at 26 %.
- The equivalent figure of those experiencing hunger and who are in urban areas is 36 % and those at risk of hunger is 32 %.
- This food insecurity is characterised by low dietary diversity and poor malnutrition.
- Household frequently adopt mitigating and coping strategies mostly in the short term for survival.

The high prevalence of urban food insecurity is not a new phenomenon. In their 2009 report, Altman *et al*. (2009) analysed the 2007, General Household Survey highlighted, and a number of generally very hungry people resided in urban centres. Generally 30 % of these households lived in Johannesburg, Ekurhuleni and surprisingly Cape Town. However, some 90 % of Cape Town dwellers are urbanised, meaning therefore close to 294 120 households in Cape Town are food insecure, compared to 44 118 of their rural counterparts (Shisana *et al*., 2013; UNHABITAT, 2014). SANHANES has provided large-scale evidence of high prevalence of food insecurity in urban areas (UNHABITAT, 2014).

3.3.4 The consequences of food insecurity

At a very broad level the consequences can be categorised into three tiers.

3.3.4.1 Hunger

The immediate effect on the individual is discomfort, lack of concentration and an overall sense of weakness (Ndobo & Sekhampu, 2013). The debilitating impact is an incapacitation of the individual. The negative consequence of this felt particularly in the job market. It could be expected that unhealthy and hungry employees are poorly productive and contribute less to full production

(Ndobo and Sekhampu, 2013; FAO, 2015). Equally important to note is that they are prone to other diseases. The persistence of hunger is detrimental to livelihood and inhibits economic progress (Ndobo and Sekhampu, 2003; Battersby, 2011, Hampwaye, 2008; May & Rogerson, 1995).

3.3.4.2 Vulnerability

Food insecurity and vulnerability are inextricable linked to other diseases that contribute to ill health. These households are often booked off due to stress associated with food uncertainty. Their children often perform badly at school (Battersby, 2012; Moser, 1998).

The South African government, in its post 1994 interventions, adopted a School Nutrition programme to promote children school participation and to reduce the impact of this vulnerability. A study by Hamelin et al. (1999) highlighted that this vulnerability to could easily encourage or promote other unintended social crimes associated with uncertainty (Hart, 2009). Stress and uncertainty in turn develop resistance to eating in the long term with its unhealthy connection, The risks associated with these in the long term promotes food insecurity and unhealthy eating (European Commission, 2006; USAID, 1992; Battersby, 2012; Moser, 1998; Tawodzera, 2011).

3.3.4.3 Malnutrition

Malnutrition has been associated with extreme forms of poverty, a situation most prevalent in the low-income households of South Africa (Bello, 2009; Ndobo & Sekhampu, 2013). The European Commission (2009:11; World Bank, 2015) presents two recorded forms of malnutrition: mild and chronic malnutrition. The chronic and extreme form of malnutrition is a serious form. `it is exhibited by mostly children with poor diet. This is the most form of acute malnutrition it hampers the child normal growth and human development. It hinders participation in most forms of her development. Children are underweight for his age and usually, lead to high mortality risk (World Bank, 2015). When the impact of nutritional deficiency is broken down by its effect on the various age groups its gravity is cause for alarm (World Bank, 2015).

3.3.5 Unborn and new-born babies

Under-nutrition in the pre-natal often results in reduced growth and low birth weight (<2500g). The mother's health status, nutrition during pregnancy, stress levels all contribute significantly to the health of the baby during birth (Ndobo & Sekhampu, 2013; Taylor, 2015; Shisana, *et al*. 2013).

3.3.6 Infants and young children

Breastfeeding of babies normally contributes greatly to healthy babies. In cases where a mother is HIV positive, mothers are normally advised against breastfeeding in order to prevent mother to child transmission. In some cases mothers opt for milk formula instead of breastfeeding (Ndobo & Sekhampu, 2013; FAO, 2015).

3.3.7 School-age children and youth

Malnutrition is less common in children in this age group because (Ndobo & Sekhampu; 2013):

- They have devised strong coping mechanism to resist infections.
- They can express in words when they are hungry and they can seek for food.
- They have adapted considerably in consuming low nutrient food without experiencing emergency threats.

3.3.8 Adults

Women are at great risk during pregnancies to loss of iron deficiency. This has an effect of increasing chances of them being deemed malnourished. This situation is compounded by mothers exposed to HIV and AIDS infection, which could often lead to poor appetite (FAO, 2015; Ndobo & Sekhampu; 2013; FAO, 2015)

3.3.9 The aged

Old Aged people are at the mercy of the receiving support from their relatives to provide nutritious food. It often happens that this support is lacking, and could impact on the quality of food consumed

by the elderly. (Ndobo & Sekhampu, 2013; Anderson, 1990:128; Battersby, 2011; Hampwaye, 2008; May & Rogerson, 1995). The old people are therefore at risk of being anaemic, if caregivers do not properly monitor their dietary feeding patterns.

3.4 FOOD SECURITY AT NATIONAL LEVEL

The definition of food security is considered as the situation of self-sustenance and internal production.in this instance the broader community participate in the production, the manufacture of nutritionally, sustainable food for national survival (Grobler, 2015; Faber & Wenhold, 2007; World Bank, 2015; Van der Berg, 2006; Du Toit, 2009). The following points below are considered critical in understanding this phenomenon:

- Production and Supply side of food to households;
- The quality supply side of food in terms of nutrients and the quality of food. (Anderson, 1990:128; Battersby, 2011; Hampwaye, 2008; May & Rogerson, 1995). Several other indicators impacts considerable in understanding other indicators and its manifestations. Most of indicators identified are those associated with poor standard and poor access to amenities for decent living (Du Toit *et al*., 2011; FAO, 2015). In this research study, the focus is on food security at the household level.

3.4.1 Food security at the community level

Community food security is recognised when the broader community is self-sufficient in its access of nutritious food, through the proper retail network (Anderson, 1990; Radimer, *et al*., 1992). The key theme is the respect of cultural norms for delivery and access of food to the broader community. As is the case at National level indicators, community level indicators are many and vary widely:

- The spatial spread is considered crucial as a gauge to determine the ease of access to community amenities and transport**;**
- The cultural norms prevalent in that community;
- The income as well as the educational level of the community.

Surprisingly these indicators are perceived critical in promoting the participation of communities and the tools used for its farming. This further stipulates the markets that will be accessed by the community to present its produce (Radimer *et al.*, 2009, FAO, 2015).

3.4.2 Food security at the household level

The international consensus regarding food security of households is the availability of food that people have access to in their homes (Grobler, 2015; Radimer *et al*., 1990; FAO, 2015). Therefore, when a household is said to be able to sustain itself with food, such a household is deemed to be food-secure (Grobler, 2015; Radimer *et al*., 1990; FAO, 2015). The following levels of food security of every household can be distinguished:

- High food security denotes relative ease of access to food without regular fear or panic about the next meal.
- Marginal food security (defined as the household having concerns about their next meal and often in a panic mode);
- Low food security (the nutritional value of food consumed is less whilst the quantity of eating schedule and pattern is still the same. This could be caused by a new coping strategy aligned to a shock in the family spending patterns.
- Very low food security (This a dire situation often impacted by loss of income. In this instance, both the spending pattern and quality of food is negatively impacted and downgraded) (FAO, 2003; FAO, 2015; Anderson, 1990:128; Battersby, 2011, Hampwaye, 2008; May & Rogerson, 1995).

Various other socio-economic factors are crucial elements in explaining the food security status including the household's location, i.e. whether it is situated in a rural or an urban community, the size of the household, the source and income status of the household, the occupants' health and the employment status of the breadwinner(s) (Grobler, 2015). These factors are determined by yet another set of influences such proximity or lack thereof to useful amenities, the type of settlement (formal or informal) in which it is situated, the health and education status of the household's breadwinner and whether the parents in the household are both alive or not (World Bank, 2015; Grobler, 2015; Sekhampu, 2013).

3.4.3 Understanding South Africa's food security Status

The study by DBSA has highlighted that only 1.3 million Black African have access to farming land as a form of production (DBSA, 2015). This therefore means that the majority rely on purchasing food from retail shops for survival (Faber & Wenhold, 2007:102; FAO, 2015; Grobler, 2015). Most White farmers (9%) engage in crop production to supplement their livelihood and maintain their families. Only (3%) of farmers solely depend on farming as their sole source of income (McLachlan & Thorne, 2009; Mudimu, 1997; Mbiba, 1995; Atkinson, 1994; Drakakis-Smith 1994; Briggs, 1991; Grobler, 2015). The long-held belief that urban households are relatively food secure than their rural counterparts has exposed the recent negative experiences of urban food insecurity in developing countries, also South Africa. The SANHANES findings reflect that, the highest food insecurity risk was in urban informal areas (36%), while only 32% were in rural areas (Shisana *et al.*, 2013).

Despite the failure by nations to achieve the Millennium Development goals target that was set for 2015, improvement is evident however small particularly in certain low-income neighbourhoods (FAO, 2015; Grobler, 2015). The 2014 Global Food Security Index (GFSI) has alluded to this positive progress within every area, however, slow. Despite these positive interventions by governments, household food insecurity remains a challenge (World Bank, 2012; SASSA, 2013). There is a vast amount of literature on the problems of measuring food security in South Africa (Sekhampu, 2013; Pauw & Mncube, 2007; Brockerhoff, 2013; Grobler 2015). In South Africa, the urban population increased from 19.15 million in 1990 to 30.86 million in 2010, and forecasts suggest that this figure will increase to 38.20 million by 2030 (UNHABITAT, 2014). The analysis done by Bond and Desai (2012) highlights rampant food insecurity impacted by rural migration to cities. According to their findings, urban poverty increased from 1993-2008,partly because of households looking for greener pastures in the city. The other fact highlighted was significant attention placed by government on rural poor at the expense of urban poor households. As Leibbrandt *et al.* also alluded to rising urban food insecurity whilst rural food insecurity remained unchanged (Leibbrandt *et al.*, 2010: 36; Shisana *et al*., 2013). In other words, the resultant effect is increased urbanisation and an artificial decline in poverty levels (Bond & Desai 2012; Stats SA, 2015; Ndobo & Sekhampu, 2013; Grobler, 2015; Battersby, 2011; Quinn, 2009).

3.4.4 Household food security targets and measurements

The Millennium Development goals were previously set at reducing poverty by 50% between 2004 and 2015, however this target was not achieved despite various attempts by government to reduce the food security challenge at a national level (MDG Goals, 2009). Central to the attainment of the set goals was household food security. Households normally adopt various creative and coping strategies to meet their consumption needs (Hart *et al.*, 2009; Ndobo & Sekhampu, 2013; Grobler, 2015, Battersby, 2011; Quinn, 2009). This creates challenges in the measurement of food security interventions and the monitoring process. Policy interventions equally become daunting as households interventions vary from one household to the other (Deitchler *et al*., 2010; Grobler, 2015).

According to Jacobs (2009) the achievement of set food standards and norms depends on two factors, namely indicators of food security and the measurement thereof. Indicators of food security can be divided into three categories, each with its own strengths and limitations. The categories are the following:

- Indicators of food availability targeting national food provision with very little attention paid to the nutritional status of individuals;
- Indicators that places emphasis on the monetary value of food but limited attention to anthropometric measurements; and
- Placing limited weights on the components of the index.

Regarding the measurement of food security, Hoddinot (1999) identified the following three broad approaches:

3.4.4.1 Household Dietary Diversity (HDDS)

Grobler, (2015) explains that the Household Dietary Diversity Score (HDDS) of households measures the food combination over a period of time (Hodditt & Yohannes, 2002). It measures the) food groups consumed in the last 24 hours to 36 hours (FAO, 2007: Sekhampu, 2013. The scale measure on a continuum from zero to 12, where 12 indicates completes dietary diversity and

zero indicates no dietary diversity (Ndobo & Sekhampu, 2013; Grobler, 2015, Battersby, 2011; Quinn, 2009). The dietary diversity questionnaire tracks different food groups and their compositions, at consumption basket. It assumes that the consumption of different types of food promotes satisfactory food nutrients for a healthy living (Ndobo, 2013; Grobler, 2015).

Households with normally varied dietary diversity choices are normally perceived to better food secure (Ndobo, 2013). Households consuming different variety of foods normally derive better health status. It also encompasses different food groupings that are essential for healthy living (Sekhampu, 2015; Ndobo, 2013).

3.4.4.2 Household Coping Strategies Index (HCSI)

The coping Strategy Index measures creative survival techniques. It aims at determining how families survive under pressing circumstances without starving themselves to death (Mudimu, 1997). It usually includes short-term techniques and highlights the copy strategies adopted by the person responsible for providing food. Maxwell (1996a: 295) cited various coping mechanism adopted by different households, like reducing the portion consumed, eating foods that are less preferred, skipping meals and borrowing money (Mudimu, 1997; Mbiba, 1995; Atkinson, 1994; Drakakis-Smith 1994; Briggs, 1991). There are various anecdotal coping strategies adopted in most households in Gauteng, these varies from allowing the Head of the Household to eat more, thereby giving him more energy and incentive to gather for other members of the household. Other strategies involve belonging to Stokvel society in order to increase the household disposable income (Ndobo and Sekhampu, 2013; Grobler, 2015, Battersby, 2011; Quinn, 2009).

3.4.4.3 Household Food Insecurity Access Scale (HFIAS)

HFIAS (Ndobo and Sekhampu, 2013; Grobler, 2015, Battersby, 2011) was developed by the Food and Nutrition Technical Assistance (FANTA) programme of the Food and Agriculture Organization (FAO). *et al*. Swindale & Bilinsky, (2006) believe that the pressure to develop the tool was precipitated by inconsistent food measuring tools. The HFIAS is therefore an important measure of food insecurity. The objective is to have a tool that could be used across nations and regions to consistently measure food security (Sekhampu, 2013; Grobler, 2015). The HFIAS measure the nine

items that encircles access to sufficient food. These nine items measure food security levels. It determines and measures frequency of experience over a 30-day period (Grobler, 2015). The HFIAS covers the following three experiences associated with food insecurity (Swindale & Bilinsky, 2006). These three areas determines uncertainty about food, limited supply of food and limited quality of food consumed

A study by Mohammad *et al.* (2011) indicated, "[T] he HFIAS method produces accurate results because of its internal consistency, criterion validity and reliability for analysing household food insecurity."

3.5 FOOD SECURITY CHALLENGES IN SOUTH AFRICA

The Department of Agriculture report (DoA, 2012) published the integrated food security strategy for South Africa. According to this report, five key areas can be considered as food security challenges in the country:

- **Inadequate Safety Nets**

  Households living in urban areas with little income are often challenged with limited access to support structures prevalent in rural areas. They are thus unable to have additional cash to act as a buffer in times of emergencies. Generally urban households have no additional income to support the extended family social structure (DoA, 2012).

- **Weak Support Networks and Disaster Management Systems**

  In 2015, South Africa was exposed to severe drought, and the response mechanism was generally poor. This typifies the challenges that both rural and urban households are subjected to, which impacts negatively on food security (Battersby, 2012; Quinn, 2009). The South African government intervention mechanism is not geared for very quick intervention during periods of flooding and during drought periods. In these circumstances, households are forced to fend for themselves (DBSA, 2015; Ndobo and Sekhampu, 2013).

- **Inadequate and Unstable Household Food Production**

  Household production is normally at subsistence level and unable to feed the entire household family size. Government assistance is often a major source of income for these households (Ndobo and Sekhampu, 2013; Grobler, 2015).

- **Lack of purchasing power**

  The fluctuations in the South African economy have exposed the majority of households to a lot of vulnerabilities and uncertainties. Most households have limited extra cash to spare for necessities due to global economy pressures impacting negatively on the domestic economy (Ndobo & Sekhampu, 2013; Grobler, 2015, Battersby, 2011; Quinn, 2009).

- **Poor Nutritional Status**

  The South African constitution guarantees all its citizens to access to food (DoA 2002; FAO, 2015; RSA Constitution, 1996). However, the application of this noble call is frustrated by various policy implementation challenges. The majority of households depend on social grants as their sole source of income, and thus putting a strain on the quality of food intake.

3.5.1 Rural and Urban consumption patterns

In South Africa, after 1994, urban areas experienced unprecedented increase of households, seeking greener pastures in cities. Recorded statistics highlighted a growth estimated from 52% in 1990 to 62% in 2011moving into urban areas during that period (SAIRR, 2011). The cause of this rise is the result of people believing that are far wider opportunities available for them to explore in urban areas. These are perceiver as sufficient for a higher satisfactory standard compared to their current rural existence (Shisana*, et al*, 2013; UNHABITAT, 2014). The major threat is the cost of living in urban areas, which is estimated at some 30% higher than in rural areas, whilst households are exposed to limited economic opportunities. The ability, therefore for urban households to stagnate further is high (SAIRR, 2011; UNHABITAT, 2014).

Several studies in the 1990s anticipated this shift in focus, including food security. They estimated this shift would be driven by urbanisation, as poor households from rural areas may experience the ever-increasing economic and demographic challenges associated with urbanisation (De Haan, 1997; Moser, 1996; UNICEF, 1994; Van der Berg, 2006). In South Africa, food insecurity is recognised as being an increasingly urban phenomenon (Battersby, 2011, Hampwaye, 2008; May & Rogerson, 1995). In this regard, the urban population in South Africa is predicted to grow from 30.8 million in 2010 to 38.1 million in 2030 (UNHABITAT, 2015). This predicted rapid rate of urbanisation is expected to create several challenges for policy makers, given that rapid urbanisation gives rise to demographic and economic challenges, which typically lead to increased levels of food insecurity (Ravallion, 2002; Grobler, 2015). The absence of safety nets found in rural areas, such as agricultural land, means that many food-insecure households in urban areas will need to rely increasingly on government social-security programmes, especially social grants (Frayne *et al*., 2010).

Rapid urbanization creates demographic and economic challenges, leading to urban food insecurity (Ravallion, 2002; Grobler, 2015; Van der Berg, 2006, Du Toit, 2009; Hoyos & Meveden, 2009; Adato & Basset, 2012; Grobler, 2015). This might call for a different response as was previously developed for rural areas, for example farming at a large scale. Several studies found that income levels, household structure and geographic access are crucial in explaining in food security at household level (Davis *et al*., 1983; Arene & Anyaeji, 2010; Tawodzera, 2011; Grobler, 2015).

3.5.2 Determinants of Household Food Insecurity

While income is perceived as the main driver of food insecurity in urban areas, it is not the sole reason in urban areas.

- Household Income

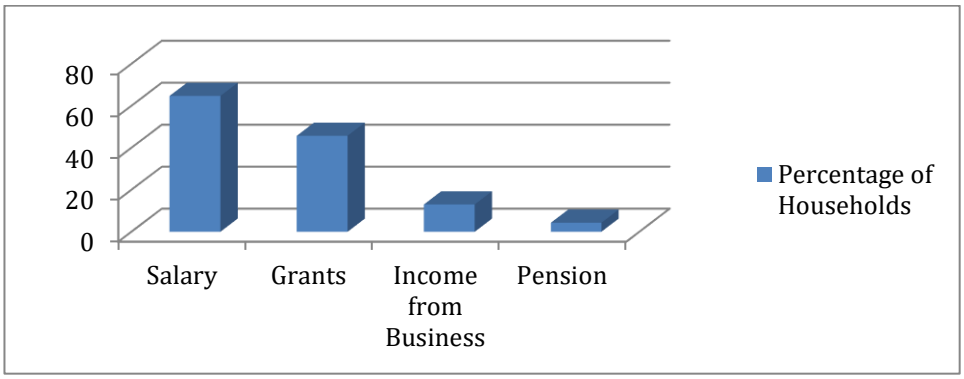
  Urban households are more reliant on market access than is the case of their rural counterparts, who have access to their informal gardens, also for survival. A good income therefore provides them with better choices for better retail outlets, quality brands and quantity. Income plays a crucial role for food security (Van der Berg, 2006; Tacoli *et al*., 2013;

Ndobo & Sekhampu, 2013, Battersby 2013; Grobler, 2015).

- Stability of Income

Income predictability, stability and reliability have proved as key indicators, also for food security. Household planning is crucial in order to devise consistent food security strategy. The Study by Cookie in Cape Town has highlighted the importance to acknowledge the significant role played by social grants, particularly the old age grants as an enabler of food security in South Africa (Cookie, 2012).

***Figure 3.1*: Households main source of income in South Africa, 2015**



Source: Stats SA, (2015).

In 2016, with approximately 16.7 million households receiving social grants, this becomes a critical source of income for poor households and their wider dependants (Du Toit & Neves, 2006).

- Stability of Food prices

Urban households depend largely on the acquisition of their purchases from retail outlets. The food prices thus play a critical role in stabilising food insecurity of these households. The poor households are more affected by fluctuation of food prices, since they place a huge burden of their income on these purchases. Food price inflation has long been cited as a

major contributor to food insecurity in South Africa, (Van der Berg, 2006; UNHABITAT, 2014). The impacts of food price increases are particularly burdensome for poor urban households (Hellberg *et al*., 2012).

- Geographical Access

The ease of access to retail outlets that are cheaper and affordable, impacts positively on food security status. The distance that one travels in order to reach a retail outlet, not only impacts the quality of food one can purchase, but it also influences the price that one will ultimately pay for the commodity (Zager, 2011). Research by SANHANES suggests that households living further away from retail outlets are normally characterised by food insecurity and poor food access (Shisana, *et al*., 2013).

3.6 HOW ARE FOOD SECURITY AND INSECURITY LEVELS MEASURES?

The extent of food insecurity in a household is regarded as lying somewhere along a continuum with varying degrees of food security (Hart *et al.*, 2009). This perceived range is estimated to oscillate along these four ranges as highlighted below:

- **High food security:** food is easily available, with no experienced panic about the next meal.
- **Marginal food security:** Households experience quality problem at times in terms of food nutrients whilst the quantity of supply is still maintained.
- **Low food security:** this is a worrisome period as the quality and quantity of food intake is interrupted. Households experience a reduced supply in terms of quality and quantity of food consumed.
- **Very low food security:** the situation has deteriorated to alarming levels owing to financial constraints, normally loss of income. Households experience drastic reduction in food intake during the year in terms of quality as well as quantity consumed (Swindale & Bilinsky, 2006: 117; UNHABITAT, 2014)

3.7 CONCLUSION

Explaining urban food security is rather diverse and therefore a complex phenomenon and is exacerbated by the fact that cities' contributions are normally not aligned to national intervention on environmental support and usually are out of proportion. This evolution of food security has highlighted the underlying complexities involved in the definition (Van der Berg, 2006). The acceptable redefinition of food security is that which World Food Summit (WFS) successfully adopted. This definition incorporated all elements of quality and quantity of supply coupled with nutritional value attached to it (FAO, 2015).

Food security challenges are much more prevalent in urban areas, than was previously suggested. What compounds the problem further, is that urban households are more reliant on market access than is the case for their rural counterparts, who have access to their informal gardens, also for survival. A good income therefore provides them with better choices for purchasing stores, brands and quantity. Income plays a crucial role for food security.

Income predictability, stability and reliability have proved as key indicators, also for food security. Household planning is crucial in order to devise food security strategy. In South Africa, social-security programmes have expanded exponentially since the advent of democracy. Since the first democratic election the number of beneficiaries has increased from 2.4 million to close to 16.7 million in 2016. The social grants included are the old age grant, war veteran's grant, disability grant, grant in aid, child support grant, foster child grant and care dependency grant. Recent research has confirmed the target approach attempted by social grants in reaching the poorest households seems to be succeeding. Despite these positive interventions, by SASSA and the department of Social development, the occurrence of urban food insecurity seems to persevere.

The next chapter presents the detailed background of the study area.

CHAPTER 4: BACKGROUND OF GEOGRAPHIC AREAS UNDER STUDY

4.1 INTRODUCTION

The South African Constitution guarantees access to social security and to social assistance for the majority of households with limited means to support their livelihood (RSA Constitution, 1996). This poses huge challenges and puts huge financial burden on the State to provide for its citizens. This has long term ramification for current and future citizens social security strategy, has to be sustainable (World Bank, 2015; USAID, 2014; UNHABITAT, 2015).

The consistent challenge placed on the economically active South Africans to look for better employment opportunities for survival (USAID, 2014 UNICEF, 1994). Equally there is a realization for government that the country cannot easily employ everyone. Social security has increased considerable since 1994 (SASSA, 2014). This has been attributed to serious government commitment since the new dispensation to improve roll out. Relative to its peers on social security system, South Africa ranks among the top five in Africa (Van der Berg, 2006; SASSA, 2015; Stats SA, 2015).

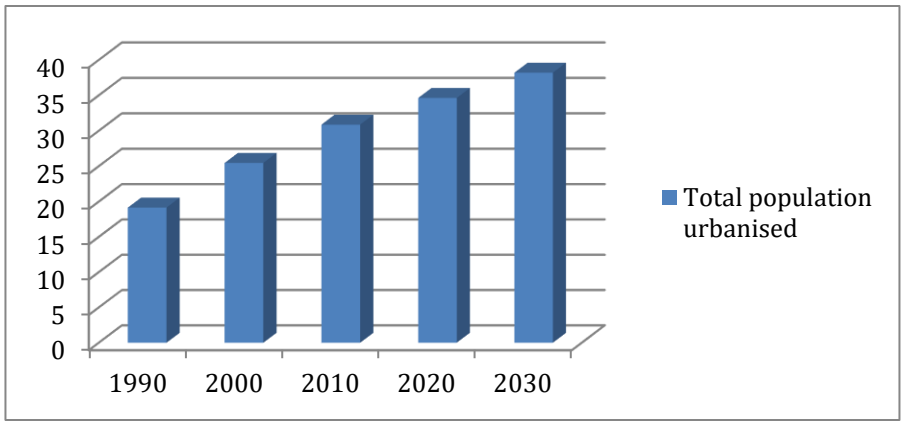
In South Africa, the urban population expanded from 19.15 million in 1990 to 30.86 million in 2010, and forecasts suggest that this figure will increase to 38.20 million by 2030 (UNHABITAT, 2014; Grobler, 2015).

Table 4.1: Actual and forecasted population urbanised in South Africa (1990 to 2030)

	1990	2000	2010	2020	2030
Total population urbanised (millions)	19.15	25.46	30.86	34.63	38.20
Percentage of population urbanised	52.0	56.8	61.5	65.9	69.8

Source: UNHABITAT, (2014).

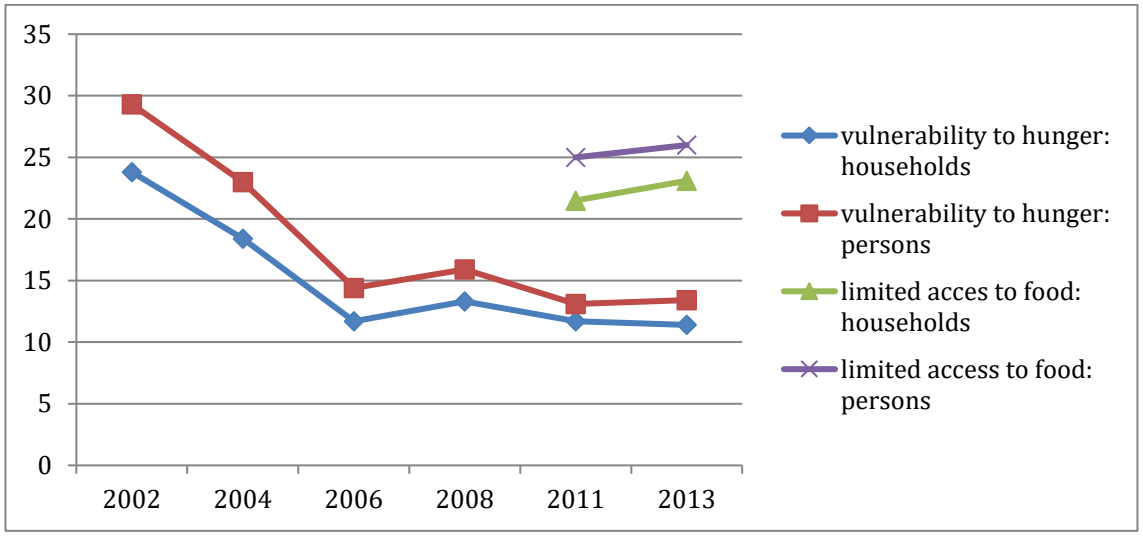
Figure 4.1: Actual and forecasted population urbanised in South Africa: Millions (1990-2030)



Source: UNHABITAT, (2014).

This suggests that in the future, more South Africans will reside in urban areas, than in rural areas, bringing more challenges for government response and policy formulation.

Figure 4.2: Percentage persons and households vulnerable to hunger and with limited access to food



Source: Stats SA, (2015).

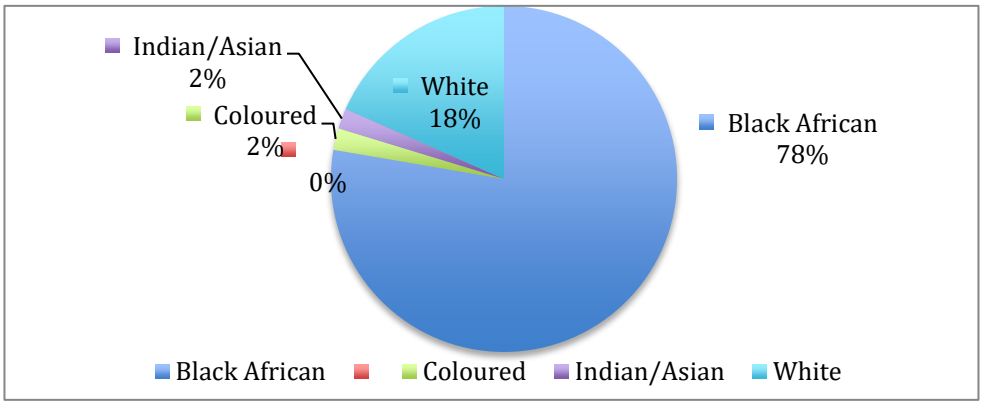
4.2 BACKGROUND TO THE STUDY

4.2.1 City of Tshwane

The City of Tshwane is the capital of South Africa. The city contributes 26.8 percent of the Gauteng GDP and contributes 9.4 percent to the national economy (Stats SA, 2014). Tshwane is the Capital of the City and is central to the government administration. The city's main economic sectors comprise of community services, government, finance and manufacturing. The largest sub-sectors within manufacturing are; metal products, machinery and household products. Tshwane has a well-established manufacturing sector, with the automotive industry being the most significant component. (STATS SA, 2015) (The map of City of Tswane and Ekurhuleni is attached as an Appendix B and C respectively).

It is estimated that The City of Tshwane has 2.9 million inhabitants, with Black African's representing 2,2 million people, White population estimated at 600 000 people. Thirty-seven percent of the population are classified as youths and 71.9 percent are classified as of working age (persons between the ages of 15-64) (Stats SA, 2014). Although the overall statistics for men and women is estimated to be more or less the same, job opportunities are afforded more to men than women (Global Insight, 2014).

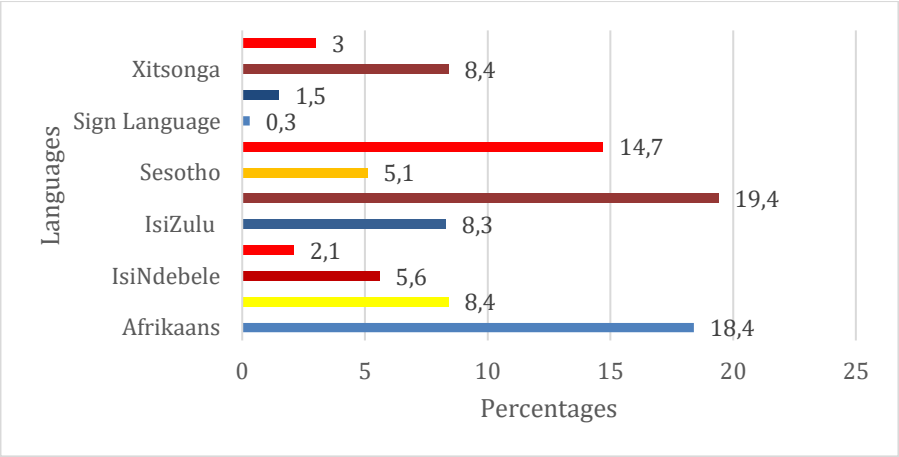
Figure 4.3: City of Tshwane: Demographic characteristics: Population by Race



Source: Global Insight, (2014).

There are many languages spoken in Tshwane with Sepedi (19.4%) being the most spoken, followed by Afrikaans (18.4 %) and Setswana (14.7 %).

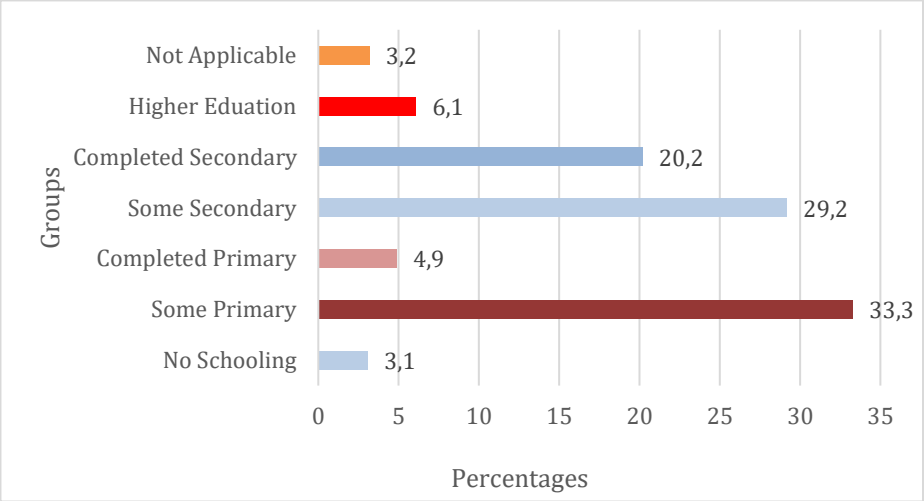
Figure 4.4: Languages



Source: Stats SA, (2011).

The 2011 Census estimates, 25 percent of the population in this region have achieved a matriculation certificate (Stats SA, 2011).

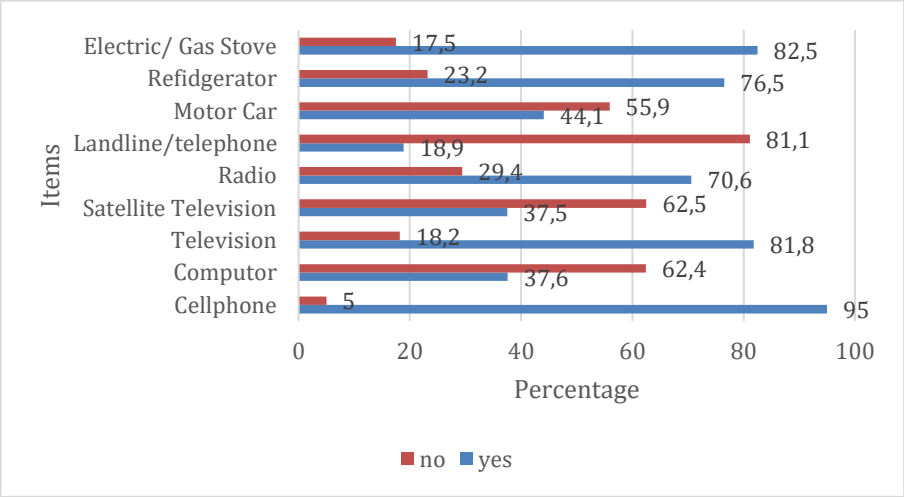
Figure 4.5: Highest Educational Level (All Ages)



Source: Stats SA, (2011).

The City has attracted a large number of estimated 89, 3 percent being urbanised. More than 75 percent of this household are living in formal homes and have access to electricity.

Figure 4.6: Household Goods

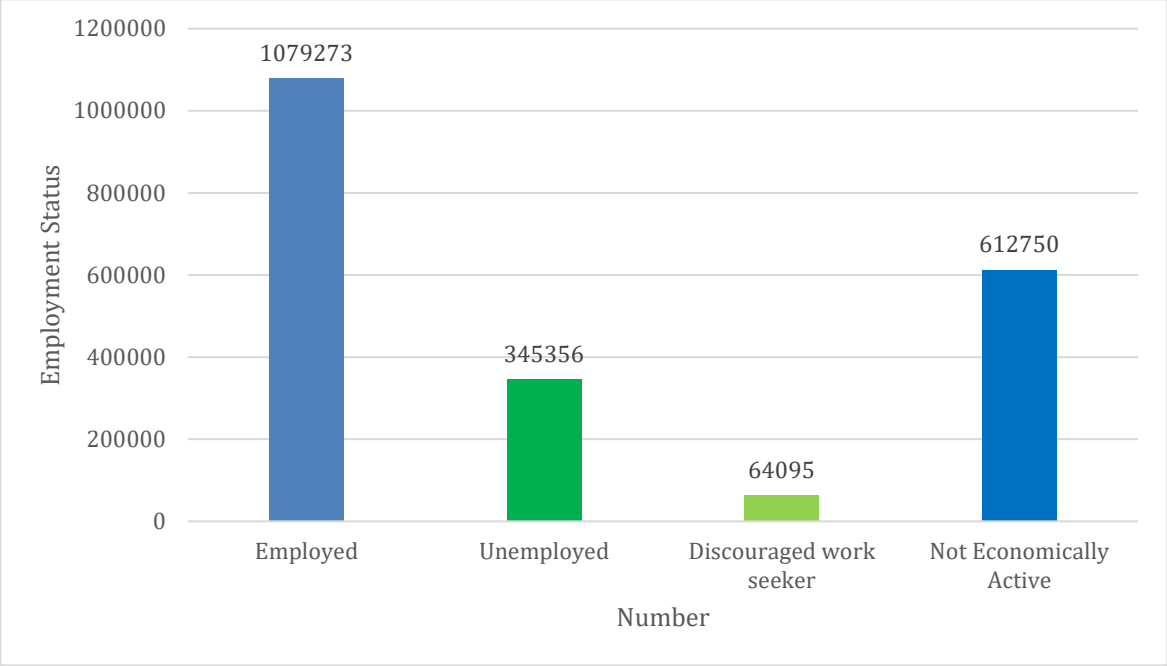


Source: Stats SA, (2011).

Seventy-two percent of Tshwane's population having access to electricity and 49 percent of families are able to access water delivered directly to their homes via pipes (Global Insight, 2014). Approximately 15 percent of households have no source of income and 46 percent of households earn an annual income of less the R 76, 401 (Stats SA, 2014; National Treasury, 2013).

The estimate income for household in the City is R60 642 with only 0, 65% of households in the City earning more than R457 600 per annum. Monthly income varies greatly and is impacted by the large number of seasonal workers (Stats SA, 2011, Stats SA, 2014; National Treasury, 2014).

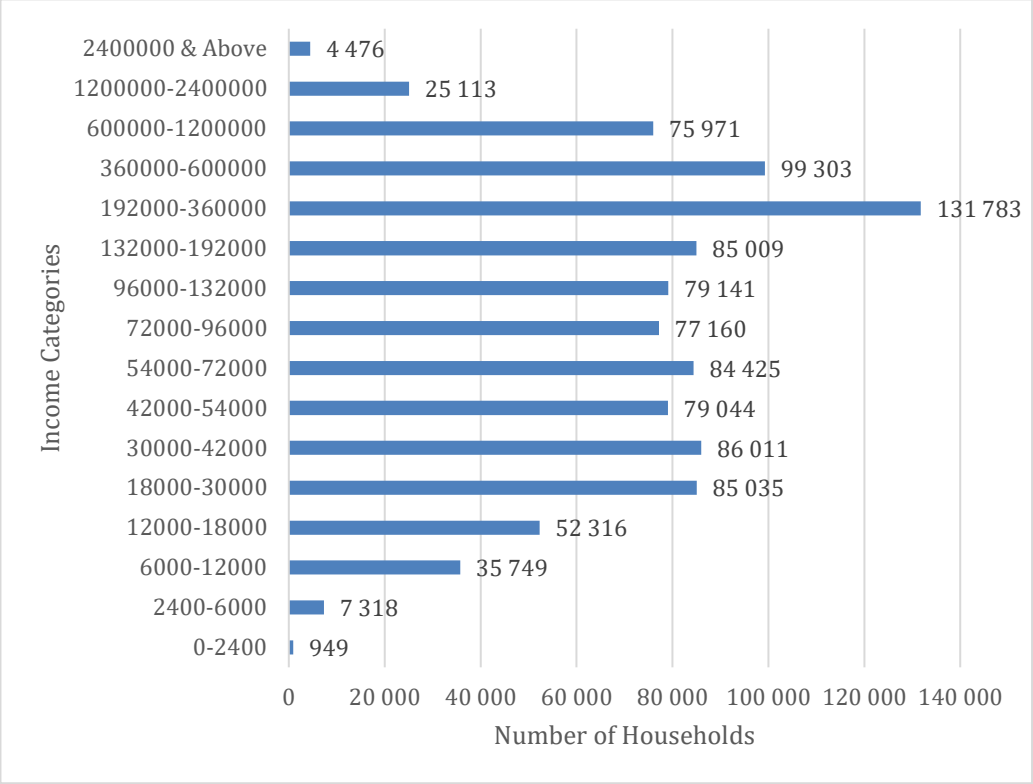
Figure 4.7: Employment for those aged 15-64



Source: Stats SA, (2011).

The City Of Tshwane has a vibrant, diverse and growing economy... With the presence of most government offices and the attractiveness of the Union Building to attract Embassies, this has steadily been the growing City (Global Insight, 2014; Stats SA, 2014). The City is endowed with the state of the art and concentration of automotive Original Equipment Manufacturers (OEMs) in the country (SARB, 2014)

Figure 4.8: Number of Households by Income Category



Source: Global Insight, (2014).

In City of Tshwane, Individual monthly income varies greatly with the minimum estimated at R400, whilst the majority of household income is centred on around R2500 (Stats SA, 2011; Stats SA, 2014; National Treasury, 2014).

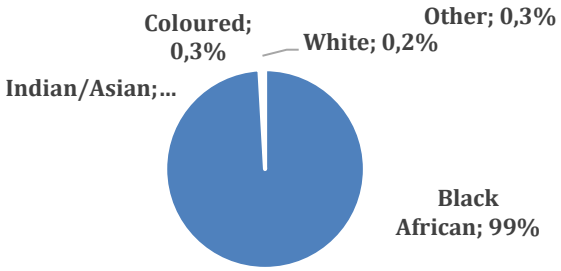
4.2.1.1 Atteridgeville

Atteridgeville, a part of the City of Tshwane Municipality, is situated west of Pretoria. It was founded in 1939 and initial suggested name was Mostemogolo (large township). It was eventually named after Mrs MP Atteridge. She was the chairperson of the City Council's Committee for Non-European Affairs at the time and undertook to improve the living conditions of black people who were living in

poor conditions at the time in Marabastad. There is a broad mix of people living in the township with the most commonly spoken languages being Sepedi, Sesotho and Setswana.

Atteridgeville has a population of 64 425 people, of which 22.6 percent are young (0 – 14 years), 72 percent are working age (15 – 64 years) and 5.4 percent are elderly (+65 years). There are 16 456 households in the area and the average household size is 3.7 people. 42.9 percent of these are households headed by females. The gender distribution is almost the same, with females making up 51.8 percent and males making up 48.2 percent of the population. The racial makeup of the township is made up of 99% Black Africans, 0.3 percent Coloureds, 0.2 percent Whites, 0.1 percent Indians/Asians and 0.3 percent others.

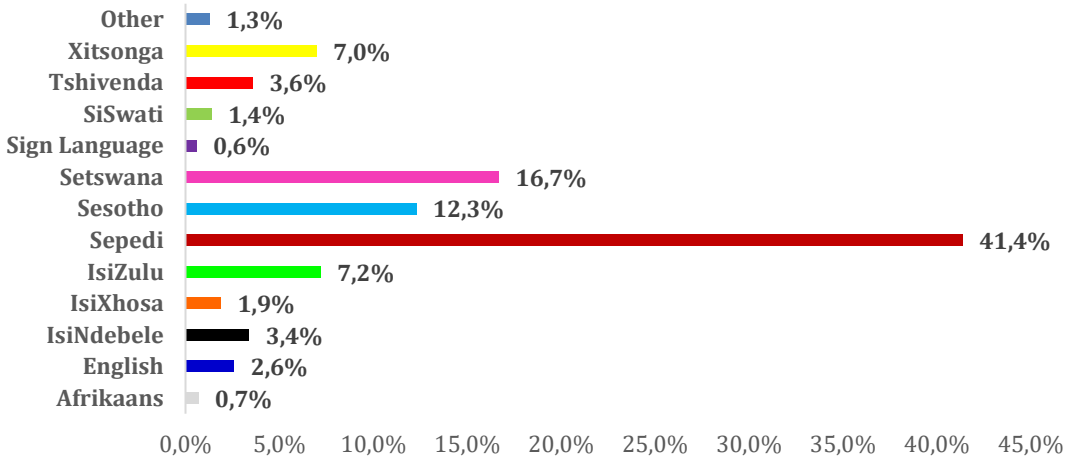
Figure 4.9: Population Groups



Source: Stats SA, (2011).

There is a broad mix of people living in the township with the most commonly spoken languages being Sepedi, Setswana and Sesotho.

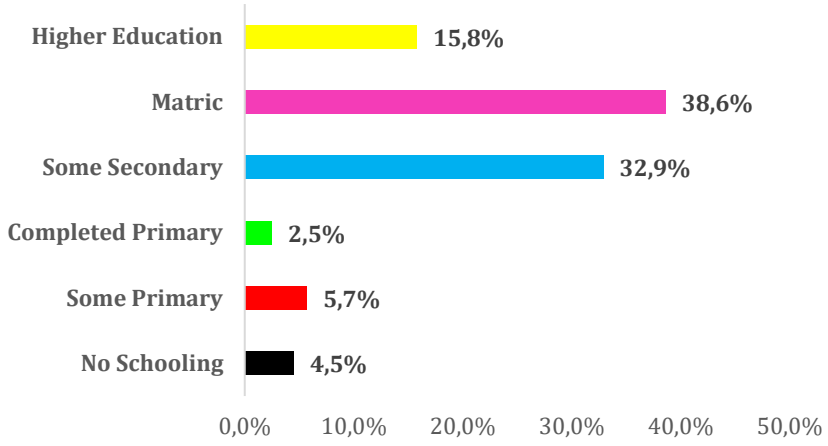
Figure 4.10: Languages



Source: Stats SA, (2011).

Very few members of this township have no schooling (4.5%). Most have passed Matric (38.6%) and have some secondary schooling (32.9%). Only 15.8 percent of the population has a higher education.

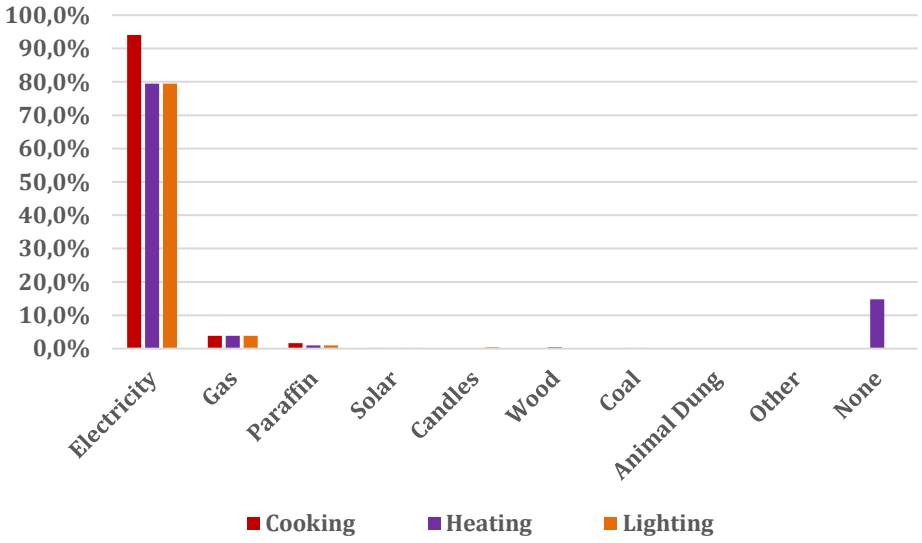
Figure 4.11: Highest Educational Level (All Ages)



Source: Stats SA, (2011).

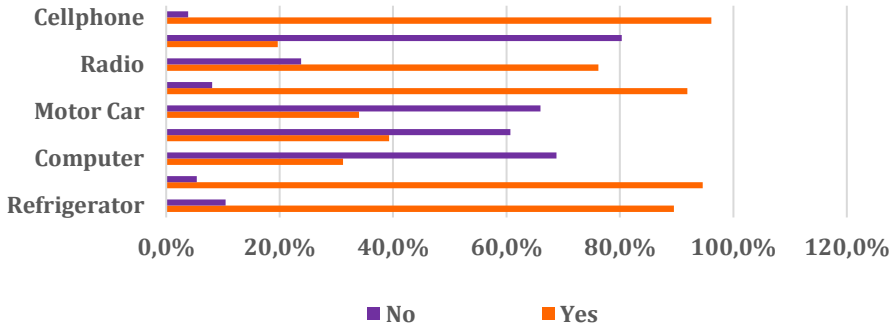
Atteridgeville is a 100 percent urban area with 92.6% residing in formal dwellings. With regards to hygiene and sanitation, 99.3 percent of the population have a flush toilet connected to sewerage, 96.1 percent have weekly refuse removal and 67.2 percent have piped water inside their dwellings. 98 percent of households also have electricity for lighting and 97.7 percent access their water from a regional/local water scheme.

Figure 4.12: Energy or Fuel for Cooking, Heating and Lighting



Source: Stats SA, (2011)

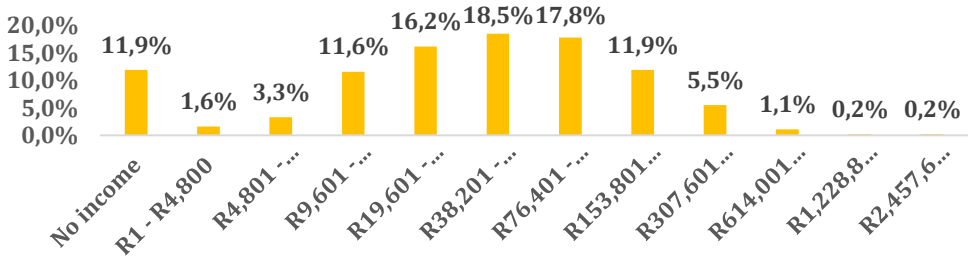
Figure 4.13: Household Goods



Source: Stats SA, (2011).

In terms of annual household income, 11.9 percent of households have no source of income. Meanwhile, the highest earning group at 18.5 percent earn between R38 201 and R76 400 per annum. Only 0.2 percent earns an income higher than R2 457 601.

Figure 4.14: Average Household Income



Stats SA, (2011).

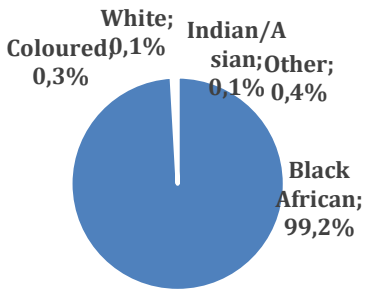
4.2.1.2 Soshanguve

Soshanguve, a part of the City of Tshwane Municipality, is Pretoria's largest township and situated about 25km north of Pretoria (Stats SA, 2014). It was established in 1974 during Apartheid when non-whites were evicted from suburbs and moved into separate settlements (City of Tshwane, 2014). This township contains a mix of people from a broad variety of ethnic groups. The name Soshanguve is derived from **So**tho, **Sha**ngaan, **Ngu**ni and **Ve**nda people. It was originally called Mabopane East but when in 1977 its counterpart, Mabopane West, was renamed Mabopane, it became Soshanguve (City of Tshwane, 2014).

Soshanguve has a population of 403 162 people, of which 27.5 percent are young (0 – 14 years), 69.4 percent are working age (15 – 64 years) and 3.1 percent are elderly (+65 years) (Stats SA, 2014). There are 106 057 households in the area and the average household size is 3.7 people. 37.5 percent of these are households headed by females. The gender distribution is almost the same, with females making up 50.7% and males making up 49.3 percent of the population. The racial makeup of the township is made up of 99.2 percent Black Africans, 0.3 percent Coloureds, 0.1 percent Whites, 0.1 percent Indians/Asians and 0.4 percent others (Global insight, 2014).

Soshanguve is a 100 percent urban area with 63.8 percent residing in formal dwellings. It exhibits both rural and urban characteristics, with a strong shack dwelling (Stats SA, 2014). With regards to hygiene and sanitation, 85.3 percent of the population have a flush toilet connected to sewerage, 87.1 percent have weekly refuse removal and 58.7 percent have piped water inside their dwellings. 91.9 percent of households also have electricity for lighting and 96.1 percent access their water from a regional/local water scheme.

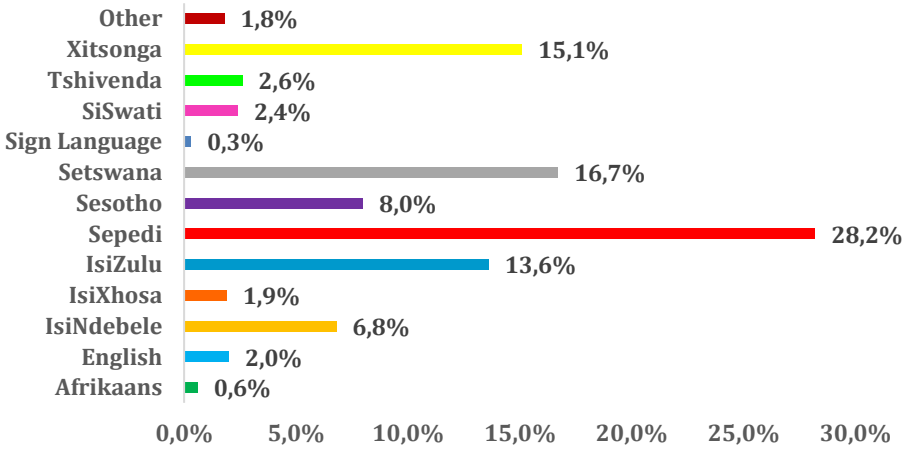
Figure 4.15: Demographic Characteristics: Population by Race



Source: Stats SA, (2014).

There are a variety of ethnic groups living in the township with the most commonly spoken languages being Sepedi (28.2%), Setswana (16.7%) and Xitsonga (15.1%).

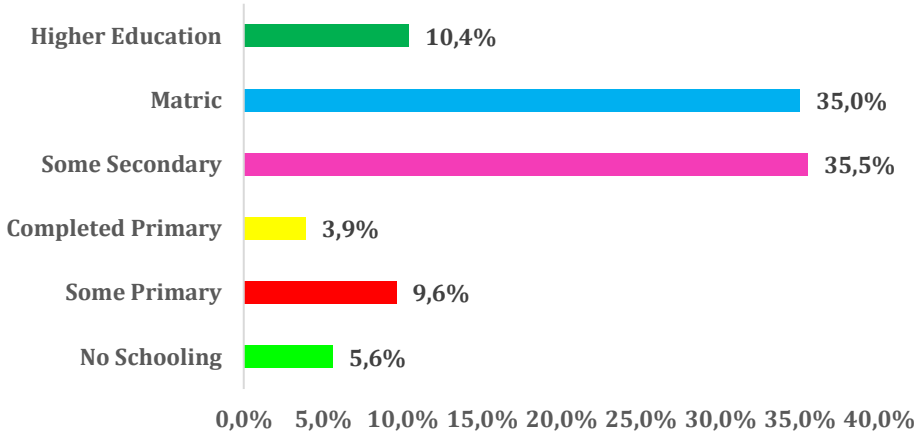
Figure 4.16: Languages



Source: Stats SA, (2011).

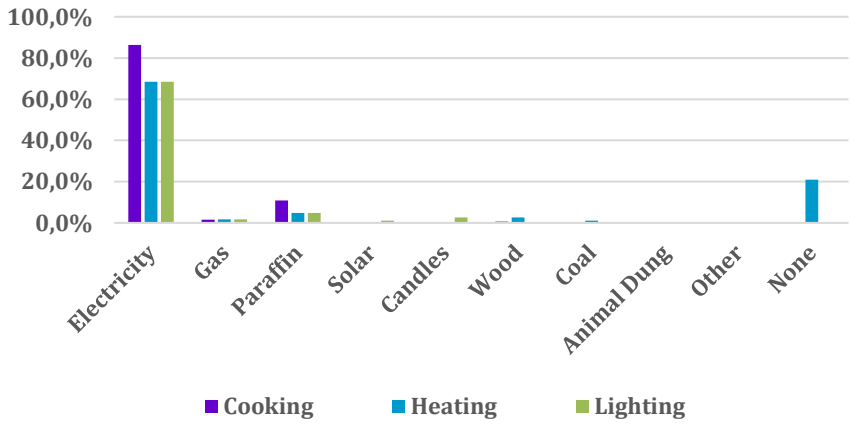
The lowest group of members in Soshanguve are those who have completed primary (3.9%), with 5.6 percent having no schooling whatsoever. Most have some secondary schooling (35.5%) and have passed Matric (35%). Only 10.4% of the population has a higher education.

Figure 4.17: Highest Education Level (All Ages)



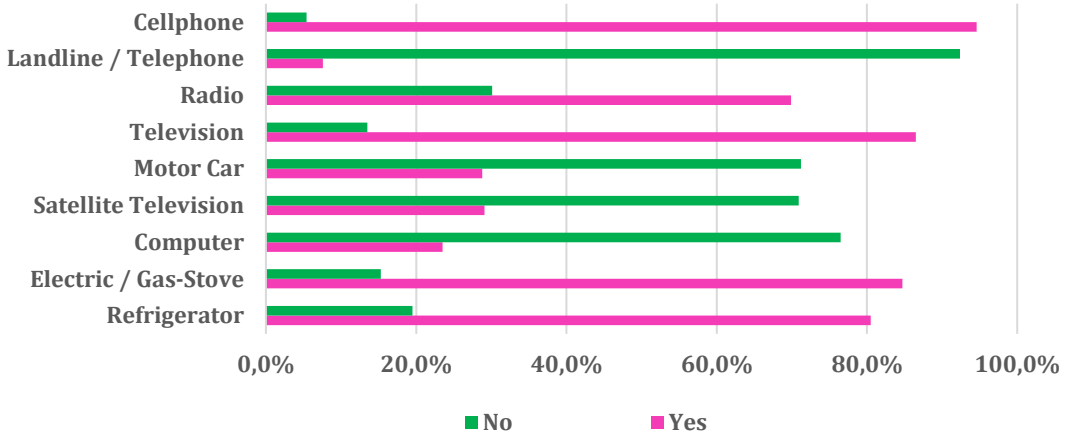
Source: Stats SA, (2011)

Figure 4.18: Energy or Fuel for Cooking, Heating and Lighting



Source: Stats SA, (2014).

Figure 4.19: Household Goods



Source: Stats SA, (2014).

In Soshanguve, 16.5 percent of households have no source of income. Meanwhile, the highest earning group at 18.5 percent earn between R19 601and R38 200 per annum. Only 0.1 percent earns an income higher than R2 457 601 (Stats SA, 2011).

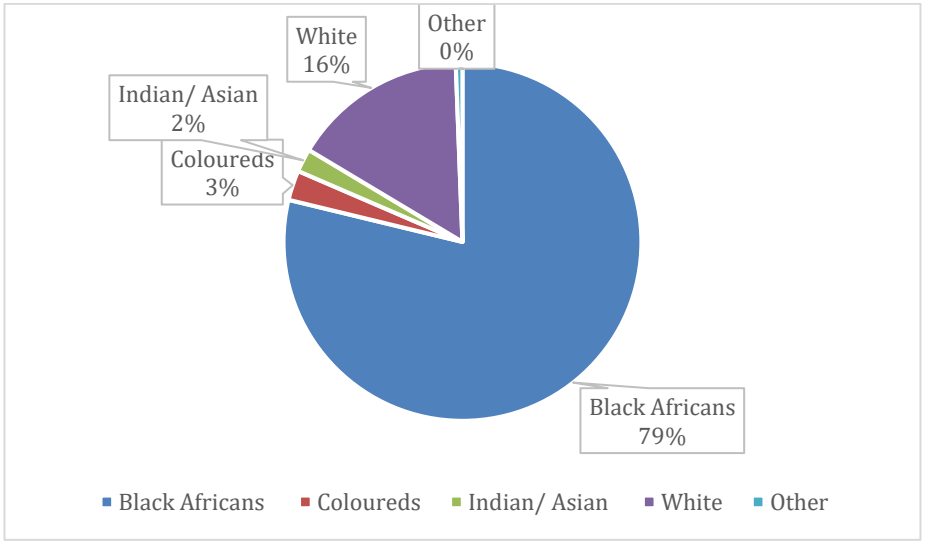
Figure 4.20: Average Household Income

Source: Stats SA, (2011).

4.2.2 City of Ekurhuleni

Ekurhuleni Metropolitan Municipality is located in the Kempton Park Area (Global Insight, 2014). Ekurhuleni is highly urbanised, with 99, 4 percent of the population living in urban settlements ranging from informal settlements to elite urban residential suburbs. Two prominent neighbourhoods also in Ekurhuleni are Katlehong and Thokoza (Stats SA, 2014). The close proximity to OR Tambo makes it a lucrative city for investment purposes (Global Insight, 2014). 79 percent of its population is Black, with White inhabitants at 16 percent.

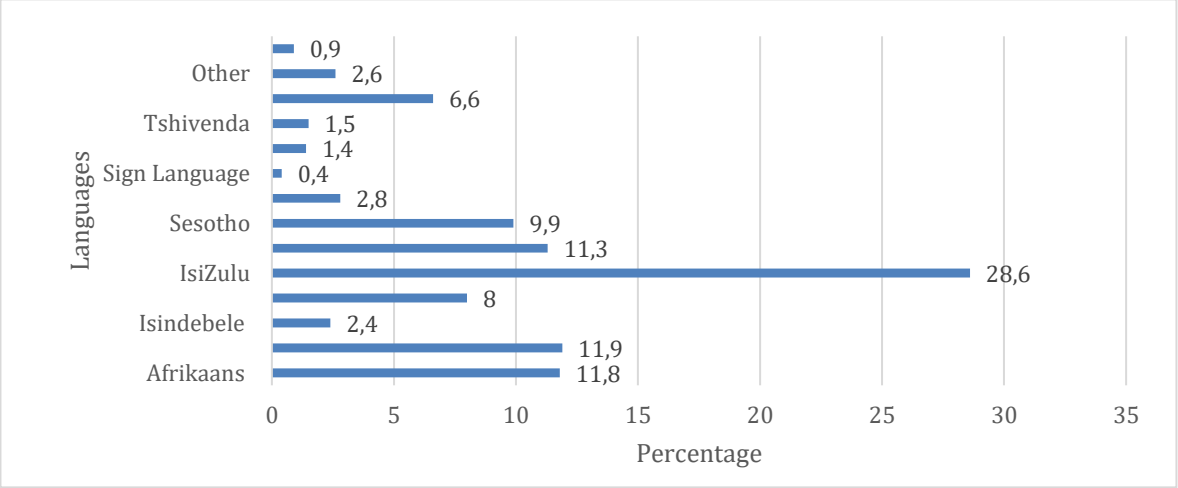
Figure 4.21: Population Groups



Source: Stats SA, (2011).

The most commonly spoken language in Ekurhuleni is IsiZulu, with 28, 6 percent of the population speaking this language. English, Afrikaans and Sepedi are the most commonly spoken languages after IsiZulu.

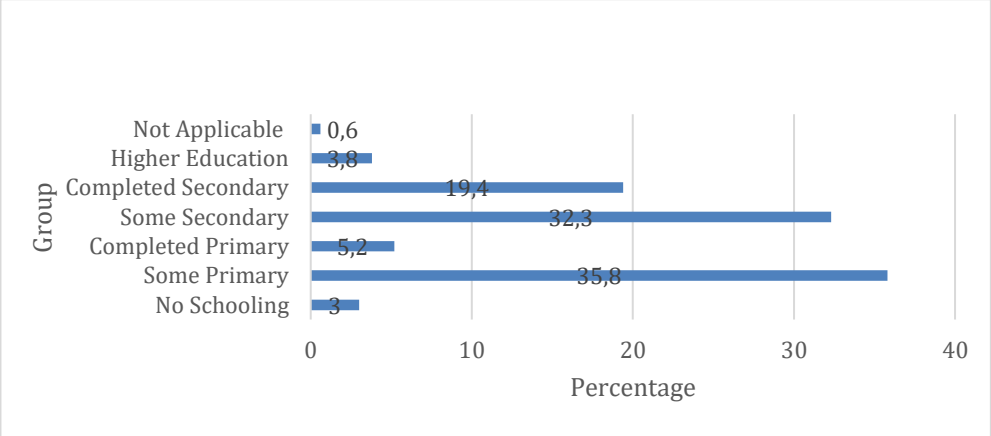
Figure 4.22: Languages



Source: Stats SA, (2014).

The 3.3 percent of households that are 20 over years of mostly have primary school achievement status, 35.3 percent completed have secondary schooling, 35.5 percent obtained a matric pass and the remaining 14.6 percent completed a tertiary or senior schooling.

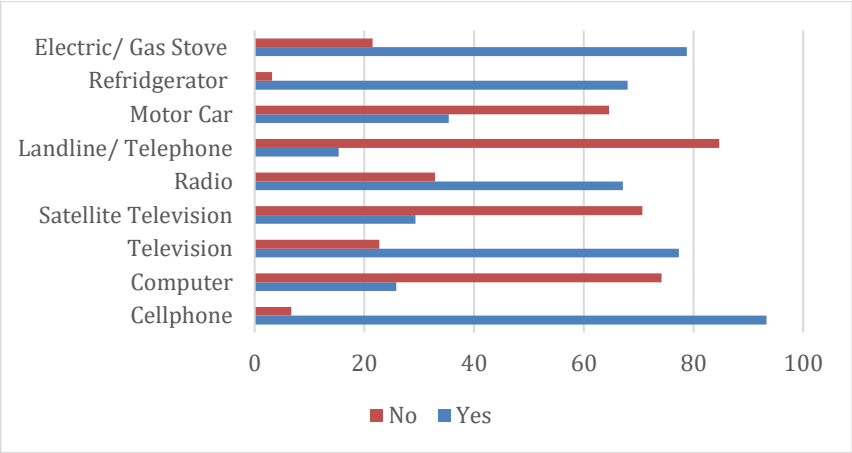
Figure 4.23: Highest Educational Level (All Age



Source: Stats SA, (2014).

The majority of households in Ekurhuleni reside in some formal structures, and 82.2 percent of those have access to electricity for cooking and lighting.

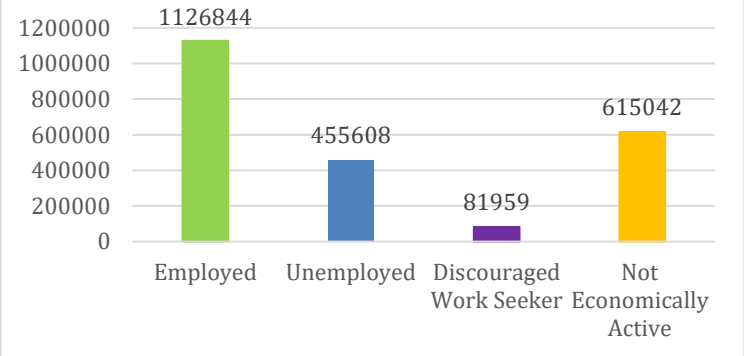
Figure 4.24: Household Goods



Source: Stats SA, (2011).

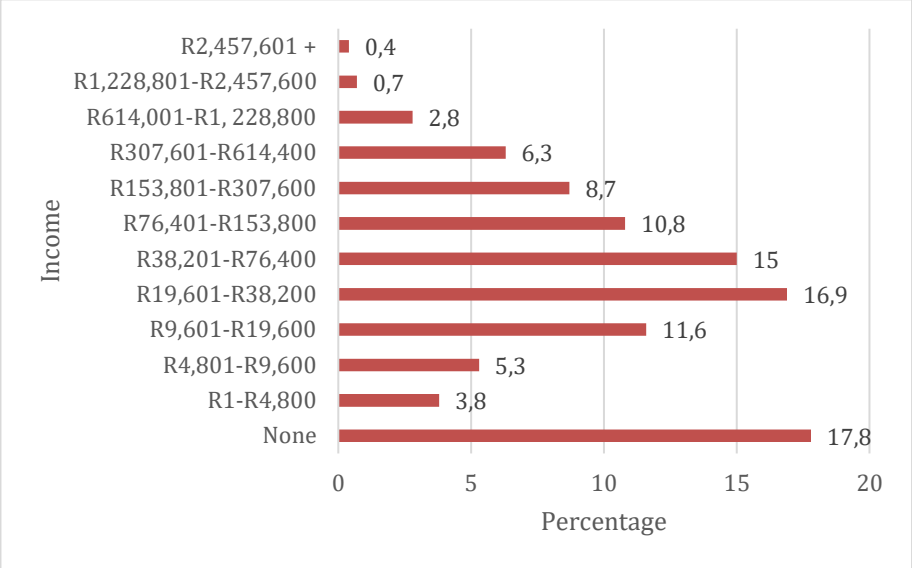
The employment status of the city of Ekurhuleni depicts a worrying figure. According to Statistics South Africa, there are close 1.6 million economically active people in Ekurhuleni. Of this percentage 29 percent is estimated to be unemployed. This figure is higher than the current national average of 25 percent.

Figure 4.25: Employment for Those Aged 15-64



Stats SA, (2011).

Figure 4.26: Average Household Income



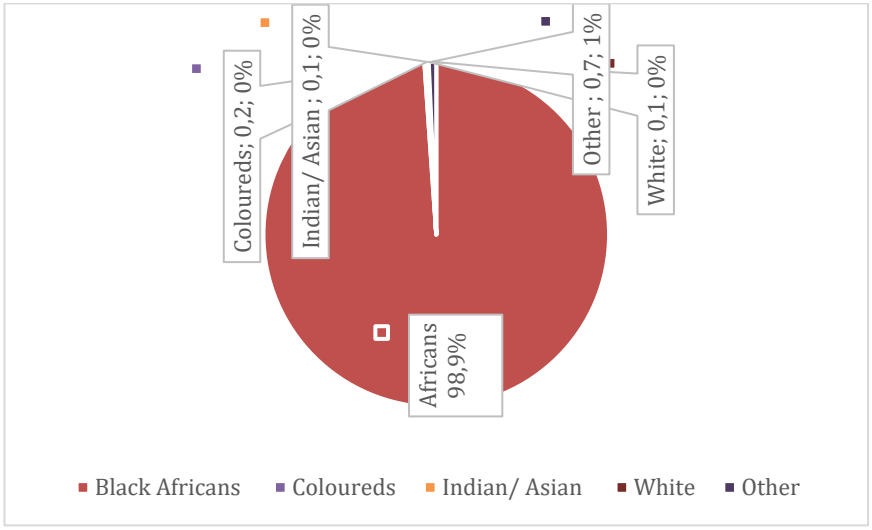
Stats SA, (2011).

The City of Ekurhuleni households have 17.8 percent of its population without income. The majority of households (28 %) earn income between R9600 and R38 000 per month.

4.2.3 Tembisa

Tembisa is a large township located in the East Rand and North of Kempton Park. This township was established in 1957. Tembisa in English means, “promise” (Global insight, 2014). The population of Tembisa’s residents is 463, 109, with 75, 4 percent of the population being of working age (between 15 - 64). The average household size is 2, 6, with 27, 1 percent of those households being female headed households. 98.9 percent of the population in Tembisa are black African’s (Stats SA, 2014).

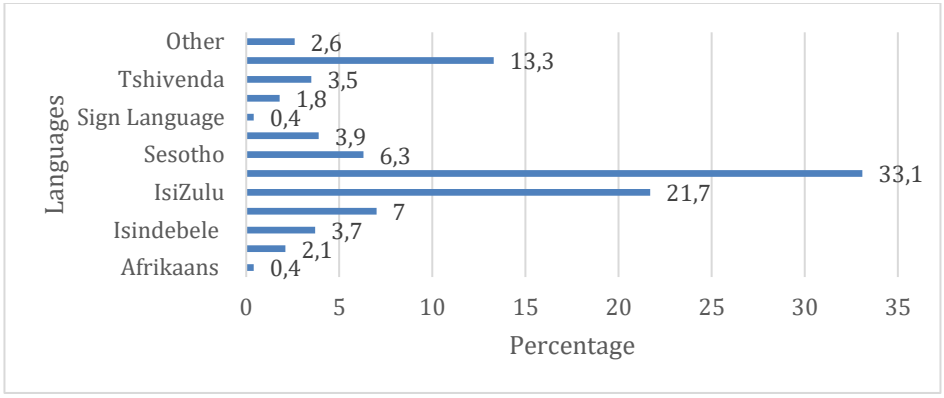
Figure 4.27: Population Groups



Source: Stats SA, (2011).

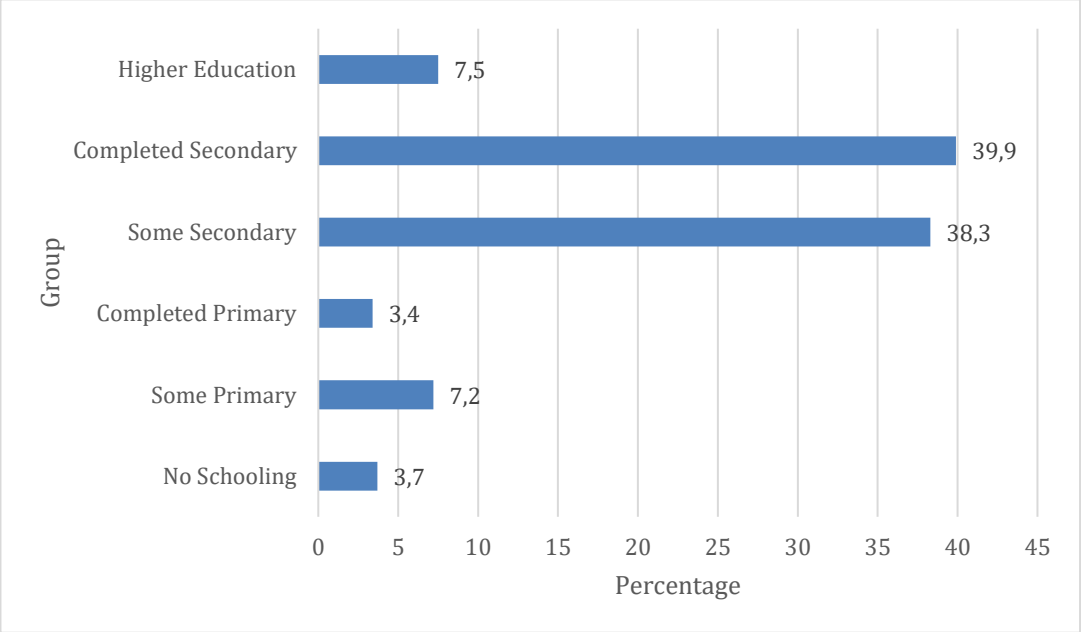
Most inhabitants of the township of Tembisa are Sepedi speaking, with 33.1 percent of residents. The second most spoken language is isiZulu, at 21.7 percent of the population.

Figure 4.28: Languages



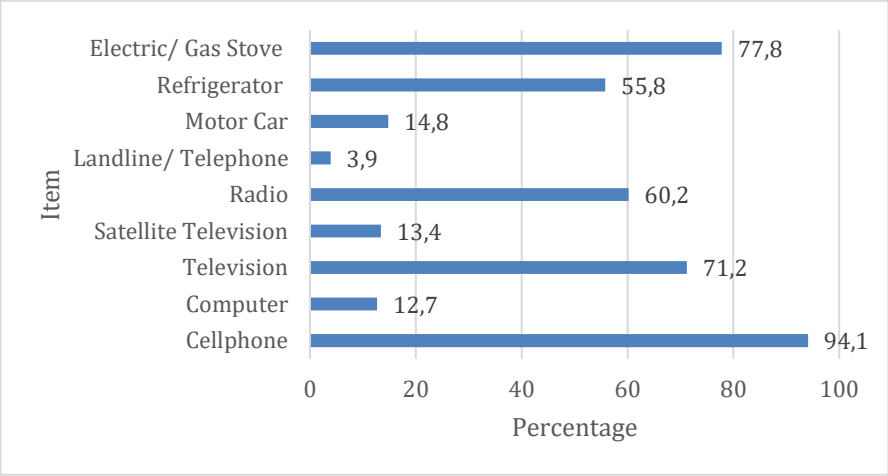
Source: Stats SA, (2011).

Figure 4.29: Highest Educational level (All Ages)



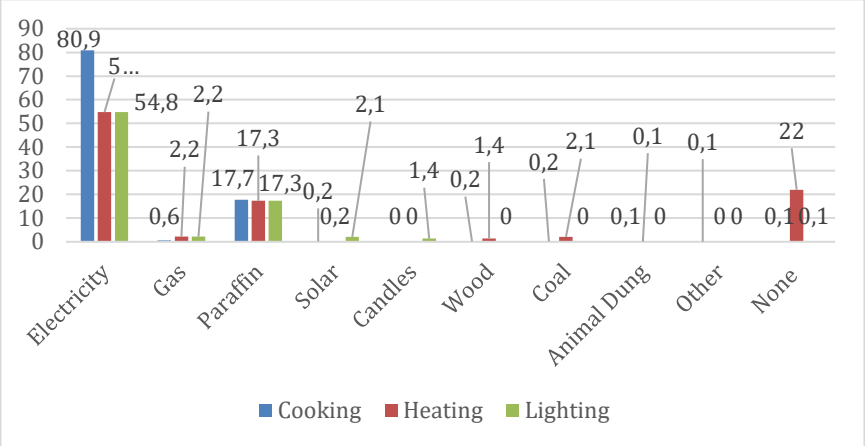
Source: Stats SA, (2011).

Figure 4.30: Household Goods



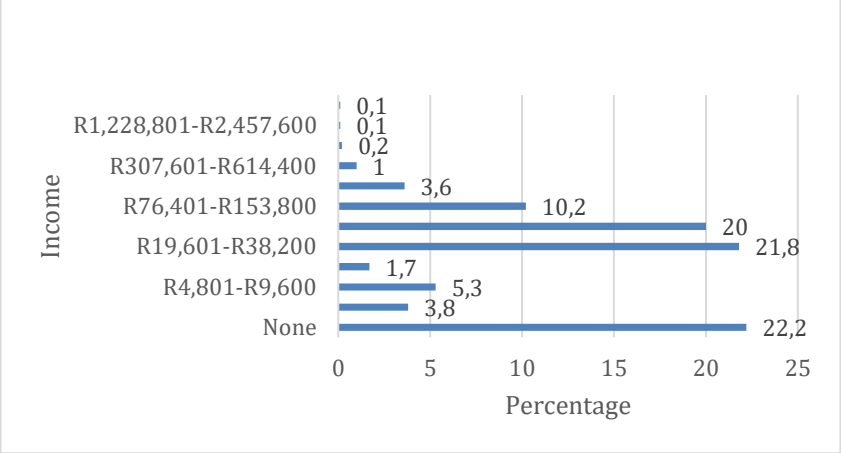
Source: Stats SA, (2011).

Figure 4.31: Energy or Fuel for Cooking, Heating & Lighting



Source: Stats SA, (2011).

Figure 4.32: Average Household Income



Source: Stats SA, (2011).

In Tembisa 22 percent of the households have no source of income, whilst another 22 percent earn income around R20 000 per month.

4.3 SOCIAL SECURITY STATISTICS

The Social security analysis report presented in February 2013 budget highlights expenditure pattern and trends, which has been rising since 2009.

Table 4.2: Social Security Funds

R Million	Outcome			Revised Estimate	Medium term Estimate		
	2009/10	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**2014/14**	**2014/16**
UIF							
Revenue	14,199	13,878	15,206	17,821	18,683	20,167	21,683
Expenditure	6,581	6,435	6,780	8,881	9,600	10,799	12,237
Compensation Funds							
Revenue	7,343	6,948	7,715	7,526	8,071	8,576	9,001
Expenditure	3,902	4,060	4,158	4,382	4,663	5,020	5,185
Road Accident Fund							
Revenue	11,785	14,293	16,155	18,682	21,097	23,266	25,424
Expenditure	12,221	13,810	13,047	15,213	19,370	23,761	25,471
Total Revenue	**33,328**	**35,119**	**39,076**	**44,029**	**47,851**	**52,009**	**56,108**
Total Expenditure	**22,704**	**24,306**	**23,985**	**28,476**	**33,633**	**39,579**	**42,893**
Budget Balance	**10,624**	**10,813**	**15,090**	**15,553**	**14,218**	**12,430**	**13,215**

Source: SASSA REPORT: (2015).

South Africa has increased considerable the number of people receiving social grants to 16,7 million. **Table 4.3: Number of Social Grants by Type and Region** (below) reflects Eastern Cape

and KwaZulu Natal displaying the highest claimants' rate on social grants. Lowest claimants are in Free State and Northern Cape.

Table 4.3: Number of Social Grants by Type and Region

Region	OAG	WVG	DG	GIA	FCG	CDG	CSG	Total
ECP	507 573	75	185 459	9 261	115 133	18 264	1 841 399	2 677 164
FSP	171 320	8	86 522	1 185	40 118	5 825	633 776	938 754
GAU	422 265	148	123 880	1 609	57 826	15 630	1 573 790	2 195 148
KZN	589 547	86	313 946	29 079	134 024	35 875	2 751 183	3 853 740
LIM	394 150	47	88 784	11 044	56 909	11 782	1 581 874	2 144 590
MPU	226 558	28	81 211	2 832	34 594	8 566	1 048 041	1 401 830
NWP	216 524	19	86 296	4 043	41 832	8 278	748 365	1 104 907
NCP	74 604	17	49 319	4 180	13 885	4 435	275 935	422 375
WCP	260 029	161	153 047	9 534	28 310	10 729	859 765	1 321 575
Total	2 862 570	589	1 168 464	72 767	522 181	119 384	11 314 128	16 060 083

Source: SASSA REPORT: (2013)

Key: *Old Age grant* ***(OAG)***
War veterans Grant ***(WVG)***
Disability grants ***(DG)***
Grant in Aid ***(GIA)***
Foster Child Grant ***(FCG)***
Care Dependency Grant ***(CDG)***
Child Support Grant ***(CSG)***

Table 4.3: Number of Social Grants by Type and Region also illustrates that Child Support Grants (CSG) is the highest form accessed by many recipients, followed by Old Age Grant (OAG). Whilst CSGs has the highest in terms of reach spread, the monetary value attached to OAGs is still high, due to the size of disbursements of CSG (SASSA: 2013).

According **to Table 4.4: Proportion of the Population claiming grants by region** (below), the two poorest Province being Limpopo and Eastern continue to attract the majority of grant claimants. These in turn are followed by (38.87%), KwaZulu-Natal (36.85%) and Northern Cape Province (36.32%). The Provinces with lowest claimants understandably are Gauteng (17.25%) and the Western Cape Province (21.96%) (SASSA: 2013). It should be expected, since these two Provinces are the economic powerhouses of the country.

Table 4.4: Proportion of the Population claiming grants by region

	ECP	FST	GAU	KZN	LIM	MPU	NCP	NWP	WCP	SOUTH AFRICA
Male	3 118 215	1 332 826	6 432 053	4 974 281	2 583 572	2 022 885	574 162	1 827 662	2 957 614	25 823 270
Female	3 501 922	1 420 316	6 296 385	5 482 267	2 934 395	2 105 085	588 572	1 769 928	3 059 312	27 158 721
Total Population	6 620 137	2 753 142	12 738438	10 456907	5 517 968	4 127 970	1 162 914	3 597 589	6 016 926	52 981 991
Grants Claimed	2 677 164	938 574	2 195 148	3 853 740	2 144 590	1 401 830	422 375	1 104 907	1 321 575	16 060 083
% of Population Claiming Grants	**40.44%**	**34.09%**	**17.25%**	**36.85%**	**38.87%**	**33.96%**	**36.32%**	**30.71%**	**21.96%**	**30.31%**

Source: Stats SA, (2014)

Table 4.5: Social Grant Expenditure as a percentage of GDP (below) illustrates the overall, social grants expenditure as a percentage of GDP and is expected to increase in line with the growth performance in the country.

Table 4.5: Social Grant Expenditure as a percentage of GDP

					Revised Estimate		Medium Term Estimates
R Million	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/16**
Social Grants Transfer	79 260	87 493	95 962	104 239	113 007	121 482	129 493
SASSA Administration	5 550	5 313	5 358	5 848	6 683	6 961	7 160
Total	**84 810**	**92 806**	**101 320**	**110 087**	**119 690**	**128 443**	**136 653**
As % age of GDP	3.4%	3.4%	3.4%	3.4%	3.4%	3.3%	3.2%

Source: SASSA, (2015)

4.4 GENERAL CHARACTERISTICS OF THE SAMPLED AREA

4.4.1 Socio-economic and Demographic Characteristics of respondents.

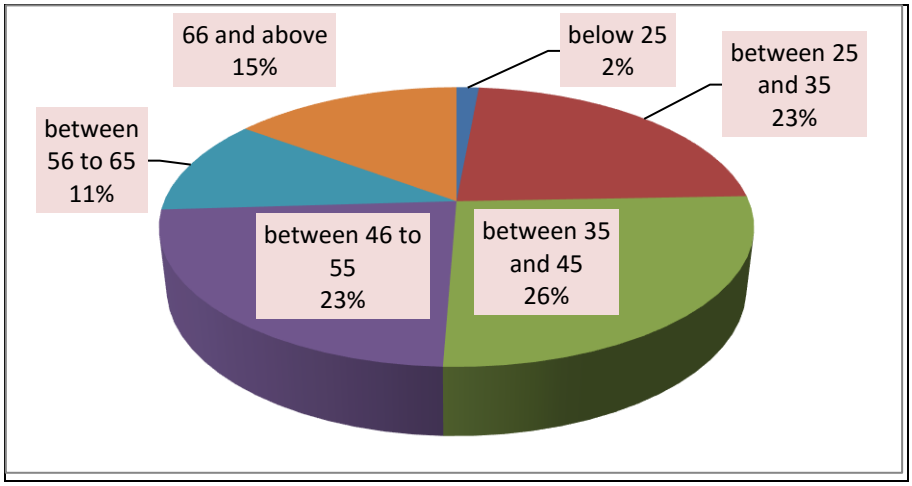
A selected socio-economic profile of households surveyed has been discussed in Chapter four. This was done to highlight specific issues that motivate the focus on the three locations and to link sample data with national data obtained from Statistics South Africa. We mentioned that a total of 827 households were included in the survey and discussed household size, gender composition, age, marital status, employment status, educational attainment and we linked these to average households' food security scores.

4.4.2 Age grouping of respondents

The majority of individuals included in the sample were aged between 35 and 45 (26%), 25-35 (23%), 45-55 (23%). Only about 2 percent of individuals included in the sample were very young,

aged less than 25 years. Eleven percent of the sampled individuals were fairly old at 56 to 65 years, while older individuals, who were above 65 years accounted for 15 percent of the sample.

Figure 4.33: Age Groupings

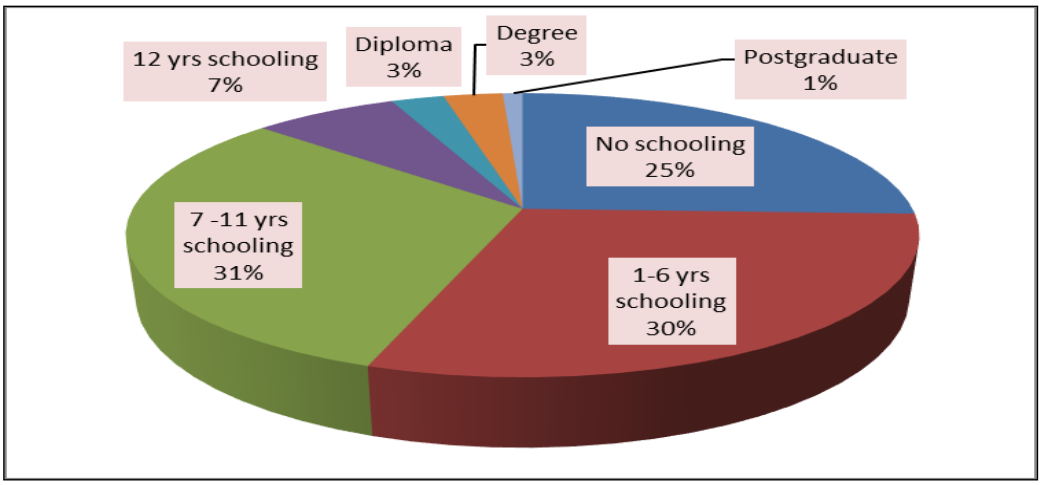


Source: Study Results

4.4.3 Levels of education of respondents

A quarter of individuals surveyed had no schooling at all, about 30 percent had primary school education, a further 38 percent were close to or completed secondary education, while a small percentage of those included in the sample had teriary education experience.

Figure 4.34: Levels of education

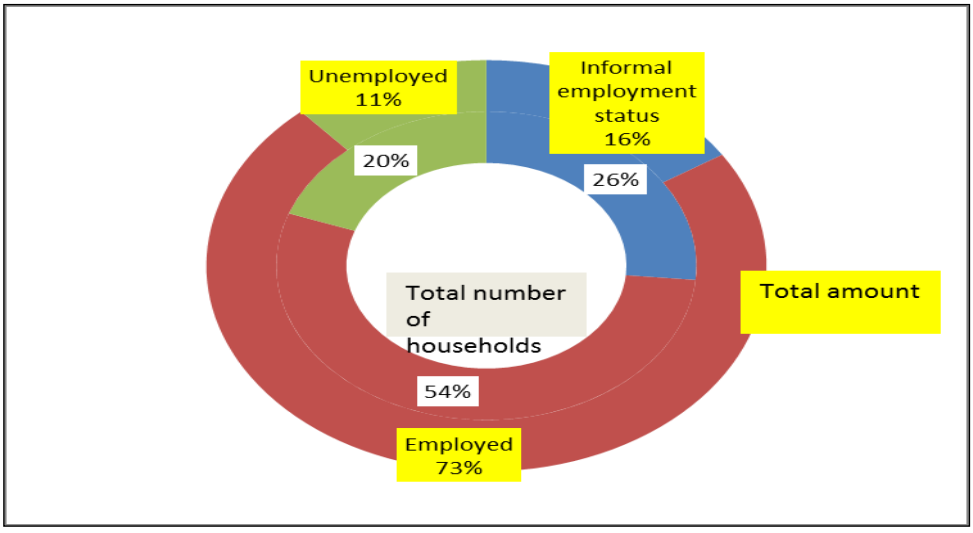


Source: Study Results

4.4.4 Household Employment Status in the study Areas

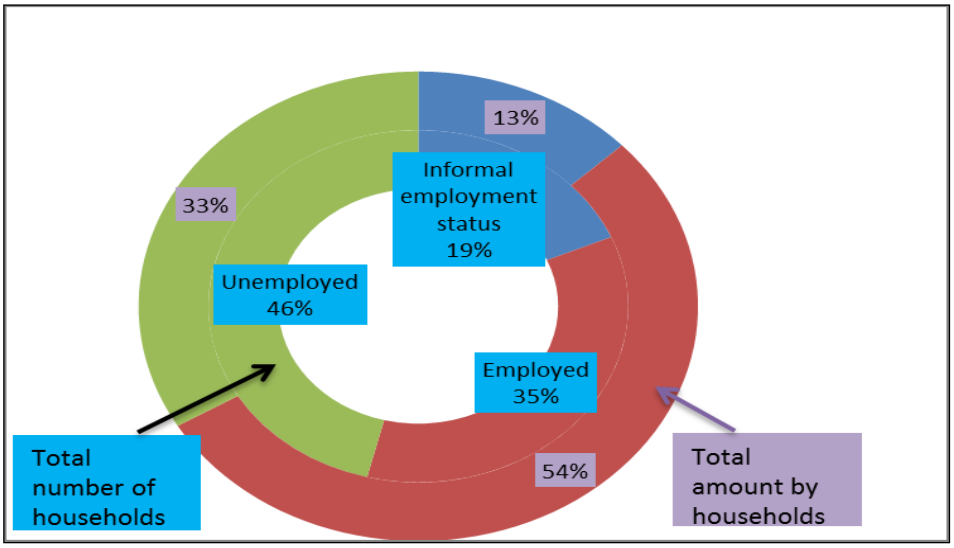
Household employment is highest in Attridgeville at 73 percent, followed by Tembisa (49%) and Soshanguve (35%). Not surprisingly, unemployment is highest in Soshanguve at 46 percent, Tembisa (28%) and lowest in Attridgeville at 11 percent.

Figure 4.35: Atteridgeville: employment state summary



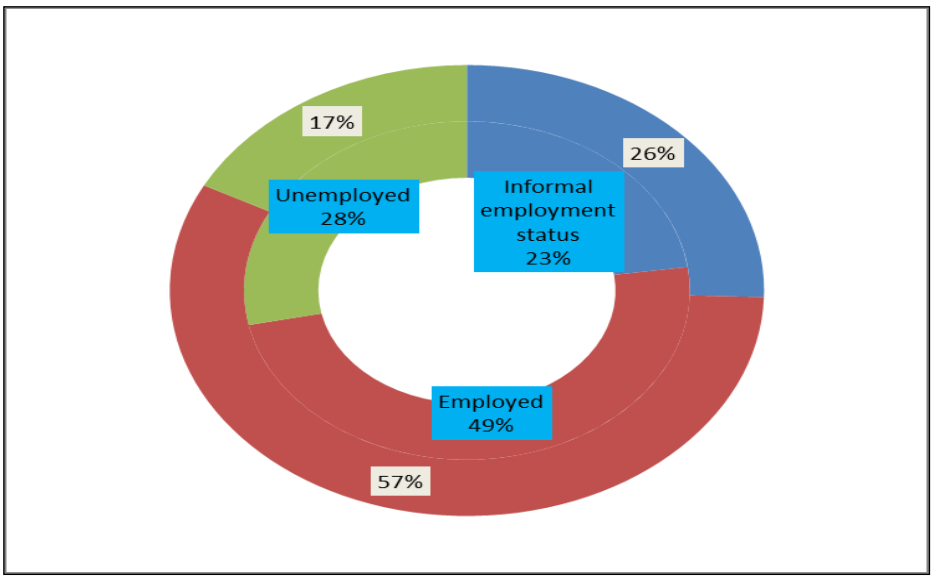
Source: Study Results

Figure 4.36: Soshanguve: Employment State Summary



Source: Study Results

Figure 4.37: Tembisa: employment state summary

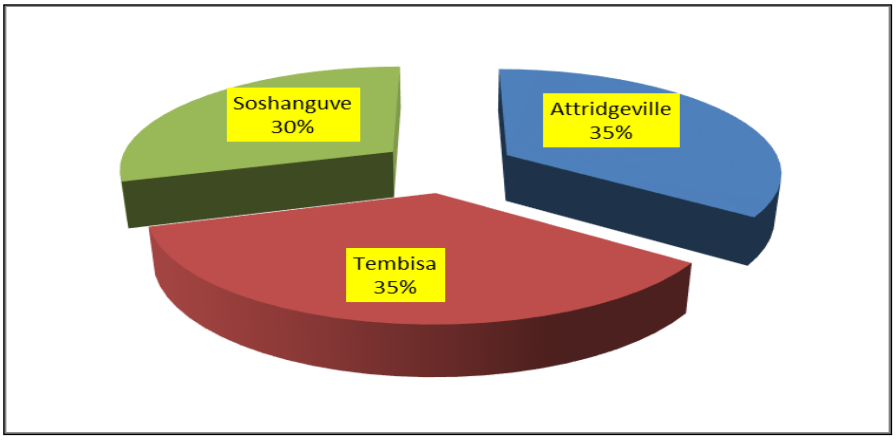


Source: Study Results

4.4.5 Household Income Status in the study Areas

Of the total income of R3.4 million per month generated in the study areas, most of this comes from Attridgeville and Tembisa that equally account for 35 percent each. The remainder of the total income is generated in Soshanguve (30%).

Figure 4.38: Share of each location in Total income

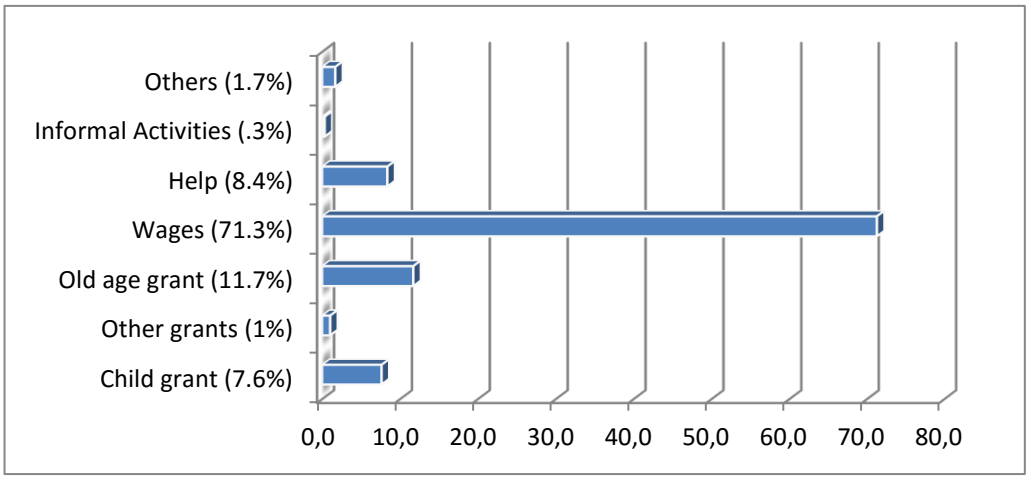


Source: Study Results

Wages, as a source of income is highest in Tembisa (83%), followed by Attridgeville (71%) and Soshanguve (60%). Households' dependence on social grants is highest in Soshanguve at 31 percent of total income, followed by Attridgeville (20%) and Tembisa at 12 percent. Old age and Child grants are the most popular form of social grants in the areas covered by the study.

This study comfirms that wage dependence is higher than grants dependence in the areas under study.

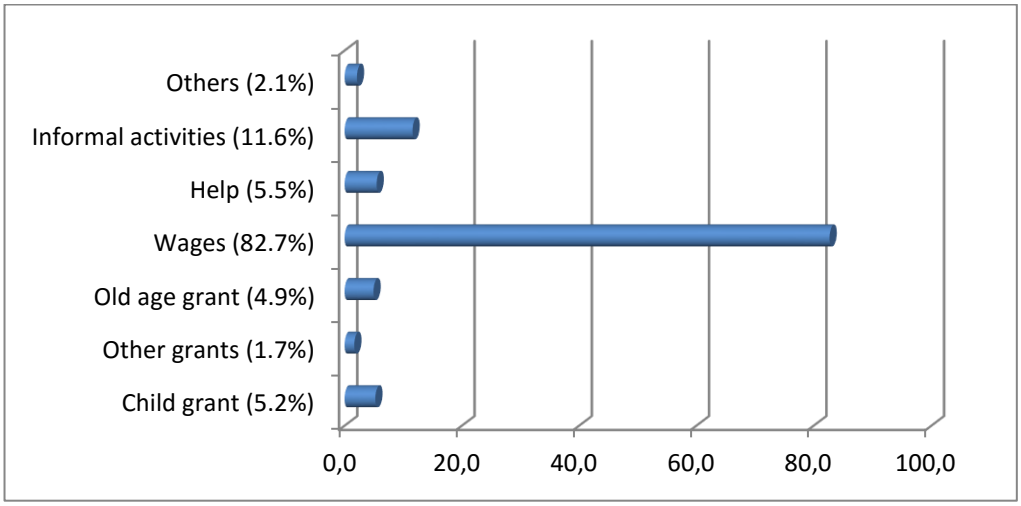
Figure 4.39: Income in Atteridgeville



Source: Study Results

The most common forms of income in the Atteridgeville area are wages at 71.3 percent, followed by the old age grant at 11.7 percent. Informal activities are the least common forms of income with only 0.3 percent of households having it as a source of income.

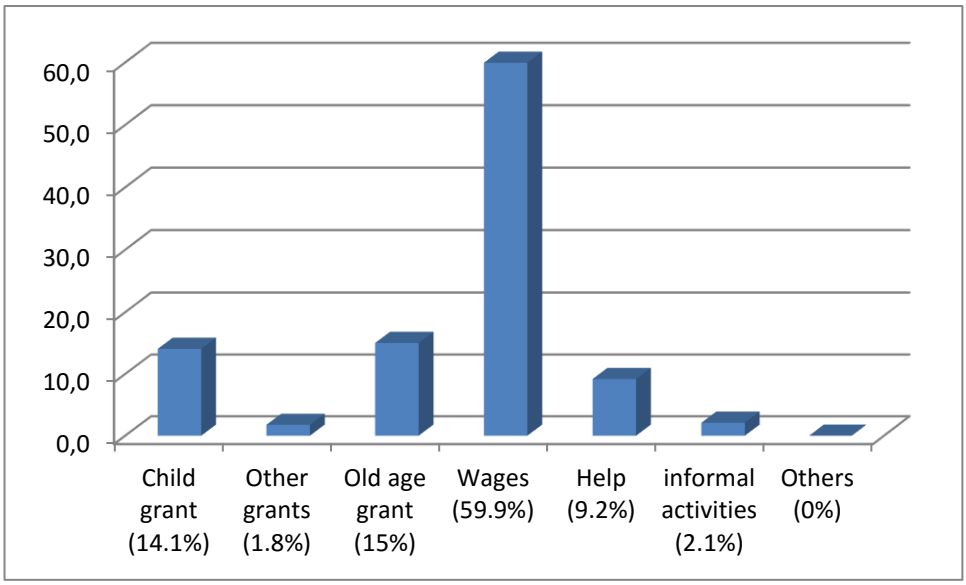
Figure 4.40: Income in Tembisa



Source: Study Results

In Tembisa, 82.7 percent of households receive their income from wages. This is followed by informal activities at 11.6 percent. Other grants are the least common source of income at 1.7 percent.

Figure 4.41: Income in Soshanguve



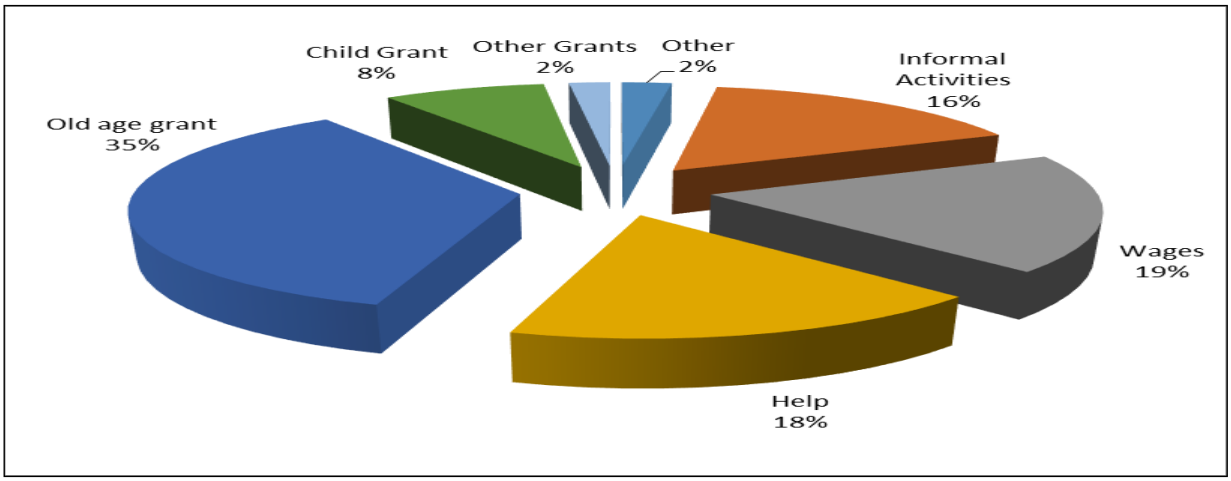
Source: Study Results

Most of the households' source of income in Soshanguve is wages (59.9%). This is followed by the child grant at 14.1 percent. The least common source of income in the area is other grants (1.8% of households).

4.4.6 Analysis of Households' Income from Informal Employment and unemployed households in the study Areas

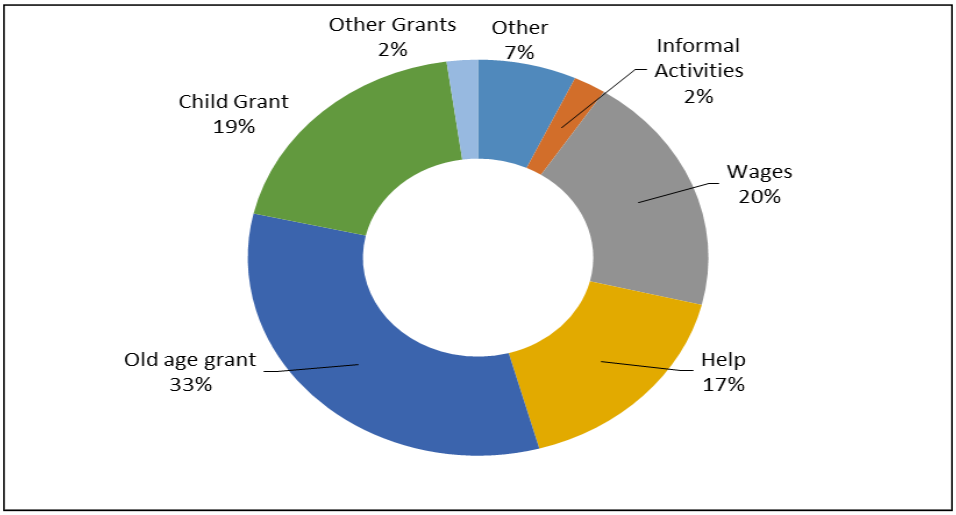
In Atteridgeville, households that engaged primarily in the informal sector derived close to 50 percent of household incomes from social grants, mainly in the form of old age grants (35%). However, if these households were mainly unemployed in Atteridgeville, dependence on social grants increased to about 60 percent, mainly in the form of old age and child grants.

Figure 4.42: Atteridgeville: Breakdown of income of households in informal employment



Source: Study Results

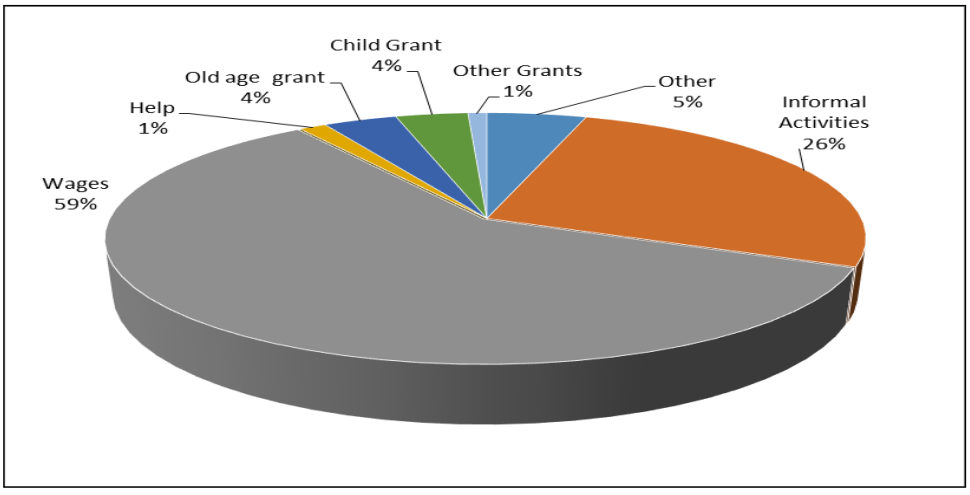
Figure 4.43: Atteridgeville; Breakdown of income of unemployed households



Source: Study Results

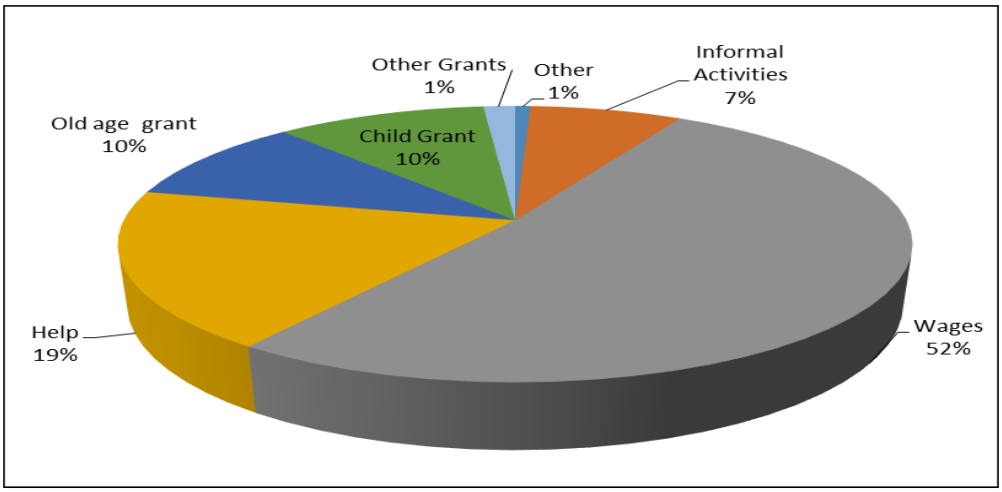
In Tembisa, households' dependence of social grants was low at about 10 percent for households engaged in informal employment. It increased to about 20 percent for those households where there is no employment. In addition, the old age grant and the child grant remained the same percentage irrespective of whether the households were in informal employment or were unemployed. It should be noted that Tembisa exhibits a higher degree of urbanization than Soshanguve.

Figure 4.44: Tembisa: Breakdown of income of households in informal employment



Source: Study Results

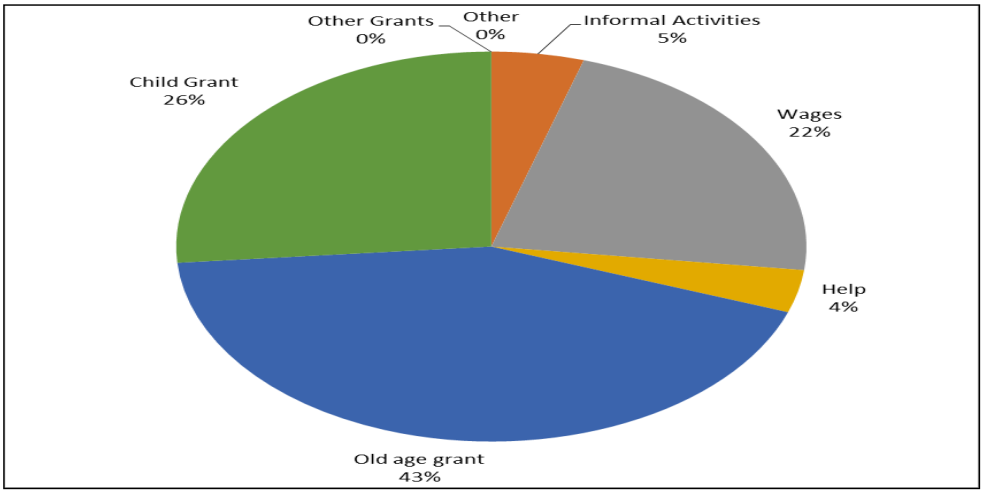
Figure 4.45: Tembisa: Breakdown of income of unemployed households



Source: Study Results

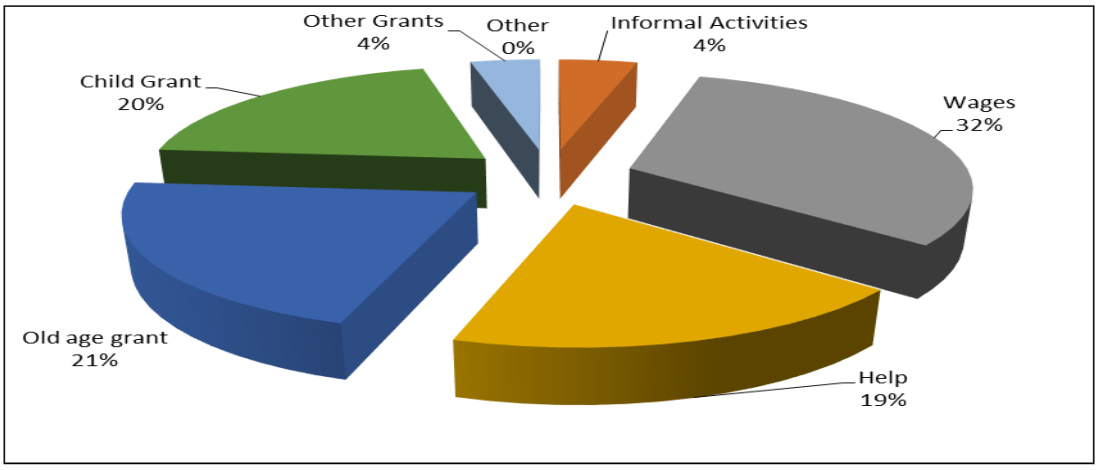
Unemployed households or those without regular employment who are residents in Soshanguve derived about 45 percent of household's incomes from receiving social grants. Whereas when households were engaged in informal employment, dependence on social grants increased to almost 70 percent.

Figure 4.46: Soshanguve: Breakdown of income of households in informal employment



Source: Study Results

Figure 4.47: Soshanguve; Breakdown of income of households in informal employment

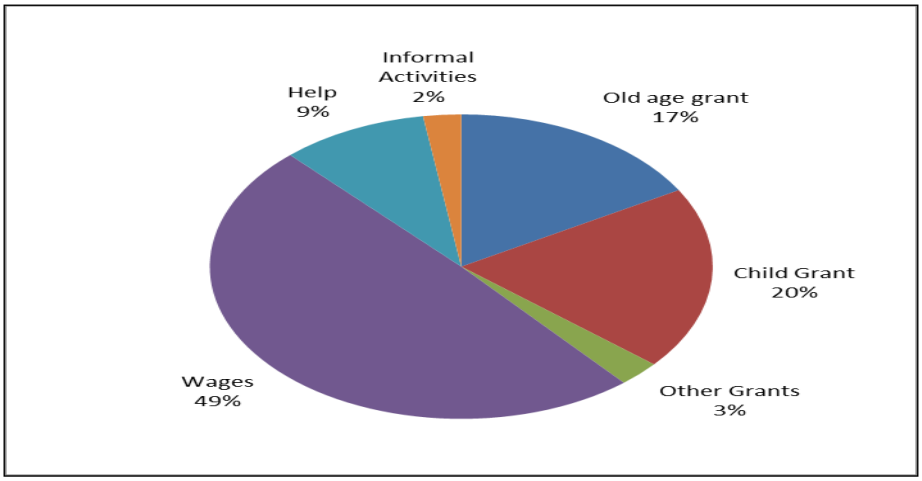


Source: Study Results

4.4.7 Analysis of Households' Income by Gender of Household Head

Male household heads derived about 23 percent of household income from social grants in Soshanguve, whereas female heads of households derived 40 percent of household income from the same source. While female heads of households depended heavily on child grants as well as old age grants. Dependence on the same was quite modest in male-headed households.

Figure 4.48: Soshanguve: income by female head

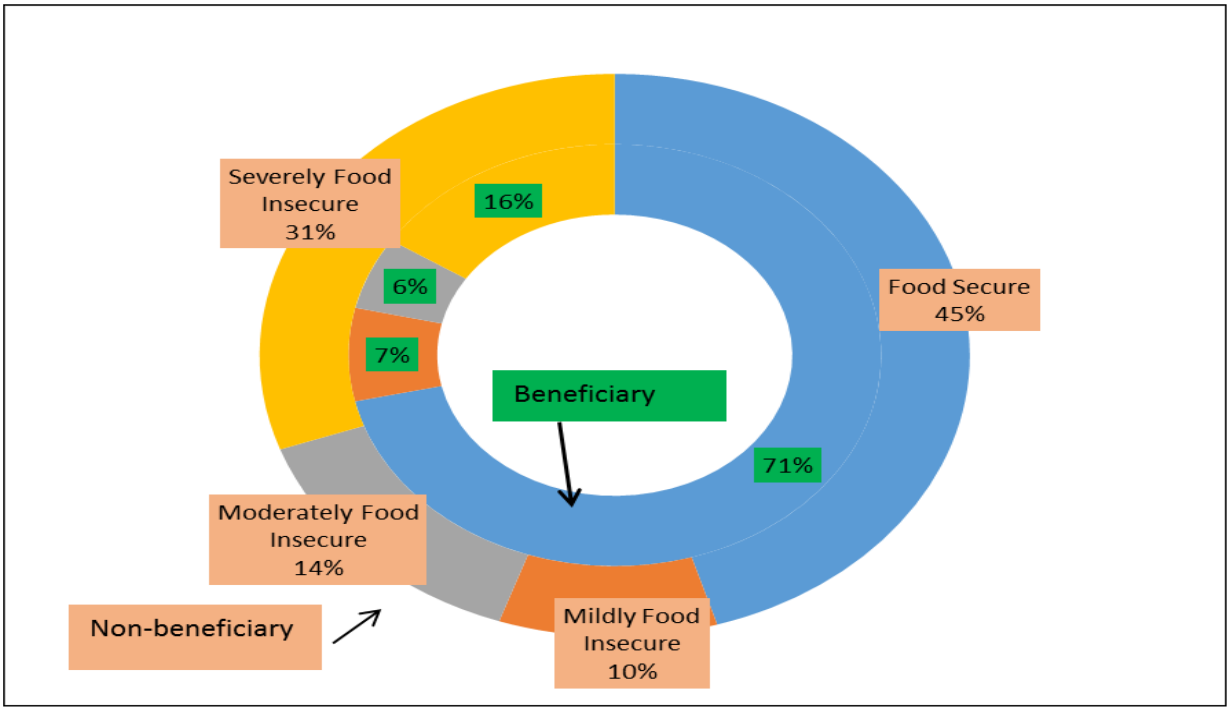


Source: Study Results

4.5 HOUSEHOLD'S FOOD SECURITY STATUS IN RELATION TO SOURCE OF INCOME IN THE STUDY AREAS

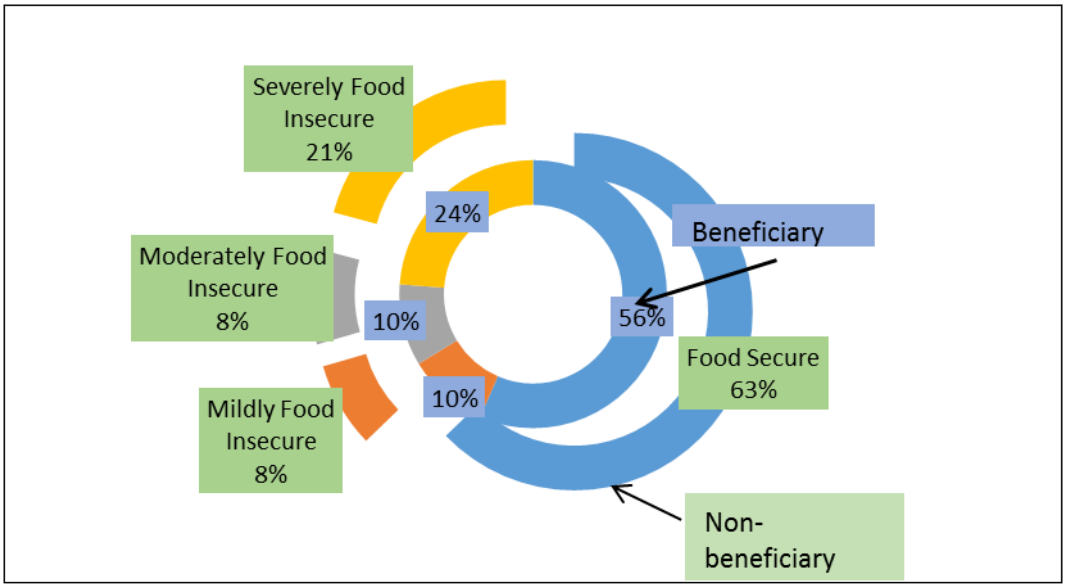
The majority of households who are receiving wages (45%) are food secure, 10 percent are mildly food insecure, 14 percent are moderately food insecure though close to one-third (31%) are severely food insecure. The majority of households who are receiving old age grants (63%) are food secure, 8 percent are mildly food insecure, 8 percent are moderately food insecure, though close to one-fifth (21%) are severely food insecure. More than half of households who are receiving child grants (51%) are food secure, 10 percent are mildly food insecure, 12 percent are moderately food insecure, though close to one-third (27%) are severely food insecure. When households receive other types of grants, the majority of them (57%) are still food secure, 8 percent are mildly food insecure, 10 percent are moderately food insecure, though about one-quarter (25%) of them are severely food insecure.

Figure 4.49: Food Security: Wages Status



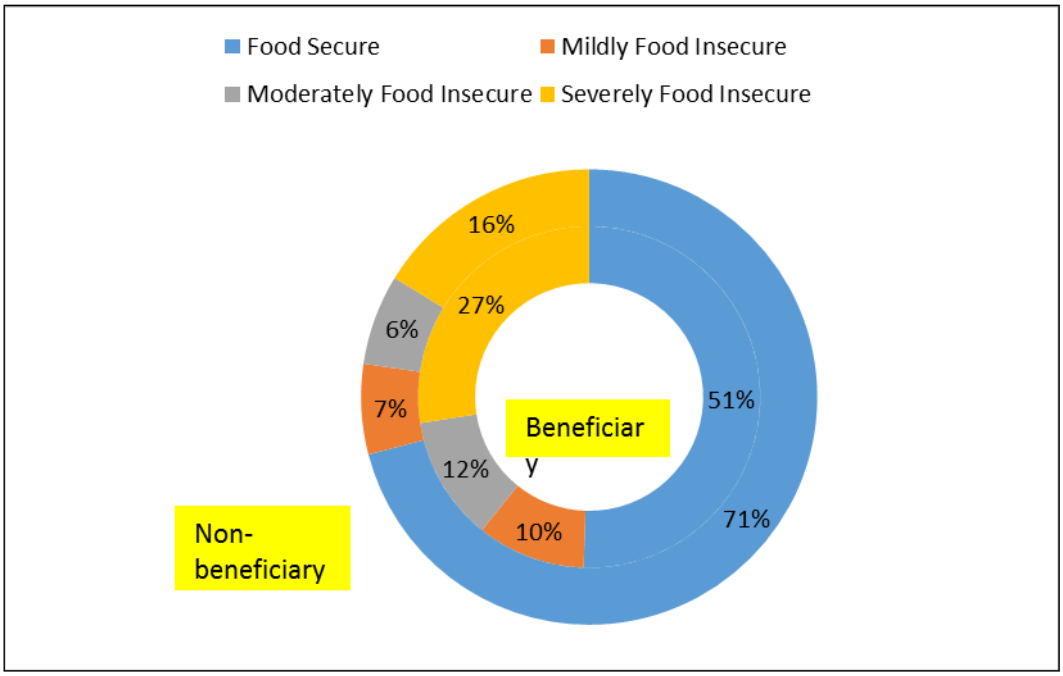
Source: Study Results

Figure 4.50: Food Security: Pension Status



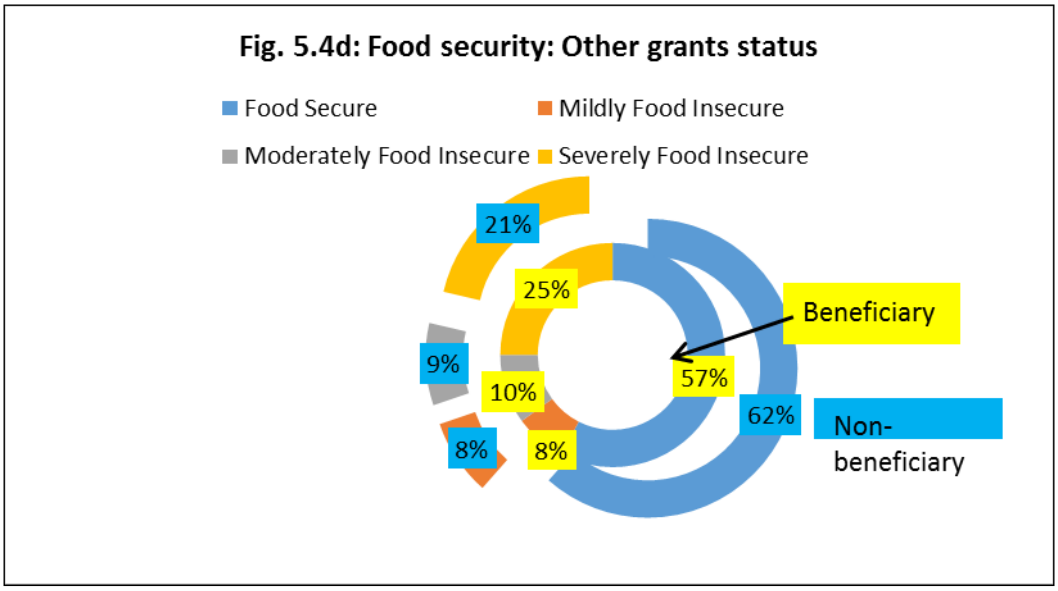
Source: Study Results

Figure 4.51: Food Security: Child Grant Status



Source: Study Results

Figure 4.52: Food Security: Other grants Status

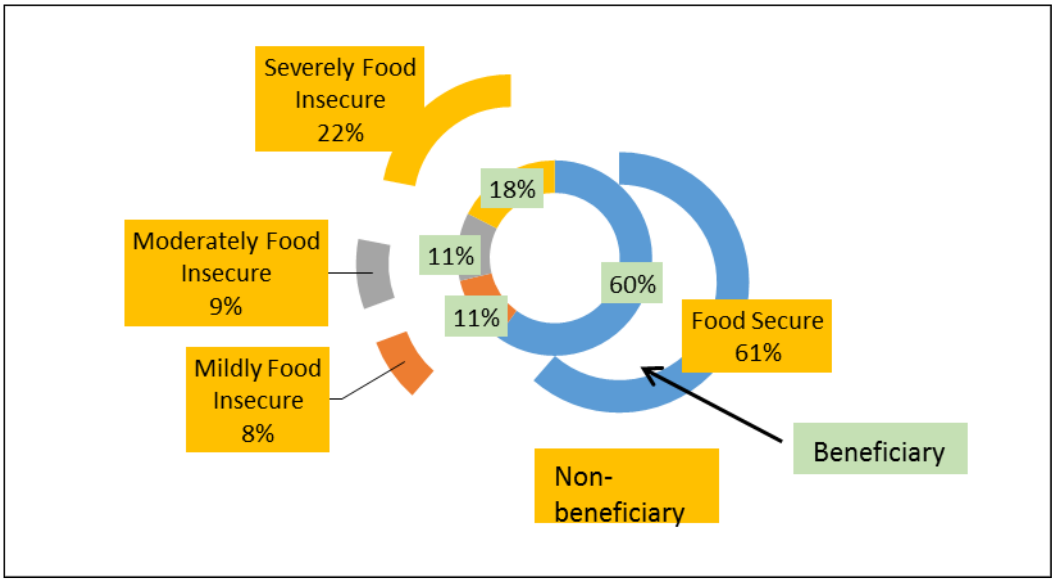


Source: Study Results

4.6 HOUSEHOLDS' FOOD SECURITY STATUS IN RELATION TO INFORMAL EMPLOYMENT IN THE STUDY AREAS

When households in the study areas derive incomes mainly from informal employment, a majority of them (60%) are food secure, 11 percent are mildly food insecure, 11 percent are moderately food insecure though about 18 percent are still severely food insecure.

Figure 4.53: Food Security: Informal Activity Status



Source: Study Results

4.7 ANALYSIS OF SOCIAL GRANT USAGE

Table 4.6: Social Grants Beneficiary Numbers by Type (2007/08–2014/15) in thousands

Type of Grant	2008/09	2009/10	2010/11	2011/12	2012/13 Projection	2013/14 Projection	2014/15 Projection	% Growth per year
Old-age	2.344	2.490	2.647	2724	2.773	2.835	2.881	3.5%
War veterans	2	1	1	1	1	1	1	-10.9%
Disability	1.372	1.299	1.212	1216	1.192	1.196	1.196	-2.3%
Foster care	476	489	490	598	671	769	874	10.7%
Care dependency	107	119	121	126	131	141	147	5.4%

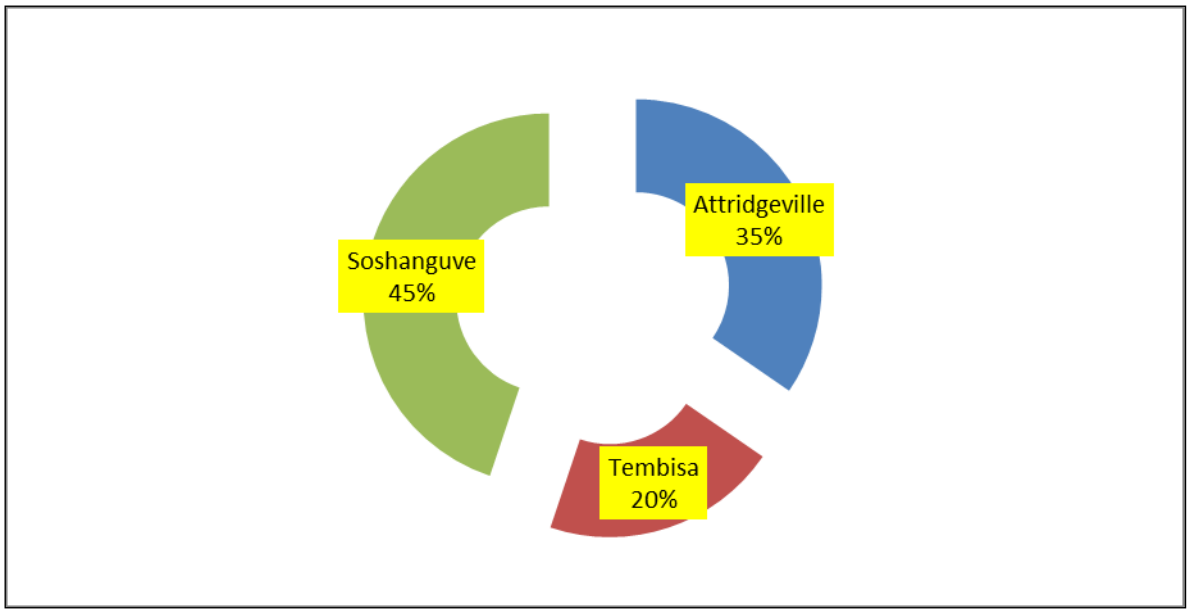
Source: National Budget Review (2012).

Statistics on social grants beneficiaries are typically covered in the National Budget Reviews. The number of recipients of old age grants was about 2.3 million in 2008/09, which was projected to increase to 2.9 million in 2014/15. This is the highest number within the population of individuals receiving social grants from the State. The number of recipients of disability grants is also high. It was about 1.4 million people in 2008/09 and was projected to decline to 1.2 million in 2014/15. Those who receive are projected to increase from close to half a million in 2008/09 to about 900,000 in 2014/15. Similar increase in numbers is projected for those who receive care dependency grants. Receipt of war veterans grants are projected to fall to less than a million in 2014/15.

4.7.1 Analysis of receipt of social Grants in the study areas

Most of the beneficiaries of social grants come from Soshanguve (45%), followed by Atteridgeville (35%) and Tembisa (20%).

Figure 4.54: Total Amount of Social Grants in study Areas

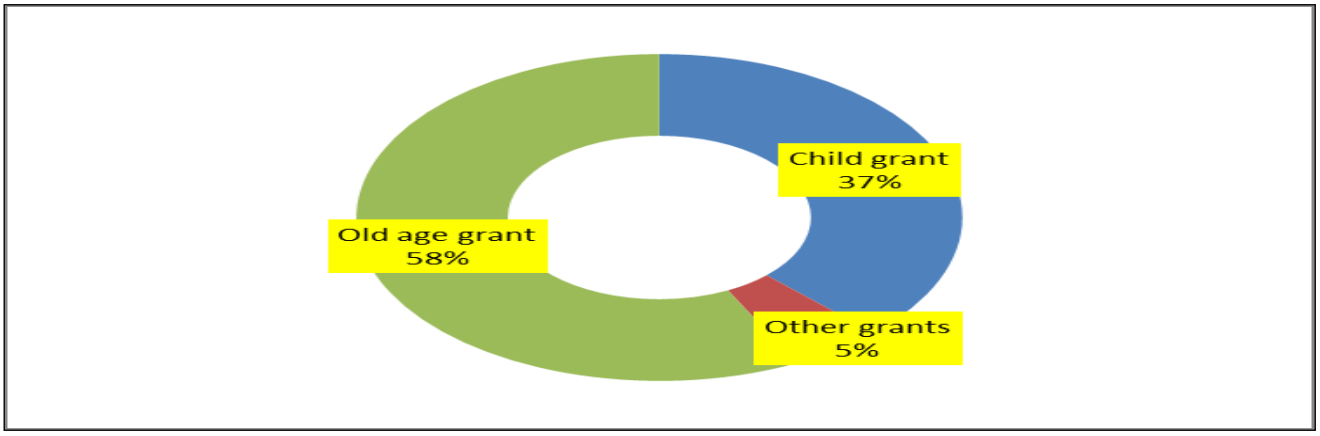


Source: Study Results

Old age grants are most popular in Atteridgeville (58%) followed by Soshanguve (49%) and Tembisa (42%). On the other hand, child grant is more popular in Soshanguve where it accounts for 45 percent of all grants received, followed by Tembisa (44%) and Atteridgeville, where it accounts for 37 percent.

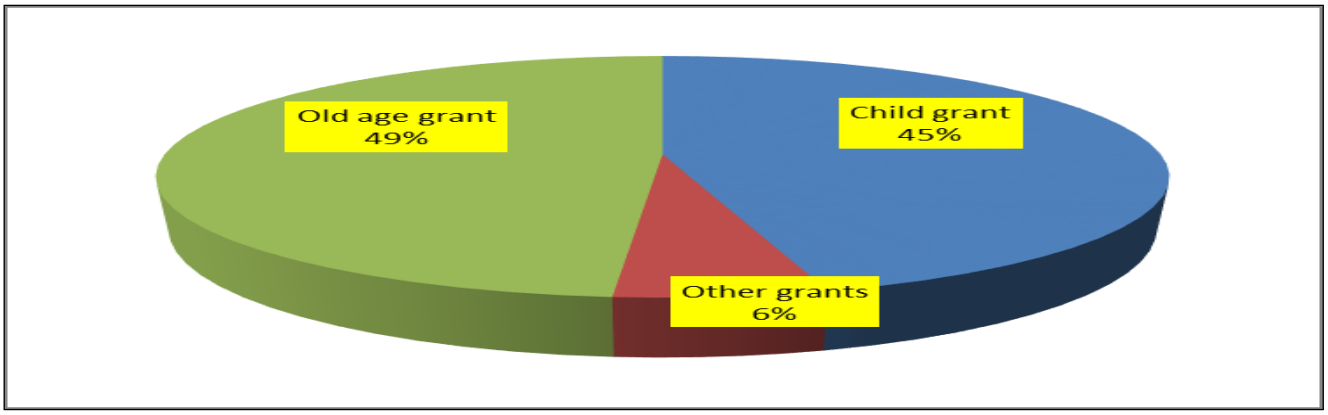
Male heads of households tend to receive more old age grants than other categories of grants, while female heads of households receive more of child grants compared with other grants.

Figure 4.55: Social grants Atteridgeville



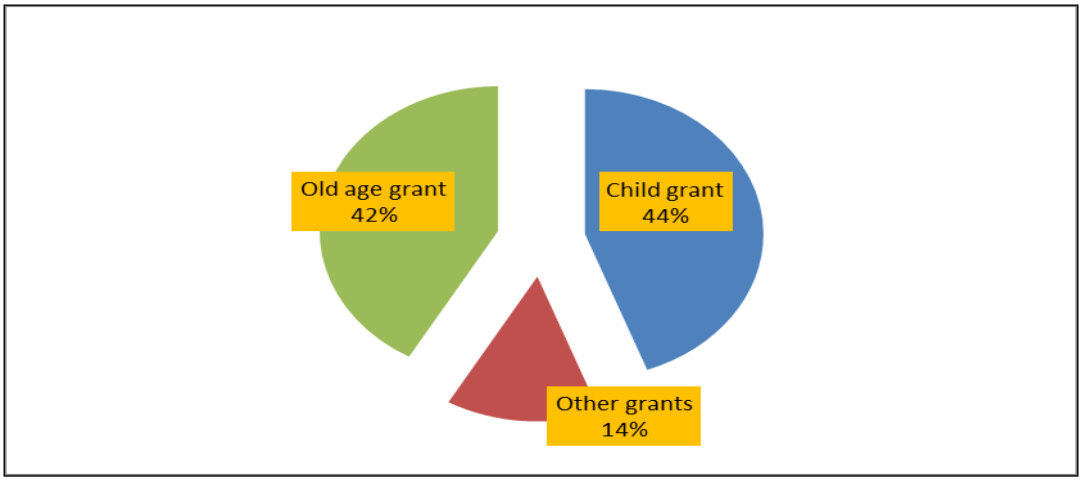
Source: Study Results

Figure 4.56: Social Grants Soshanguve



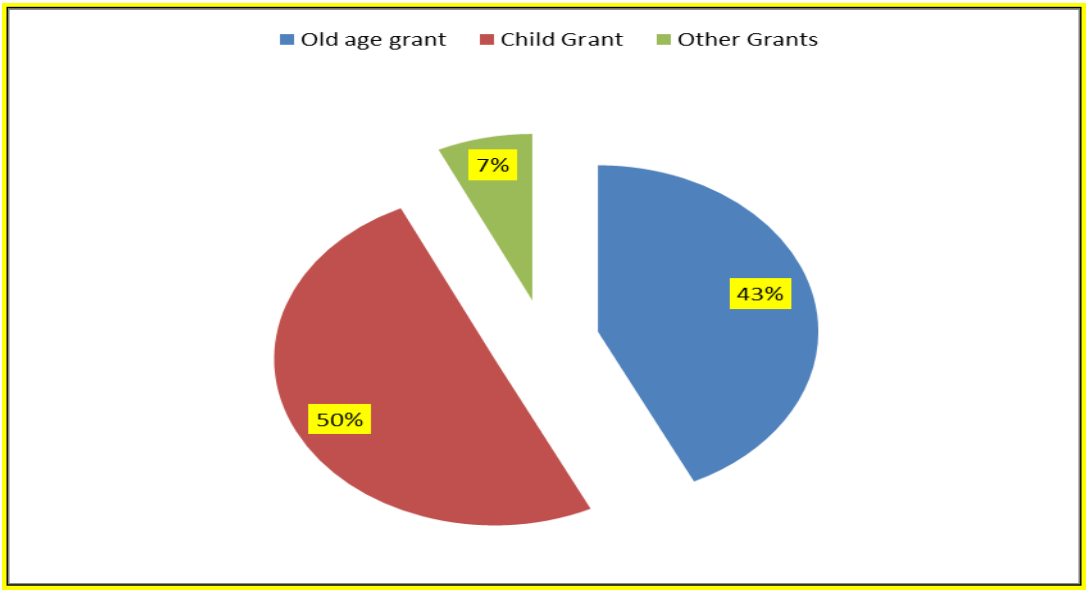
Source: Study Results

Figure 4.57: Social Grants Tembisa



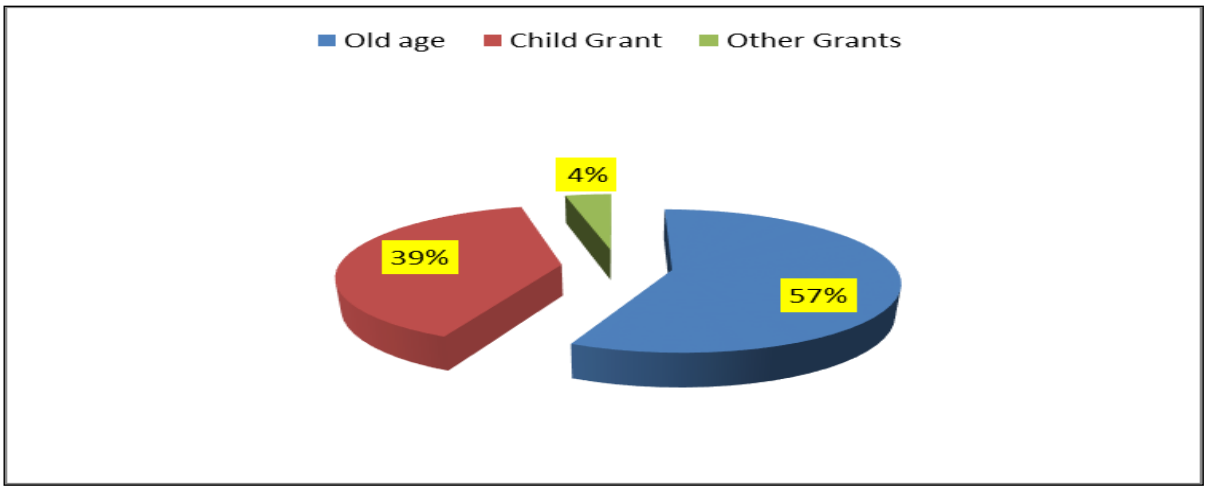
Source: Study Results

Figure 4.58: Soshanguve: Social grants given to female heads of household



Source: Study Results

Figure 4.59: Soshanguve: Social grants given to male head households



Source: Study Results

4.8 SUMMARY AND CONCLUSION

This chapter started by explaining the justification for collecting own primary data in the study location.

Therefore, the profiling of households in the three locations was essential to see any effect that social grants might have on food security. The study results clearly depicted that households differ in terms of their access to social grants and the resulting food security experiences. The study primary goal is to determine the effectiveness of social grants on alleviating food security with case studies from various neighbourhoods in the Gauteng Province. The study aims to investigate the significance of various socioeconomic variables in explaining food security. It further explored the selected demographic variables in relation to the food security status of the household.

The next chapter presents the research methodolody theory and unpacks the methodology adopted in this study.

CHAPTER 5: RESEARCH METHODOLOGY

5.1 INTRODUCTION

This study opted to employ is the quantitative method as summarised in Chapter One. Secondary data covering socio-economic information on households can be obtained from the Income and Expenditure Survey (IES) or the Community Survey (CS) which are traditionally collected by the Government Statistics Office called Statistics South Africa. Hence the survey was constructed with use of structured questionnaire.It should be emphasized that the use of structured questionnaires is hence popular amongst researchers seeking to gather primary data for analysis (Babbie ,2001) . As a precursor to this chapter, it would be expedient to introduce the choice of a convergent approach consisting of both qualitative and quantitative methodologies, as these responses are convergent and divergent, but also complementary.

Descriptive research was scientifically applied broadly in an attempt to understand the background to the three Gauteng neighbourhoods, two in the City of Tswane and one from the city of Ekurhuleni. The study further explored the broader understanding of socio-economic characteristics of households in the three study areas. This chapter therefore sets out to explain the choice of the research methodology adopted as well as explaining in detail the statistical tools used and descriptives.

5.2 RESEARCH DESIGN

The research design typically plans to collect and analyse data, for measurement purposes (Monsen & Van Horn, 2008). Monsen & Van Horn (2008) suggests that research design is primarily used to provide insight, evaluate and assign importance to what is being investigated. Sekhampu and Ndobo (2013) suggest that the main purpose of quantitative research seeks to assign value of significance to the research objective. Questionnaire is normally the best instrument used for data collection, for ease of quantification of the results for interpretation purposes (Monsen & Van Horn, 2008). The study covered the three neighbourhoods in Gauteng, and trained enumerators administered the questionnaire, as a form of data gathering purpose.

5.3 DEFINITION OF POPULATION

A research population is the selected area under study that exhibits characteristics of interest. The groups involved usually have similar characteristics (Monsen & Van Horn, 2008). The study

population included three areas, namely Atteridgeville, Tembisa and Soshanguve (all three are low-income neighbourhoods of Gauteng Province, and exhibit both urban and rural characteristics). These three areas notably display high levels of unemployment, and a high number of households in informal settlements. There are many recipients of social grants in these areas and this formed the basis of their selection (SASSA, 2013)

The primary data from these three areas was collected by means of a questionnaire. During interviews a questionnaire was completed. Only the Head of Household was interviewed and his/her spouse. One-to-one interviews by a trained enumerator were used to complete the questionnaire. This choice is also in line with the subject of research requiring minute and detailed descriptive phenomenal report of the research problem. The study focused on 900 randomly selected households from the three identified neighbourhoods.

5.4 THE SAMPLING PROCESS AND SAMPLE SIZE

Sampling is used to assist in determining unknown variables (Neelankavil, 2007). It is practically impossible to interview every person in the study area; the best form of avoiding this challenge simplify the wider and broader population by breaking it into its simplest smaller forms, that is representative of the broader community (Durheim, 1999). For the purpose of this investigation, household survey was embarked upon in order to collect information on food security of households in these three neighbourhoods. The study was conducted in the three neighbourhood areas in the City of Tshwane and Ekurhuleni, the Gauteng neighbourhoods through a self-administered questionnaire.

The study only adopted questionnaire completion by well-trained enumerators in order to access the information from the three sampled areas. Primary data was collected from 900 randomly selected households. However, from the survey, only data from 827 households were kept for interpretation purposes following the conduct of rigorous coherence tests. The survey was conducted in Atteridgeville, Soshanguve, and Tembisa, two of the poorest residential areas of the City of Tshwane Metropolitan Municipality, and in Ekurhuleni Municipality, Tembisa was chosen, all in the Gauteng Province of South Africa.

The enumerator's chosen were all comfortable with English, IsiZulu and Isi Tswana, the languages spoken in these three areas. The purpose of this was to enable them to comfortable explain the questions to recipients in their own vernacular language. The covering letter fully

articulated the objective of the research, and the scientific benefits that will be derived from participation. Either male or female respondents were targeted. The head of the household could be either male or female, and was identified as the key person to complete the questionnaire. Every third household was chosen for the sample in the street.

5.5 DATA COLLECTION TOOLS

The study opted for the use of a questionnaire to collect data from the three Gauteng Province neighbourhoods. Well-trained enumerators were used for the purpose of conducting the research. The questionnaire included information on general well being of households, their experiences of food security, income generation activities, understanding different coping strategies of the households, survivor tactics of the households and their overall view about social grants in general. Structured questionnaires, administered face-to-face, used to collect data were developed in English and translated during questioning to local languages for ease of understanding and cooperation (Babbie, 2001; Bailey, 1987). The survey questionnaire consisted of questions covering household's background socio-economic information, household composition and profile of household head, household assets, sources of income and household expenditure by type of expenditure and survival strategies. The full sample consists mainly of low-income households in the study areas.

Household's vulnerability to food insecurity status varies in terms of exposure and their numbers in the family. Others are more prone to food insecurity than others (World Bank, 2015). As such, in order to determine household food security status, this study administered a questionnaire that sought to probe individual respondent's behaviours and experiences associated in meeting food challenges (Swindale and Bilinsky, 2006).

5.5.1 Household Food insecurity Scale (HFIAS)

The USAID developed Household Food Insecurity Access Scale (HFIAS) was used in the study. This scale was used to determine if households ever experienced food uncertainties in the last 30 days. Basically incorporates nine specific questions of interest which questions the changes that a household has undergone with reference to their diet or consumption patterns that are related specifically to creating tensions over food or uncertainty about the next meal. The generic nine HFIAS questions were posed to all households surveyed and their responses were computed and analysed.

The administered questionnaire consisted of twenty-seven questions relating to their first-hand experience on food insecurity of respondents. This was accompanied by questions aimed at establishing frequency, also the regularity of consumption by respondents (Swindale & Bilinsky, 2006). The portfolio collection method establishes the extent of household food insecurity. It uses the frequency of occurrences and limitations in classifying each case of food insecurity. In order to determine food security, it is a requirement that the answers to the nine questions are 0 or 1; and if there are such answers as 2 or 3, they may not occur more than once. In brief we expect answers here to be mostly no (= 0) with some tolerance for yes (= 1) and really no more than one question whose alternative responses are spread over of 2 or 3 options.

For households to be considered severely food insecure, the questions that were posed cover those for which responses are spread into three namely: rarely, sometimes and often. As such the majority of household that are severely food insecure would have responded in one way or another to many questions whose responses are spread over three possible answers and at the same time respond at least one yes or no question. The other two categories of food insecurity will fall between the two extreme cases. In order to determine food insecurity, households that answer at least three conditions of food insecurity regarded as food insecure, meaning that, they constrained in their ability to provide for all or other members of the household. Food Secure households are those that are comfortable about the preparedness of the household for their next meal and having enough food. In this instance there is a regular presentation of food in a consistent predictable manner, for consumption by the household at large.

According to Swindale & Bilinsky (2006) the following categories explain the household's food (in) security status:

- Food Secure: There is a predictable flow of food to the household at a predetermined and consistent manner. This is a desired food security state in healthy economy, where there is certainty of the next meal.
- Mildly Food insecure: "Household anxious about not having sufficient food, usually consume inadequate diet". In this instance household normally start employing creative ways of planning for food in order to avoid starving themselves.

- Moderately Food insecure: “Households began sacrificing quality on a continuous basis by consuming inadequate diet and eating less preferred food”. Families normally respond by reducing food intake by eating once or twice a day.

- Severely Food Insecure: “Household experience high incidence of food security, the condition of reducing meal size and number of meals worsen each day”. This is a dire situation requiring serious government intervention and support.

5.6 METHODS OF DATA ANALYSIS

This study adopted four statistical forms of analyses of its results:

- Descriptive statistics;
- The Correlation Analysis;
- The Analysis of variance (ANOVA) model and;
- The logit regression model (Ndobo & Sekhampu, 2013).

Data were captured in Microsoft Excel (MS Excel 2010). For analyses and interpretation purposes, the Statistical Package for Social Sciences statistics was extensively utilised. Descriptive analyses were completed. Pearson correlations were run to determine bivariate linear relationships between variables that were continuous variables. T-tests or two-way ANOVA with post-hoc tests were used for comparisons of continuous variables between groups. Two-Way ANOVA was used on the three different locations and households’ food security statuses. The significance level was set at $P<0.05$ or higher.

5.6.1 Descriptive Statistics of Data Collected In the Study Areas

Descriptive statistics are useful analtical tools used in the interpretation of data (Coates *et al.*, 2007). It uses key variables in explaining the data by presenting in easily presentable form. This could be presented either in the form, of Mean, Ranges and Standard Deviations (Coates *et al.*, 2007). Descriptive statistics are useful for current analysis. In this case, the situational analysis of household food security and household receipt of social grants. The intention is to view the data in such a way that it provides a bird’s eye view, that encourages further interrogation with much more rigorous statistical tools.

The Household Food Insecurity Access Scale was adopted and the results interpreted thereafter into three results (Webb *et al.*, 2006). These categories are food secure, mildly,

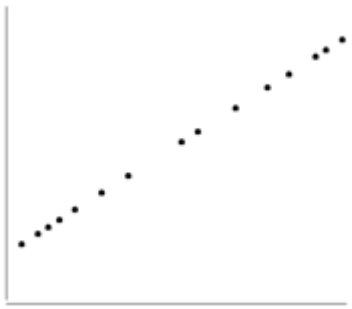
moderately and severely food insecure depending on the feedback obtained (Coates *et al.*, 2007).

5.6.2 Pearson's Correlation Coefficient

Correlation is determines the strength of relationship between variables (Migotto *et al*., 2006). Pearson's correlation coefficient (r) determines the strength of importance , normally between two variables (Hoyos & Meveden, 2009; Miller *et al*., 2011). Normally a scatter plot is used to higlight the relationship between two continuous variables to check for linearity. The importance of determining correlation is to determe the distance from the linear line. Points closer to a straight line, reflect the higher the strength of association between the variables (Behrman & Deolher, 1988; Migotto *et al.*, 2006).

Figure 5.1: Values of Pearson's correlation coefficient

Pearson's correlation is defined as "coefficient (r) for continuous (interval level) data ranges from -1 to +1 " (Behrman & Deolher, 1988; Migotto *et al.*, 2006)

r = -1		In this case there is a negative slope with data refelected on a straight line as reflected
r = 0		In this case points are scattered haphazardly and there is no indication of the existence of the relationship
r = +1		In this case as the graph reflects there is a positive relationship with data being on a straight line

In the third graph above, the correlation is positive and is reflected when variable respond in unison, whilst negative corelation reflects response that conjures different opposite response from two variables (Migotto *et al.*, 2006).

The t-test is used to reflect the importance of relationship between the two chosen variables. In this case the importance is reflected as above zero (Migotto *et al*., 2006). This is normally attributed to data sampled randomly .In cases where this has not been done, the preferred form of correlation normally is Spearman's coefficient (Behrman & Deolher, 1988).

5.6.3 Analysis of variance

In this study a two-way ANOVA analyses was conducted. The two-way ANOVA analysis reflected the examination of differences between the food security status variable and its main determinants. This included the following covariates: age as well as gender of household head, marital and employment statuses, area of residency, previous month's income, household size, education of household head, sources of income, grants received etc.

A variance in household food is reflected when the outcome of food security measured reflects deviations from expected results. According to Davids & Gouws, (2011) "Variances can be either positive, that is better than expected or adverse that worse than expected". A favourable variance could be interpreted to imply that means for achieving household food security are lower than predicted or that food security is higher than expected given the same level of main determinants. By contrast, an adverse variance might arise because the means for achieving household food security are higher than predicted or that food security is lower than expected given the same level of main determinants.

Adverse variances (negative) are of more concern especially when they are unforeseen, especially when they are foreseeable and in terms of the absolute as well as the relative size of the variances. It is also essential to know the cause(s) of these variances and the degree to which they are temporary or permanent. O'Connell, 2006 defines the Analysis of variance (ANOVA) "as a collection of statistical models used to analyse the differences among group means and their associated procedures (such as "variation" among and between groups)". Simplistically put, ANOVA determines whether the characteristics t-test of the broader group are exhibited and equal in other groups, and hence allows for generalization of the results to more than one group (Grobler, 2015). ANOVAs are therefore a useful tool for more variables in terms of importance of each variable (Davids & Gouws, 2011).

5.6.4 Logistic regression model

A logit regression model was utilized to explain the primary variables and their significance in explaining food security of household. This study used ordered and binary probit models to estimate household gaps in food security. In doing this, two categories of households were identified: food secure and insecure. Some regressors were included, such as access to credit, access to bank accounts, membership of stokvels, remittances from children, garden

vegetables, proximity to soup kitchens, receipt of social security grants, remittances from relatives working outside of the area, number of family members suffering from chronic diseases which deplete household incomes/savings, access to other income generation opportunities, engagement in different SMME types, age, gender of recipients etc.)

A logistic regression model identifies the effects of a number of independent variables on one or two dependent variables (O'Connell, 2006). The Regression analysis is used extensively to predict the likely impact of one variable on the other. It is used greatly for forecasting purpose (Baddeley & Barrowclough, 2009). The occurrence reflects either the probability that occurrences will or not succeed (O'Connell, 2006).

For this purpose, the probability is demonstrated as follows:

- 1, if p is achieved probability of success
- 0, if p is unsuccessful (O'Connell, 2006).

When the answer is greater than (0.1) it indicates the likely probability of a success. In instances where the answer is reflected by less than (0.1) it reflects a failure; and in this case the odds are far smaller than the expected success (Simonoff, 2012). In this situation, the random variables represent a binary response,

Y_1,..... With 0i = prob (Y_1=1). In this case there is a row vector for each 1....., n x_i = (x_{i1}, ...,) of the explanatory variable (Cox and Snell, 1988).

The analysis sought to establish the effect of either demographic or socio-economic variables such as household income, marital status, gender, educational attainment, household size, age, employment status, and access to social grants and help from others, on household food security.

5.6.4.1 The Estimated Regression model

This study adopted the regression model and is represented in this manner below:

$$HHFIS_t=\beta_0+\beta_1 GENDER_i+\beta_2 AGE_i+\beta_3 HHSIZE_i+\beta_4 MSHH+\beta_5 EDU_i+\beta_6 ESHH$$
$$+\beta_7 INCOME+\beta_8 ASSG_i+\beta_9 LFPHM_i+\beta_{10} LOCATION_i+\beta_{11} ACCESS_i+e_t \quad \text{..... (1)}$$

Where HHFISi = food insecurity status (1) reflecting a case a household being food secure and 0 depicting a case of a household i being food insecure);

• $GENDERi$= Gender of household head. Battersby (2011) and other studies attributes greater significant role-played by gender on food security. It suggests female-headed household are negatively affected than their male counterparts. This study moves from that premise that male headed household are expected to be more food secure than their female counterparts. This variable in this study is represented by a dummy variable:

$GENDER_i$ is represented as Male = 0; Female = 1.

• AGE_i = Age of household head. Age is perceived as key variable in determining the status of household food security. Age is directly related with food security and was self-reported in years (Ndobo and Sekhampu, 2013) highlights the inverse relation. It is reflected in their studies that, the older the person, the higher the level of his food insecurity. This attribute highlight that the younger people are expected to be productive .It therefore reflects that age is reflected as a continuous variable.

• $HHSIZE_i$= the composition of the family. It is expected that in large family homes, to be much more food consumption (Olayemi, 2012). A bigger household size may be synonymous with increased consumption needs and higher dependants that hardly contribute to food production or income generating activities that would promote food security. This study thus creates the same expectation, that active and employed households are supposed to be food secure.

• $MSHH_i$ = this depicts the marital status of household head. A study by Ndobo and Sekhampu (2013) that household comprising a married family are expected to food secure. It is expected that both parties contribute to food consumption and maintenance. Single households on the other hand are sole contributors to the household survival (Grobler, 2015). The question included six options to choose from and was collated for the benefit of interpretation (Never Married, Married, Divorced, Separated, Living together, Widow/er). This variable is included to denote this dummy variable as follows:

$MSHH_i$ = 1 (Married household head /staying together or 0 (single household head).

• EDU_i= Education level of the head of household. Education is perceived as a key factor for advancement and development of household (Ndobo, 2013). It influences the future employment status and general welfare of households (Kuwornu, *et al.*, 2013). Babadunde, *et al.*, 2007 suggest that attaining more than a primary school education is a key driver in reducing the likelihood of a household ever being poor. The study thus expects positive contribution of education to food security status of households. This study summarises the household head, education only.

• $ESHH_i$ = Employment status of household head. Employed households are expected to contribute towards food security at home. It is thus expected that this study will confirm that positive contribution. The variable for this is outlined by a dummy variable as follows:

$ESHHi$ = 1 (reflecting employed household head) or 0 (depicting an unemployed household head).

• $INCOME_i$= reflects cumulative household monthly income. Income is perceived as an important variable in determining food security. In this study, income encompasses all forms of sources of income available to the household to spend on food (Sekhampu and Ndobo, 2013). There is well-documented positive association between food security and family income. This relationship is well covered in the existing studies (Van der Berg, 2006; Grobler, 2015; Ndobo and Sekhampu, 2013).

•$ASSG_i$= whether the household receives one form of social grant or the other or help from family, neighbours and friends.

•LFPHM$_i$= Labour force participation of household members i.e. the number of members of the particular households that are participating in the labour force.

•$LOCATION_I$ = whether the household is located in Atteridgeville, Soshanguve or Tembisa

•ACCESS$_i$ = stand for access to food. Access to food through own production is still a challenge in the City of Tshwane. Many City residents are more dependent, compared to their rural counterparts, on the cash economy in order to acquire food. Maxwell, *et al.* (2010) established that urban households purchased more than 90 percent of the food they survived on. In this kind of situation, any disturbance to urban food system will invariably push households to food insecurity.

5.7 SOCIO-ECONOMIC CHARACTERISTICS OF THE STUDY POPULATION

The study presents a high-level statistical data in three neighbourhoods of Gauteng as well as a brief background of the structural composition of the three neighbourhoods of Gauteng, of which the study was undertaken. The aim is to understand the factors and socio economic conditions of the household and their likely impact on food security. This will also provide an analysis of the income levels, or their dependence on social grants for livelihood. The areas are:

- Atteridgeville
- Soshanguve
- Thembisa

The aim is to display a comparison the significance of food security status of households, as it manifests itself in rural and urban household, in the Gauteng neighbourhoods. The tables below show the total population and number of households in the three neighbourhoods of Atteridgeville, Soshanguve and Tembisa.

Table 5.1: Geographical Populace of Neighbourhoods sampled

Area	Population	Percentage
Atteridgeville	64 425	7%
Soshanguve	403 162	43%
Tembisa	463 100	50%

Source: Study Results

Table 5.2: Gender composition within the Neighbourhoods sampled

Area	Male	Female	Total
Atteridgeville	31 075 (48%)	33 350 (52%)	64 425
Soshanguve	198 578 (49%)	204 584 (51%)	403 162
Tembisa	249 814 (54%)	213 286 (46%)	463 100

Source: Study Results

Table 5.2: Gender composition within the Neighbourhoods sampled composition in the three neighbourhoods sampled. In Atteridgeville and Soshanguve, there are slightly more females than males, whilst Tembisa has more males than females. In Atteridgeville the percentage of females is 52 percent compared to 48 percent of males. In Soshanguve, the population is made up of 52 percent females and 48 percent males. In Tembisa, the percentage of males is 54 percent compared to 46 percent of females.

Table 5.3: Geographical Populace of Neighbourhoods according to race

Population Group	Atteridgeville	Soshanguve	Tembisa
Black African	63 839 (99.1%)	399 804 (99.2%)	458 151 (98.9%)
Coloured	205 (0.3%)	1 137 (0.3%)	762 (0.2%)
Indian	72 (0.1%)	489 (0.1%)	684 (0.1%)
White	106 (0.2%)	294 (0.1%)	317 (0.1%)
Other	203 (0.3%)	1 440 (0.4%)	3 187 (0.7%)

Source: Study Results

It is to be expected that the three areas should exhibit more Africans than other race groups, since these are the areas commonly habited by Black households. The area with the highest percentage of Africans was Soshanguve (99.17%) followed by Atteridgeville with 99.09 percent of the population being African. The percentage of Africans in Tembisa was lowest with 98.93 percent. In Atteridgeville, Coloureds accounted for 0.32 percent, Indians accounted for 0.11 percent, Whites accounted for 0.16 percent and others accounted for 0.3 percent. In Soshanguve, Coloureds accounted for 0.28 percent, Indians accounted for 0.12 percent, Whites accounted for 0.07 percent and others accounted for 0.36 percent. In Tembisa, Coloureds accounted for 0.16 percent, Indians accounted for 0.15 percent, Whites accounted for 0.07 percent and others accounted for 0.69 percent (World Bank, 2015; Stats SA, 2015).

Table 5.4: Employment statistics of three neighbourhoods in Gauteng Province

Status	Atteridgeville	Soshanguve	Tembisa
Employed	19 691 (42%)	112 214 (40%)	160 839 (46%)
Unemployed	10 320 (22%)	63 504 (23%)	88 225 (25%)

Discouraged work-seeker	1 465 (3%)	14 988 (5%)	11 870 (3%)
Other not economically active	14 893 (32%)	88 888 (32%)	88 173 (25%)

Source: Study Results

It is more than evident that the discussion primarily pertains to black Africans. This is further exacerbated by a rather high unemployment rate, which directly impacts food security. It was mentioned earlier that the EPWP, despite its design and objectives, did not and could not address the question of employment successfully. There have been several discussions along these lines to evaluate and assess the benefits and failures of the EPWP. Tembisa had the highest rate of unemployment, with 25 percent of the population unemployed. Soshanguve followed this at 23 percent and lastly Atteridgeville at 22 percent. The percentage of discouraged work-seekers was 5 percent in Soshanguve and 3 percent in both Atteridgeville and Tembisa (World Bank, 2015: Stats SA, 2015).

Table 5.5: Household Income statistics of Neighbourhoods Income level

	Soshanguve	**Tembisa**	**Atteridgeville**
No income	188 335 (51.47%)	213 938 (51.00%)	28 236 (49.11%)
R 1 - R 4800	52 825 (14.44%)	40 993 (9.77%)	4 443 (7.73%)
R 4801 - R 9600	10 621 (2.90%)	13 280 (3.17%)	1 613 (2.81%)
R 9601 - R 19 600	34 836 (9.52%)	36 712 (8.75%)	6 494 (11.29%)
R 19 601 - R 38 200	30 826 (8.42%)	54 077 (12.89%)	5 346 (9.30%)
R 38 201 - R 76 400	22 558 (6.17%)	39 508 (9.42%)	5 097 (8.86%)
R 76 401 - R 153 800	16 348 (4.47%)	15 572 (3.71%)	3 784 (6.58%)
R 153 801 - R 307 600	7 818 (2.14%)	4 209 (1.00%)	1 931 (3.36%)
R 307 601 - R 614 400	1 216 (0.33%)	760 (0.18%)	430 (0.75%)
R 614 001 - R 1 228 800	151 (0.04%)	169 (0.04%)	46 (0.08%)
R 1 228 801 - R 2 457 600	224 (0.06%)	155 (0.04%)	43 (0.07%)
R 2 457 601 or more	142 (0.04%)	128 (0.03%)	35 (0.06%)

Source: Study Results

Table 5.5 above indicates income statistics of the households in the three areas survey. The picture reflects that, of the total populace of the neighbourhoods surveyed, being 842 899, those who do not earn any income at all total 430 509. This represents 51.07 percent households with no income at all.

It would therefore be a worthwhile exercise to analyse the factors that influence both employability and level of earning. To draw this inference it seemed prudent to plumb the statistics of the educational levels of the populace. Table 5.6 below provides this profile.

Table 5.6: Level of Education within the Neighbourhoods

Education Level	Atteridgeville	Soshanguve	Tembisa
No schooling	1 959 (4%)	14 156 (6%)	11 969 (4%)
Some primary	2 501 (6%)	24 198 (10%)	23 599 (7%)
Completed primary	1 090 (2%)	9 705 (4%)	11 244 (3%)
Some secondary	14 340 (33%)	89 113 (36%)	124 983 (38%)
Grade 12/Std. 10	16 728 (38%)	87 181 (35%)	129 754 (40%)
Higher	7 024 (16%)	26 492 (11%)	25 078 (8%)
Other	-	-	-

Source: Study Results

Once again it should be noted that the above table illustrates that the low overall levels of education do impact on earning capacity. The statistics from the three-sampled area indicates that 9 percent had a tertiary education; 5 percent had no schooling, 8 percent had some primary school, 4 percent had completed primary school, 37 percent had some secondary schooling whilst 38 percent had completed high school. “

When considering the impact of Social Security the statistics are presented as a backdrop to the eligibility and qualifying number of individuals as opposed to the general populace of the geographical area surveyed that may possibly be included within the beneficiary spectrum.

5.8 DESCRIPTIVE STATISTICS OF RECEIPT OF SOCIAL GRANTS BY CATEGORIES OF GRANTS

Descriptive statistics are useful analtical tools used in the interpretation of data (Coates *et al.*, 2007). It uses key variables in explaining the data by presenting in easily presentable form. This

could be presented either in the form, of Mean, Ranges and Standard Deviations (Coates *et al.*, 2007). Descriptive statistics are useful for current analysis. In this case, the situational analysis of household food security and household receipt of social grants. The intention is to view the data in such a way that it provides a bird's eye view, that encourages further interrogation with much more rigorous statistical tools.

In this section, descriptive statistics of the 3 townships, comprising a total of 27 household in was analysed extensively. The following was determined as indicated by the statistics tabled hereafter. The Household Food Insecurity Access Scale was adopted for the purpose of this study (Battersby, 2011) These categories are, "food secure, mildly, moderately and severely food insecure" depending on the feedback from questions posed to respondents (Grobler, 2015; Ndobo and Sekhampu, 2013).

Table 5.7: Descriptive Statistics of receipt of social Grants by categories of Recipients

	Category of Grants						
Grant Type or Category		Number of Respondents	Mean	Standard Deviation	Standard Error	Significance test statistic	Level of significance
Social Grant	Beneficiary of Social Grant	193	0.616	0.426	0.031	Alpha	20%
	Non Beneficiary	634	0.636	0.401	0.016	T	-0.588
Child Grant	Beneficiary of Child Grant	390	0.675	0.395	0.020***	Alpha	1%
	Non Beneficiary	437	0.531	0.417	0.02	T	5.055
Other Grant	Beneficiary of Other Grant	40	0.575	0.408	0.064	Alpha	30%
	Non Beneficiary	787	0.636	0.406	0.014	T	-0.914
Help from Family or Relatives	Beneficiary of Help from Family or Relatives Grant	249	0.723	0.397	0.025***	Alpha	1%
	Non Beneficiary	578	0.592	0.404	0.017	T	4.313
All Grants and Help	Beneficiary of All Grants and Help	619	0.659	0.403	0.016***	Alpha	1%
	Non Beneficiary	208	0.486	0.395	0.027	T	5.395

*** *Denotes significance at the 1% level*

Source: Study Results

Table 5.7 provides a statistical description of household's receipt of social grants in the study areas. The grants analysed are grouped into four categories, namely, 1 Social grant (Old Age Pension from Government), 2 Child Support Grant, 3 Other Grant from Government(Foster Care Grant, Disability Grant etc.), 4 Help from family and relatives. All Grants and Help is the sum of all grants from category 1 to category 4. For each grant type the respondents are split into two groups, Group1 being the Beneficiaries of the respective grant and Group 2 being the Non Beneficiaries with respect to the specified grant. The Beneficiaries group is then compared

to the Non Beneficiaries group. Some Recipients of old age grants are also typically beneficiaries of child grants or other grants since in most households it is possible to have 1 member receiving old age pension and another member in the same household receiving child grant, hence overlapping of grants in some households is common. Similarly, households that receive all categories of social grants as well as help from others may also be beneficiaries of child grants from the State.

The impact of the grant on the household was measured on education using the school enrolment rate of children. The school enrolment rate of children in the household is expressed as the proportion of children of school going age (6-13 years) in the household who are currently enrolled in school. The values of the proportion range from 0 to 1. Households with proportion values closer to 1 are deemed to have a relatively high number of children of school going age currently enrolled in school than households with values closer to 0. Generally, it is hypothesised that beneficiary households have higher rates of school enrolment than non-beneficiary households. This is in view of the fact that by receiving monthly cash grants, such households should be more able to afford petty expenditures associated with school enrolment and retention such as the cost of books, uniforms and basic stationery than their counterparts in non-beneficiary households. Table 5.6 presents the results of the study on the school enrolment rate by grant type.

From the results in Table 5.6, it can generally be assumed that on the average beneficiary households have a relatively high number of children of school going age currently enrolled in school than non- beneficiary households. The mean of the All Grant and Help Beneficiaries Group is 0.659 and the mean of the Non-Beneficiary Group is 0.486, and the observed differences in school enrolment rate are statistically significant at 1%. However when this is further analysed each grant separately the results for some grants are not statistically different between the beneficiaries group and the non-beneficiaries group. With respect to Social Grant the results are not significant, the Social Grant Beneficiaries Group has a mean of 0.616 and the Non Beneficiaries Group of Social Grant has a mean of 0.636 with level of significance at 20%, therefore the observed difference in mean are not statistically significant. Similarly with respect to Other Grants from Government the level of significance for this grant is at 30%, therefore the Beneficiaries mean of 0.575 and the Non Beneficiaries mean of 0.636 are not statistically significant.

The Beneficiaries Group of Child Grant had a mean of 0.675 and the Non Beneficiaries Group of the Child grant had a mean of 0.531. The results of the test show a computed t-value of (5.055) at 825 degrees of freedom and a significance value of (1%). Consequently, since the significance value is lower than the given level of significance (5%) the null hypothesis that there is no difference in the mean school enrolment rate between the two groups is rejected in favour of the alternative hypothesis. This therefore implies that a statistically significant difference exists between the means of the two groups with the school enrolment rate among the beneficiary group being averagely higher than that of the non-beneficiary group. Based on this result, the general hypothesis that beneficiary households have a higher proportion of children of school going age (6-13 years) who are currently enrolled in school than non-beneficiary households is accepted. Similarly with respect to Help from family or relatives the level of significance for this grant is at 1%, therefore the Beneficiaries mean of 0.723 and the Non Beneficiaries mean of 0.592 are statistically significant.

The results of findings in Child Grant and Help from family or relatives point to the developmental impacts of social cash transfers. By investing the child grant into education related expenses for children in the household beneficiaries are inherently investing efforts towards building human capital, which is a functional prerequisite for breaking the intergenerational transmission of poverty. Evidently both the Child grant and Help from family or relatives are highlighting the fact that the grants enable access to education for the poor and can therefore be considered as a major relieve especially in times of difficult financial times and high unemployment. The fact that beneficiaries spend part of the grant in education or related expenditures shows that the poor themselves appreciate the essence of the grant and thus invest it into safeguarding or minimising the financial barriers associated with the risk of lack of education. Implicitly, more gains can be achieved in relation to education if the child grant amount is adjusted upwards.

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Table 5.8: Progression of household income in relation to the receipt of child grant in the study areas

	R1-R500	Child grant	R501-R1000	Child grant	R1001-R1500	Child grant	R1500 - R2000	Child grant	R2000 - R2500	Child grant	R2501 and above	Child grant
Mean	360	214.5455	786.8182	428.1818	1303.03	595	1740.435	521.5	2411.429	967.1429	4541.41	592.6846
Standard Error	21.36267	51.29883	31.68696	63.42885	25.79231	118.4629	26.13796	107.2387	21.8685	48.04335	265.6912	43.14097
Median	340	330	680	640	1360	320	1740	340	2420	1020	3200	640
Mode	340	340	680	680	1400	0	1630	340	2420	1020	2800	0
Standard Deviation	70.85196	170.139	148.625	297.5077	148.1656	626.8469	125.3533	479.5862	57.85861	127.1108	3633.272	526.6026
Sample Variance	5020	28947.27	22089.39	88510.82	21953.03	392937	15713.44	230002.9	3347.619	16157.14	13200665	277310.3
Kurtosis	1.629048	-1.9637	-1.48408	-1.48867	-0.18614	-1.9423	-0.0134	1.781747	4.580067	6.822871	5.989544	3.48137
Skewness	1.705106	-0.65891	0.654406	-0.58799	-0.83515	0.177766	0.531369	1.491977	-1.75776	-2.60458	2.161914	1.357528
Range	200	340	380	680	480	1400	460	1700	190	340	23780	2970
Minimum	300	0	620	0	1020	0	1540	0	2290	680	220	0
Maximum	500	340	1000	680	1500	1400	2000	1700	2480	1020	24000	2970
Sum	3960	2360	17310	9420	43000	16660	40030	10430	16880	6770	849243.6	88310
Count	11	11	22	22	33	28	23	20	7	7	187	149
Largest (1)	500	340	1000	680	1500	1400	2000	1700	2480	1020	24000	2970
Smallest (1)	300	0	620	0	1020	0	1540	0	2290	680	220	0
Confidence Level (95.0%)	47.59899	114.3009	65.89664	131.9075	52.53722	243.0659	54.20681	224.4532	53.51029	117.5578	524.1556	85.25184

Source: Study Results

Table 5.8 shows the progression of household income in relation to the receipt of child grant in the study areas.

For household incomes that are less than R2000, it appears those households are receiving one child grant per household. The means as well as the mode of child grant receipt is approximately R340. However, as household incomes increase beyond R2000, the possibility also increases of benefitting from increased child grant receipts. In these instances, households could benefit by receiving two or three child grants per households. These results are significant at the 5 percent level.

Table 5. 9: Descriptive Statistics of Receipt of Old Age Grant by categories of income among poor households in the study areas.

	R1001 - R1500	Old age grant	R1501 - R2000	Old age grant	R2001 - R2500	Old age grant	R2500 and above	Old age grant
Mean	1308.824	651.5385	1740.435	594.4444	2411.429	1187.143	3118.871	1670.213
Standard Error	25.6841	131.5806	26.13796	161.3813	21.8685	198.3829	202.5685	172.8821
Median	1360	510	1740	0	2420	1400	2860	1600
Mode	1400	0	1630	0	2420	1400	2800	2800
Standard Deviation	149.7627	670.9318	125.3533	684.683	57.85861	524.8719	1595.026	1185.22
Sample Variance	22428.88	450149.5	15713.44	468790.8	3347.619	275490.5	2544109	1404746
Kurtosis	-0.17058	-2.10475	-0.0134	-2.18177	4.580067	6.879182	1.418804	-1.51968
Skewness	-0.83284	0.055041	0.531369	0.252322	-1.75776	-2.61733	0.969864	-0.42203
Range	480	1400	460	1400	190	1410	7660	2800
Minimum	1020	0	1540	0	2290	0	340	0
Maximum	1500	1400	2000	1400	2480	1410	8000	2800
Sum	44500	16940	40030	10700	16880	8310	193370	78500
Count	34	26	23	18	7	7	62	47
Largest (1)	1500	1400	2000	1400	2480	1410	8000	2800
Smallest (1)	1020	0	1540	0	2290	0	340	0
Confidence Level (95.0%)	52.25469	270.9952	54.20681	340.4849	53.51029	485.4255	405.0608	347.9935

Source: Study Results

Table 5.9 above demonstrates that the average receipt of Old Age Grant tends to be flat irrespective of household income. Exceptions occur when household incomes rise beyond R2500 where there could be two or more people receiving this category of social grants from the State. Similarly, the average receipt of other categories of grants tends to be flat irrespective of household income. These results are significant at the 5 percent level.

Table 5.10: Descriptive Statistics of Receipt of Other Grants by categories of income among poor households in the study areas

	R0-R500	Other grants	R501-%1000	Other grants	R1001-R1500	Other grants	R1501-R2000	Other grants	R2001-R2500	Other grants	R2501 and above	Other grants
Mean	360	0	786.8182	0	1308.824	130.4348	1740.435	0	2411.429	0	4500.88	134.0388
Standard Error	21.36267	0	31.68696	0	25.6841	90.11078	26.13796	0	21.8685	0	263.9972	61.77014
Median	340	0	680	0	1360	0	1740	0	2420	0	3180	0
Mode	340	0	680	0	1400	0	1630	0	2420	0	2800	0
Standard Deviation	70.85196	0	148.625	0	149.7627	432.1561	125.3533	0	57.85861	0	3600.441	626.8985
Sample Variance	5020	0	22089.39	0	22428.88	186758.9	15713.44	0	3347.619	0	12963178	393001.7
Kurtosis	1.629048	0	-1.48408	0	-0.17058	8.605442	-0.0134	0	4.580067	0	6.369735	73.94166
Skewness	1.705106	0	0.654406	0	-0.83284	3.1404	0.531369	0	-1.75776	0	2.217717	8.106595
Range	200		380		480	1500	460	0	190	0	23780	5946
Minimum	300	0	620	0	1020	0	1540	0	2290	0	220	0
Maximum	500	0	1000	0	1500	1500	2000	0	2480	0	24000	5946
Sum	3960		17310		44500	3000	40030	0	16880	0	837163.6	13806
Count	11	0	22	0	34	23	23	0	7	0	186	103
Largest (1)	500	0	1000	0	1500	1500	2000	0	2480	0	24000	5946
Smallest (1)	300	0	620	0	1020	0	1540	0	2290	0	220	0
Confidence Level (95.0%)	47.59899	0	65.89664	0	52.25469	186.8783	54.20681	0	53.51029	0	520.8321	122.5208

Source: Study Results

Table 5.5 above demonstrates that the average receipt of other grants tends to be non-existent for most households, the only exception is category income R1001 – R1500 and income above R2500. The mode of other grants benefit is zero across all categories of income; this suggests that most households are not receiving any help in the form of other grants. It is also disappointing to note that the only source of income for majority of these households is child grant. Category R0 –R500 have an average income of R340 (1 child family) and category R501 –R1000 have an average income of R680 (2 child family), category 1001 – R1500 have an average of R1360 (3 child family, R1320) and similarly the remaining three categories, it can be shown that their average income are a multiple 4, 5, 6 of child grant. For the two categories where household are receiving other grants the means are 130.4348 and 134,0388 with standard deviations of 432.1561 and 626.8985 respectively, this indicates that the values are widely scattered away from their means. The skewness on the two categories also indicates that the distribution is right skewed, long tail to the right that is there is a lot of zero values and few big positive values. The Kurtosis of the two-income category are 8.605442 and 73.94166 respectively, these values are far away from zero. This means that the distribution of other grant does not resemble a normal distribution.

5.9 CONCLUSION

The study adds to the limited evidence available in South Africa on food security in low-income urban areas, especially in wealthy provinces. This study made use of the Household Food Insecurity Access Scale (HFIAS). The HFIAS is aimed at determining the frequency of experiencing food insecurities over a 30-day period. Standard and frequent questions are posed to determine anxieties or lack thereof of food insecurities as experienced by households over this period.

Among others, results show that the education experience of the household head is significantly linked with the explanatory variables such as income of the household Head and the education of the Household Head. Households whose heads have lower qualifications (Grade 1-6) or who have no schooling experience, tend to be highly correlated with benefitting from old age grants. Households whose heads have tertiary qualifications are highly correlated with the receipt of child grants and other grants. As expected, only households that are headed by old people receive old age grants.

This study reflects strong significant correlationand being negative and between the HFIAS score and household income ($r = -0.485$, $p < 0.000$). There are significant variations in the

population means of recipients of old age grants when classified by different age categories. In the specific case of recipients of child grants, there are significant variations in their population means among those aged 45-54 and those recipients that are older than 65.There are also significant variations in the population means of recipients of social grants by gender and location of beneficiaries. Variances are lowest among those receiving other grants. It is easy to explain this. Other grants cover a whole of state support for war veterans, who are disabled or older than 60, and whose numbers are known. It also covers disability grant, whose eligibility for support has to be proven, perhaps with medical certificates etc. Qualification for Grant-in-Aid also requires a good amount of documentary support.

The fact that there is a minimum variance in the population means of beneficiaries of old age pension is simply due to the fact that you have to attain a designated old age (60 years and above) in order to qualify. This must be backed up by the presentation of a valid South African national identity document. Variances in the population means of food secure households, households experiencing food insecurity and those experiencing the other extreme form of severe food insecurity are significant by categories of social grants that households receive. Variances in the population means of mildly food insecure households are significant only among those that receive old age and child grants.

These variances increase, as the household becomes better food secure in their location. On the contrary, though variances in the population means of households' experiences of food insecurity also vary by gender of the head of households, such variances decrease as the household becomes better food secure. This might underlie the important role of women in ensuring low variability in household food security as experiences of food insecurity improves. In a food secure country, the urban poor in South Africa face household food security challenges. During 1999- 2008, food insecurity was lowest in Western Cape during 1999-2008 but the sharpest decline was in Northern Cape and Gauteng Provinces. Among other reasons, increased urbanization imposes stress on family welfare in a country experiencing high unemployment rate and high crime rate. Escalating food prices and associated cost of living in urban areas, do not have sympathy for the urban poor.

Food insecurity may lower a country's Gross Domestic Product. This will have dare consequences for Africa's second largest economy and the continent's most advanced. Attempts to achieve temporary food security might entail disposal of household assets or borrowing money or food from families and neighbours, a situation that could jeopardize the ability to generate income in the future. Family members may seek employment elsewhere, a

situation that might lead to or consolidate existing phenomenon of female headed or child headed households.

The results obtained suggest the significant value attached to gender in explaining food security status of households. Thus gender is seen as a driving force in understanding food security status of households. Food security varies substantially between male headed (MHH) and female headed households (FHH) .The male headed households (MHH) are perceived to be better equipped in dealing with food security than their female headed households (FHH) counterparts. The study reflects that MHH at (66.5%) and FHH at (58.3%) FHH) were thus better off than their female counterparts. All forms of food insecurity are depicted very high for FHH including " mildly, moderately and severely food insecurity" of 7.8 percent 10.9 percent and 23.0 percent respectively.

Employed: It is a foregone conclusion that being employed will definitely impact on the food security of any household but what is worthy of note is that only 78.7 percent of those employed are food secure and as much as 10.5 percent of employed households are severely food insecure. It should also be noted that between only 6.1 percent are mildly food insecure and 4.7 percent are moderately food insecure which indicates that of those employment does not guarantee food security. In total 21.3 percent of employed household heads is food insecure at varying levels. It is therefore alarming that a similar pattern exists for the unemployed as well with 47.7 percent being food secure and 30.1 percent being severely food insecure.

Income: those earning <R2000 are severely food insecure at a concerning level of 30 percent and yet the peak lies within the band that earns <R2000 at as high as 34.3 percent. However, within the same 2 bands 20.0 percent and as much as 45.9 percent considered themselves food secure. A deviation from the expected is that 2 respondents with No income considered themselves Food Secure. The other concerning statistic is that of those earning between R6001-R8000, 6.7 percent were severely food insecure and 2 respondents, a total of 1.9 percent earning above R8000 per month were severely food insecure.

Education attainment: endorses that the level of academic achievement has a very high impact on a household's food security. Those with "no schooling" reflected the lowest percentile of food security at 48.1 percent. This increases incrementally from up to grade 3, grades 4 to 7 and then grades 8-11. However it should be insightful to notice that the segment of grade 8-11 is 59.6 percent and catapults exponentially to 83.3 percent with the household head having grade 12 standard of education. The statistic becomes even more surprising that those household

heads with a tertiary diploma or degree enjoyed 100 percent food security. This pattern is also reflected in the classification of severely food insecure, which oscillates between 28.3 percent for those with “no schooling” and decreases gradually, still within the 30-percentile range but decreases significantly to 6.1 percent for those household heads with Grade 12 education. Those with a Tertiary Diploma or Degree recorded 0 percent as being severely food insecure. These statistics prove beyond reasonable doubt that food security is significantly influenced by the education of the head of the household.

Labour force: indicates the number of years that household heads have been gainfully employed. This reflects in certainty a definite significance displayed by years of employment and the level of household food security. Of those employed for under a year 50.2 percent are food secure in relation to 30.0 percent as being severely food insecure. This figure rises steadily with each year of employment. It is also interesting to note that from year 4 of employment and above severe food insecurity is completely eradicated.

CHAPTER 6: RESULTS AND DISCUSSION

6.1 INTRODUCTION

The previous chapters covered extensively the literature of food security in other parts of the world and also in South Africa. Food insecurity at the household level has been recorded as rising (Altman *et al*., 2009). Furthermore, in 2014, the Human Sciences Research Council and Medical Research Council reported that only 45.6 percent of South Africa's households were foods secure, 28.3 percent were threatened by food insecurity and 26 percent were food insecure. Furthermore, food insecurity is aggravated by household's lack of employment, seasonal employment and general increase in prices (Stats SA, 2015; World Bank, 2015).

These studies essentially drew attention to the extreme conditions of food insecurity at the household level nationally. These studies and their findings cannot be easily rolled out to the broader country because of lack spatial dimension (Alemu, 2015). Alemu (2015) is of the opinion that South Africa is comprised of communities with diverse socio-economic characteristics. Studies nationally hence offer little scope for immediate roll out due to lack of consistent measurement characteristics within the same country that are applicable to every segment of the population. Added to these are inconsistent statistical tools adopted that inhibits nationwide roll out (Atkinson, 1994; Briggs, 1991; Drakakis-Smith, 1994; Mbiba, 1995; Mudimu, 1997). A similar study in Johannesburg by African Food Security Urban Network (AFSUN) using similar methodology and techniques found 56 percent of households in Orange Farm, Alexandra Park, and the inner city were food insecure, with 27 percent of the households severely food insecure (Shisana, *et al*., 2013; Battersby, 2012). In Cape Town, AFSUN, using the HFIAS measure, found that 80 percent of the household in the sampled area were either moderately or severely food insecure, with 68 percent falling in the severely food insecure category (Battersby, 2012).

Chapter six therefore aims to understand the impact of social grants and socio-economic and demographic variables on household food security. Food security is inherently a complex phenomenon with differing expected responses and South Africa is challenged to explore all these differing views. Hence, this study primary focus was to examine the impact of social grants on food security in South Africa. In the process, this chapter presents and discusses the findings of salient factors determining food insecurity of sampled households in Atteridgeville, Soshanguve in the City of Tshwane and Tembisa in Ekurhuleni. It starts with descriptive analysis of food security and its determinants. It proceeds with correlation analysis of food security with receipt of social grants and demographic variables before presenting the econometric aspects

of the study, which examine the relationship between food security and social grants with theoretical socio-economic determinants.

6.2 DESCRIPTIVE ANALYSIS OF FOOD SECURITY AND ITS DETERMINANTS

Descriptive statistics are useful analtical tools used in the interpretation of data (Coates *et al.*, 2007). It uses key variables in explaining the data by presenting in easily presentable form. This could be presented either in the form, of Mean, Ranges and Standard Deviations (Coates *et al.*, 2007). Descriptive statistics are useful for current analysis. In this case, the situational analysis of household food security and household receipt of social grants. The intention is to view the data in such a way that it provides a bird's eye view, that encourages further interrogation with much more rigorous statistical tools.

In this section, descriptive statistics which incorporates factors that examine household food security are presented of the households in the 3 townships sampled , in each of the a total of 900 participants. The following was determined as indicated by the statistics tabled hereafter. The Household Food Insecurity Access Scale was interpreted based on results gathered from the study (Webb *et al.*, 2006). These four categories are defined as "food secure, mildly, moderately and severely food insecure depending on the outcomes to the questions posed" (Coates *et al.*, 2007).

6.2.1 Household Food Insecurity among participants

The HFAIS score therefore sets out measure of the prevalence of food insecurity in the previous month. It is continuous measure. The HFAIS score was "calculated for each household based on the answers to the nine frequency-of-occurrence questions "(Coates et al., 2007).

For the results of this study the food security status of households was measured and the results for each of the 3 townships all coordinated and are presented in Table 6.1. The findings of the HFIAS classification reflects that in this case food insecurity is, about 56 percent of the sampled households in Atteridgeville, 39 percent in Soshanguve and 63 percent in Tembisa were classified as food secure. Those households classified as mildly food insecure were 3 percent in Atteridgeville, 9 percent in both Soshanguve and Tembisa. The figures for those households considered as moderately food insecure were Atteridgeville 5 percent, Soshanguve 13 percent and Tembisa 11 percent. The alarming number of households that were classified as severely food insecure was 37 percent in Atteridgeville, 38 percent in Soshanguve and 18 percent in Tembisa. Compositely this then reflects that a significant number of these households (47%)

are thus food insecure. This means, when considered numerically, that 282 of the 600 households are food insecure which is alarming and a case for serious concern. The finding of Stats SA (2012) as reflected in the National Survey displayed staggering 21.20 percent of households were undoubtedly food insecure. It should be noted that the figure of 47 percent, as indicated in this study has doubled in the past 4 years.

Table 6.1: Food Security Statuses of each of the three townships (in percentages)

	Atteridgeville	Soshanguve	Tembisa
Food Security	56	39	63
Mild Food Insecurity	3	9	9
Moderate Food Insecurity	5	13	11
Severe Food Insecurity	37	38	18

Source: Study Data

6.2.2 Household food security and demographic variables

As highlighted at the beginning of the chapter, the study sets out to understand the significance and impact socio-economic variables of the households surveyed in Atteridgeville, Soshanguve and Tembisa. The study further sets to understand the significance of demographic variables in explaining food security utilising the HFIAS classification tool. The study sets to understand the impact of the following variables, which include: -

- Gender;
- Household income;
- Education;
- Marital status;
- Household size;
- Age;
- Employment and;
- The labour force to determine the link between the food security statuses of a household in relation to these variables.

In Table 6.2 a summary of HFIAS average scores is provided for each of the independent variables. In terms of gender, Male headed households had a lower scores (8.07) compared to female headed household with a high score of 9.10. A relatively lower score indicates that food insecurity is most likely in female-headed households. In terms of age, household headed by young adult had an average score of 6.13 while household headed by older people the average score was 8.2 for age group 61-64 and 6.65 for older age group above 65, a lower score of younger adults suggest that food insecurity is mostly prevalent in older adults. A similar pattern emerges when the study compares household in terms of household size, families with few members in the households 1, 2-4 had a lower score 5.76 and 6.31 compared to high scores of 7.05 and 7.95 for big size families with 5-7 members or more than 8 members. With respect to Marital status, married couples had a lower score of 5.01 compared to a high score of 7.95 for divorced couples and 6.89 for never married, this suggest that marriage provided better food security for households. The widow/widower had a score 4.57 and Not Married 2.00 lower than that of married couple probably the score improved due to reduced family size, or single and too young for marry households.

Table 6.2: Socio–economic characteristics of household heads

Variables	Sample Size	Average Score	Std dev
Gender	Sample Size	Average Score	Std. dev
Male	340	8.07	8.85
Female	487	9.10	9.02
Total	827	8.68	8.96
Age			
<40	330	6.13	6.91
41 – 50	209	6.68	7.05
51 -60	124	7.15	7.26
61- 64	36	8.42	8.34
65+	128	6.65	7.60
Household Size			
1	93	5.76	7.28
2 – 4	416	6.31	6.99
5 – 7	227	7.05	7.25

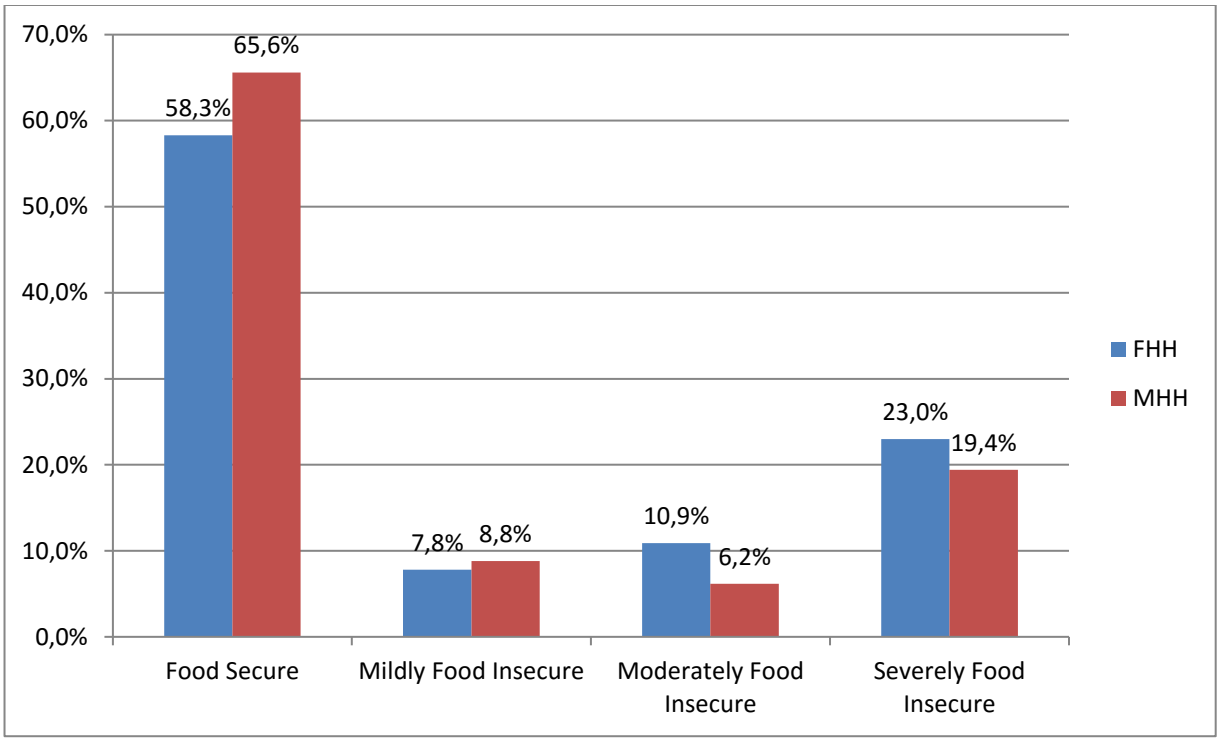
8+	91	7.69	7.64
Marital Status			
Never Married	27	6.89	5.39
Married	338	5.01	6.71
Divorced	405	7.95	7.60
Separated	38	7.63	5.94
Not Married	5	2.00	2.92
Widow/widower	14	4.57	3.32

Source: Study Results

6.2.2.1 Gender of Household head and household food security

The distribution of household food security in relation to gender of gender of Household head, in the three area combined, is presented in Figure 6.1 below.

Figure 6.1: Distribution of household food security by Gender



Source: Study Results

In figure 6.1 The study compares food security between Male headed households (MHH) and Female headed households (FHH) for each food security category. It is clear from the percentage results that there is marked difference in food security between male-headed households (MHH) and female-headed households (FHH). This confirms prior studies by (Grobler, 2016; Sekhampu and Ndobo, 2013) that there exist a significant difference between FHH and MHH. Gender is an important driving force in explaining food security (Van der Berg, Battersby, 2011). Male headed households (MHH) had a high percentage representation in Food secure category while Female headed households (FHH) had a high percentage representation in Food insecure category. Male-headed household (MHH) had a higher percentage representation in Food secure 65.6% and 8.8% in Mildly Food insecure than Female headed household, which had 53.5% in Food secure and 7.8% in Mildly Food insecure. FHH were more severely food insecure with 23.0% representation and moderately food insecure with 10.9% representation compared to less percentage representation than MHH with 19.4% for severely food insecure and 6.2% for moderately food insecure. The studies by (Battersby, 2011; Van der Berg, 2006) support the view that women are more vulnerable than Males in terms of food security. Women generally devote their time in less income generating activities. They are most preoccupied on child rearing and the general welfare of the household.

6.2.2.2 Age of the household head in relation to food security

Table 6.3: Age of the household head and food security

Age Group	**Food Secure**		**Mildly Food Insecure**		**Moderately Food Insecure**		**Severely Food Insecure**	
	N	%	N	%	N	%	N	%
<40	217	65.8%	26	7.9%	24	7.3%	63	19.1%
41-50	121	57.9%	19	9.1%	26	12.4%	43	20.6%
51-64	88	55.0%	15	9.4%	12	7.5%	45	28.1%
65+	81	63.3%	8	6.3%	12	9.4%	27	21.1%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

Table 6.3 present the distribution of the household food security in household heads' age categories. Analysing this table reflects that those within the food secure spectrum decreases with age, where the most food secure stands at 65.8 percent for those < 40 years old and 63.3 percent for those 65 years and older. At the other end of the spectrum the statistics reflect that, within the same two groups, the severely food insecure ranges from 19.1 percent for the <40 to 21.1 percent for those who are 65 years and older. This variable therefore endorses that food security varies with the age of the household head. Food security appears to decrease with the age of household head. It however increases at the very old age of greater than 65 in food secure and moderately food insecure households. These results are similar to those (De Cock *et al.,* 2013; Grobler, 2015; Haile *et al*., 2005; Sekhampu, 2013), which found serious vulnerabilities on households headed by young headed households who still battle to develop ways of fending for themselves. Older households are able to work on their gardens, rely on support from neighbours, and belong to stokvels to enhance their income status better than young headed households. This in turn improves their food security better than young headed households.

6.2.2.3 Household size in relation to food security

Table 6.4: Household size and food security

Household Size	**Food Secure**		**Mildly Food Insecure**		**Moderately Food Insecure**		**Severely Food Insecure**	
	N	%	N	%	N	%	N	%
1	66	71.0%	5	5.4%	8	8.6%	14	15.1%
2-4	263	63.2%	31	7.5%	35	8.4%	87	20.9%
5-7	128	56.4%	23	10.1%	21	9.3%	55	24.2%
8+	50	54.9%	9	9.9%	10	11.0%	22	24.2%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

From the statistics presented in Table 6.4 it is clearly evident that the optimum for **food security** lies in the household sizes of between 1 which peaks at 71 percent and cascades to 8+ individuals which drops by 16.1 percent. The alarming escalation lies in the category of **severely food insecure.** Within this self-same spectrum, the percentage escalates by 9 percent and the total reflects that around 61.3 percent are food secure and around 21.5 percent is severely insecure. This trend is also reflected in those households with 8+ individuals with an almost

equal bias of 54.9 percent who are food secure and 24.2 percent who are severely food insecure. Overall food security decreases with household size while food insecurity increases with it. This finding is similar to those (Battersby, 2012, Grobler, 2015) that highlighted a negative association of larger family size with food security. In larger family size, that are rather more family members to support and feed from a meal, thereby impacting negatively on food security, thus increasing vulnerability of a family.

Table 6.5: Marital status of household head and food security

Marital Status	Food Secure		Mildly Food Insecure		Moderately Food Insecure		Severely Food Insecure	
	N	%	N	%	N	%	N	%
Married	238	70.4%	27	8.0%	16	4.7%	57	16.9%
Not married	269	55.0%	41	8.4%	58	11.9%	121	24.7%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

The sociological predisposition would expect that married couples do enjoy greater security in most dimensions of their lives. This is clearly indicated by the statistics reflected in Table 6.5, where 70.4 percent of household heads who were married were food secure compared to 55.0 percent of those who fell into the broad category of “Not married”, referring to single, divorced, living out of wedlock etc. This holds true for all the other categories, except mildly food insecure, where married couples were 0.4 percent more than “Not married.” The picture gets even bleaker when we find that 24.7 percent of “Not married” are severely food insecure, compared to 16.9 percent of those married households. In general, married couples experience lower food insecurity compared with unmarried couples. On the contrary, they experience higher food security in comparison with unmarried couples. The result is consistent with a similar study by (Cancian and Reed 2009; Grobler, 2015; Sekhampu, 2013) that showed that married households were found to more food secure than unmarried couples.

6.2.2.6 Employment Status in relation to food security

Table 6.6: Employment status of household head and food security

Employment Status	Food Secure		Mildly Food Insecure		Moderately Food Insecure		Severely Food Insecure	
	N	%	N	%	N	%	N	%

Employed	285	78.7%	22	6.1%	17	4.7%	38	10.5%
Unemployed	222	47.7%	46	9.9%	57	12.3%	140	30.1%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

It is a foregone conclusion that being employed will definitely impact on the food security of any household, but what is worthy to note is that only 78.7 percent of those employed are food secure and as much as 10.5 percent of employed households are severely food insecure. It should also be noted that between only 6.1 percent are mildly food insecure and 4.7 percent are moderately food insecure which indicates that employment does not guarantee food security. In total 21.3 percent of employed household heads are food insecure at varying levels. It is therefore alarming that a similar pattern exists for the unemployed as well, with 47.7 percent being food secure and 30.1 percent being severely food insecure. The employed are in general more food secure than the unemployed. These findings are in line with those of (Ndobo, 2013; Sekhampu, 2013; Grobler, 2015) who showed food insecurity improves with job stability. Seasonal workers are perceived by these scholars are likely to be food insecure.

6.2.2.7 Household income in relation to food security

Table 6.7: Household income per month and food security

Income	**Food Secure**		**Mildly Food Insecure**		**Moderately Food Insecure**		**Severely Food Insecure**	
	N	%	N	%	N	%	N	%
No income	2	20.0%	3	30.0%	2	20.0%	3	30.0%
<2000	130	45.9%	20	7.1%	36	12.7%	97	34.3%
2001-4000	136	59.6%	27	11.8%	23	10.1%	42	18.4%
4001-6000	71	64.0%	4	3.6%	8	7.2%	28	25.2%
6001-8000	75	84.3%	6	6.7%	2	2.2%	6	6.7%
8000+	93	87.7%	8	7.5%	3	2.8%	2	1.9%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

When Table 6.7 is interpreted, predictably those earning no income or incomes less than R2000 are severely food insecure at a concerning level of 30 percent and yet the peak lies within the band that earns <R2000 at as high as 34.3 percent. However, within the same 2 bands, 20.0 percent and as much as 45.9 percent considered themselves food secure. A deviation from the

expected is that 2 respondents with No income considered themselves Food Secure. The other concerning statistic is that of those earning between R6001-R8000, and those earning above R8000 per month were 6.7 percent and 1.9 percent were severely food insecure. Lopez-Carr *et al*. (2010) suggest that high-income households are nearly 30 percent more food secure compared to low income ones in Ghana.

The results are in line with (Grobler, 2015, Sekhampu, 2013) who reaffirmed the significant importance of income in explaining food security. Oluyole *et al.* (2009), also found similar results where he attested to improved food security as the combined income flow of the household increase.

6.2.2.8 The labour force in relation to food security

Table 6.8: Labour Force and food security

Labour force participation of HH	**Food Secure**		**Mildly Food Insecure**		**Moderately Food Insecure**		**Severely Food Insecure**	
	N	%	N	%	N	%	N	%
0	164	50.2%	24	7.3%	41	12.5%	98	30.0%
1	205	63.3%	31	9.6%	28	8.6%	60	18.5%
2	100	78.7%	7	5.5%	4	3.1%	16	12.6%
3	13	65.0%	3	15.0%	0	0.0%	4	20.0%
4	9	75.0%	3	25.0%	0	0.0%	0	0.0%
5	6	100.0%	0	0.0%	0	0.0%	0	0.0%
6	2	100.0%	0	0.0%	0	0.0%	0	0.0%
7	1	100.0%	0	0.0%	0	0.0%	0	0.0%
8+	7	87.5%	0	0.0%	1	12.5%	0	0.0%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

The statistics for the labour force in Table 6.8 indicates the number of years that household heads have been gainfully employed. The table reflects that there is a definite relationship between years of employment and food security. Of those employed for under a year 50.2 percent are food secure in relation to 30.0 percent being at the other end of the spectrum as being severely food insecure. This figure rises steadily with each year of employment and by year 5 and 7 these households have become 100% food secure. It is also interesting to note that from year 4 moderate and severe food insecurity decrease to zero. The findings are similar

to those of (Grobler, 2015; Ndobo, 2013; Sekhampu, 2013), whereby a rise in employed household members contributed positively to food security.

6.3 CORRELATION ANALYSIS WITH RECEIPT OF SOCIAL GRANTS

Correlation analysis between social grants and certain demographic variables was conducted using the SPSS 23 software. Households whose heads have tertiary qualifications are highly correlated with the receipt of child grants and other grants. As expected, only households that are headed by old people receive old age grants.

Table 6.9 demonstrates that age of respondents is significantly positively correlated with access to old age grant, child grants and other grants. It is negatively associated with receiving income from wage employment and informal activities, and receiving income from other sources, especially in Soshanguve. This is less so in Thembisa and Atteridgeville especially in relation to receipt of income from informal activities and other sources. Overall, it is negatively correlated with gender though not significantly. By analysing the correlation between all the studied variables the study highlighted that there is a strong correlation between the education experience of the household head and receipt of old age pension.

Table 6.9: Correlation variables and social grants (all locations)

		Pension	Child_grants	Other_grants	Help
Food_Security	Pearson Correlation	-.020	-.164***	-.035	-.131***
	Sig. (2-tailed)	.574	.000	.319	.000
Age_of_HHH	Pearson Correlation	-.015	-.018	-.018	-.057*
	Sig. (2-tailed)	.659	.614	.600	.099
Gender	Pearson Correlation	-.019	-.011	.020	.041
	Sig. (2-tailed)	.578	.746	.557	.236
Marital_Status	Pearson Correlation	-.009	.058*	-.023	-.012
	Sig. (2-tailed)	.786	.098	.504	.722
No_of_people_employed_HH	Pearson Correlation	-.071**	-.028	.038	.022
	Sig. (2-tailed)	.042	.423	.279	.535
Household_size	Pearson Correlation	-.021	.036	-.033	.026
	Sig. (2-tailed)	.542	.303	.341	.459
No_of_years_for_formal_education	Pearson Correlation	-.060*	.005	.010	.041
	Sig. (2-tailed)	.086	.890	.782	.235
No_of_children	Pearson Correlation	-.036	-.079**	.023	.023
	Sig. (2-tailed)	.296	.022	.514	.516
Income	Pearson Correlation	-.064*	-.073**	.079	-.025
	Sig. (2-tailed)	.065	.035	.024	.479
Wages	Pearson Correlation	-0.249***	-0.161***	-.028	-0.180***
	Sig. (2-tailed)	0.000	0.000	.414	0.000

***. Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level

*. Correlation is significant at the 0.05 level (2-tailed).

6.3.1 Overall correlation of demographic characteristics with selected determinants of household food security in residential locations

The literature points to the importance of demographic variables in explaining household food security. Among others, studies by (Van der Berg, 2006; Jolly, Grobler, 2015) indicate that age, gender, marital status, education and family structure significantly correlate with food expenditure. By analysing the correlation between all the studied variables the study highlighted that there is a strong correlation between the education experience of the household head and receipt of old age pension. This result is significant and is presented in Table 6.11. In other words, households whose heads have lower qualifications (Grade 1-6) or who have no schooling experience, tend to be highly correlated with receiving old age grants. The age of household head is positively correlated (r = 0.095 p=0.006) receiving paid income in the form of wages. Gender of the head of household is strongly positively correlated (r = 0.177, p =0.000)

with educational attainment, but weakly positively correlated with family size (r =0.058, p = 0.093), household income and involvement in paid employment (r = 0.067, p =0.055).

The number of people employed in the household is highly correlated (r = 0.178) with educational attainment of the household head though weakly correlated with household income (r = 0.06) and receiving wage employment (r = 0.075; p=0.05). In this context, paid employment is expected to be positively correlated with food security (Sekhampu & Ndobo, 2013; Van der Berg, 2006). In this vein, this study reports in the next table that involvement in wage employment is correlated (r = 0.301) with food security and that this result is significant at the 1 percent level. In general, access to income is highly correlated (r =0.288; p=0.01) with household food security.

Table 6.10: Correlation of food security with socio-economic characteristics of households

	Food sec	No ppl employed in HH	HH Size	Education of HHH	No of children	Income	Wages	pension	Child grant	Other Grants	Help
Food Sec	1.00										
No. ppl employed in HH	0.013	1.00									
HH Size	.005	-.007	1								
Education of HHH	-0.058*	0.178***	0.146***	1							
No of Children	-0.006	0.174***	-.027	0.123***	1						
Income	0.288***	0.060*	.025	0.105***	.008	1					
Wages	0.301***	.075**	.031	0.104***	0.022	0.917***	1				
Pension	-.020	-.071**	-.021	-0.060*	-.036	-0.064**	-0.249***	1			
Child Grant	-0.164***	-0.028	.036	0.005	-0.079**	-0.073**	-0.161***	-.011	1		
Other Grants	-0.164***	.038	-.033	.010	.023	0.079**	-.028	.016	.002	1	
Help	-0.131***	.022	.026	.041	.023	-.025	-0.180***	.009	.011	.096***	1

***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). *. Correlation is significant at the 0.10 level (2-tailed).

Source: Study Results

6.3.2 Correlation of demographic characteristics with selected determinants of household food security in each residential location.

Table 6.13 demonstrates that age of respondents is significantly positively correlated with access to old age grant, child grants and other grants. It is negatively associated with receiving income from wage employment and informal activities, and receiving income from other sources, especially in Soshanguve. This is less so in Thembisa and Atteridgeville especially in relation to receipt of income from informal activities and other sources. Overall, it is negatively correlated with gender though not significantly. Gender of household head is positively correlated with access to child grant as well as other grants in Soshanguve. It is also negatively correlated with receiving income via wage employment, implying that male-headed households tend to be more successful in the world of work.

6.3.2.1 Educational attainment in relation to food security

Table 6.11: Educational level of household head and food security

Education	**Food Secure**		**Mildly Food Insecure**		**Moderately Food Insecure**		**Severely Food Insecure**	
	N	%	N	%	N	%	N	%
No Schooling	90	48.1%	17	9.1%	27	14.4%	53	28.3%
Up to Grade 3	64	57.1%	11	9.8%	5	4.5%	32	28.6%
Grade 4 – 7	104	62.3%	13	7.8%	13	7.8%	37	22.2%
Grade 8 – 11	149	59.6%	23	9.2%	26	10.4%	52	20.8%
Grade 12	55	83.3%	4	6.1%	3	4.5%	4	6.1%
Tertiary Diploma/Degree	45	100.0%	0	0.0%	0	0.0%	0	0.0%
Grand Total	**507**	**61.3%**	**68**	**8.2%**	**74**	**8.9%**	**178**	**21.5%**

Source: Study Results

Table 6.13 endorses that the level of academic achievement has a very high impact on a household's food security. Those with "no schooling" reflected the lowest percentile of food security at 48.1 percent. This increases incrementally from up to grade 3, grades 4 to 7 and then grades 8-11. However it should be insightful to notice that the segment of grade 8-11 is 59.6 percent and catapults exponentially to 83.3 percent with the household head having a standard 12 grade of education. The statistic becomes even more surprising indicating that those household heads with a tertiary diploma or degree enjoyed 100 percent food security.

This pattern is also reflected in the classification of severely food insecure, which oscillates between 28.3 percent for those with “no schooling” and decreases gradually, still within the 30-percentile range but decreases significantly to 6.1 percent for those household heads with Grade 12 education. Those with a Tertiary Diploma or Degree recorded 0 percent as being severely food insecure. These statistics demonstrate that education of the household head seems to be linked with food security.

Table 6.12: Correlations of social grants with determinants in Soshanguve

		Old age grant	Child grant	Other grants	Wages	Informal Activities	Help	Other	Age	Gender
Old age grant	Pearson Correlation	1								
	Sig. (2-tailed)		.906	.436	.000	.076	.859	.513	.000	.586
Child grant	Pearson Correlation	.004	1	.005	-.162***	-.082**	.015	-.065	.065	.092**
	Sig. (2-tailed)	.906		.883	.000	.018	.675	.064	.062	.008
Other grants	Pearson Correlation	.027	.005	1	-.029	-.032	0.095*** .	.056	.069**	.061
	Sig. (2-tailed)	.436	.883		.412	.361	.007	.111	.047	.080
Wages	Pearson Correlation	-.205**	-.162**	-.029	1	-.087*	-.179**	-.017	-.184**	-.217***
	Sig. (2-tailed)	.000	.000	.412		.013	.000	.632	.000	.000
Informal Activities	Pearson Correlation	-.062*	-.082**	-.032	-.087**	1	-.074**	-.035	-.068	.001
	Sig. (2-tailed)	.076	.018	.361	.013		.034	.315	.051	.972
Help	Pearson Correlation	.006	.015	.095***	-.179***	-.074**	1	-.039	.026	-.031
	Sig. (2-tailed)	.859	.675	.007	.000	.034		.264	.448	.372
Other	Pearson Correlation	-.023	-.065*	.056	-.017	-.035	-.039	1	-.062	-.006
	Sig. (2-tailed)	.513	.064	.111	.632	.315	.264		.076	.868
Age	Pearson Correlation	.520***	.065*	.069*	-.184**	-.068	.026	-.062	1	-.052

	Sig. (2-tailed)	.000	.062	.047	.000	.051	.448	.076		.137
Gender	Pearson Correlation	-.019	.092**	.061*	-.217**	.001	-.031	-.006	-.052	1
	Sig. (2-tailed)	.586	.008	.080	.000	.972	.372	.868	.137	

***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). *. Correlation is significant at the 0.10 level (2-tailed).

Source: Study Results

Table 6.13: Correlations of social grants with determinants in Tembisa

		Old age grant	Child grant	Other grants	Age	Gender	Wages	Informal_ Activities	Help	Other
Old age grant	Pearson Correlation	1	-.002	.110	.445***	.017	-.189***	-.088	-.023	.035
	Sig. (2-tailed)		.974	.077	.000	.779	.002	.153	.714	.568
Child grant	Pearson Correlation	-.002	1	.044	.221***	.089	-.148**	-.043	.196***	-.071
	Sig. (2-tailed)	.974		.476	.000	.148	.016	.484	.001	.252
Other grants	Pearson Correlation	.110	.044	1	.122**	.062	-.040	-.050	.089	.171**
	Sig. (2-tailed)	.077	.476		.049	.315	.523	.425	.153	.006
Age	Pearson Correlation	.445***	.221***	.122**	1	-.011	-.140**	-.008	-.079	-.015
	Sig. (2-tailed)	.000	.000	.049		.853	.022	.891	.202	.814
Gender	Pearson Correlation	.017	.089	.062	-.011	1	-.192***	-.050	.074	.026
	Sig. (2-tailed)	.779	.148	.315	.853		.002	.414	.232	.673
Wages	Pearson Correlation	-.189***	-.148**	-.040	-.140**	-.192***	1	-.140*	-.213**	.036

	Sig. (2-tailed)	.002	.016	.523	.022	.002		.023	.001	.565
Informal Activities	Pearson Correlation	-.088	-.043	-.050	-.008	-.050	-.140**	1	-.097	-.080
	Sig. (2-tailed)	.153	.484	.425	.891	.414	.023		.115	.198
Help	Pearson Correlation	-.023	.196***	.089	-.079	.074	-.213***	-.097	1	-.089
	Sig. (2-tailed)	.714	.001	.153	.202	.232	.001	.115		.150
Other	Pearson Correlation	.035	-.071	.171**	-.015	.026	.036	-.080	-.089	1
	Sig. (2-tailed)	.568	.252	.006	.814	.673	.565	.198	.150	

****. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed).*

** Correlation is significant at the 0.10 level (2-tailed).*
Source: Study Results

Table 6.14: Correlations of social grants with determinants in Atteridgeville

		Old age grant	Child grant	Other grants	Age	Gender	Wages	Informal Activities	Help	Other
Old age grant	Pearson Correlation	1	-.063	.031	.720***	-.013	-.302***	-.160***	.064	-.033
	Sig. (2-tailed)		.293	.612	.000	.826	.000	.007	.288	.589
Child grant	Pearson Correlation	-.063	1	-.003	-.034	.082	-.150**	-.103	-.047	-.037
	Sig. (2-tailed)	.293		.958	.573	.171	.012	.085	.434	.541
Other grants	Pearson Correlation	.031	-.003	1	-.011	.091	-.024	-.072	.034	-.028
	Sig. (2-tailed)	.612	.958		.858	.129	.697	.234	.569	.644
Age	Pearson Correlation	.720***	-.034	-.011	1	-.018	-.212***	-.187***	.056	-.090
	Sig. (2-tailed)	.000	.573	.858		.766	.000	.002	.349	.135
Gender	Pearson Correlation	-.013	.082	.091	-.018	1	-.304***	.072	-.067	-.050
	Sig. (2-tailed)	.826	.171	.129	.766		.000	.232	.266	.407
Wages	Pearson Correlation	-.302**	-.150*	-.024	-.212***	-.304***	1	-.200***	-.207***	-.110
	Sig. (2-tailed)	.000	.012	.697	.000	.000		.001	.001	.067
Informal Activities	Pearson Correlation	-.160***	-0.103*	-.072	-.187***	.072	-.200***	1	-.013	-.049
	Sig. (2-tailed)	.007	0.085	.234	.002	.232	.001		.825	.416
Help	Pearson Correlation	.064	-.047	.034	.056	-.067	-.207**	-.013	1	-.008
	Sig. (2-tailed)	.288	.434	.569	.349	.266	.001	.825		.899
Other	Pearson Correlation	-.033	-.037	-.028	-.090	-.050	-0.110*	-.049	-.008	1
	Sig. (2-tailed)	.589	.541	.644	.135	.407	0.067	.416	.899	

***. Correlation is significant at the 0.01 level (2-tailed)
**. Correlation is significant at the 0.05 level (2-tailed)

Source: Study Results

Table 6.15 demonstrates that age of respondents is significantly positively correlated with access to old age grant, child grants and other grants. It is negatively correlated with gender though not significantly. Gender of respondents is positively correlated with access to child grant as well as other grants.

6.4 ANOVA RESULTS

An important “technique for analysing the effect of categorical factors on a response is to perform an Analysis of Variance (ANOVA)” (Seltman, 2015). An ANOVA establishes the variability as determined by the variables in the outcome achieved (Seltman, 2015). Hence, the study seeks to analyse the variation associated with household food security and the receipt of social grants in the three locations under study. The study, therefore, seeks to determine whether the variance in food security and receipt of social grants is affected by residential location in each of the three locations, age grouping, and gender and income and employment status.

A variance in household food is reflected when the outcome of food security measured reflects deviations from expected results. In analysing the results of variances can be “positive/favourable (better than expected) or adverse/unfavourable (worse than expected)” (Seltman, 2015). The results depicting a favourable variance could be interpreted to imply that means for achieving household food security are lower than predicted or that food security is higher than expected given the same level of main determinants. By contrast, an adverse variance might arise because the means for achieving household food security are higher than predicted or that food security is lower than expected given the same level of main determinants.

Adverse variances (negative) are of more concern especially when they are unforeseen, especially when they are foreseeable and in terms of the absolute as well as the relative size of the variances. It is also essential to know the cause(s) of these variances and the degree to which they are temporary or permanent. The definition given to analysis of variance (ANOVA) “ is a collection of statistical models used to analyse the differences among group means and their associated procedures (such as "variation" among and between groups)” (O’Connell, 2006). Simplistically put, ANOVA determines whether the characteristics t-test of the broader group are exhibited and equal in other groups, and hence allows for generalization of the results to more than one group (Grobler, 2015). ANOVAs are therefore a useful tool for testing for statistical significance of either three or more means or variables (Davids & Gouws, 2011).

6.4.1 Analysis of Variance of household food security by type of household income

In the study survey, over 61 percent of poor households in the study areas are food secure, about 22 percent are however severely food insecure. A little more than 8 percent are mildly food insecure, while about 9 percent are moderately food insecure. Food security improves with increases in income, while food insecurity decreases with it. Households that derive incomes mainly from wages or salaries tend to be food secure; while those receiving help from families, neighbours and others are mildly food secure. The converse if found for non-beneficiaries. Those households that receive social grants are in general more food secure than others with the exception of those receiving child grants where they are mildly food secure. Households are generally food secure whether or not they receive other types of income, derive income from informal activities or receive other grants.

Table 6.15: Food Security by source of income

	Sample Size	Mean HFIAS score	Standard Deviation	Standard Error	Food Security Status
Households receiving wages from employment					
Beneficiaries of Wages/Salaries	505	4.958	6.617	0.294	Food secure
Non Beneficiaries	322	9.186	7.265	0.405	Mildly food insecure
Households receiving Old Age Pension					
Beneficiaries of Old Age Pension	193	7.145	7.208	0.519	Food secure
Non Beneficiaries	634	6.440	7.163	0.284	Food secure
Households receiving Child Grant					
Beneficiaries of Child Grant	390	8.190	7.172	0.363	Mildly food insecure
Non Beneficiaries	437	5.190	6.884	0.329	Food secure
Households receiving Other Grants					
Beneficiaries of Other Grant	40	6.725	6.917	1.094	Food secure
Non Beneficiaries	787	6.598	7.192	0.256	Food secure
Households Receiving Help from families, friends and neighbours					
Beneficiaries of HELP	249	8.378	7.599	0.482	Mildly food insecure
Non Beneficiaries	578	5.841	6.851	0.285	Food secure

Households deriving income from informal activities					
Beneficiaries of income from Informal Activity	80	6.950	6.270	0.701	Food secure
Non Beneficiaries	747	6.568	7.268	0.266	Food secure
Households benefiting from other types of income					
Beneficiaries of Other types of income	44	6.727	7.801	1.176	Food secure
Non Beneficiaries	783	6.598	7.144	0.255	Food secure
Households benefiting from all grants from the state and help from family, friends and neighbours.					
Beneficiaries of All Grants & Help	619	7.604	7.219	0.290	Mildly food insecure
Non Beneficiaries	208	3.630	6.161	0.427	Food secure

Source: Study Results

6.4.2 Analysis of variance (ANOVA) of households' food insecurity by Income Class

An ANOVA establishes the variability as determined by the variables in the outcome achieved (Seltman, 2015). Hence, the study seeks to analyse the variation associated with household food security and the receipt of social grants in the three locations under study. The study, therefore, seeks to determine whether the variance in food security and receipt of social grants is affected by residential location in each of the three locations, age grouping, and gender and income and employment status. A variance in household food is reflected when the outcome of food security measured reflects deviations from expected results (Davids & Gouws, 2011; Grobler, 2015).

Variances in the population means of households' experiences of food insecurity vary by income class of the head of household. The "Significance level in all cases is less than 0.05. It is therefore prudent to reject the null hypothesis of equality of population means across income categories. These differences in the population means of food (in) security are more pronounced the higher the level of income.

Table 6.16: ANOVA of household food security by the income class of household head

	Income Class of Respondents		
	R1-500; R501-1000	R1001-1500; R1501-2000	R2001-2500; >R2500
	F-Statistics (Probability level in parenthesis)		

Food Secure	43.66*** (0.0001)	62.20*** (0.0001)	596.7*** (0.0001)
Mildly Food Insecure	44.26*** (0.0001)	62.51*** (0.0001)	596.8*** (0.0001)
Moderately Food Insecure	44.25*** (0.0001)	62.51*** (0.0001)	596.8*** (0.0001)
Severely Food Insecure	44.08*** (0.0001)	62.36*** (0.0001)	596.4*** (0.0001)

Note: *** denotes significance at the 1% level.

Source: Study Results

6.4.3 Analysis of variance of households' food insecurity by Sources of Income of respondents

Variances in the population means of households' experiences of food insecurity also vary by the main source where the head of households derives income. The study suggests that it is prudent to reject the null hypothesis of equality of population means across income sources. These differences in the population means of food security are more pronounced when income is derived from formal sources. These differences in the population means of food security are more pronounced in paid employment and old age pension, and when the household head receives help from others. Evidence reflected is very strong of the existence of a difference in mean household experiences of food insecurity, controlling for the main source of income of the household head.

Table 6.17: ANOVA of household food security by sources of income of household head

Source of Household Income	**Food Insecurity**
F-Statistics (Probability level in parenthesis)	
Wages	468.9*** (0.0001)
Employment in the informal sector	49.50*** (0.0001)

Receiving old age Pension	275.0*** (0.0001)
Receiving Help from Others	232.1*** (0.0001)
Other Sources of Income	31.62*** (0.0001)

Note: *** denotes significance at the 1% level.

Source: Survey Data

6.5 ANALYSING THE VARIANCE OF SOCIAL GRANTS AND AGE CLASSIFICATION

6.5.1 ANOVA: Receipt of Old age Grant versus age classification

Variances in the population means of households' receipt of old age grant by age classification of head of household. The study suggests that it is prudent to reject the null hypothesis of equality of population means of receipt of old age grants across different age groups. These results are highly significant at the 1 percent significant level. Very strong evidence therefore exists of a difference in mean household receipt of social grants, controlling for the main age classification of the head of household.

Table 6.18: ANOVA: Receipt of Old age Grant versus age classification

		Sum of Squares	Df	Mean Square	F	Significance.
Age 16-24	Between Groups	1.017	21	.048	3.594	0.000
	Within Groups	10.808	802	.013		
	Total	11.825	823			
Age 25-34	Between Groups	11.653	21	.555	3.308	0.000
	Within Groups	134.536	802	.168		
	Total	146.189	823			
Age 35-44	Between Groups	11.903	21	.567	3.082	0.000
	Within Groups	147.476	802	.184		
	Total	159.379	823			
Age 45-54	Between Groups	8.081	21	.385	2.226	0.001

	Within Groups	138.646	802	.173		
	Total	146.727	823			
Age 55-64	Between Groups	5.807	21	.277	2.921	0.000
	Within Groups	75.922	802	.095		
	Total	81.728	823			
Older than 65	Between Groups	59.453	21	2.831	50.249	.000
	Within Groups	45.186	802	.056		
	Total	104.640	823			

Note: ***, **, * denotes significance at the 1%, 5% and 10% levels respectively.
Source: Study Results

6.5.2 ANOVA: Receipt of Child grant versus age classification

In the specific case of recipients of child grants, there are significant variations in their population means among those aged 45-54 and those recipients that are older than 65. These results are highly significant within the 1 percent level. The study rejects the null hypothesis of equality of population means of receipt of child grants within these two age groups. Variances also exist in population means of child grant recipient's heads of households aged 25-34 and 55-64. Not surprisingly, variations in their population means are weaker, being significant only at the 10 percent level. The study is unable to reject the null hypothesis of equality of population means of receipt of child grants among heads of households in the 16-24 and 35-44 age groups.

Table 6.19: ANOVA: Receipt of Child grant vs. age classification

		Sum of Squares	Df	Mean Square	F	Significance
Age 16-24	Between Groups	.216	29	.007	.510	.986
	Within Groups	11.610	796	.015		
	Total	11.826	825			
Age 25-34	Between Groups	7.095	29	.245	1.398*	.081
	Within Groups	139.147	795	.175		
	Total	146.242	824			
Age 35-44	Between Groups	6.727	29	.232	1.208	.210

	Within Groups	152.720	795	.192		
	Total	159.447	824			
Age 45-54	Between Groups	10.765	29	.371	2.144***	.000
	Within Groups	137.616	795	.173		
	Total	148.381	824			
Age 55-64	Between Groups	3.769	29	.130	1.366*	.096
	Within Groups	75.630	795	.095		
	Total	79.399	824			
Older than 65	Between Groups	5.522	29	.190	1.506**	.043
	Within Groups	100.539	795	.126		
	Total	106.061	824			

Note: ***, **, * denotes significance at the 1%, 5% and 10% levels respectively.

Source: Study Results

6.5.3 ANOVA: Receipt of Other grants versus age classification

Variances in population means of receipt of other grant by heads of households aged 25-34 and 55-64 ranges from 1.6 to 3.7 within these two groups of recipients. These variations in their population means are strongly significant only at the 1 percent level. Results are not significant in other age categories. As such, the study is unable to reject the null hypothesis of equality of population means of receipt of other grants among heads of households in the other age categories.

Table 6.20: ANOVA: Receipt of Other grants versus age classification

		Sum of Squares	Df	Mean Square	F	Significance
Age 16-24	Between Groups	.009	18	.000	.034	1.000
	Within Groups	11.817	808	.015		
	Total	11.826	826			
Age 25-34	Between Groups	5.004	18	.278	1.589*	.056
	Within Groups	141.344	808	.175		

	Total	146.348	826			
Age 35-44	Between Groups	4.324	18	.240	1.250	.214
	Within Groups	155.260	808	.192		
	Total	159.584	826			
Age 45-54	Between Groups	3.524	18	.196	1.091	.356
	Within Groups	144.967	808	.179		
	Total	148.491	826			
Age 55-64	Between Groups	6.164	18	.342	3.660***	.000
	Within Groups	75.601	808	.094		
	Total	81.765	826			
Older than 65	Between Groups	2.665	18	.148	1.173	.277
	Within Groups	102.041	808	.126		
	Total	104.706	826			

Note: ***, **, * denotes significance at the 1%, 5% and 10% levels respectively. *Source: Study Results*

6.5.4 ANOVA: Old age Grant versus Educational Experience of recipients

There are significant variations in the population means of recipients of old age grants by educational experience. Variances in population means of old age grant recipients range from 1.5 for those that completed matric qualifications to 5.9 among recipients with no schooling experience**.** These variations in their population means are strongly significant only at between 1 percent and 5 percent levels. Variances in the population means of old age recipients with tertiary education qualifications are not significant.

Table 6.21: ANOVA: Old age Grant versus Educational Experience of recipients

		Sum of Squares	Df	Mean Square	F	Significance
Age 16-24	Between Groups	.009	18	.000	.034	1.000
	Within Groups	11.817	808	.015		
	Total	11.826	826			
Age 25-34	Between Groups	5.004	18	.278	1.589*	.056
	Within Groups	141.344	808	.175		

	Total	146.348	826			
Age 35-44	Between Groups	4.324	18	.240	1.250	.214
	Within Groups	155.260	808	.192		
	Total	159.584	826			
Age 45-54	Between Groups	3.524	18	.196	1.091	.356
	Within Groups	144.967	808	.179		
	Total	148.491	826			
Age 55-64	Between Groups	6.164	18	.342	3.660***	.000
	Within Groups	75.601	808	.094		
	Total	81.765	826			
Older than 65	Between Groups	2.665	18	.148	1.173	.277
	Within Groups	102.041	808	.126		
	Total	104.706	826			

Source: Study Results

There are significant variations in the population means of recipients of old age grants by educational experience. Variances in population means of old age grant recipients range from 1.5 for those that completed matric qualifications to 5.9 among recipients with no schooling experience. These variations in their population means are strongly significant only at between 1 percent and 5 percent levels. Variances in the population means of old age recipients with tertiary education qualifications are not significant. As such, the study is unable to reject the null hypothesis of equality of population means of receipt of old age grants (pension) among heads of households that experience other levels of education.

6.5.5 ANOVA: Child grant versus Educational Experience of recipients

Variances in the population means of receipt of child grant by educational attainment of household heads are significant among those with 1-6 years of schooling experience to those with degrees and post-graduate qualifications. Variances in population means of old age grant recipients range from 1.7 for those that completed primary school completion experience, to 3.9 among recipients with post-graduate qualification. These results are highly significant at the 1 percent level. Results are not significant in other categories of recipient's educational experiences.

6.5.6 ANOVA: Levels of Education and receipt of Other Grants

At 1.5, variances in the population mean receipt of other grant by educational attainment of heads of households are significant only among those with diploma qualifications. Even then, this result is weakly significant at the 10 percent level. Results are not significant in other categories of recipients' educational experiences.

Table 6.22: ANOVA: Levels of Education and receipt of Other Grants

		Sum of Squares	Df	Mean Square	F	Sig.
No Schooling	Between Groups	4.044	18	.225	1.300	.180
	Within Groups	138.769	803	.173		
	Total	142.813	821			
1-6 years	Between Groups	3.983	18	.221	1.065	.383
	Within Groups	166.771	803	.208		
	Total	170.754	821			
7-11 years	Between Groups	4.851	18	.270	1.200	.254
	Within Groups	180.404	803	.225		
	Total	185.255	821			
12 years	Between Groups	.279	18	.016	.203	1.000
	Within Groups	61.260	803	.076		
	Total	61.539	821			
Diploma	Between Groups	.650	18	.036	1.536*	.071
	Within Groups	18.864	803	.023		
	Total	19.513	821			

Degree	Between Groups	.027	18	.002	.060	1.000
	Within Groups	20.436	803	.025		
	Total	20.464	821			
Post-Graduate	Between Groups	.004	18	.000	.022	1.000
	Within Groups	7.918	803	.010		
	Total	7.922	821			

Source: Study Results

6.6 ANOVA: VARIANCES OF SOCIAL GRANTS VERSUS LOCATION

There are significant variations in the population means of receipt of social grants by location of beneficiaries. Variances in population means of beneficiaries range from 34.3 for those that benefit from other grants to 611.3 among recipients of child grants. These variations in their population means are strongly significant at the 1percent level. The study hence rejects the null hypothesis of equality of population means of receipt of social by residential location of the household head.

Table 6.23: ANOVA: Variances of Social Grants versus Location

		Sum of Squares	Df	Mean Square	F	Significance
Old Age Grant	Between Groups	1.30E+08	3	4.34E+07	274.9***	0.0001
	Within Groups	4.95E+08	***	1.58E+05		
	Total	6.23+E08	***			
Child Grant	Between Groups	6.67E+08	3	2.89E+07	611.3***	0.0001
	Within Groups	1.508E+08	***	4.73E+04		
	Total	2.37E+08	***			

Other Grant	Between Groups	2.90E+06	3	9.68E+05	34.3***	0.0001
	Within Groups	8.71E+07	***	2.82E+04		
	Total	8.99E+07	***			

Source: Study Results

6.7 ANOVA VARIANCES OF SOCIAL GRANTS VERSUS GENDER

Like the results obtained on the location of beneficiaries, there are also significant variations in the population means of recipients of social grants by gender of beneficiaries. Variances in population means of beneficiaries range from 34.2 for those that benefit from other grants to 610.8 among recipients of child grants. These variations in their population means are strongly significant at the 1 percent level. The study rejects the null hypothesis of equality of population means of receipt of social grants by gender.

Table 6.24: ANOVA: Variances of Social Grants versus Gender

		Sum of Squares	Df	Mean Square	F	Significance
Old Age Grant	Between Groups	1.18E+08	2	5.89E+07	274.7***	0.0001
	Within Groups	4.95E+08	***	2.14E+05		
	Total	6.13+E08	***			
Child Grant	Between Groups	7.81E+07	2	3.90E+07	610.8***	0.0001
	Within Groups	1.50E+08	***	6.38E+04		
	Total	2.28E+08	***			
Other Grant	Between Groups	2.63E+06	2	1.31E+06	34.15	0.0001
	Within Groups	8.71E+07	***	3.85E+04		
	Total	8.97E+07	***			

Source: Study Results

6.8 ANOVA: VARIANCES OF SOCIAL GRANTS IN FOOD SECURE HOUSEHOLDS

Variances in the population means of food security households are significant by categories of social grants that households receive. Variances in their population means, range from 3.4 for households that receive other grants to 8.9 among those that receive child grants. These results are highly significant at the 1 percent level. The study hence rejects the null hypothesis of equality of population means of household food security by receipt of social grants.

Table 6.25: ANOVA: Social grants versus food security

		Sum of Squares	Df	Mean Square	F	Significance
Old Age Grant	Between Groups	37.309	33	1.131	5.586***	.000
	Within Groups	298.912	1477	.202		
	Total	336.221	1510			
Child Grant	Between Groups	55.634	33	1.686	8.864***	.000
	Within Groups	280.918	1477	.190		
	Total	336.552	1510			
Other Grant	Between Groups	23.713	33	.719	3.414***	.000
	Within Groups	310.834	1477	.210		
	Total	334.547	1510			

Source: Study Results

6.9 ANOVA: VARIANCES OF SOCIAL GRANTS IN MILDLY FOOD INSECURE HOUSEHOLDS

Variances in the population means of mildly food insecure households are significant among those that receive old age and child grants. Variances in their population means range from 1.9 for households that receive old age grants to 2.9 among those that receive child grants. These results are highly significant at the 1 percent and 5 percent levels. Very strong evidence therefore exists of a difference in mean household experience of mild food insecurity, controlling for receipt of these social grants by household head.

Results are not significant among households receiving other grants category.

Table 6.26: ANOVA: Social grants vs. Mild food insecurity

		Sum of Squares	Df	Mean Square	F	Significance
Old Age Grant	Between Groups	4.778	12	.398	1.875**	.040
	Within Groups	40.555	191	.212		
	Total	45.333	203			
Child Grant	Between Groups	6.954	12	.580	2.884***	.001
	Within Groups	38.379	191	.201		
	Total	45.333	203			
Other Grants	Between Groups	3.267	12	.272	1.236	.261
	Within Groups	42.066	191	.220		
	Total	45.333	203			

Source: Study Results

6.10 ANOVA: VARIANCES OF SOCIAL GRANTS IN MODERATELY FOOD INSECURE HOUSEHOLDS

Variances in the population means of households experiencing food insecurity are significant by categories of social grants that households receive. Variances in their population means range from 1.8 for households that receive other grants to 4.0 among those that receive child grants. With the exception of households receiving other grants where results are only significant at the 10 percent significance level, other results are highly significant at the 1 percent significance level. Very strong evidence therefore exists of a difference in mean household experience of moderate food insecurity, controlling for receipt of these social grants by household head.

Table 6.27: ANOVA: Social grants vs. Moderate food insecurity

		Sum of Squares	Df	Mean Square	F	Sig.
Old Age Grant	Between Groups	5.672	11	.516	2.480***	.006
	Within Groups	43.662	210	.208		
	Total	49.333	221			
Child Grant	Between Groups	8.585	11	.780	4.022***	.000
	Within Groups	40.749	210	.194		

	Total	49.333	221			
Other Grants	Between Groups	4.185	11	.380	1.769*	.061
	Within Groups	45.149	210	.215		
	Total	49.333	221			

Source: Study Results

6.11 ANOVA: VARIANCES OF SOCIAL GRANTS IN SEVERELY FOOD INSECURE HOUSEHOLDS

Variances in the population means of households' having severe food insecurity are significant by categories of social grants that households receive. Variances in their population means range from 2.2 for households that receive other grants to 6.8 among those that receive child grants. These results are highly significant at the 1 percent level. Very strong evidence therefore exists of a difference in mean household experience of severe food insecurity, controlling for receipt of these social grants by household head.

Table 6.28: ANOVA: Social grants vs. Severe food insecurity

		Sum of Squares	Df	Mean Square	F	Significance
Old Age Grant	Between Groups	19.152	25	.766	3.904***	.000
	Within Groups	99.292	506	.196		
	Total	118.444	531			
Child Grant	Between Groups	29.853	25	1.194	6.821***	.000
	Within Groups	88.590	506	.175		
	Total	118.444	531			
Other Grants	Between Groups	11.504	25	.460	2.191***	.001
	Within Groups	106.271	506	.210		
	Total	117.774	531			

Source: Study Results

6.12 ANOVA: VARIANCES OF HOUSEHOLDS' FOOD INSECURITY BY LOCATION

Variances in the population means of households' experiences of food insecurity vary by location of households experiencing such difficulties. At 14.4 variances are lowest among households experiencing severe food insecurity and highest (73.5) among those that are food secure. The results show that variances in the population means of beneficiaries' increase, as the household becomes better food secure in their location. These results are highly significant at the 1 percent significance level. Very strong evidence therefore exists of a difference in mean household experience of food security, controlling for residential location of the household head.

Table 6.29: ANOVA: Variances of households' food insecurity by location

		Sum of Squares	Df	Mean Square	F	Sig.
Food Secure	Between Groups	49.84	3	16.61	73.54***	.0001
	Within Groups	746.4	***	0.026		
	Total	796.2	***			
Mildly Food Insecure	Between Groups	39.31	3	13.1	70.62***	.0001
	Within Groups	613.1	***	0.186		
	Total	652.4	***			
Moderately Food Insecure	Between Groups	37.09	3	12.36	66.08***	.0001
	Within Groups	618.1	***	0.187		
	Total	655.1	***			
Severely Food Insecure	Between Groups	9.05	3	3.02	14.44***	.0001
	Within Groups	689.7	***	0.209		
	Total	698.8	***			

Source: Study Results

6.13 ANOVA: VARIANCES OF HOUSEHOLDS' FOOD INSECURITY BY GENDER

On the contrary variances in the population means of households' experiences of food insecurity also vary by gender of the head of households, such variances in the population means of

beneficiaries decrease as the household becomes better food secure. At 324.5 variances are highest among households experiencing mild food insecurity and lowest (62.4) among those that are food secure. These results are highly significant at the 1 percent significance level. Very strong evidence therefore exists of a difference in mean household experience of food security, controlling for the gender of the household head.

Table 6.30: ANOVA: Variances of households' food insecurity by Gender

		Sum of Squares	Df	Mean Square	F	Significance
Food Secure	Between Groups	29.56	2	14.78	62.41	.0001
	Within Groups	586.9	***	0.237		
	Total	616.5	***			
Mildly Food Insecure	Between Groups	118.8	2	59.4	324.5	.0001
	Within Groups	453.6	***	0.183		
	Total	572.4	***			
Moderately Food Insecure	Between Groups	115.5	2	57.74	312.0	.0001
	Within Groups	458.6	***	0.185		
	Total	574.1	***			
Severely Food Insecure	Between Groups	67.45	2	33.72	157.5	.0001
	Within Groups	530.3	***	0.214		
	Total	597.7	***			

Source: Study Results

6.14 LOGISTIC REGRESSION ANALYSIS

The logistic regression described in Section 6.4 of Chapter 5 was used to analyse the significance of demographic variables such as household income, age, gender, marital status, household size, employment status, educational attainment, in explaining household food security. It also sets to understand the significance, of other socioeconomic variables for example, access to social grants and help from others, in relation to food security. The food

security was loaded as a binary variable of 1, where the household is food secure and 0 where the household is food insecure.

Table 6.32 summarizes the results of logistic regression, which test the effect of different demographic variables on food security. Before interpreting the coefficients, it is important to discuss the goodness fit of the model. Results of the tests used for this purpose are summarized in the last row of Table 6.32. The Omnibus tests of model coefficients, which set the null hypothesis of a poor fit against the alternative hypothesis of a good fit, has a chi-square of 130.726 and a p-value of 0.00. This suggests that the null hypothesis for a poor fit is rejected at 0.01 significance level. Thus, the model passes the goodness fit test. Cox & Snell and Nagelkerke R square values give an indication of the variation in the independent variable explained by the model and range between a minimum of zero and maximum of one. The values of 0.150 and 0.203 suggest that between 15 percent and 20.3 percent of the variability in in food security status is explained by demographic variables considered in this study.

Table 6.31: Overall socio-economic determinants of food security among the urban poor in the three locations

		B	S.E.	Wald	Sig.	Exp(B)
	Age	-.113	.033	11.689	.001	.893
	HHsize	.099	.187	.279	.597	1.104
	Gender	.006	.006	1.176	.278	1.006
	Marital status	.503	.163	9.478	.002	1.654
	Backyard Garden	-.071	.166	.183	.669	.931
	Employment status	.551	.175	9.959	.002	1.735
	Education level	.065	.019	11.241	.001	1.067
	Soshanguve area	-.415	.173	5.719	.017	.660
	Log of Total Income	.448	.095	22.117	.000	1.565
	Constant	-3.641	.780	21.797	.000	.026
	Omnibus Tests of Model Coefficients				Cox & Snell R^2 = 0.150	
	Chi-square =130.726 P-value = 0.000				Nagelkerke R^2 = 0.203	

Literature on food security has highlighted the following socio-economic variables as being major drivers in understanding food security at the household level. These variables include, the age of the head of the household (Van der Berg, 2006; Ndobo and Sekhampu, 2013); employment status of the Head of the Household (Altman, *et al.,* 2009; Hendriks & Maunder, 2006; Du Toit, 2005, Maxwell & Slatter, 2003; FAO, 2015); the size of the household (Grobler,

2013, Maxwell, 2008; Van der Berg, 2006: FAO, 2015) the education level of the head of the household (Makombe *et al*., 2010; Idrisa, 2008; Haile *et al*., 2005), gender of the head of the household (World Bank, 2015; Shisana, *et al*. 2013; Joshni & Maharjan, 2011; Ndobo and Sekhampu, 2013; Shisana, *et al*, 2015; Grobler, 2015; Horell & Krishnan, 2007; Olayemi, 2012; Mutuonotzo, 2006; Amaza *et al*., 2006) and the income of the Household Head (Onomona *et al*., 2007: Ndobo and Sekhampu, 2013; Olayemi, 2012; Alaimo *et al*., 1998; Gundersen & Gruber, 2001).

Household income is important in explaining food security. The coefficient of household income is 0.448 and has a p value of 0; the result shows a rise in income contribute positively to food security. The coefficient of income is significantly different from zero. Income has the odds ratio of 1.565, which suggests that having an income raises the odds of being food secure. , I.e. the presence of food security is strongly associated with the presence of income, household with income are more likely to be food secure. For a rise in income the likelihood of households being food secure increase by 56.5 percentage. Thus, an increase in total income of the household increases the likelihood of being food secure by 56.5 (1.565 -1) percent. This is to be expected and confirms earlier findings by Onomona *et al*., 2007; Ndobo & Sekhampu, 2013; Olayemi, 2012, among others.

In the model under study, the coefficient of the age of household is negative and has the odd ratio of less than one and a p value of 0.001. With a p-value of 0.001, it implies that age does have a significant effect on food security status. The odds ratio of 0.893 suggests that an increase of one unit in age is expected to decrease in the odds of food security by 0. 893, holding all other variables constant. This means that increase in age of the household head decreases the probability of being food secure by 10.7 (0.893 -1) percent. This finding is not in line with the findings of Lopez-Carr *et al* (2010) who suggest that age of household head is not statistically significant in explaining food security among urban households. However, studies by Mitiku *et al*., 2012; Bogale & Shimelis, 2009; Babatunde *et al*., 2007; Amaza *et al*., 2006 Obamiro *et al*., 2003, on the other hand, all indicated positive relationship between age and food security.

The impact of education on food security is often exclusively attributed to positive spin off of economic growth (FAO, 2015). As Mukudi (2003) claims, education is central for human liberation through strengthening human mind, fostering different perspectives in life, strategizing and reinforcing positive attitude also towards nutrition (Robeyns, 2006). It is also through education that one develops a better view on medication, personal health and nutrition.

Educated households generally devise creative ways of maintaining healthy eating habits (Haile *et al*., 2005).

The literature (Cuesta, 2015; Makombe *et al*., 2010; Idrisa, 2008; Haile *et al*., 2005) suggests that investment in education is a very smart move. Returns on education sometimes exceed 15 times the cost of some of its interventions. Multiplier benefits of education on women cannot be over emphasized as it promotes women ability to enter labour market and become economically active citizens (Cuesta, 2015). Equally important is the role education plays on societal norms (Cuesta, 2015). It sets standards for women to establish better sanitation and child feeding norms. This contributes positively on the general welfare of the society in the long term.

In this study, education of the head of the household in each of the three locations is an interaction term between educational attainment of the household head and the specific location under consideration. The education coefficient is 0.065 with a p-value of 0.001 and odds ratio of 1.067. The p-value indicates that education has a significant impact on food security and odds ratio confirms that there is a strong association between food security and education. For every increase in level education, the odds of food security increase by 1.067, holding all other variables constant. This means that increase in level of education tend to increase the likelihood of being food secure by 6.7 (1.067 -1_ percent. This finding is in line with those of (Makombe *et al*., 2010; Idrisa, 2008; Haile *et al*., 2005) among others. Lopez-Carr *et al* (2010) also suggest that being educated does increase the probability of being food secure. However, this finding about education is contrary to those of (Grobler, 2015; This suggest that the education can vary from area to area and may not be significant in area where mostly of the population have same level of education.

The study results shows there is a significant relationship between the marital status of the household head and household food security. The coefficient of household marital status is 0.503 and has a p-value of 0.002 show that being married contribute positively to food security. The coefficient of marital status is significantly different from zero. Marital Status has the odds ratio of 1.654, which suggests that being married raises the odds of being food secure. This means that households with a married head are 65.4 percent (1.654-1) more likely to be food secure compared to those headed by unmarried individuals. These findings are consistent with results by Grobler (2015) and Ndobo & Sekhampu (2013) who found married households were more likely to be food secure than their unmarried counterparts. Having a spouse can assist with providing additional income and sharing household responsibilities.

The coefficient of household gender is 0.006 and has a value of 0.278. The coefficient of gender is not significantly different from zero. This suggests that gender has no impact on food security. This means that food security status is similar in male-headed households and those headed by females. This finding is consistent with the previous findings by World Bank, 2015; Shisana *et al*., 2013; Joshni & Maharjan, 2011; Knueppel *et al*., 2009. Other Studies, have found gender, to be significantly associated with food security (Makombe *et al*., 2010; Idrisa, 2008; Haile *et al*., 2005). Sekhampu & Ndobo (2013), on the other hand, have found female-headed households to be less food secure.

Have a backyard garden means that a household can increase their access to food by planting vegetable and other basic food. This variable was used to check if backyard gardens or any other garden could increase in the food security status. The coefficient of household backyard garden is -0.71 and has a p-value of 0.669. The coefficient of backyard garden is not significantly different from zero. This suggests that having backyard garden has no impact on food security. Put differently, food security status of households with a backyard garden is similar to those without backyard garden. This is consistent with the study by DBSA, 2013, and Shisana *et al*, 2013. However, studies by FAO (2013) and Altman *et al*. 2009) found that additional land or backyard gardens increase the level of household food security. One of the plausible explanations behind this finding is that these backyards gardens may be used to produce additional income for a household.

The coefficient of household Employment Status is 0.551 and has a p value of 0.002, the result shows that being employed contribute positively to food security. The coefficient of employment status is significantly different from zero. Employment Status has the odds ratio of 1.735 which suggest that being employed raises the odds of being food secure, i.e. the presence of food security is strongly associated with being productive and hence employed. Household with employed heads are 73.5 percent (1.735 -1) more likely to be food secure than those with unemployed heads. This is expected, as employment is stable source of consistent income that can assure a steady supply of food. This is consistent with the findings by Van der Berg, 2006; Shisana, *et al*; Onomona *et al*., 2007: Ndobo and Sekhampu, 2013; Olayemi, 2012; Alaimo *et al*., 1998; Gundersen & Gruber, 2001). This finding emphasises that creation of job for employed household heads can assist in increasing the food security in low-income area such as townships.

Three investigated areas may differ due to their structure Tembisa and Atteridgeville are more of urban townships, while Soshanguve although also urban has large population of low-income

households, as compared to the other two suburbs. Thus a dummy variable for location, comparing Soshanguve to other affluent urban townships, was created. The coefficient of household location is -0.415 and has a p-value of 0.017 meaning that the coefficient of geographical location is significantly different from zero. Location has the odds ratio of 0.660 which suggest being located in Soshanguve, compared to being more affluent townships (Tembisa and Atteridgeville) decreases likely hood of being food secure by 34 (0.66 -1) percent. Households who reside in up market location are more likely to be food secure than those from low-income neighborhoods. This is in line with findings of the study by Battersby, 2011 and De Haan, 1997; whose results highlighted a shift in food security towards urban areas. In urban areas, the findings by De Haan, 1997, depicted a concentrated increase in food security particularly in those urban areas, where the majority of households are in the low-income bracket. The logit regression results displayed that, the significant importance of the demographic variables in explaining food security with four variables being highly significant. These variables include household income (other market income), marital status, education, household size, and all highly significant.

6.15 CONCLUSION

This chapter presented a summary of the results of correlation tests; analyses of variance and the estimated regression model used in this study and interpreted the results. Findings suggest that households differ in terms of their access to social grants and the resulting food security experiences. Results from the logit regression model demonstrate that while some degree of food security exists in the study areas, this is boosted by increases in income, education and employment of the household head. This is in line with earlier studies by Ndobo and Sekhampu (2013) and Grobler (2015), which indicated a positive correlation between increased income of the household head and food security. Severe household food insecurity does not exist in Soshanguve and Tembisa. The situation of lack of severe food insecurity is boosted by increases in income only. Receiving help from others like neighbours family and friends, increases household dependency on others and in the process contributes to household food insecurity. As household size increases, especially of children below the age of five, as well as those between 6 and 13 of age, child dependency increases and eats deeply into household finances and thereby contributes to food insecurity. These results are also highly significant.

This summary therefore highlights these results in terms of the experiences of Africans and their definition of what constitutes a household. In a number of instances, household sizes are increased by the arrival in the townships of rural-urban migrants who are very often distant

relatives. It is almost impossible not to offer them temporary accommodation and means of survival. Similarly, young people in the townships are reproductively active and are prone to becoming teenage parents. Also, persistence of divorce and separation, as well as the unwillingness of some men to take their rightful places, forces women to take the lead in rearing their children.

There were significant variations in the population means of recipients of old age grants when classified by different age categories. Variances in population means of old age recipients ranged from 2.2 among those aged 45-54 to 50.92 among those who were older than 65. These results are highly significant at the 1 percent Level. In the specific case of recipients of child grants, there were significant variations in their population means among those aged 45-54 and those recipients that were older than 65. These results are highly significant within the 1 percent level. Variances in population means of child grant recipients ranged from 1.5 to 2.1 within these two groups of recipients. Variances in population means of other grant recipients aged 25-34 and 55-64 ranged from 1.6 to 3.7 within these two groups of recipients. These variations in their population means are strongly significant only at the 1 percent level. Results are not significant in other age Categories. There were significant variations in the population means of recipients of old age grants by educational experience. Variances in population means of old age grant recipients ranged from 1.5 for those that completed matric qualifications to 5.9 among recipients with no schooling experience. These variations in their population means are strongly significant only at between 1 percent and 5 percent levels. Variances in the population means of old age recipients with tertiary education qualifications are not significant.

At 1.5 variances in the population means of other grant recipients are significant only among those with diploma qualifications. Even then, this result is weakly significant at the 10 percent level. Results are not significant in other categories of recipients' educational experiences. Like the results obtained on the location of beneficiaries, there were also significant variations in the population means of recipients of social grants by gender of beneficiaries. Variances in population means of beneficiaries ranged from 34.2 for those that benefitted from other grants to 610.8 among recipients of child grants. These variations in their population means are strongly significant at the 1 percent level. Variances in the population means of mildly food insecure households are significant among those that receive old age and child grants. Variances in their population means ranged from 1.9 for households that received old age grants to 2.9 among those that received child grants. These results are highly significant at the 1 percent and 5 percent levels.

Variances in the population means of households experiencing food insecurity are significant by categories of social grants that households receive. Variances in their population means ranged from 1.8 for households that received other grants to 4.0 among those that received child grants. With the exception of households receiving other grants where results are only significant at the 10 percent level, other results are highly significant at the 1 percent level. Variances in the population means of households' having severe food insecurity are significant by categories of social grants that households receive. Variances in their population means ranged from 2.2 for households that received other grants to 6.8 among those that received child grants. These results are highly significant at the 1 percent level. The results show that variances in the population means of beneficiaries' increase, as the household becomes better food secure in their location. These results are highly significant at the 1 percent level.

Overall findings of the study report differences in the variances of population means of households by categories of food security. It may also be an indication that social grants may not be directed, in the main, towards food purchases, thus lowering the ability of social grants to creating food secure households in South Africa. The right of citizens to access sufficient food is embedded in sections 26 and 27 of South Africa's Constitution. In the same light, the 2030 National Development Plan (NDP) outlines food security as an important component to the country's vision for economic growth. There are particular challenges in relation to urban poverty and rampant urban food insecurity in South Africa. This study contributes to the limited understanding and research on the main determinants of food insecurity among the urban poor and the contribution that social grants can make towards alleviating it.

Results from the logistic regression model demonstrate Household income is important in explaining food security. The coefficient of household income is 0.448 and has a p value of 0; the result shows that increases in household income contribute positively to food security. For an increase in income the likelihood of households being food secure increase by 56.5 percentage. Thus, an increase in total income of the household increases the likelihood of being food secure by 56.5 (1.565 -1) percent. In the model under study, the coefficient of the age of household is negative and has the odd ratio of less than one and a p value of 0.001. With a p-value of 0.001, it implies that age does have a significant effect on food security status. The odds ratio of 0.893 suggests that an increase of one unit in age is expected to decrease in the odds of food security by 0.893, holding all other variables constant. This means that increase in age of the household head decreases the probability of being food secure by 10.7 (0.893 -1) percent.

Educated households are normally stable and have access to food for their household. Education has multiple individual benefits. It increases present human capital and future earnings. It improves opportunities by facilitating women's participation in labour markets and shaping preferences, which has resulted in a historical reduction in fertility rates .In this study, education of the household head in each of the three locations is an interaction term between educational attainment of the household head and the specific location under consideration. The education coefficient is 0.065 with a p-value of 0.001 and the odds ratio of 1.067. The p-value indicates that education has a significant impact on food security and the odds ratio confirms that there is a strong association between food security and education. A one percent increase in the level education, the odds of food security increase by 1.067, holding all other variables constant. This means that an increase in level of education tend to increase the likelihood of being food secure by 6.7 (1.067 -1_ percent. The study results shows there is a significant relationship between the marital status of the household head and household food security. The coefficient of household marital status is 0.503 and has a p-value of 0.002 showing that being married contribute positively to food security. The coefficient of marital status is significantly different from zero. Marital Status has the odds ratio of 1.654, which suggests that being married raises the odds of being food secure. This means that households with a married head are 65.4 percent (1.654-1) more likely to be food secure compared to those headed by unmarried individuals

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employed heads are 73.5 percent (1.735 -1) highly likely to be food secure than in cases of unemployed household heads. This is expected, as employment is stable source of consistent income that can assure a steady supply of food.

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This next chapter presents the last chapter of the study, and draws conclusions. The findings are presented in the form of recommendations.

CHAPTER 7: SUMMARY AND CONCLUSION

7.1 INTRODUCTION

This is the final chapter of the thesis, and captures the important salient points covered in this study. At the beginning the study sets out to understand various aspects of the dynamics of the relationship between and the impact of social grants on food security in South Africa, with case studies from selected poor neighbourhoods in the Gauteng Province of South Africa. The primary objective of the study was to establish the extent of urban food insecurity in low-income households of Gauteng neighbourhoods. The rest of chapter seven is structured in this chronological order. Section 7.2 presents the high level summary of the six earlier chapters contained in this thesis. Section 7.3 captures the policy implications of the study. Section 7.4 presents the contribution of the study to the existing literature. Section 7.5 discusses the limitations of the study. Section 7.6 highlights areas for further research, while section 7.7 presents final remarks of the study.

The study comprised an initial desk review of the background of the South African situation covering government policy stances on relevant subjects and background situation of the poor neighbourhoods under study. This review covered primary as well secondary sources of data and documents, which were then analysed appropriately. This was done with a view to provide salient motivation for undertaking this very important study, especially considering that there is limited policy relevant information on the subject matter in South Africa.

The study also presented an empirical literature review section. In reviewing the literature, the study benefited from previous studies consulted in and based on South Africa, as well as those conducted by scholars elsewhere. The survey tool was used for data gathering of the study information. The study population included two low-income neighbourhoods in the Capital City of Tshwane, as well as one neighbourhood from City of Ekurhuleni. These three areas notably display high levels of unemployment and a high number of households in informal settlements. There are many recipients of social grants in these areas and this formed the basis of their selection (SASSA 2013). The study was conducted from March to June 2015, and adopted mainly the strategy of conducting in-depth interviews by well-trained enumerators as a tool for gathering relevant data. Primary data collected from 900 randomly selected households was used in the study. However, from the survey, only data from 827 households was used during interpretation, following the conduct of rigorous coherence tests.

The questionnaires used to collect data were developed in English. The survey questionnaire that was administered consisted of questions covering the household's background, socio-economic information, composition and the profile of household head, household assets, sources of income and expenditure by type of expenditure, food insecurity access scale (HFIAS) and survival strategies. The full sample consisted mainly of poorer households in the study areas. It is within this context that this study examined the effectiveness of social grants in South Africa, and its significance in improving food security status of households in the country.

This chapter presents recommendations drawn from the summary of findings.

7.2 SUMMARY OF THE STUDY

The dissertation summary follows the outline of the study as presented in Chapter One. The subsection presents a high level overview of the theoretical literature and its relevance to the empirical results presented by the study. The last part of this chapter reflects the conclusion of the study and submits recommendations flowing from the finding based on the results of 3 neighbourhoods under study.

7.2.1 Chapter One

This is the introductory chapter leading to high-level problem statement of food security in the country. This chapter covers the introduction, the problem statement, background to the study, as well as the significance of the study. A detailed discussion incorporates ethical issues in conducting the study. The background in particular highlights the challenges South Africans are confronted with is access to food.

7.2.2 Chapter Two

This chapter provided a review of critical literature of social security systems. It explored the complexity embedded in the interdependent relationship between the social programmes, the economic welfare of those impacted. This chapter also explored the different social security systems adopted in South Africa in response to the socio-economic context. It further explores the South African government intervention to date on social security. It further presents high-level statics of social grant trends

The chapter concluded by displaying the importance of social grants for economic stability and the benefits to the broader household benefits. Development of comprehensive social protection

entitles recipients to a basket of psychosocial and economic benefits to enable the realization of the spectrum of human dignity. The central role of the state in effective provisioning of social protection to its people is explored. Taken as a whole, these services are critical for economic sustainability of households.

It is also important to highlight some of the documented benefits of social grants. The available literature confirms positive spin offs on food security to those receiving social grants. Social security policies are thus instrumental in assisting in the development of economic policies crucial social insurance schemes.

7.2.3 Chapter Three

This chapter therefore explored the literature on food security and also incorporated the understanding of food security levels in South Africa. There has been a consistent shift of emphasis in understanding food security from international focus to domestic and household level (Sekhampu, 2015). Food security is a well-researched concept and very broad, incorporating issues related quantity, quality and sustainability of supply (Evans, 2009, Sekhampu, 2013, Grobler, 2015). Large segments of society are food insecure because of limited access, rather than the availability of food, which is a very important distinction that can be deceptive to policy makers. Alternatively and rather simplistically it could imply the availability of food to survive but not having food to sustain a healthy life that comprises sufficient nutrients.

7.2.4 Chapter Four

This chapter presented a high level summary of social security statistics in the country, also the statistics of the three study areas. The chapter aimed to create a context for the following chapter that presented the findings of the empirical research in three neighbourhoods of Atteridgeville, Soshanguve and Tembisa. This provided a logical basis for the thesis to conduct the study in the selected areas.

7.2.5 Chapter Five

This chapter presented the methodological framework employed in investigating empirical relationship between social grants and food security in South Africa. This chapter also presents the descriptive analysis of the results. Descriptive analyses were conducted on the three locations separately. The results obtained suggest the significant value attached to gender in explaining food security status of households. Thus gender is seen as a driving force in

understanding food security status of households. Food security varies substantially between male headed (MHH) and female-headed households (FHH). Male-headed households (MHH) are perceived to be better equipped in dealing with food security than their female headed households (FHH) counterparts. The study reflects that MHH at (66.5%) and FHH at (58.3%) FHH) were thus better off than their female counterparts. All forms of food insecurity are depicted very high for FHH including " mildly, moderately and severely food insecurity" at 7.8 percent 10.9 percent and 23.0 percent respectively.

Employment: It is a foregone conclusion that being employed will definitely impact on the food security of any household but what is worthy to note is that only 78.7 percent of those employed are food secure and as much as 10.5 percent of employed households are severely food insecure. This therefore reflects, that only 6.1 percent are mildly food insecure and 4.7 percent are moderately food insecure, which indicates that employment does not guarantee food security. In total 21.3 percent of employed household heads is food insecure at varying levels. It is therefore alarming that a similar pattern exists for the unemployed as well, with 47.7 percent being food secure and 30.1 percent being severely food insecure.

Income: those earning <R2000 are severely food insecure at a concerning level of 30 percent and yet the peak lies within the band that earns <R2000 at as high as 34.3 percent. However, within the same 2 bands 20.0 percent and as much as 45.9 percent considered themselves food secure. A deviation from the expected is that 2 respondents with no income considered themselves food secure. The other concerning statistic is that of those earning between R6001-R8000 - 6.7 percent were severely food insecure and 2 respondents, a total of 1.9 percent, earning above R8000 per month, were severely food insecure.

Education attainment: endorses that the level of academic achievement has a very high impact on a household's food security. Those with "no schooling" reflected the lowest percentile of food security at 48.1 percent. This increases incrementally from up to grade 3, grades 4 to 7 and then grades 8 to 11. However, it should be insightful to notice that the segment of grade 8 to 11 is 59.6 percent, which catapulted exponentially to 83.3 percent with a grade 12 education of the household head. The statistics become even more surprising, indicating that those household heads with a tertiary diploma or degree enjoyed 100 percent food security. This pattern is also reflected in the classification of severely food insecure, which oscillates between 28.3 percent for those with "no schooling" and decreases gradually, still within the 30-percentile range but decreases significantly to 6.1 percent for those household heads with Grade 12 education. Those with a Tertiary Diploma or Degree recorded 0 percent as being severely food

insecure. These statistics prove beyond reasonable doubt that the level of education of the household head will significantly impact food security.

Labour force participation: indicates the number of years that household heads have been gainfully employed. This reflects that there is a definite relationship between years of employment and food security. Of those employed for under a year 50.2 percent are food secure in relation to 30.0 percent being at the other end of the spectrum as being severely food insecure. This figure rises steadily with each year of employment. It is also interesting to note that from year 4 of employment and above severe food insecurity is completely eradicated.

7.2.6 Chapter Six

This chapter presents the empirical estimations and analysis using the Pearson correlations was run to determine bivariate linear relationships between variables that were continuous variables. T-tests or two-way ANOVA with post-hoc tests were used for comparisons of continuous variables between groups. Two-Way ANOVA was used on household opportunity costs to compare between the three different locations and households' food security statuses.

Correlation Analysis

Data collected was subjected to a correlations analysis between the eight explanatory variables and the HFAIS scores .There is a strong significant correlation and negative between HFIAS score and the household income ($r = -0.485$, $p < 0.000$). This reflects that households with no access to some form of income are likely to highly dependent on others for survival. This then increases their chances of being food insecure.. The negative correlation therefore shows that the HFIAS score is decreasing substantially in this case.

On the other hand, in households where there is a greater number of people having some form of employment, in the case the HFIAS score deceases. This is to be expected as there are a number of people who are contributing to household income through their employment. This lowers the household level of vulnerability as well food insecurity.

Households whose heads have tertiary qualifications are highly correlated with the receipt of child grants and other grants. As expected, only households that are headed by old people receive old age grants. Households' income (the total monthly income of households from all sources) is the most critical determinant of household food security, and has a negative association with it. Other determinants such as education, age, gender, formal employment,

size of household, direct cash transfers or social grants, engagement in trading activities are linked to household food security via engagement or otherwise in income-generating activities for food consumption. Incomes are necessary because they are used in financing food purchases and non-food expenditures including the accumulation of assets for the household. Therefore variability of income has significant impact on household food security. Variances in the population means of households' experiences of food insecurity vary by income class of the head of household. They decrease as income decreases being lowest among the lower income groups. Hence, this study suggests food security improves with increases in income, while food insecurity decreases with it. Households that derive incomes mainly from wages or salaries tend to be food secure while those receiving help from families, neighbours and others are mildly food secure. Households are generally food secure whether or not they receive other types of income, derive income from informal activities or receive other grants. Those households that receive social grants are in general more food secure than others with the exception of those receiving child grants where they are mildly food secure. Variances in food security decrease from the formal to the informal income sources. They are lowest when households' heads are employed in the informal sector or receive income from other sources. They are highest among wage earners and those receiving state pension.

Anova Analysis

The study sought to analyse the variation associated with household food security and the receipt of social grants in the three locations under study, using an ANOVA test. It aimed to determine whether the variance in food security and receipt of social grants was affected by residential location in each of the three locations, age grouping, gender, and income and employment status. The study also reports differences in the variances of population means of households by categories of food security. Grobler (2015) has shown that the more households rely on social grants, the higher their level of food insecurity, and the lower their dietary diversity! Grobler (2015) has suggested that social grants may be insufficient to ensure food security at the household level, even in low-income neighbourhoods. It may also be an indication that social grants may not be directed, in the main, towards food purchases, thus lowering the ability of social grants to creating food secure households in South Africa. In the specific case of recipients of child grants, this study reports significant variations in their population means among those aged 45-54 and those recipients that are older than 65. This is hardly surprising. Young people in the townships are reproductively active and are prone to becoming teenage parents. The South African Department of Basic Education recorded 20 000 learner pregnancies in 2014, the highest number was in Gauteng Province at over 5 000 (SABC, 2015).

It is believed that more than 2 percent of girls between the ages of 14 and 19 drop out of school in South Africa because of teenage pregnancy. Under conditions of lack of skills and education, employability is compromised. As teenage mothers, they surrender their children to their grandmothers for childcare. While receiving child grants, teenage mothers do not share these social grants with the children's grandmothers. The whole situation causes unanticipated increases in child raising expenditure for the grandmothers, negatively affecting household food security.

Logit Regression Analysis

Findings suggest that households differ in terms of their access to social grants and the resulting food security experiences. Results from the logit regression model demonstrate that while some degree of food security exists in the study areas, this is boosted by increases in income, education and employment of the household head. The logit regression results displayed that, the significant importance of the demographic variables in explaining food security with four variables being highly significant. The variables in this case include marital status, education, household income (other market income) and household size all highly significant.

The findings of the logit regression model also demonstrate that while the absence of mild food insecurity exists in the study areas, this is boosted by increases in income, and employment of household head. These results are highly significant. Moderate household food insecurity exists in the study areas, this is decreased by increases in income, receipt of old age pension, the education and employment of household head. These results are also highly significant.

7.3 ACHIEVEMENT OF OBJECTIVES

The study sets out at the beginning to examine the following primary objectives in three Gauteng neighbourhoods: -

- Establish the extent of urban food insecurity in low income households of Gauteng neighbourhoods;
- Determine if different social grants assist in the achievement of household food security;
- Determine the strategies adopted by food insecure households in Gauteng neighbourhoods;
- Provide policy and programmes to address food security challenges in urban areas.

The objectives set out for this study in Chapter 1 under heading 1.3 were all achieved. The display of achievement of these objectives is clearly presented under chapter 5 and 6, whilst policy recommendations are presented in 7.4 below. The study shows that low income households in urban areas are more prone to to food insecurity. It further finds, that the receipt of social grants enhances food security. It suggests therefore, that income generation, including the receipt of social grants, boosts household food security.

The study highlighted the creative ways that food insecure households in Gauteng neighbourhoods have adopted in order to survive, especially female-headed households. These findings might amongst others suggest that a policy of effective household food security targeting that provides more social grants to women while addressing issues of paid employment affecting them would be useful.

7.4 OVERALL POLICY IMPLICATIONS

That gender is not correlated with food security in the study areas is instructive. Although male-headed households normally are far more engaged in the world of work, which is positively correlated with food security, this is counterbalanced by greater access of female-headed households to social grants, and in particular child grants. It is therefore intriguing to reveal that households that receive social grants are in general more food secure than others. These findings might hence suggest that a policy of effective household food security targeting that provides more social grants to women while addressing issues of paid employment affecting them would be useful.

It is once more reaffirmed that the most critical determinant of household food security, continues to be households' income (the total monthly income of households from all sources). Income affects food security measures in many dimensions. Directly, it allows greater flexibility of food choices and stability through lean times. Indirectly, wealth may be correlated with other variables that also reflect food choices: location, education, marital status, and other amenities.Other determinants such as age, gender, formal employment, size of household, direct cash transfers or social grants, engagement in trading activities are linked to household food security via engagement or otherwise in income-generating activities for food consumption. Incomes are necessary because they are used in financing food purchases and non-food expenditures including the accumulation of assets for the household. Therefore variability of income contributes stronly to food security at a household level. This study does not find support for Engel's Law, which traditionally suggests that households spend less on food as income

increases. On the contrary, the study suggests that income generation, including the receipt of social grants, boosts food security at a household level.

A variance in food security at a household level normaly reflects the difference between the actual and the expected results. Hence, variances in households' experiences of food insecurity are important to analyse. When variances are favourable, this could imply that the means for achieving household food security are lower than predicted. The converse is also true. The study finds that variances vary by income class of the head of household. They decrease as income decreases being lowest among the lower income groups. The study has established that households that derive incomes mainly paid employment (from wages or salaries) tend to be food secure while those receiving help from families, neighbours and others are mildly food secure. A policy that ensures households' access to regular paid income will decrease food insecurity and in the process enhance household food security.

Experiencing high variances in access to child grants, and low incomes, this study finds that younger female household heads experience the highest degree of variances in food security and should be particularly targeted in an effective food security policy plan. Negative food security variance among these categories of South Africans could be devastating.

7.5 CONTRIBUTION

These findings in this study will contribute greatly to the broader body of literature in different ways. Although there is evidence available in South Africa on food security in low-income urban areas, it is still centred especially in wealthy provinces. This study therefore strengthens that limited view to some extent. The fact that households whose heads have tertiary qualifications are highly correlated with the receipt of child grants and other grants is consistent with rising incidence of single parenthood in South Africa. Also, it is crucial to understand these results in terms of the experiences of Africans and their definition of what constitutes a household. In a number of instances, household sizes are also increased by the arrival in the townships of rural-urban migrants who are very often distant relatives. It is almost impossible not to offer them temporary accommodation and means of survival. This complicates the food security situation for household heads aged 45 and above.

- The results obtained are robust and adds significantly to understanding the complexities and other nuances of food security
- Several contributions are made both to theory and empirical literature, and are covered at length in Chapter 2 and Chapter 3 of this thesis.

- Thirdly, this enabled the presentation of comprehensive analysis of social security and food security issues pertaining to international and domestic phenomena.
- Fourthly, the various policies suggested as recommendation by this thesis, will strengthen the current social security policies in place in South Africa.

7.6 LIMITATIONS FACED BY THE STUDY

Funds limitation prevented the researcher from exploring other poorer neighbourhoods in Gauteng Province. Most studies in Gauteng have covered extensively the Vaal Region especially Sebokeng-area. It would have been interesting to cover the entire East Rand area as well.

- Challenges being faced in the area under study reflect the socio-economic dynamics of the population are similar, facing more or less the same spatial development challenges.
- Secondly, time management and balancing was another source of challenge during the survey completion period.
- It will be interesting to explore the two way ANOVA model in an intra-Provincial study.

7.7 OPPORTUNITIES FOR FURTHER RESEARCH

The study puts forward the following recommendations associated with the study constraints:

- The Provinces covered for an analysis could be further broadened, to enable intra-Provincial analysis of the impact of social grants on food security.
- Further research could include time series analysis of social grants to compare pre 1994 and post 1994 intervention by SASSA.
- Since rural urban migration plays a crucial role in food security in South Africa, future studies could examine socio economic dimensions of rural urban migration on food insecurity between sending areas and the Receiving areas.
- Intra-Provincial comparison of food security among urban poor areas could be explored, for example Eastern Cape compared with Gauteng Province.

7.8 FINAL CONCLUDING REMARKS

This study investigated the significance of social grants on food security, in the Gauteng Province. Food security is thus a complex concept requiring dedicated focus and commensurate funding. South Africa is challenged to explore all these differing views. The primary objective of

the study was to establish the impact of social grants on food security in South Africa. Therefore, the profiling of households in the three locations was essential to see any effect social grants might have on food security. Central from these study findings is that households differ in their approaches to social grants utilisation and the resulting food security experiences.

Among others, results show that the food security experience of the household head is significantly linked to the explanatory variables such as education. Households whose heads have lower qualifications (Grade 1-6) or who have no schooling experience, tend to be highly correlated with benefitting from old age grants. Households whose heads have tertiary qualifications are highly correlated with the receipt of child grants and other grants. As expected, only households that are headed by old people receive old age grants.

There are also significant variations in the population means of recipients of social grants by gender and location of beneficiaries. Variances are lowest among those receiving other grants. It is easy to explain this. Other grants cover a whole of state support for war veterans, who are disabled or older than 60, and whose numbers are known. It also covers disability grant, whose eligibility for support has to be proven, perhaps with medical certificates etc. Qualification for Grant-in-Aid also requires a good amount of documentary support. The fact that there is a minimum variance in the population means of beneficiaries of old age pension is simply due to the fact that you have to attain a designated old age (60 years and above) in order to qualify.

Variances in the population means of food secure households, households experiencing food insecurity and those experiencing the other extreme form of severe food insecurity are significant by categories of social grants that households receive. On the other hand, variances in the population means of mildly food insecure households are significant only among those that receive old age and child grants.

These variances increase, as the household becomes better food secure in their location. On the contrary, though variances in the population means of households' experiences of food insecurity also vary by gender of the head of households, such variances decrease as the household becomes better food secure. This might underlie the important role of women in ensuring low variability in household food security as experiences of food insecurity improves.

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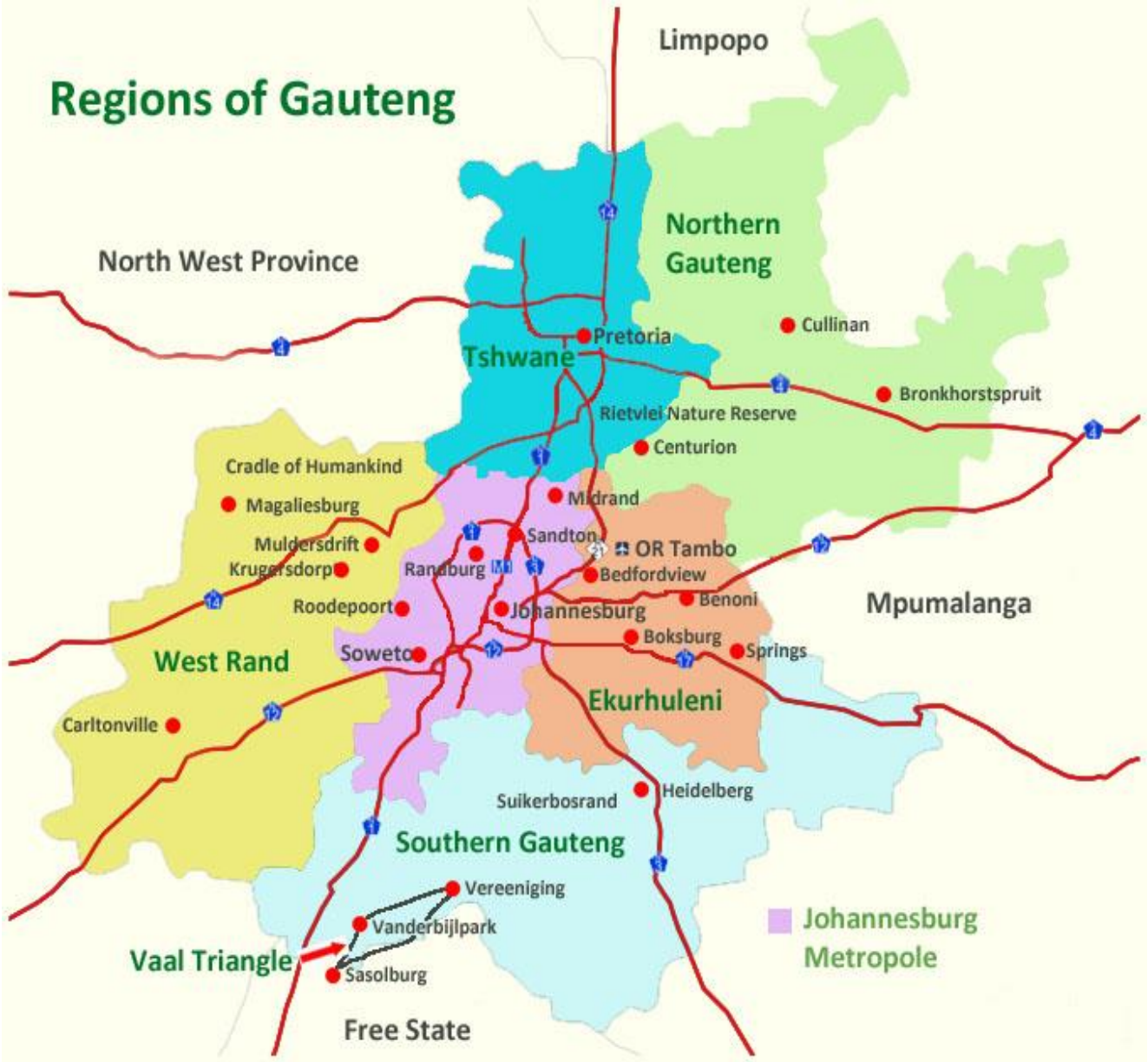
APPENDIX A


Regions of Gauteng
Limpopo
North West Province
Northern Gauteng
Pretoria
Tshwane
Cullinan
Bronkhorstspruit
Rietvlei Nature Reserve
Centurion
Cradle of Humankind
Magaliesburg
Muldersdrift
Krugersdorp
Midrand
Sandton
OR Tambo
Randburg
Bedfordview
Benoni
Roodepoort
Johannesburg
Boksburg
Springs
Mpumalanga
West Rand
Soweto
Ekurhuleni
Carltonville
Suikerbosrand
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Vanderbijlpark
Vaal Triangle
Sasolburg
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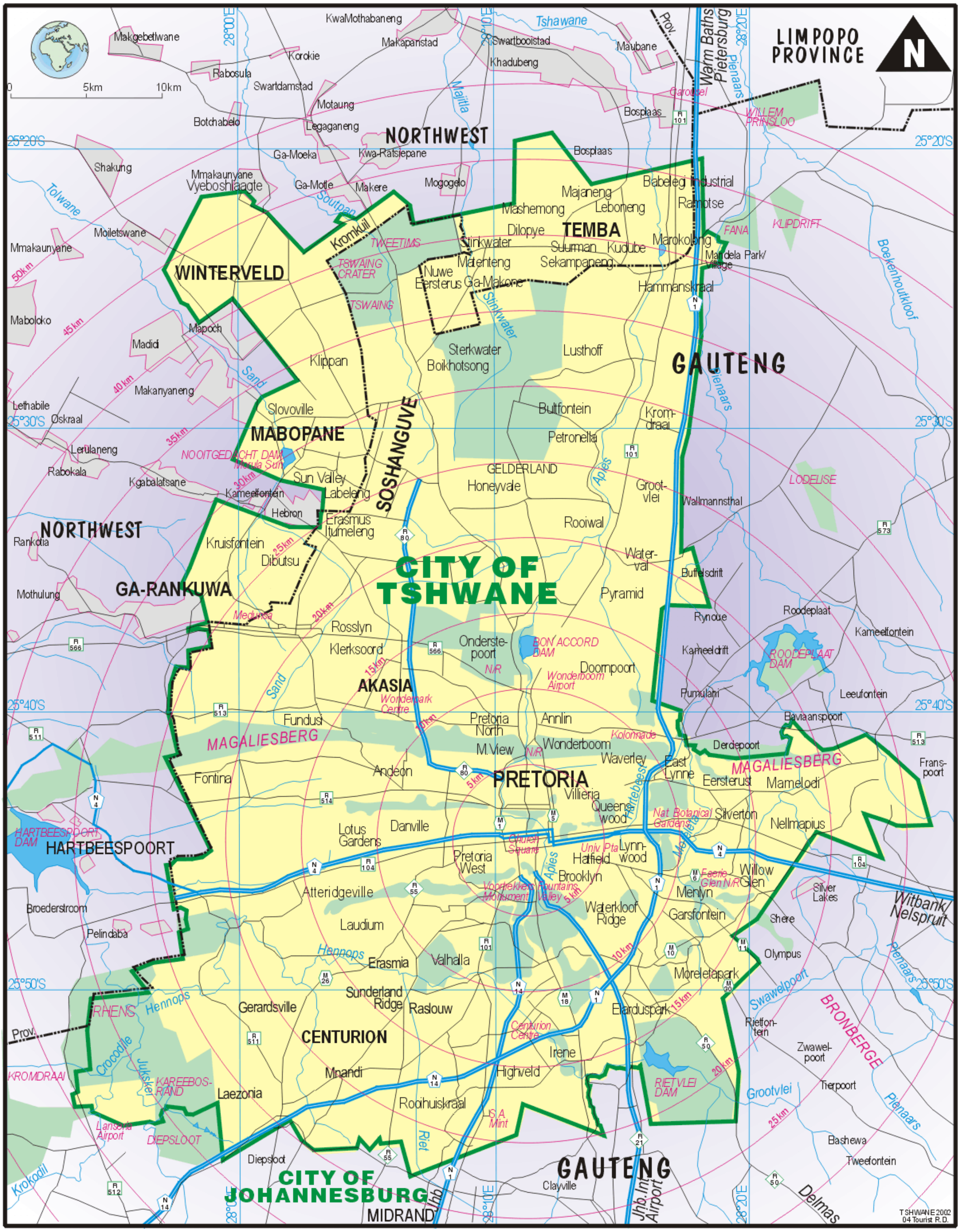
Free State

APPENDIX B


LIMPOPO PROVINCE
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PRETORIA
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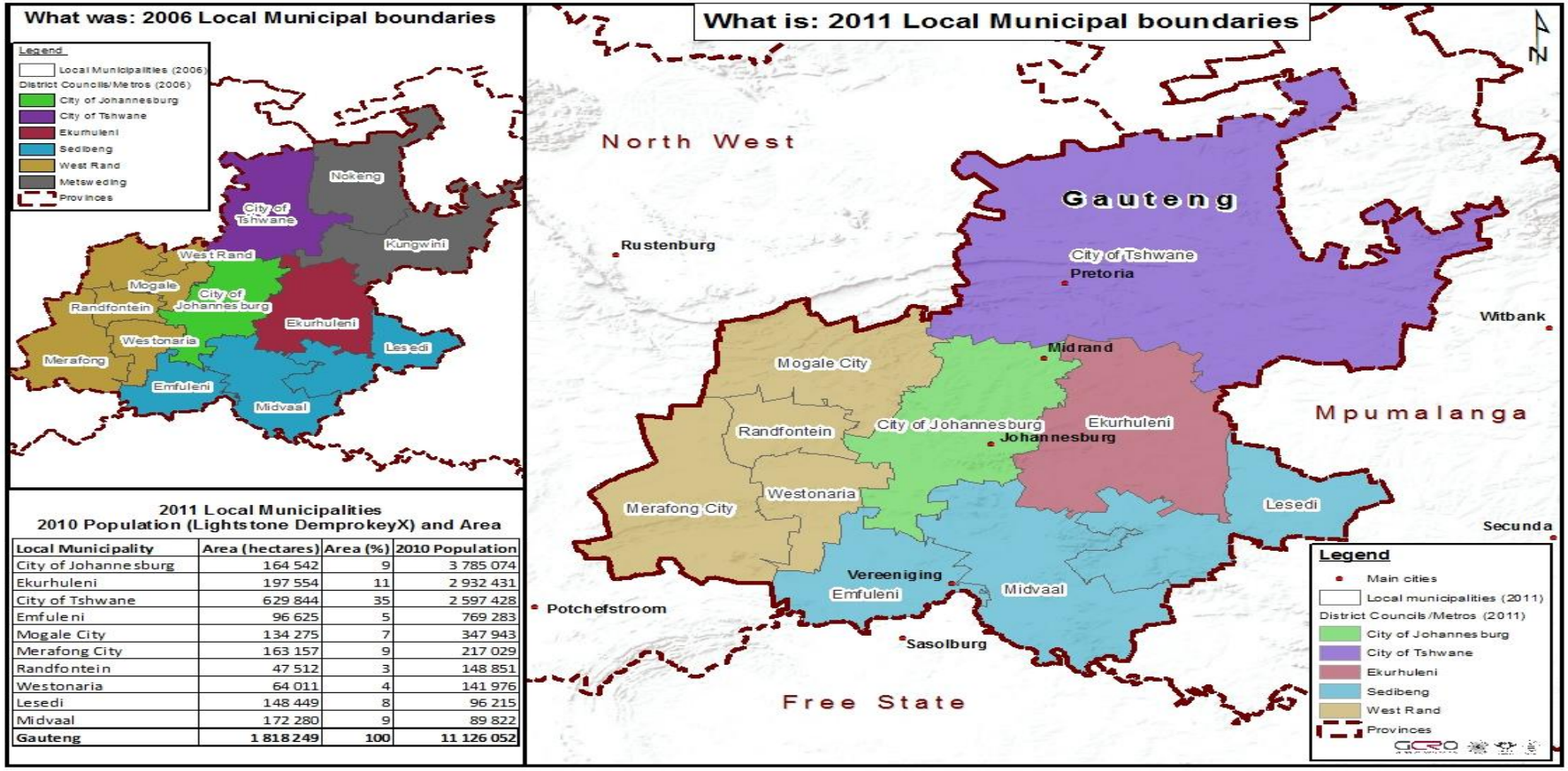
APPENDIX C



2011 Local Municipalities
2010 Population (Lightstone DemprokeyX) and Area

Local Municipality	Area (hectares)	Area (%)	2010 Population
City of Johannesburg	164 542	9	3 785 074
Ekurhuleni	197 554	11	2 932 431
City of Tshwane	629 844	35	2 597 428
Emfuleni	96 625	5	769 283
Mogale City	134 275	7	347 943
Merafong City	163 157	9	217 029
Randfontein	47 512	3	148 851
Westonaria	64 011	4	141 976
Lesedi	148 449	8	96 215
Midvaal	172 280	9	89 822
Gauteng	**1 818 249**	**100**	**11 126 052**

APPENDIX D

Dear Participant,

Thank you for volunteering to complete the survey questionnaire and the sacrifice of your free time.

As you may appreciate that this survey is conducted as academic research only as part of my PhD studies at the North-West University. Please note, even though it refers to areas of life-style status, it has no financial or monetary benefits attached.

Your participation will remain confidential and your response would be only utilized to establish the levels of poverty that exist within a designated geographical area. The information gleaned will be utilized to create a documented awareness and to make recommendations that will contribute to the alleviation of poverty in general.

The researcher remains absolved from any personal responsibility assumed or implied to influence or assist in addressing the financial or social circumstances of any and all participants in the survey.

I trust that your voluntary participation has been explained to you by the enumerators and that you have been assured of the gratitude of the researcher.

For any queries, kindly call

Mandisa Mokwena

Cell phone number: 0128110463