Underemployment and unemployment in South Africa's informal sector: A case study of Potchefstroom

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Abstract

The main aim of this study is to investigate the prevalence, type and probable effects of skills-related underemployment in the car-guarding, waste-picking and day-labouring informal sub-sectors of South Africa's informal economy, using the town of Potchefstroom as a case study. The study also briefly investigates the prevalence of unemployment in the day-labouring sub-sector of Potchefstroom. The study focused on three informal sub-sectors of the informal economy of Potchefstroom; car-guarding, day-labouring and waste-picking. Cross-sectional data was collected for the periods 2014 to 2016 through survey questionnaires. A two-prong concurrent mixed method approach was used where the quantitative aspect of the analysis was aimed at determining the prevalence of skills-related underemployment as well as its probable significant relationship with the dependent variables of choice. The qualitative method was aimed at providing insights into the educational attainments of the respondents as well as the underlying reasons behind them, in order to further understand their entrance and continuation in the informal economy. Furthermore, the unemployment levels of day-labourers were investigated as well as variables that could possibly explain these levels in the Potchefstroom market. The results of the study found that there was a minimum prevalence of 48% skills-related underemployment across all three sub-sectors; the car-guarding sector having the highest incidence. Vocational overskilling was identified as the type of skills-related underemployment, which is present across all three sub-sectors. Furthermore, the results found that skills-related underemployment only has a significant relationship with the income of car-guards; the incomes of day-labourers and waste-pickers were not significantly associated with skills-related underemployment. The study also revealed that most of the respondents of the day-labouring sector had faced a 60% unemployment rate in the week of reference, whilst 25% had faced 100% unemployment in the week of reference. The qualitative analysis indicated that a vast majority of the respondents had very low levels of educational attainment.

Key words: skills-related underemployment; unemployment; informal sector.

Abstrak

Die hoof doelwit van hierdie studie is om die voorkoms, tipe, sowel as die moontlike uitwerking van vaardigheidsverwante onderindiensneming te ondersoek van motorwagte, vullisoptellers en dagloners in die informele sektor van Suid-Afrika en om Potchefstroom as ‘n gevallestudie te gebruik. Die studie ondersoek ook die voorkoms van werkloosheid in die dagwerker-subsektor van Potchefstroom. Die studie konsentreer op drie informele sub-sektore van die informele ekonomie van Potchefstroom: motorwagte, dagloners en vullisoptellers. Kruisafdelingsinligting is ingesamel vir die periode 2014–2016 deur opname vraelyste. ‘n Gemengde tweedoelige benamering is gebruik waar die gehalte aspek van die ontleding gerig was om die waarskynlike betekenis te bepaal, om vas te stel op die voorkomssyfer van vaardigheids-onderindiensneming sowel as waarskynlike betekenis met die afhanklike verskeidenheid van keuse. Die gehaltebeheer metode se doel was om opvoedkundige bekwaamhede van die deelnemers vas te stel, sowel as die onderliggende redes; om hulle toetrede en voortsetting in die informele ekonomie verder te verstaan. Faktore wat in alle waarskynlikheid uitbrei in elke sub-faktor sowel as die moontlike uitwerking op die armoedevlak van diegene wat daar in diens is. Verder is die werkloosheidvlakke van dagloners ook ondersoek, asook wisselende teenstrydighede wat moontlik hulle vlak in die Potchefstroom gebied kan verduidelik. Uitslag van die studie het bevind dat ‘n minimum van 48% voorkeur vaardigheidsverwante onderindiensneming deur al die drie sub-sektore waarvan motorwagte die hoogste is. Beroeps oorvaardigheid is geïdentifiseer as die tipe vaardigheids onderindiensneming wat teenwoordig is by al drie sub-sektore. Verdere uitslae is dat vaardigheidsverwante onderindiensneming net ‘n betekenisvolle betrekking het met die inkomste van motorwagte. Die inkomste van dagloners en vullisoptellers is nie merkwaardig geassosieer met vaardigheidsverwante onderindiensneming nie. Met betrekking tot werkloosheid in die dagloner sektor, het die studie onthul dat meeste van die deelnemers ‘n 60% werkloosheidsyfer in die betrokke week getoon het, terwyl 25% ‘n 100% werkloosheidsyfer getoon het in die betrokke week. Die gehaltebeheer ontleding het getoon dat ‘n groot meerderheid van die deelnemers ‘n baie lae vlak van onderwys geleerdheid het.

Kernwoorde: vaardigheidsverwante onderindiensneming; werkloosheid; informele sektor.

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Proverbs 3:5-8 “Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths. Be not wise in thine own eyes”

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List of abbreviations

ABS……...Australian Bureau of Statistics

APWU……American Postal Workers Union

CVT……Continuous Vocational Training

DEA……...Department of Environmental Affairs

DOT……..Dictionary of Occupational Titles

DRC…….Democratic Republic of Congo

ECHP……..European Community Household Panel

GDP……Gross Domestic Product

GNI……...…Gross National Income

GNP……..Gross National Product

HILDA……Household Income Labour Dynamics in Australia

ICLS…….....International Conference of Labour Statisticians

ILO……..International Labour Organization

KCGEA…….Korean National Follow-up Survey of College and Graduate School Graduates on Economic Activity

LED…….……...…...Local Employment Dynamics

NFOS……...Nigerian Federal Office of Statistics

NWU……North-West University

OECD…….……Organisation for Economic Co-operation and Development

OLS…….Ordinary Least Squares

PICS……...……...……...Productivity Investment Climate Survey

PSID…….....…….....Panel Study of Income Dynamics

QLF……..……...Quarterly Labour Force

QLFS……...…Quarterly Labour Force Survey

RMB…….…….Renminbi

SALGA…...……...……The South African Local Government Association

STATSSA……..…Statistics South Africa

UWC……...…….University of the Western Cape

WIEGO….....Women in Informal Employment Globalizing and Organizing

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Chapter One

Research Objectives and Method

1.1 Introduction

Labour economics is traditionally characterised by investigations into the characteristics and determinants of variables such as labour supply and demand, wage determination and unemployment. Within the scope of unemployment, emphasis is often placed on determining the number and percentage of employed versus unemployed members of the labour force, which in turn gives insights into the extent to which human capital resources are utilised and allocated within the labour market (Beukes, Fransman, Murozvi & Yu, 2017:33). Measuring human capital utilisation according to unemployment rates not only gives an indication of the percentage of human capital that is being utilised, but also provides an indication regarding the number of members of the labour force that are receiving an income.

However, singularly measuring unemployment does not provide an indication regarding the adequacy of the jobs in which the employed portion of the labour force are engaged in (Beukes *et al*., 2017:33). Job-fit inadequacy, also known as underemployment, is the term used to describe employment situations where an employee is working in a position that does not allow them to reach their full productivity potential (McKee-Ryan & Harvey, 2011:963). McKee-Ryan and Harvey (2011:963) further define it as being in a position of employment, which is lower than one's "full working capacity". Literature classifies underemployment as either being time-related or skills-related. Time-related underemployment pertains to employment situations which provide fewer working hours than what employees are willing and able to work (Beukes *et al*., 2016:5). Felstead and Green (2003:4) describe skills-related underemployment as a mismatch between the skills an employee possesses and the skills required for them to competently perform their current job.

The importance of investigating underemployment is highlighted, amongst others aspects, by the findings of Campbell, Parkinson and Wood (2013), Beukes *et al*. (2016), Wilkins (2007) and Gibbons (2016) who indicate that although the underemployed receive an income, depending on the extent and severity of their underemployment, these individuals sometimes face the same social

and economic problems that are encountered by individuals who are unemployed. Wilkins (2007:262) indicates that from a microeconomic perspective, people who are underemployed receive a lower income than what they could potentially earn and can become as vulnerable to poverty as the unemployed. They also experience low job satisfaction, as well as adverse psychological effects, which have an impact on their work performance (Lu, 2017:197; Böckerman & Ilmakunnas, 2010:8; Sloane, 2014:6). Furthermore, at a macroeconomic level, the prevalence of underemployment in the labour market is not only indicative of market failure; it also shows that human capital resources are not reaching their full productivity potential. According to Linsley (2005:1), Liang, Zhou and Cai (2013:1501) and Kupets (2015:1) underemployment lowers production levels as a result of low productivity, which can lead to lower levels of Gross Domestic Product (GDP), thereby having adverse effects on the economy as a whole.

In South Africa, an estimated 4% of private sector workers were found to be underemployed, according to a study conducted by Fauvelle-Aymar (2014:25), using 2012 quarterly labour force data. Statistics South Africa (StatsSA) (2008:25) further indicates that the majority of South Africans who fall under the category of time-related underemployment are those who are employed in occupations which require very low levels of education and skills. In terms of skills-related underemployment, a survey conducted in 2008 indicated that 7.3 million labour force participants fell under this category, of which 56.5% were unemployed, 14.8% were regarded as discouraged work-seekers and 28.7% were time-related underemployed (StatsSA, 2008:15). Although these figures provide an indication regarding the percentage of underemployed individuals in the formal sector of the South African labour force, they do not provide an indication of underemployed individuals that engage in informal sector activities. Beukes *et al*. (2016:5) indicate that a significant percentage of the unemployed workforce of South Africa generally engage in informal activities, there could thus possibly be a significant percentage of these informal sector workers that also experience underemployment. This hypothesis is further substantiated by the Organisation of Economic Co-operation and Development's (OECD) (2014:7) labour report, which shows that informal workers can also be classified as underemployed. Based on these findings, it is therefore plausible to conclude that investigating informal sector underemployment is as important as examining underemployment in the formal sector.

Currently, the vast majority of literature on underemployment in general has been conducted internationally with very few studies about underemployment in South Africa (Beukes *et al*., 2017:38). South African literature on underemployment mainly focuses on time-related underemployment, with very little attention on skills-related underemployment. Furthermore, a vast majority of the studies that have been conducted are specifically focussed on underemployment in the formal sector, with almost no studies being conducted on the informal sector. This study, therefore, aims to make an academic contribution in this regard by investigating the level of skills-related underemployment in South Africa's informal sector, with specific focus on the informal employment sub-sectors of car-guarding, day-labouring and waste-picking in the Potchefstroom area.

The importance of investigating underemployment in the informal sector is highlighted by Herrera and Merceron (2013:94), who state that informal sector workers have a higher probability of being underemployed than formal sector workers because the informal sector does not provide access to adequate capital and technology. Furthermore, according to Beukes *et al*. (2016:24), informal sector workers in South Africa were found to be 10% more likely to be underemployed than formal sector employees.

The following section provides an outline regarding the problem statement and research questions, which have been identified for the purpose of this study.

1.2 Problems statement and research question

Extensive literature currently exists regarding underemployment, most of which is conducted in developed countries (Beukes *et al*., 2017:39). Furthermore, the majority of the literature on skills-related underemployment that does exist, is largely concerned with underemployment in the formal sector. From a South African perspective, literature on underemployment is very limited, thereby making it difficult to ascertain the true extent of underemployment in South Africa. The largest contribution to date in this regard, is provided by Beukes *et al*. (2017), who used South African labour force statistics to provide a general overview of both time- and skills-related underemployment. Beukes *et al*. (2016:3) further indicate that there are currently only six South African studies to date (Moleke, 2005; Altman, 2003; Yu, 2009; Schoeman, Botha & Blaauw, 2010; Mathebula, 2013), which have made some contribution to this particular subject matter.

Furthermore, there is only evidence of one published research paper that specifically investigates skills-related underemployment in the informal sector of South Africa; this was conducted by Beukes *et al.* (2017) who used quantitative empirical analysis to investigate, amongst other aspects, the proportion of skills-related underemployed individuals in both the formal and informal sectors of South Africa. This provides the rationale for investigating the extent, nature and possible effects of skills-related underemployment in the informal sector of South Africa, in order to make a contribution that will benefit and broaden this field of study.

Understanding the extent, as well as the nature of skills-related underemployment in South Africa's informal sector, will provide a glimpse into the effects it has on both the individual, as well as the economy as a whole. Furthermore, understanding the scope of skills-related underemployment in the informal sector will also provide the impetus for further investigation into this subject matter. Similarly, it will also provide an indication of the types of policy interventions that could be implemented to reduce its prevalence and impact. This study therefore aims to answer the following questions:

- How prevalent is skills-related underemployment in the waste-picking, car-guarding and day-labouring sub-sectors of Potchefstroom?
- What is the nature of the skills-related underemployment, if present; educational or vocational?
- What are the underlying factors that influence the likelihood of an informally employed individual in Potchefstroom being skills-related underemployed in these informal sub-sectors?
- What effects does skills-related underemployment have on the income and living standards of those who engage in these activities?
- What are the levels of educational attainment within these sub-sectors and what are the main determinants of educational attainment in these sub-sectors?

These five questions can be summarised in the following research question:

"What is the extent and nature of skills-related underemployment in South Africa's informal sector amongst the informal car-guards, day-labourers and waste-pickers in the Potchefstroom area?"

The following section provides an outline regarding the main objectives of this study.

1.3 Research objectives, design and method

1.3.1 Main objective

The main objective of this study is to determine the extent and nature of skills-related underemployment amongst the informal waste-pickers, day-labourers and car-guards in the Potchefstroom area of South Africa's informal sector, as well as the effects thereof.

1.3.2 Specific objectives

Based on the questions posed in section 1.2, the study aims to achieve the following specific objectives:

- Determining the extent of skills-related underemployment in the designated informal sub-sectors.
- Determining the nature of the skills-related underemployment (is it educational or vocational over-qualification?).
- Empirically investigating the underlying factors, which influence the likelihood of being skills-related underemployed in these informal sub-sectors?
- Empirically evaluating the effects of underemployment on the individuals within these informal sub-sectors, with a specific focus on income.
- Providing a qualitative overview of the educational backgrounds, as well as the determinants of educational attainment within these informal sub-sectors.

The following section provides an outline of the research design and method.

1.4 Research design and method

In order to provide an answer for the research questions, a background section will be provided as well as a literature review. The background chapter gives an overview of the theory and concepts regarding the informal sector as well as a review of the South African informal sector. The literature review provides definitions and classification schemes of underemployment, with an emphasis on skills-related underemployment. The literature review will also provide an overview

regarding the methods of measurement, effects of skills-related underemployment and a South African perspective on skills-related underemployment.

This study will employ a mixed method approach (quantitative and qualitative analysis) based on interviews, which were conducted with the informal workers in the Potchefstroom area. The qualitative analysis will provide insight into their educational attainment and psychological well-being. The qualitative analysis will largely attempt to achieve the following objectives:

- Provide insight into the educational attainment of these informal workers.
- Provide an overview regarding the psychological condition of those engaged in these sub-sectors, especially those that are classified as being skills-related underemployed.

The quantitative analysis will largely provide insight into the impact of skills-related underemployment on the incomes and living standards of those engaged in these informal activities as well as possible factors that may influence the likelihood of being skills-related underemployed in these informal sub-sectors. The quantitative analysis will also investigate the prevalence of unemployment in the day-labouring sub-sector as well as variables that could be associated with it.

Appropriate regression analysis will therefore be conducted in order to achieve the following objectives:

- Determine if skills-related underemployment is linked to income in these informal sub-sectors.
- Determine the factors that could influence the likelihood of being skills-related underemployed in the car-guarding, day-labouring and waste-picking sectors of Potchefstroom.
- Determine whether being skills-related underemployed potentially influences the overall standard of living of those engaged in these activities.
- Analyse the prevalence of unemployment in the day-labouring sector.

1.5 Research outline

The study is divided into six sections; Chapter two provides a brief outline regarding concepts and definitions related to the informal economy, South Africa's informal sector as a whole as well as

an overview of the three informal sub-sectors of interest in this study. Chapter three is a literature review, which discusses definitions, theories, measurements and concepts surrounding skills-related underemployment. The literature review also focuses on the prevalence of unemployment in the day-labouring sub-sector.

Chapter four presents a description of the methodology which will be employed in the empirical analysis of this study. This chapter will provide a description of the data that was used, with specific reference to its type as well as the collection methods used to obtain it. The empirical approach as well as the limitations and ethical considerations of the study, will also be outlined in this chapter.

Chapter five provides a combined qualitative and quantitative analysis, based on the data obtained through the surveys. The main focus of this chapter is to empirically determine the prevalence and effects of skills-related underemployment in these sub-sectors. This will also involve probit analyses, which are aimed at underpinning factors that could increase the probability of being skills-related underemployed in these sectors, as well as determining whether skills-related underemployment influences the probability of being poverty stricken as an informal employee in these sub-sectors. Chapter five will also cover a qualitative analysis in order to present the educational attainments of the respondents and their level of life satisfaction. Chapter six gives possible policy recommendations with regards to reducing the prevalence of skills-related underemployment in the informal sector, as well as a summary and conclusion of the study.

1.6 Study limitations

In terms of literature, the main limitations in this study are due to a lack of research in South Africa, not only regarding underemployment, but specifically regarding skills-related underemployment. The literature review of this study will therefore mostly rely on international studies, with regards to definitions, concepts and empirical findings. Further restrictions will be due to a lack of literature, both locally and internationally, on skills-related underemployment in the informal sector. These limitations will place a restriction on the extensiveness of the literature review but at the same time highlight the importance of this study's contribution. Furthermore, statistical information regarding skills-related underemployment in the informal sector of South Africa is also very limited, which will place a further restriction on the extent of the literature review.

The second limitation in the study relates to empirical evidence in South Africa regarding skills-related underemployment. The studies that have been conducted do not provide much insight into skills-related underemployment in the informal sector, therefore drawing a comparison between the results obtained in this study and other studies will be problematic. Furthermore, the fact that the study focuses on the Potchefstroom area means that the results obtained from the study will not necessarily provide a comprehensive picture of informal sector skills-related underemployment across the entire country, or in other informal sub-sectors.

1.7 Summary and conclusion

The purpose of this study is to determine whether skills-related underemployment is present in the car-guarding, day-labouring and waste-picking sub-sectors of Potchefstroom. In order to provide a more complete contextualisation of these concepts, terminologies, theories and concepts which are linked to them, will have to be provided. The following section provides background and descriptions of terminology surrounding informality, as well as an overview of the three informal sub-sectors of interest in this study.

Chapter Two

The Informal Sector: Concepts and Definitions

2.1 Introduction

Unemployment is an economic occurrence that is present in every country and continues to be the focus of most government policies. The informal sector plays an integral role in alleviating unemployment because it creates jobs and opportunities for entrepreneurship (Fapohunda, 2013:232; Ruzek, 2015:26). Although its' activities do not generate direct revenue for governments in the same way the formal sector does, it does, however, generate an income for the individuals that engage in them; most of whom are vulnerable to poverty and would in some cases not have been able to enter formal employment (Bernabè, 2005:229; Van Der Berg, 2014:8). Therefore, it comes as no surprise that most economies, especially those that are still developing, often have vibrant and self-sufficient informal sectors, which either serve as primary or supplementary forms of income for the indigent (Van Der Berg, 2014:8).

Chen (2012:3) suggests that there has been an ever-increasing interest in the informal economy, not only due to the role it plays in reducing poverty, but also because of its growth and transformation. However, various schools of thought provide different definitions and concepts regarding the informal sector, as well as various causal theories regarding its inception and evolution. It is, therefore, essential to understand the various concepts, definitions and theories regarding the informal sector in order to fully understand its scope and the importance of its contribution at both micro and macroeconomic levels.

This chapter aims to provide an overview of the informal sector by identifying the main schools of thought which define it, as well as the definitions used to classify it. The chapter will also provide an outline of the South African informal sector in order to identify its contribution, demographics, as well as the various underlying theories associated with it. Furthermore, a brief synopsis of the waste-picking, car-guarding and day-labouring sub-sectors of informal employment will be provided. The chapter is, therefore, outlined as follows: Section 2.2 provides an overview regarding definitions of the informal sector and an introduction of the four schools of thought,

which explain the informal sector. Section 2.3 provides an outline of South Africa's informal sector as well as causal theories regarding its size. Section 2.4 provides an overview of the three informal sub-sectors of informal employment, which are the focus of this study, and section 2.5 gives a summary and conclusion of the chapter.

2.2 The informal sector

The term 'informal sector' was first introduced by anthropologist Keith Hart, who used it in his 1971 study to describe small-scale, income-generating activities amongst unskilled migrants who had migrated from Northern Ghana to the capital city, Accra (Chen, 2012:2). Hart found that although the informal sector was unregulated, it could operate autonomously and provide employment for those who could not be absorbed by the formal sector (Hart, 1973:63).

However, due to the complexity of its nature, notable differences regarding its definition have developed since its introduction by Hart. Losby, Else, Kingslow, Edgecomb, Malm & Kao (2002:2), indicate that literature concerning the informal sector is characterised by inconsistencies regarding the formal definition of 'informality' in the economy. Losby *et al.* (2002:2) attribute these differences to the fact that the informal sector has been studied by various disciplines, with each discipline attempting to define the sector according to the attributes which it deems to be the most important. The following section provides an outline of the various definitions of the informal sector, as well as an introduction to the four main schools of thought that dominate 'informal' theory.

2.2.1 Definitions of the informal sector

In order to fully define the informal sector, it is vital to first differentiate it from the terms 'informal economy' as well as 'informal employment'. Chen (2012:8) points out that clearly defining each term is important because these three terms are often used "imprecisely and interchangeably" (Chen, 2012:8). According to Chen (2012:6), informal employment refers to unregulated employment situations both in the informal and formal sector, whilst the term informal economy refers to the activities, individuals and units, which fall under the term 'informal' in the context of economics (Chen, 2012:8).

According to Rogers (2009:5), the informal sector is known by various other names, such as the shadow, parallel and hidden economy. Rogers (2009:5) further explains that investigating the "activities" in the informal sector makes it easier to define it. According to Rogers (2009:5), this classification defines the informal sector as economic activities, which do not include the agricultural sector, do not fall under the category of 'criminal activity' but are also not registered as legal entities. Furthermore, these activities are often not controlled by the government. In circumstances where there is government regulation, it is often limited and very relaxed (Rogers, 2009:5).

These activities also often occur in locations and settings that are unconventional and different from those of the formal sector (Rogers, 2009:5). According to Becker (2004:12), the scope of this definition should also include businesses, which are owned by individuals who are self-employed. These businesses are often characterised by a lack of formal 'structure' such as contracts, transactions and formal accounting systems (Becker, 2004:12). Enterprises such as street vending, tuckshops, taxi-driving, car-guarding, day-labouring and waste-picking are all examples of informal businesses that engage in unregulated activities.

Rogers (2009:6) also suggests that another method of defining the informal sector involves investigating the work force of the informal sector. According to Rogers (2009:6), this involves the self-employed, employers and employees of the informal sector. The self-employed are characterised as individuals that own informal family enterprises, family members that work in informal family-owned enterprises as well as members of the informal sector such as street vendors and waste-pickers who work for themselves (Rogers, 2009:6). Furthermore, individuals who are regarded as employees of the informal sector are those who are employed in informal enterprises or households (Rogers, 2009:6).

A more 'formal' definition is provided by the OECD (2002a:165), who indicate that the 15th ICLS (International Conference of Labour Statisticians) provided three distinct benchmarks with which to classify informal enterprises. The first of these is the size of the enterprise, in which the number of employees employed by the business is used as a yardstick measure (OECD, 2002a:165). The 15th ICLS indicated that in order to adhere to the size criterion of informality, the enterprise should have less than five employees (Hussmanns, 2004:3). This criterion was suggested by the Delhi Group, which indicated that the 'less than five' criteria should be used for "international reporting"

(Hussmanns, 2004:3). The second criterion involves formal registration of the business; informal businesses are not legally registered, nor do they formally comply with business laws (OECD, 2002a:165). Lastly, if the employees of the enterprise are not formally registered, the enterprise would be classified as an informal business (OECD, 2002a:165). In terms of employee registration, the OECD (2002a:166) indicates that this entails registering employees for tax purposes or social security.

In terms of informal employment, the 17th ICLS provided the following criterion as a method of classifying the informally employed (Women in Informal Employment Globalizing and Organizing [WIEGO], 2013:3):

- Owners of informal businesses.
- Individuals who are employed in informal businesses.
- Individuals who are self-employed in their own informal enterprises.
- Family members who work in informal businesses.
- Individuals working in producers' cooperatives.
- Individuals who are informally employed in the formal sector.
- Domestic workers that are not formally registered by their employers.
- Family members that are informally employed in family enterprises.

Although the ICLS definition is often used as a standard definition in various literatures, some countries still provide their own definitions of the informal sector, according to the unique characteristics of their country. In South Africa, StatsSA (2016:xx) classifies the informally employed as individuals that engage in "precarious" employment in either the formal or informal sector. The definition also outlines the fact that if the individual is not entitled to benefits such as medical aid or a pension fund and is not employed under an official employment contract, they fall under the category of informality (StatsSA, 2016:xx). StatsSA (2016:xx) classifies the informal sector as having the following elements:

- Individuals that are employed in businesses that employ less than five people and are not registered for tax deductions.
- Individuals that are self-employed or working in family businesses and are not formally registered for tax deductions.

2.2.2 Schools of thought: definitions and causal theories

2.2.2.1 Dualists

The dualist school of thought proposes that the informal economy is a distinct unit, which is unrelated to the formal economy and consists of "marginal activities" (Chen, 2012:4). From a broader perspective, dualists view the informal sector as a 'safety net' for the poor and unemployed as well as a 'substitute' for formal employment (Hart, 1973:67; International Labour Organization [ILO], 1972:6; Kay, 2011:2). Furthermore, the informal sector is viewed as an absorption mechanism for unskilled and surplus labour, who enter into it involuntarily (Kay, 2011:2). Dualists also regard the informal sector as a 'non-contributing' sector because it is seen as an entity that is 'unable' to increase economic growth or bring about capital accumulation (Kay, 2011:2; Gërxhani, 2004:282). From this perspective, the informal sector is a reflection of underdevelopment; a transient phenomenon, which will disappear as these developing economies become more industrialised (Cho, David, Margolis, Newhouse & Robalino, 2012:3).

According to Chen (2012:5), dualists reason that informality exists due to population growth outstripping "modern industrial employment". Gërxhani (2004:282) explains that slow industrialisation growth in the midst of excess labour supply gave rise to the formation of the informal economy in developing countries. Gërxhani (2004:282) further explains that informal economies in developing countries have persisted to grow due to slow technological growth and the use of low-skilled labour. Another reason provided by dualists, for the existence of the informal sector, is the incongruence between the skills of the labour force and the modern employment prospects that are available (Chen, 2012:5). Katalin (2015:61) additionally indicates that dualists view the informal economy as a phase in the development of developing economies, which provides a source of income to those that cannot be absorbed by the formal sector due to slow economic growth.

2.2.2.2 Legalists

The legalist school of thought regards entry into the informal sector as voluntary and beneficial to its entrants (Chen, 2012:5). Unlike the dualists, legalists argue that the formal and informal sector

are linked, however, the formal sector is considered to be exploitative towards the informal sector (Rogers, 2009:8). Legalists also focus more on micro-entrepreneurs who, according to them, are discouraged by the costs and bureaucracy associated with operating a formal enterprise and therefore, enter into the informal market as a cheaper alternative (Rogers, 2009:8). This is due to the fact that adhering to business entry laws imposed by governments is often so time-consuming and costly that individuals who do not have access to substantial capital reservoirs are often discriminated against (Rogers, 2009:9). Rogers (2009:9) also indicates that these laws are often put in place with the aim of making the formal sector more 'organised', but instead, creates an environment that only benefits the privileged and makes the informal sector seem to be the only recourse for the financially disenfranchised.

Legalists also cite property rights as a particular obstacle that stands between micro-entrepreneurs and the formal sector. Rogers (2009:8) explains that the legal framework and costs required to obtain property rights not only makes entry into the formal market difficult, but also makes it difficult to move out of the informal market or engage in certain business practices. This is because property rights are not only a necessary tool for conducting business in the formal market, they also assist in the acquisition and growth of wealth, as they can be used as financial leverage when attempting to foster a business agreement (Rogers, 2009:9). In this way, property rights are not only a barrier for entry into the formal sector for less-privileged micro-entrepreneurs, they also 'penalise' these individuals once they are engaged in informal sector activities (Rogers, 2009:8). De Soto (1989:200) concurs that the 'penalty' incurred by micro-entrepreneurs engaging in informal activities, is that they cannot "convert their assets into legally recognized assets" (Chen, 2012:5).

2.2.2.3 Structuralists

Structuralists, of the third school of thought, argue that the formal and informal sectors are linked (Castells & Portes, 1989:12). Structuralists regard the informal sector as an entity, which consists of two distinct components (Portes & Schauffler, 1993:45; Kay, 2001:3). The first component consists of formal firms that attempt to avoid the high costs and regulations associated with formal sector operations by making use of informal labour to increase competitiveness (Kay, 2001:3; Castells & Portes, 1989:28). This part of the informal sector is beneficial to the economy as it provides low-cost products and cheaper labour (Kay, 2001:3). The second part of the sector

consists of unskilled individuals who cannot find formal employment and therefore, enter the informal market as a means of survival (Kay, 2001:3).

According to structuralists, informality exists due to the following four reasons; the first being a response to organised labour which is caused by unions (Castells & Portes, 1989:27). Castells and Portes (1989:28) explain that unions obstruct the acquisition of capitalist profits and also result in large-scale unemployment. In order to explain this, Portes (1989:28) and Murray (1983:91) provide the example of the job losses that occurred in the Italian manufacturing firm Fiat, which were a direct result of strikes by Fiat employees in 1980. Castells and Portes (1989:28) also suggest that the reason Italy was once considered to have "the most developed informal economy", is due to the success of Italian labour unions in 1969, which resulted in a loss of profits for firms and led to an increase in informal activity. This notion is supported by Portes and Schauffler (1993:49), who indicate that firms make use of informal labour in an attempt to avoid high labour costs, which are caused by labour regulations.

Structuralists also suggest that the informal sector exists as a means to avoid government regulations (Castells & Portes, 1989:28). Perry, Maloney, Arias, Fajnzylber, Mason and Saavedra-Chanduvi (2007:22) argue that the informal sector partly exists due to an attempt by individuals to avoid taxation or regulation such as health and environmental regulations that may be costly to implement. Perry *et al*. (2007:22) speculate that this also includes the informal employment of workers in the formal sector to avoid the burden of regulation. Wilson (2011:206) emphasises that this particular causal theory attempts to highlight one of the linkages between the formal and informal sector and the various ways in which the formal sector exploits informal sector workers. Gërxhani (2004:282) mentions that this theory is empirically supported by the findings of Johnson, Kaufmann and Zoido-Lobaton (1998:5), whose study indicates that high taxes and regulations significantly explain the growth of the informal economy in certain Latin American countries.

The third reason for informality, provided by structuralists, is an increase in competitiveness. Castells and Portes (1989:28) indicate that the increase in global competition has also led to the use of informal workers, as firms endeavour to increase their competitiveness. Tokman (2007:5) suggests that globalisation has prompted many firms to introduce "atypical labour contracts", which have more flexibility than fixed contracts. Huitfeldt and Jütting(2009:100) concur with this,

adding that globalisation has not only promoted informal employment, but has also contributed to diversifying informal employment and served to increase the skills of those engaged in this sector.

Structuralists also identified industrialisation as a cause of informality. Castells and Portes (1989:29) suggest that due to the economic benefits that arise from industrialisation, governments are more inclined to relax the laws that govern industrialised industries in order to obtain a comparative advantage. This involves allowing informal employment, subcontracting and other forms of informal activities within the industrial sector (Castells & Portes, 1989:28). In addition, Krakowski (2005:3) mentions that the majority of literature regarding informality, indicates that the informal sector continues to have a larger share in industrialised economies. Krakowski (2005:3) in turn, attributes this increase in informality in the industrial sector to an increase in taxes and regulations. Castells and Portes (1989:29) provide the example that if China did not allow its industrial zones to govern themselves, autonomous of strict government regulation, the firms in these zones would not receive the comparative advantage brought about by their engagement with the informal sector. Williams and Windebank (1994:821) further expand on this by mentioning that the informal sector grows and thrives in areas that have an agglomeration of small firms that lack regulation and union activity, making it easier to employ informal workers.

2.2.2.4 Voluntarists

Voluntarists argue that individuals and micro-entrepreneurs deliberately enter the informal sector in order to avoid taxes and regulation (Maloney, 2004:1173; Chen, 2012:5). Chen (2012:5) stresses that the main difference between this theory and the legalist school of thought is that micro-entrepreneurs do not blame bureaucracy for their informality; instead, they view it as a better alternative to being in the formal sector. Voluntarists argue that micro-entrepreneurs who enter the informal sector do so willingly after considering the benefits and the costs of being in the formal sector. Bhorat, Lilenstein, Oosthuizen and Thornton (2016:9) provide the rationale that voluntary entry into the informal sector provides the benefit of higher earnings through ‘tax evasion’ and the avoidance of the legal costs associated with entering the formal sector.

This ‘willingness’ to participate in the informal sector is empirically supported by Maloney’s 2004 calculations, using surveys and statistics in Latin American countries. The results of the study indicated that more than 60% of Mexicans and Brazilians that are self-employed in the informal

sector willingly left their formal sector employment (Maloney, 2004:1160). Survey data in Paraguay and Argentina found that less than 30% of informally self-employed individuals had a desire to enter the formal market (Maloney, 2004:1160). Maloney (2004:1164) further indicates that individuals who are involved in the informal sector often have low skills and educational levels, therefore, their motivation to work in the informal sector as opposed to the formal sector is often due to the fact that the opportunity cost of foregoing formal sector employment is relatively lower in comparison to highly skilled and highly educated individuals. Maloney (2004:1164) indicates that the choice to work in the informal sector does not necessarily mean that the individual will receive a better income, however, the flexibility and autonomy that is associated with working in the informal sector makes voluntary entry seem like a better option.

2.3 The South African informal sector

South Africa, much like many developing countries, has a vibrant and visible informal sector, which consists of various activities; however, the size of South Africa's informal sector is relatively smaller than the rest of the countries in Sub-Saharan Africa. According to Verick (2006:4), the average size of informal sectors in Sub-Saharan Africa is estimated at 42.3% of Gross National Income (GNI) and around 60% in countries such as Nigeria, Tanzania and Zimbabwe. In South Africa, it is estimated at 30% of GNI, which is smaller than what could be expected considering the high levels of unemployment in the country. This segment provides a brief overview regarding the characteristics of the South African informal sector as well as theories aimed at explaining its size.

2.3.1 Distribution of the South African informal sector

According to the South African Local Government Association (SALGA) (2012:1), the entire South African informal sector contributes towards an estimated 28% of South Africa's GDP, making its contribution 2.5 times larger than that of the agricultural sector. Table 2A indicates the distribution of informal employment across the main sectors in South Africa during the third quarter (July-September) of 2016; this excludes agriculture.

The trade sub-sector within the informal sector contributes towards 40.5% of all employment in the informal sector; according to SALGA (2012:1), more than one million people are engaged in the informal trade of goods and services. SALGA (2012:1) suggest that the disproportionate contribution of the retail sub-sector is one of the aspects that make South Africa's informal sector unique from a majority of those in Sub-Saharan African countries. The trade sector is closely followed by service oriented sectors such as the transport, construction and community services sector. In contrast, the mining, manufacturing and utilities sectors contribute very little with regards to employment in the informal sector of South Africa. This difference could be brought about by the fact that the trade and services sectors are relatively easier to enter into, with very little risk, often requiring very little start-up costs as opposed to sectors such as manufacturing and mining, which may be more capital-intensive and thus require higher start-up costs.

Table 2A Distribution of informal employment across sectors (July-September 2016).

Sector	**Employment (Thousands)**
Mining	4
Manufacturing	186
Utilities	5
Construction	475
Trade	1070
Transport	255
Finance	224
Community and social services	422
Total	**2641**

(Source): Author's own calculation StatsSA, 2016:39.

Additionally, the distribution of informal labour varies across provinces as well. Table 2B indicates that the Gauteng province and KwaZulu-Natal account for the largest share of informal employment. This disproportionate share could be attributed to rural-urban migration, in which people from poorer areas of the country migrate to thriving cities, with the hope of finding formal employment only to end up resorting to informal activities due to a lack of absorption capacity by

the formal sector, as well as a lack of low-skilled employment opportunities. These two provinces are closely followed by the Western Cape and the Eastern Cape.

Compared to the Gauteng province, the Western Cape is also a thriving metropolis, however, the disparities in informal employment could be attributed to the differences in unemployment rates in each province (Bhorat *et al*., 2016:17). According to StatsSA (2016:31), the Western Cape has an unemployment rate of 24.8%, whereas the Gauteng province has an unemployment rate of 32.8%. This hypothesis is further validated by the fact that the Gauteng and Western Cape provinces have very similar employment rates; 51.7% and 52.8%, respectively (StatsSA, 2016). In terms of the Eastern Cape, its high unemployment rate (41.3%) and comparatively lower employment rate (34.7%) could be a contributing factor to the relatively higher levels of informal employment.

Table 2B Distribution of informal employment across provinces (July-September 2016).

PROVINCE	**EMPLOYMENT (THOUSANDS)**
Western Cape	469
Eastern Cape	666
Northern Cape	38
Free State	292
KwaZulu-Natal	886
North West	135
Gauteng	1411
Mpumalanga	248
Limpopo	358
Total	**4503**

(Source): Author's own calculation from StatsSA, 2016.

Conversely, provinces such as the North West, Free State and the Northern Province, account for the smallest contribution of informal sector employment. Bhorat *et al*. (2016:17) point out that these provinces have higher employment rates than provinces such as KwaZulu Natal and the Eastern Cape, which could explain this pattern. Furthermore, the lower levels of informal

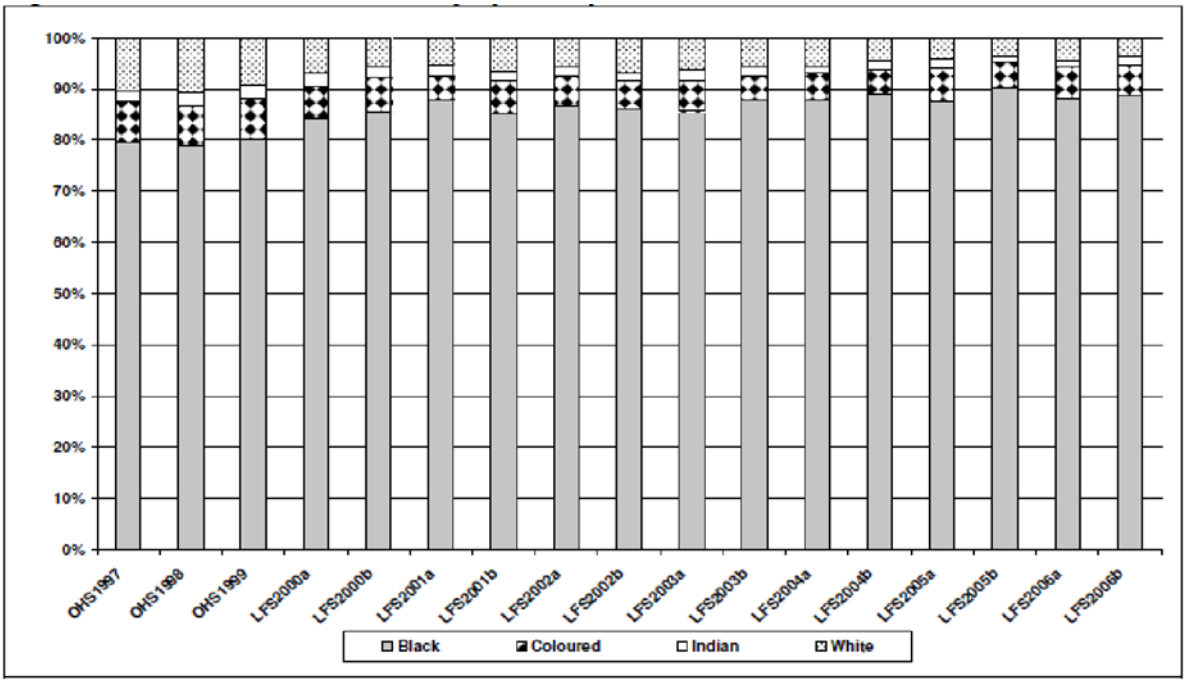
employment in some provinces could be explained by unique characteristics of South Africa's informal sector as a whole.

From a demographical perspective, the South African informal sector employs a wide variety of individuals from various socio-economic backgrounds. These variations include race, educational attainment, gender and age groups. Bhorat *et al.* (2016:16) allude to the fact that the prevalence of a specific demographical group in the informal sector is often indicative of that group's vulnerability in the labour market, often making it difficult for the individual to find formal wage employment.

In terms of gender, StatsSA (2016:39) shows that in the third quarter of 2016, 970 000 women were engaged in informal employment as opposed to 1 672 000 men. In their 2008 study, Essop and Yu (2008:14) indicated that this has been a prevalent trend in South Africa's informal sector since 1997. Essop and Yu (2008:15) also highlight the fact that the majority of women in South Africa's informal sector tend to be self-employed, with 80% of women in the informal sector being self-employed as opposed to only 50% of their male counterparts during the time of the study.

Racially, Africans dominate informal sector employment in South Africa as opposed to Whites. Bhorat *et al*. (2016:15) estimate that 39.4% of Africans engage in informal sector employment versus 10.5% of Whites. Essop and Yu (2008:13) conclude that Indians have the smallest share in informal employment, followed by Coloureds; Figure 2A presents the distribution of informal employment across races from 1997 to 2006. These results can be explained by the fact that Africans share a disproportionately larger burden of South Africa's unemployment rate. According to StatsSA (2016:22) Africans had a 40.6% unemployment rate, 28.7% for Coloureds, 18.3% Indian and only 9.3% for Whites in the third quarter of 2016.

Figure 2A Racial distribution of South Africa's informal sector (1997-2006).



(Source): Essop and Yu, 2016:14.

With regards to age groups, South Africa's youth dominate the informal sector. Bhorat *et al.* (2016:16) point out that the youth of South Africa are vulnerable in South Africa's labour market and therefore engage in informal sector employment as a means of generating an income. The lack of formal employment opportunities for the youth is reflected in their high rates of unemployment, which stood at 30% for the third quarter of 2017 (StatsSA, 2017:1). Bhorat *et al.* (2016:16) estimate that the age group of 15-24 years has a 49.6% informality rate as opposed to 33.0% for the oldest age group (55-64).

From an educational perspective, informal sector employment and education have a negatively inverse relationship (Bhorat *et al*., 2016:16). As educational levels increase, the incidence of informal employment decreases. Table 2C provides an indication regarding the incidence of informality for each educational level in South Africa. Table 2C shows that there is a stark difference with regards to participation in the informal sector between individuals with no education and those with a degree qualification. Furthermore, Essop and Yu's (2008:17) study, using Labour Force Survey (LFS) data from 1997- 2006, shows that close to 80% of the informal sector employees did not have a Grade 12 qualification in comparison to 45% in the formal sector.

Table 2C Incidence of informality across educational levels (2012).

Highest Qualification	Incidence of informality
None	73.2
Primary	53.8
Secondary	46.1
Matric	28.0
Diploma/Certificate	17.5
Degree	3.2

(Source): Author's own compilation from Bhorat *et al*., 2016:16.

2.3.2 Theories regarding the size of the South African informal sector

2.3.2.1 The size of South Africa's formal sector

A recurring theme in most literature regarding the South African informal sector, is its relatively smaller size in comparison to other developing countries. Various theories have been put forward in an attempt to explain this; one of which pertains to the impact of the formal sector on the informal sector. This theory is supported by Madladla (2015), whose study investigated the impact of a growing formal retail sector on the profitability and viability of the informal retail sub-sector in the same region. The study investigated the impact that a new Pick n Pay retail store would have on surrounding formal and informal enterprises in the township of Kwamashu, Durban. Madladla (2015:11) found that the new Pick n Pay store resulted in a decrease in the customers that informal businesses previously had. Madladla (2015:11) cited that the main reason was that Pick n Pay had lower prices than the informal traders, largely due to its competitive advantage. This could hamper entry into the informal market or result in an early exit.

This notion is also supported by Valodia, Davies, Altman and Thurlow (2007:9) who indicate that as the formal sector grows, the informal sector could become smaller due to formal firms moving into informal territory. This could then be further exacerbated by the fact South Africa has an emerging middle class with higher earnings, which increases the likelihood of choosing formal

sector purchases over informal sector products. The introduction of shopping malls and large retail chains in townships are evidence of this already occurring on a large scale (Ligthelm, 2008). Valodia *et al*. (2007:12) argue that the size of the formal sector plays a significant role in explaining the size of the informal sector. According to Valodia *et al*. (2007:12), South Africa's informal sector is as small as it is because the formal sector is so large.

2.3.2.2 Lack of start-up capital

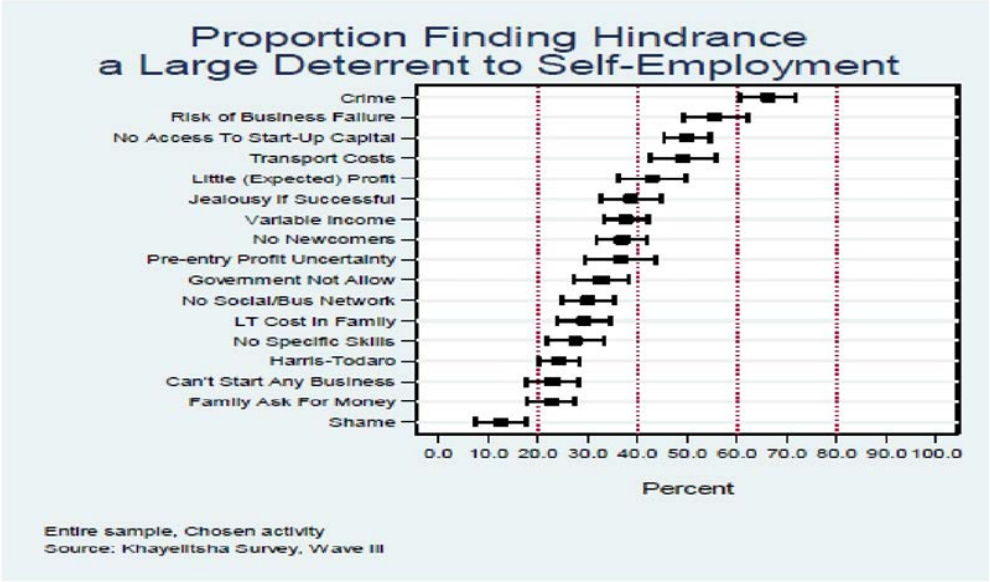
A lack of start-up capital is also cited as one of the reasons behind the size of the informal sector of South Africa. This point is emphasised by Cichello, Almeleh, Mncube and Oosthuizen (2011:28), Chandra, Nganou and Noel (2002:36) and Kingdon and Knight (2005:4), who indicate that access to start-up capital is a significant barrier to entry into the South African informal sector. Through surveys conducted in Khayelitsha, Cichello *et al*.'s (2011:23) 2005 study found that 18% of the sample indicated that they would not be able to gain access to a meagre R500 in order to start their own informal business. A further 37% stated that they would have to borrow the R500 from their friends or family members, 31% indicated that they would have the option of accessing a bank loan and only 23% said they had access to personal savings. Cichello *et al*. (2011:23) also found that 41% of the individuals that were already involved in the informal sector during the time of the survey, had relied upon their relatives for start-up capital, 20% had used personal savings and only 5 % had received a bank loan. Furthermore, an estimated 26% of the respondents indicated that it would take between one to three months to acquire the R500 start-up capital and a further 26% indicated that it would take more than three months. Cichello *et al*. (2011:23) further pointed out that these percentages are congruent with those which were provided by community members who were already engaged in informal sector activities at the time of the study.

The lack of access to start-up capital is largely attributed to a lack of credit, which is directly aimed at informal enterprises both in the formal and informal sector (Kingdon & Knight, 2005:24). Chandra *et al*. (2002:30) argue that the main reasons for a lack of access to start-up capital is the lack of viable collateral, disinterest by banks in financing informal ventures, complex application procedures, which discourage potential informal lenders, as well as the high costs associated with obtaining and repaying a formal bank loan.

2.3.2.4 Crime

Another reason provided alongside the start-up capital theory pertains to the high levels of crime and violence in South Africa, which are also directed at informal sector enterprise owners who often do not have the capital or infrastructure to protect their businesses from criminal activity.

Figure 2B Results of hindrance ranking test.



(Source): Chicello *et al*., 2011:14.

Chicello *et al*. (2011:11) argue that their study proves that crime is the biggest barrier to entry into informal self-employment. Chicello's *et al*. (2011:11) 2005 survey of residents in Khayelitsha was aimed at identifying and ranking factors which respondents in this area perceived as the highest 'deterrents' for entry into the informal sector. Figure 2B presents these findings, which indicate that the majority of the surveyed individuals cited crime as their primary deterrent for entering the informal sector.

2.3.2.5 Business failure

Informal enterprises and informal employment are often associated with high risks due to a lack of the legality and structure, which is found in the formal sector. Informal business owners incur high risks when starting their businesses due to capital constraints and are in most cases not guaranteed a stable baseline income. This is one of the reasons that business failure is of great concern to many individuals who consider entering the informal sector. Figure 2B indicates the results from the survey conducted by Cichello *et al*. (2011:14), in which the fear of business failure was cited as the second highest deterrent of entry into the informal sector. According to Cichello *et al*. (2011:2), the perceived causes of business failure in the informal sector are unclear as they could range from theft to personal reasons, such as a severe illness or death in the family.

The following section provides an overview of the three informal employment sub-sectors that are the focus of this study. The section will provide brief definitions as well as the main characteristics which are prevalent in each sub-sector; this will also include an overview of each informal sub-sector from a South African perspective.

2.4 Informal employment sub-sectors

2.4.1 The waste-picking sub-sector

2.4.1.1 Definitions and characteristics of waste-picking

Waste-picking is one of the most prevalent informal employment sub-sectors in many countries across the world. Gerdes and Gunsilius (2010:4) define waste-picking as informal employment in the waste management sector, which involves the collection and selling of waste products. Waste-pickers generally collect recyclable waste material such as metal, plastic and glass, which are then sold at recycling depots, also known as buy-back centres. According to Wilson, Velis and Cheeseman (2006:798), informal waste collection can occur under four categories:

- Itinerant waste buying: Characterised by waste-pickers that buy pre-sorted household waste. These waste-pickers also commonly invest in capital such as a vehicle or rickshaw for transporting the waste.

● Street waste-picking: Waste is picked off the street, as well as from municipal and household waste bins.

● Municipal waste collection crew: Waste is collected from official municipal waste management trucks as they transport waste to municipal dumpsites. Wilson *et al.* (2007:798) also indicate that this is a common practice in countries such as Colombia, Mexico and Thailand.

● Dumpsite pickers: This form of waste-picking is characterised by waste-picking at municipal or informal dumpsites and is also known as scavenging.

Wilson *et al*. (2006:801) specify that waste-picking involves various processes which add value to the waste. Wilson *et al.* (2006:802) identify six phases in waste-picking which add value; Table 2D provides an overview of these phases as well as the components of each phase. Additionally, Wilson *et al*. (2006:802) also highlight the fact that the sorting phase adds the highest level of value.

Table 2D Value-adding processes of waste-picking.

Phase	Process
Collection	Determining which articles should be collected according to their potential value.
Sorting	Categorising the waste according to colour, shape and size. Waste value increases as the level of sorting increases.
Accumulation of volume	Adding volume increases the bargaining power of the seller. Smaller quantities reduce the profit margin due to transaction costs.
Pre-processing	This includes cleaning, reshaping, compaction or baling.
Small-scale manufacturing	Transforming collected waste into products which can be sold at low prices.
Market intelligence	Appropriate sharing of information between sellers and buyers which assists in obtaining the correct market prices.
Trading	Wilson *et al*. (2006:802) emphasises that traders should have the financial means to add value to recycled waste.

(Source): Wilson *et al.*, 2006:802.

Waste-picking also has various economic and environmental advantages; according to Medina (2007:3), informal waste-picking increases the competitiveness of domestic firms by lowering material costs for firms. This is because recycled material is cheaper than creating primary inputs and the fact that creating primary inputs requires higher operating costs due to the costs of raw material (Medina, 2007:3; Scheinberg, Simpson, Gupt, Anschütz, Haenen, Tasheva, Hecke, Soos, Chaturvedi, Garcia-Cortes & Gunsilius, 2010:8). Furthermore, both Medina (2007:3) and Gerdes and Gunsilius (2010:4) indicate that municipalities also benefit financially because waste-picking decreases the amount of waste that needs to be collected, thereby saving municipalities labour, equipment and transport costs. Waste-picking also extends the lifespan of landfill sites, especially in urban areas (Godfrey, Strydom & Phukubye, 2016:4). This is a particularly important advantage

for countries and communities which cannot afford the ever-increasing costs of formal waste disposal.

A study conducted in six cities (Cairo, Cluj, Lima, Lusaka, Pune and Quezon) in 2010, revealed that informal waste collection had saved municipalities across all six cities a collective €39 million (Scheinberg *et al*., 2010:7). In South Africa, Godfrey *et al.* (2016:4) found that waste-pickers had saved South African municipalities between R309.20 to R748.80 million in the year of 2014. Godfrey *et al.* (2016:4) indicate that this is largely due to savings on landfill site space due to the diversion of waste directly to buyers.

Another recurring theme with regards to the benefits of waste-picking are the environmental benefits which arise from this activity. Environmental benefits arise from the fact that waste-pickers positively contribute towards recycling (Department of Environmental Affairs [DEA], 2014:8). Through 'secondary' waste collection, waste-pickers reduce the amount of waste which has to be processed at landfill sites and in so doing, assist in environmental conservation (DEA, 2014:9). In developing countries, the significance of the role played by waste-pickers is highlighted by the fact that leaders in these countries often have limited knowledge with regards to environmental conservation and are likewise constrained by an inability to prioritise this due to the severity of other challenges that their countries are often facing (Sentime, 2011:96). Additionally, for some countries waste-picking is the only form of waste management which exists (WIEGO, 2013:1).

Waste-pickers also contribute towards the health of the public by collecting waste in residential and urban areas that would in some cases not have been collected. According to WIEGO (2013:1), waste-pickers assist with improving sanitation, this is especially important with regards to organic waste in areas which have poor formal sanitation services. Additionally, waste-pickers are also credited with reducing carbon emissions and assisting in the overall reduction of the world's carbon footprint. Scheinberg *et al*. (2010:11) explain that the production of methane, which is harmful to the environment, is reduced due to the diversion of waste from landfill sites.

In contrast, however, waste-picking also incurs negative externalities, such as the occupational health hazards that waste-pickers have to face daily. Waste-pickers are largely susceptible to these occupational health hazards due to a lack of protective clothing and the environments that they work in. Wilson *et al*. (2006:803) explains that waste-pickers come into direct contact with sharp

objects as well as biological waste which puts their lives at risk. Viljoen's (2014:186) survey of 13 cities in South Africa from 2011-2012, revealed that 21.6% of the respondents had been injured by glass and other sharp objects; this injury was cited as the most frequent one which they suffered from. Waste-pickers also come into contact with biological waste such as bandages and needles which could expose them to various viral and bacterial illnesses (Wilson *et al*., 2006:803). Additionally, they sometimes eat the food which they find in dustbins and at landfill sites, making them easily susceptible to food and bacteria related illnesses (Schenck & Blaauw, 2011:423). Viljoen (2014:186) concluded that 5.4% of the participants in her study had suffered from some form of food poisoning whilst working as waste-pickers.

According to Mamphitha (2011:72), another disadvantage associated with waste-picking is the fact that it is a very labour-intensive occupation. Waste-pickers often have to travel very long distances in order to procure waste or to bring it to the buy-back centres (Mamphitha, 2011:72). In addition, most waste-pickers travel these long distances by foot, using inadequate transportation vehicles such as trolleys and animal drawn carts. Mamphitha (2011:44) found that waste-pickers can travel as far as 20 kilometres per day in search of viable waste. Similarly, waste-pickers can collect and transport up to 100 kilograms of waste per day, often carting two or three loads per day (Mamphitha, 2011:72; Gowan, 2009). It is this combination of travelling long distances with heavy loads that makes waste-picking physically strenuous.

Furthermore, the process of waste-picking is not only strenuous, it is also time-consuming. In order to acquire the correct type of waste in profit maximizing quantities, waste-pickers often have to start their day very early in the morning and sometimes only finish their work in the evening. Waste-pickers profiled by Schenck and Blaauw (2011:422) in Pretoria, reported that they usually began their day between six and eight o'clock in the morning and ended their day at six in the evening. According to Ramos, de Castilhos Jr, Forcellini and Graciolli (2013:234), a survey conducted by Conceição (2005) found that some Brazilian waste-pickers worked as much as 12 consecutive hours a day. In Johannesburg, Mamphitha's (2011:50) 2011 survey study found that 75% of the surveyed participants revealed that they generally worked up to 12 hours a day, with some starting their day as early as three o'clock in the morning.

Waste-pickers are also vulnerable to violence and theft as a direct result of their occupation. Viljoen (2014:186) reported that 9% of the 726 participants in the Johannesburg study reported

that they had suffered injuries which were associated with assault and robbery. Similarly, Schenck, Blaauw and Viljoen (2012:15) reported that waste-pickers in a landfill site in Matjhabeng in the Free State had been victims of gangsterism. Gang members in this area demanded that waste-pickers provide them with a daily fee, which allowed them access to the site as well as the ability to work without being hindered (Schenck *et al*., 2012:14). Waste-pickers are also subject to harassment by law enforcement officers; in some cases, even being arrested and having their trolleys confiscated by police (Viljoen, 2014:318).

2.4.1.2 Waste-picking in South Africa

The exact size of the waste-picking sub-sector in South Africa, in terms of the amount of people engaging in it, is largely unknown. This is attributed to the fact that much like other countries, this sector is largely unregulated. The difficulty in determining exact numbers is also hindered by the migration patterns of waste-pickers who sometimes move from one location to another in search of 'good' waste (Schenck *et al*., 2012:22). Various estimations have been provided, placing the number of workers between the range of 18 000 to 100 000 (DEA, 2014:17). The DEA (2014:18) estimates that there are 62 147 waste pickers in South Africa. In terms of gender, there appears to be an almost equal share of male (50.7%) and female (49.3%) waste-pickers, although this is disputed by the findings of Schenck *et al*. (2012:24), who report that the majority of waste-pickers are male.

From a racial perspective, the majority of the waste pickers are African, which is congruent with the statistics provided in Section 2.3.1, which indicate that South Africa's informal sector workers are predominantly of African descent (Schenck *et al*., 2012:24; DEA, 2014:20).The age groups of the waste-pickers range between 15-77 years as a combined estimate of Schenck *et al*. (2012:24) and the DEA (2014:20). According to Schenck *et al*. (2012:25), the South African waste-picking sub-sector does not seem to have child labourers.

South African waste-pickers also tend to have low levels of educational attainment. The majority of waste-pickers surveyed in studies had only completed primary level schooling, with only a few having attained secondary level schooling (Schenck *et al*., 2012:25; Sentime, 2011:104). Furthermore, Sentime (2011:104) and Schenck *et al*. (2014:25) report that some of the waste-pickers are illiterate; a stark contrast to their foreign counterparts from neighbouring countries

such as Zimbabwe and Mozambique, who have mostly completed secondary schooling and sometimes even have post-secondary school qualifications.

The income of waste-pickers in South Africa varies depending on several factors, such as their gender, number of hours worked, type of waste collected, availability of viable waste, the use of trolleys (Viljoen, 2014), buy-back centre rates as well as the type of waste-picking (street-picking or landfill-picking). Income seems to vary from as little as R15.00 a day (Visser & Theron, 2009) to as high as R6000.00 a month (DEA, 2014:22). The DEA (2014:22) estimates that the mean income of waste-pickers is around R1430.00 per month. Waste-pickers who collect metal tend to be the highest earners, with the lowest being those who collect paper waste, such as cardboard. In terms of gender, male waste-pickers tend to have higher earnings than their female counterparts and landfill site pickers earn more than street waste-pickers (DEA, 2014:27). This is hardly surprising considering the strenuous nature of waste-picking, which puts males at a 'physical' advantage over females; similarly, landfill waste-pickers earn more than street waste-pickers due to the frequent and centralised availability of waste.

2.4.2 The day-labouring sub-sector

2.4.2.1 Definition and characteristics of day-labouring

The day-labouring sub-sector consists of individuals that hire themselves out informally on a day to day basis (Gonzalez, 2007:2). Blaauw, Louw and Schenck (2006:458) define day-labourers as informal workers that stand on the roadside in search of casual employment opportunities. These workers are often employed by different employers and do not receive any type of work-related benefits (Blaauw, Pretorius, Louw & Schenck, 2007:230; Valenzuela Jr, 2000:1). Day-labourers provide different skills and can be hired by private households or formal businesses. Toma and Esbenshade (2001:1) indicate that day-labourers offer services such as cooking, painting, roofing and welding.

Similar to other informal sector participants, day-labourers are often individuals that are attempting to earn a living for survival. Motivated by a lack of formal employment opportunities or economic failure, these individuals hire themselves out as a "next best alternative" (Valenzuela Jr, 2000:3; Blaauw *et al.*, 2007:230). In the case of immigrants, this sub-sector provides them with easy entry

into the labour market, this is especially important for immigrants that may not have the legal documents required for formal employment (Gonzalez, 2007:7).

Valenzuela Jr (2000:9) describes the day-labouring market as "flexible and easy to enter", except for women. The labour intensity of the market and the demand side of it, is what is normally attributed to this gender disparity (Valenzuela Jr, 2009:9). Employers tend to hire more physically fit and able-bodied men; this generally disqualifies women from being able to survive in the market. For this reason, the market is significantly and disproportionately over-saturated with men. However, even though their numbers are significantly lower than those of men, there are studies that have found females present at day-labouring sites. Blaauw *et al.* (2007:231) found that 2.5 % of the respondents in Pretoria were female, and Figueroa, Guallpa, Sanchez and Cabrera (2015:5) report that there were at least 150 women hiring themselves out in one of the 34 day-labouring sites in Brooklyn.

Another component of the day-labouring sub-sector is the high concentration of immigrants. Various literature reflects the fact that the day-labouring market tends to consist of both domestic and foreign workers (Gonzalez, 2007:7; Blaauw, Botha, Schenck & Schoeman, 2013:638; Toma & Esbenshade, 2001:10; Valenzuela Jr, 2000:7). In some cases, foreigners may even be the main component of a day-labouring site or region. Gonzalez (2007:7) reports that in the state of California, "the average Californian day-labourer is a 34-year old, single, foreign-born male". Blaauw, Schenck and Pretorius (2016:1) found that in Tshwane, the number of foreign day-labourers had increased by 43% over an 11-year period. Valenzuela Jr (2000:12) provides that the concentration of foreigners in this sector is largely owing to a lack of appropriate work documents due to unauthorized entry into the country. In some cases, a lack of proficiency in English is also attributed to the inability of some workers entering the formal market (Valenzuela Jr, 2000:11). Although the presence of immigrants in this sub-sector is understandable, it can sometimes cause problems; Toma and Esbenshade (2001:35) report that in San Rafael California, local residents took to the streets protesting the presence of illegal immigrant day-labourers in their town and claiming that their presence reduced the value of their property.

Another characteristic, which is commonly associated with day-labouring is the high level of income uncertainty. The uncertainty in this market is caused by the fickle nature of the sector itself; a day-labourer can never be certain of whether they will be hired from one day to the next

(Valenzuela Jr, 2000:9; Blaauw *et al.,* 2013:638). Additionally, the income uncertainty in this market is further exacerbated by the fact that some employers exploit day-labourers by not paying them their wages or underpaying them (Toma & Esbenshade, 2001:10; Valenzuela Jr, Theodore, Meléndez & Gonzalez, 2006:2). These factors greatly highlight the high poverty levels that are often associated with day-labourers (Valenzuela Jr *et al*., 2006:10). Valenzuela Jr *et al.* (2006:15) state that their 2004 national survey of day-labourers in the United States revealed that at least 49% of the respondents in their study had been denied payment two months prior to the survey and 48% reported being underpaid.

The nature of day-labouring as an 'occupation' also comes with many challenges, such as standing for long hours at pick-up sites in difficult weather conditions (Schenck & Louw, 2005:93). Day-labourers are also often exposed to unsafe working conditions. Valenzuela Jr *et al*. (2006:12) explain that day-labourers often undertake jobs that pose occupational risks, which make them vulnerable to workplace injuries or illnesses. One in five respondents of the 2004 Valenzuela Jr *et al*. (2006:12) study indicated that they had suffered injuries while at work and 75% of day-labourers across the United States agreed that they found their work to be dangerous.

This is largely attributed to employers who do not provide day-labourers with adequate protective clothing and the fact that most day-labourers lacked the courage to demand a safer work environment because they feel that they are at the mercy of their employers (Fleming, Villa-Torres, Taboada, Richards & Barrington, 2016:532; Mehta & Theodore, 2006:65; Kerr & Dole, 2001:18). Day-labourers reported falls and accidents as their biggest occupational challenges and some indicated exposure to hazardous materials (Fleming *et al.,* 2016:532; Valenzuela Jr *et al*., 2006:12). These occupational health hazards do not only affect day-labourers on a physical level, they also affect them financially and psychologically. Valenzuela Jr *et al*. (2006:12) report that "Lost work time due to injury is common among the day-labor workforce". Furthermore, as many as 85% of the Valenzuela Jr *et al*. (2006:12) survey respondents reported that they had lost work time as a result of injury and as much as 22% had missed more than one month of work due to workplace injury. Similarly, respondents in the Fleming *et al*. (2016:532) study reported feeling anxious and depressed about their health as well as their inability to earn a steady income for their families.

2.4.2.2 Day-labourers in South Africa

Blaauw (2010) estimated that during 2005 and 2006, there were approximately 45 000 individuals hiring themselves out on South African street corners for casual work. Blaauw (2010) further asserts that during this time period there were more than 1000 day-labour pick-up sites in South Africa. This is significantly higher than the estimates of Maisel (2003:2), who stated that there were 500 sites and between 25 000 and 50 000 day-labourers; this might be indicative of an increase over the years. Furthermore, much like the United States, the South African day-labouring market consists of both domestic and foreign workers. In their 11-year study of the Tshwane area, Blaauw *et al*. (2016:1) revealed that foreign day-labourers had increased from 12% to over 55%, over a period of 11 years.

In terms of race, gender and education, South African day-labourers are predominantly black and male (Harmse, Blaauw & Schenck, 2009:367). A study by Blaauw (2013:640), which surveyed 3812 respondents across South Africa, revealed that 96% were black and 92% were male. Blaauw (2013:640) also found that the ages of the day-labourers varied between 16 and 50, with only 2.5% being less than 20 years old and only 4.8% being older than 50. The most dominant age group amongst the day-labourers is 23-35 (Blaauw, 2013:640). Blaauw (2013:641) also found that nearly half of the respondents had received some level of secondary school education, with at least 15% that had completed secondary school. Similarly, Blaauw, Louw and Schenck (2006:462) found that out of the 242 respondents in their 2006 Pretoria study, 31.4% had a Grade 11 qualification, 14% had achieved Grade 12 and 5% of the sample had never been to school at all.

With regards to skills and training, Blaauw (2010:165-168) found that a significant amount of South African day-labourers possess some form of vocational training. His findings indicated that, 13% had completed a bricklaying course, 11% had training in carpentry, 17% had completed a painting course and 31% had completed other forms of vocational training. This corresponds with the findings of Blaauw *et al*. (2006:462), who found that 13.6% of their respondents had training in painting, 8.7% had security skills training and 5% had completed other forms of training.

From an income standpoint, the day-labouring sub-sector is characterised by inconsistencies in employment, which according to Blaauw *et al*. (2006:463) gives rise to income insecurity. Blaauw *et al.* (2013:640) found that 50% of the 3812 respondents indicated that they were seldom hired

by the same employer for three days or more, 25% said it happened sometimes and only 15% reported that it had often happened to them. In terms of income, Blaauw *et al*. (2006:470) found that the average monthly wage in Pretoria in 2004, ranged between R1187.46 to R401.93, and the daily wage varied between R41.24 and R50.17. Similarly, Blaauw *et al*. (2013:641) reported a weekly wage of between R386.00 to R163.00. In their study of the Tshwane area Blaauw *et al*. (2016:5) found that the respondents in Tshwane earned a daily wage of approximately R120.00 to R150.00 in 2016. The implications of these wages with regards to the overall economic welfare of day-labourers, is quite severe. Blaauw *et al.* (2016:5) found that in 2015, at least 93% of the respondents (and their family members), were not only living below the poverty line but were also facing severe poverty.

Closely linked to income are also the unique spatial differences in South Africa's day-labouring sub-sector. The findings of Harmse *et al.* (2009:367) reveal that there are regional wage disparities in the day-labouring market in South Africa, the most apparent being that day-labourers in large cities earn a higher wage than those in rural areas (Harmse *et al*., 2009:366). More specifically, day-labourers in cities earned R90.00 to R120.00 a day in 2007/08, compared to R30.00 to R40.00 in rural areas (Harmse *et al*., 2009:366). Naturally, these income disparities also translate into the welfare and overall outlook of day-labourers; those in the cities generally had a more positive outlook regarding their economic and social circumstances as opposed to their rural counterparts (Harmse *et al*., 2009:363). These differences are also apparent with regards to race; a majority of the day-labourers interviewed by Harmse *et al.* (2009:368) indicated that black employers in South Africa generally paid the lowest wages and in Durban, Indian employers were said to pay the least overall.

2.4.3 The car-guarding sub-sector

2.4.3.1 Definitions and characteristics of car-guarding

Car-guards are defined as individuals who offer a security service to vehicle owners who wish to park in public areas such as streets and shopping centres (Steyn, Coetzee & Klopper, 2015:15; McEwen & Leiman, 2008:4; Blaauw & Bothma, 2003:41). They also offer other services, such as

assisting drivers to park safely in exchange for payment (Steyn *et al*., 2015:15). The presence of car-guards is to ultimately protect vehicles or act as deterrents for potential vehicle related crimes (Steyn *et al*., 2015:18). Car-guards generally do not carry a lot of security equipment, if any at all. Steyn *et al*. (2015:18) conclude that only 7% of the individuals who were interviewed in Tshwane carried pepper spray, 10% had a whistle and 27% reported that they made use of their cell phone in their work. Furthermore, most car-guards do not seem to have security training. Steyn *et al.* (2015:20) found that only 47% of their respondents had received some form of security training whilst Blaauw and Bothma (2003) did not indicate that any of their respondents had received any kind of security training. The lack of security equipment and training could explain why some motorists do not regard their services as necessary or effective.

Steyn *et al*. (2015:18) provide that car-guards are sometimes viewed as opportunists that capitalise on the public's fear of criminal activity. Furthermore, car-guards are often accused of being threatening and bothersome to motorists. According to Bernstein (2003:7), 50% of respondents in Cape Town agreed that they had been irritated by the persistence of car-guards, 21% reported that they had been verbally abused by car-guards and 17% had been sworn and shouted at by them. Furthermore, Bernstein (2003:8) found that most vehicle owners were more pleased with the service they received from foreign car-guards as opposed to local ones. Likewise, car-guards have also reported being harassed by the public, private security guards and the police (McEwen & Leiman, 2008:16; Bernstein, 2003:16). Bernstein (2003:16) reports that respondents in Cape Town indicated that they had been extorted by private security guards and had even been detained by police without being charged with anything or appearing before a court of law. Bernstein (2003:16) also mentions that local car-guards tend to be arrested more than immigrant workers.

Car-guards depend on the public for payment and will only be paid if a motorist considers their service to be necessary or valuable; this has a direct impact on their income. Steyn *et al*. (2015:20) found that 79% of their respondents believed that their work was important, 48% had actually been faced with a potential car thief, 19% had been on duty when a car had been stolen and 43% had faced a potential break-in. This indicates that their services may be valuable to some extent. However, McEwen and Leiman (2008: 18) indicate that some drivers do not feel that the service is necessary and therefore do not feel the need to pay for their services. Additionally, some motorists understand that the service might have some value, but because other motorists are

paying for it, they prefer not to pay for a service they feel they can receive free of charge (McEwen & Leiman, 2008:18).

2.4.3.2 Car-guarding in South Africa

Steyn *et al*. (2015:17) suggest that car-guarding in South Africa began when Corrie van Zyl, a Durban local, offered to guard a motorist's car in exchange for money. Blaauw and Bothma (2003:40), as well as McEwen and Leiman (2008:4), attribute the evolution of the sub-sector to the high levels of unemployment and crime in South Africa, which resulted in unemployed individuals offering security services to drivers parked in municipal parking spaces. This sub-sector then evolved on its own into an informal security sector that also provides an income to some of South Africa's poorest individuals.

The car-guarding sector in South Africa has also evolved in terms of its level of formalisation. The first type of formalisation involved the creation of organisations, which did not employ car-guards, but rented them equipment and security bibs (Blaauw & Bothma, 2003:41; McEwen & Leiman, 2008:4). The first of these organisations in South Africa was "Car Watch", which started in Durban in 1995 (Blaauw & Bothma, 2003:41). The second form of formalisation mostly occurs at shopping malls and shopping centres. Due to the intimidating manner in which some car-guards were behaving towards shoppers, shopping centre managers and some business owners decided to manage this informal sub-sector by only allowing a certain amount of car-guards on their premises and providing them with formal identification in the form of name tags and bibs (Steyn *et al*., 2015:17). The sector has also been formalised by some municipalities such as the city of Cape Town, which hires car-guards to collect parking fees from motorists as an alternative for parking meters (McEwen & Leiman, 2008:4). Furthermore, the Private Security Industry Regulations Act 2001 (Act 56 of 2001) stipulates that in order for an individual to formally work as a car-guard, they need to complete a one-week security training course which further contributes to the formalisation of this sub-sector (Steyn *et al*., 2015:20).

In terms of income, much like their informal counterparts, car-guards do not earn much according to most national standards of subsistence wages. Steyn *et al*. (2015:21) found that 37% of car-guards in the Pretoria and Johannesburg area earned between R51.00 and R100.00 daily whilst 34% earn between R101.00 and R150.00 daily. Blaauw and Bothma's (2003:42) 2001 study found

that informal car-guards in Bloemfontein earned R32.00 and formal car-guards earned R52.40. Additionally, McEwen and Leiman (2008:18) found that in Cape Town, formal car-guards earned an average wage of R1900.00 a month, while their informal counterparts earned between R1000.00 and R1300.00 per month. In order to put their earnings into perspective, Steyn *et al*. (2015:21) provide that according to the Basic Conditions of Employment Act, the minimum wage for car-guards in South Africa is R2519.00, which places most informal car-guards below the minimum wage rate. Although formal car-guards are more inclined to reach the minimum wage rate, their income is reduced by the daily or monthly "bay fee", which they have to pay to car-guarding organisations or the shopping centres in which they operate (Steyn *et al*., 2015:21). Furthermore, some formal car-guards also have to pay a supplementary fee of between R10.00 to R30.00 a day in order to hire the appropriate uniform (Steyn *et al*., 2015:21).

Although there is limited literature on car-guards in South Africa, existing literature does include a general profile on car-guards. Blaauw and Bothma (2003:42) report that the average age of car-guards in Bloemfontein was 30.5 years in 2001. According to McEwen and Leiman (2008:12), their respondents varied in age from 20-48 years. In Tshwane, the majority of the respondents were between the ages of 20 and 40, with only 4% below 20 and 9% older than 40 (Steyn *et al*., 2015:19). Additionally, unlike waste-picking and day-labouring, the car-guarding industry has a significant percentage of Whites operating in it. Blaauw and Bothma (2003:41) found that out of the 88 formal car-guards in the Bloemfontein area, 72 were white, 14 were African and 2 were Coloured. Additionally, out of the 61 informal car-guarding respondents, 34 were African, 27 were Coloured and none were White (Blaauw & Bothma, 2003:41). In contrast, McEwen and Leiman (2008:12) found that 90% of their respondents were African and the rest were Coloured. The car-guarding sub-sector also has a significant number of females working in it. Blaauw and Bothma (2003:42) found that out of their 88 'formal' respondents, 28 were female and 10% of the McEwen and Leiman (2008:12) respondents were female. However, in contrast, Steyn *et al*. (2015:19) found that 99% of the respondents in Tshwane were male.

Lastly, in terms of education and vocational training, South African car-guards tend to have low levels of educational attainment. Blaauw and Bothma (2003:42) found that out of their 149 respondents, five had never attended school, 12 had passed grade 12, 46 had passed grade 10 and 23 had primary level education. Steyn *et al.* (2015:19) found that in Tshwane, 62% had a secondary

level education and 28% had a post-school qualification. Additionally, McEwen and Leiman (2008:13) found that only one of their respondents had a post-school qualification, two had finished matric, one had primary level schooling and four had some level of secondary level schooling. Interestingly, the Bloemfontein study revealed that there might be a discrepancy between the educational attainments of car-guards (Blaauw & Bothma, 2003:42) working in the formal sector as opposed to those working in the informal sector.

The South African car-guarding sub-sector also has a strong immigrant component. Bernstein (2003:18) found that out of the 53 respondents, which they interviewed in the Cape Town area, only 17 were South Africans. Steyn *et al*. (2015:18) found that in Tshwane, 63% of the respondents were immigrants, and McEwen and Leiman (2008:12) found that 60% of their respondents were foreigners. Additionally, a significant proportion of the immigrants found in this study were refugees from countries such as the Democratic Republic of the Congo (DRC), Angola and Cameroon (Bernstein, 2003:18; Steyn *et al*., 2015:18; McEwen & Leiman, 2008:13). Furthermore, foreign car-guards have been found to be substantially more educated than their local counterparts. Steyn *et al*. (2015:19) concluded that foreigners working in the formal car-guarding sector were more likely to have a tertiary level qualification than locals. McEwen and Leiman (2008:13) found that out of their 20 respondents, five of the foreign car-guards had attended university and Bernstein (2003:20) found that 41.7% of the foreign respondents had either attended or completed some form of tertiary level education.

2.5 Summary and conclusion

This chapter revealed that the informal sector has become an integral and defining characteristic of most economies in the world. Its ability to provide a primary or supplementary income for the poor and unemployed not only assists in relieving the burden of poverty, it also provides an alternative strategy for some governments that would otherwise not have the means to provide for their poor. Various schools of thought have attempted to conceptualise the informal sector and although their views may differ, the general consensus, which can be reached from all four theories, is that the informal sector may provide a gateway out of poverty and unemployment as well as opportunities for micro-entrepreneurship. The informal sector is also characterised by vulnerable members of the labour force. These are usually individuals with low levels of educational

attainment as well as limited skill development. Furthermore, informal sector employees are often individuals that are economically disenfranchised such as immigrants and people of colour.

In South Africa, the informal sector is contrastingly small compared to the rest of Africa but still manages to make a sizeable contribution to the country's GDP. The size of the South African informal sector is in part attributed to the large size of the formal sector, which has even entered into traditionally informal markets and areas. Furthermore, the lack of start-up capital as well as the high levels of crime in South Africa makes entry and survival challenging for potential informal enterprises. This is further exacerbated by the high probability of business failure.

The waste-picking section revealed that waste-picking is an informal form of waste management. Waste-picking contributes greatly towards environmental conservation as well as sanitation. Furthermore, it also assists in keeping formal municipal waste management costs down and contributes towards increasing the competitive advantage of firms by providing cheap reusable waste material. However, waste-picking can also be dangerous because most waste-pickers work in harmful environments without any protective clothing. It is also a physically strenuous activity, which often involves walking long distances and transporting heavy loads of waste.

The day-labouring section found that day-labourers are individuals that hire themselves out informally as a means of escaping poverty and unemployment. Firstly, day-labourers are often subjected to dangerous and unethical treatment in the workplace, which puts their lives and health at risk. Secondly, the day-labouring market is characterised by income uncertainty. This is brought about by the fact that daily employment is not always guaranteed, due to competition in the market as well as an inconsistent flow of labour demand. Thirdly, day-labourers are often exploited either by employers who pay them low wages or refuse to pay them at all.

This chapter also provided insights into the three informal employment sub-sectors of interest in this study. The car-guarding section revealed that the livelihood of car-guards depends upon the donations they receive from motorists on a completely voluntary basis. The car-guarding sector is also a dual market, which consists of a formal and informal component. The formal side of car-guarding appears to hold a greater advantage to those engaged in it as opposed to informal car-guarding; especially in terms of income.

Altogether, the three sub-sectors indicated that engaging in informal employment often involves difficult and uncomfortable working conditions with very little financial reward; studies from all three sub-sectors indicated that the individuals engaged in these activities often do so for survival but are still unable to generate a subsistence wage. Furthermore, the characteristics of those that are typically engaged in these activities indicate that not only are they vulnerable, the probability of procuring formal employment is also very low. All three sub-sectors are characterised by a strong immigrant component, low income and bad working conditions. The lack of skills and education present in all three sub-sectors is also indicative of some of the challenges which are present in the informal sector.

The following section provides a literature review regarding underemployment, with specific focus on skills-related underemployment. Various theories, concepts and terminologies will be discussed as well as a brief overview of unemployment in the day-labouring sub-sector.

Chapter Three

Literature Review: Underemployment and Unemployment

3.1 Introduction

The focus of this chapter is to provide an overview of the main concepts of this study; underemployment and unemployment. The chapter will provide definitions, concepts and the most notable theories related to underemployment and unemployment. Due to the limited amount of literature on underemployment in South Africa, especially skills-related underemployment, empirical findings and statistics with regards to South Africa will be drawn from two main sources; StatsSA (2016) and Beukes *et al*. (2016).

The majority of the literature that will be provided on underemployment, will be directed at skills-related underemployment as this is the focal point of the study. Definitions regarding the main types of underemployment are provided as well as various measurement methods, the consequences and causal theories of skills-related underemployment, and its prevalence. Similarly, the literature review on unemployment will be presented with an added focus on the day-labouring sector as this is the second focal point of the study. This section provides an outline of the main types of unemployment as well as the extent of unemployment in the day-labouring sector in South Africa.

The chapter is set out as follows: Section 3.2 provides definitions and concepts related to underemployment, methods of measuring skills-related underemployment, its causal theories, effects and an overview of its prevalence. Section 3.3 provides an outline and definition of unemployment, concepts related to unemployment and an overview of unemployment in the day-labouring sub-sector. Finally, Section 3.4 provides a summary and conclusion as well as a preview of the following chapter.

3.2 Underemployment

3.2.1 Definitions and concepts

Underemployment is a labour economics term that was introduced into labour market theory after it became apparent that unemployment, as a variable, is a necessary but insufficient measure of labour market failure and labour under-utilisation (Beukes *et al*., 2016:2). More specifically, unemployment measures the percentage of the labour force that is unable to find employment, but does not reflect the percentage of the labour force that is employed in jobs, which are insufficient or inadequate. Underemployment is, therefore, the variable used to reflect this insufficiency and inadequacy amongst the employed members of the labour force. Furthermore, Beukes *et al*. (2016:5) add that individuals who are underemployed, can be working in either the formal or informal sector and can be counted amongst the percentage of the labour force that do not receive the full benefits that arise with employment.

In terms of definitions, Feldman (1996:357) defines underemployment as a type of employment situation that is "inferior, lesser or lower quality" as compared to some standard such as the employment situations of other people with the same level of education or work experience. Obadan and Odusola (2000:17) refer to the Nigerian Federal Office of Statistics' (NFOS) definition, which refers to underemployment as a situation in which "some human resources are rendered potentially idle". Feldman (1996:387) also indicates that wages have been used to classify individuals as underemployed. Zvonkic (1988) and Elder (1974) refer to the underemployed as those who are earning less than 20% and 33%, respectively, in their current employment, in comparison to the wages of their previous employment (Feldman, 1996:387). In the instance where wages are used to classify underemployment, Feldman (1996:387) emphasises that it is the decrease in wages and not the *level* of income that is used as a classification.

The ICLS provide a more formal and internationally accepted definition, which encapsulates the most prominent characteristics of underemployment. According to Greenwood (1999:2), the 16th ICLS definition indicates that underemployment can only affect those who are already employed and it reveals the "underutilization of workers' productive capacity". The ICLS also emphasise that underemployment reflects a situation in which an individual has not reached their full employment level according to the Employment Policy Convention of 1964 definition of the term

‘full employment’ (Greenwood, 1999:3). Greenwood (1999:3) explains that according to the Employment Policy Convention, full employment consists of the following elements:

- The availability of work for all persons who are seeking work and are available to engage in it.
- The work provided is as productive as possible.
- The work must be freely chosen by those who are qualified and suitable for it, and it should be the kind of work which utilises the skills that the individual possesses.

According to Greenwood (1999:4) the ICLS definition adopts a supply side approach in which underemployment is defined by the individual’s own perceptions regarding their current capacity and desires with regards to employment. Furthermore, with this approach, labour utilisation is measured by comparing the current level of labour utilisation with the level it could possibly reach if those who are currently underemployed were to acquire adequate and sufficient employment (Greenwood, 1999:4).

Feldman (1996:388) further expands on this definition by indicating that underemployment consists of five dimensions, which can be used for classification purposes; Table 3A provides a description of each dimension.

These dimensions not only provide a way to recognise underemployment, they also differentiate between the various types of underemployment. The first three dimensions pertain to underemployment according to over-qualification, whilst the fourth defines underemployment according to the time-related definition; the fifth dimension indirectly encompasses both but specifically deals with inadequate employment. The following sections will discuss time-related underemployment as well as skills-related underemployment.

Table 3A Dimensions of underemployment.

DIMENSIONS	DESCRIPTION
First dimension	Individuals, whose formal education is higher than the requirements of their job.
Second dimension	Individuals employed in a field that does not fall within their formal educational field.
Third dimension	Individuals whose work experience and skills are higher than the requirements of their job.
Fourth dimension	Individuals that are engaged in involuntary part-time work.
Fifth dimension	Individuals that are earning 20% less in their current job than their previous employment.

(Source): Feldman, 1996:388.

3.2.2 Types of underemployment

3.2.2.1 Time-related underemployment

The term time-related underemployment is used to refer to the instance in which a member of the labour force involuntarily works fewer hours than what they are willing and able to work within the week of reference (Adegbami, 2013:14; OECD, 2014:6). The OECD (2002b:1) provides a guideline with regards to the internationally accepted classification of time-related underemployment. This guideline indicates that an employed individual can be classified as time-related underemployed according to the following criterion (OECD, 2002b:2):

- Willingness: The individual is willing to work additional hours in their current employment situation, is willing to change to a job that offers more hours or is willing to acquire additional employment in order to supplement their current hours. According to

the Australian Bureau of Statistics (ABS) (2007:1), the willingness to work criterion is determined by assessing the individual's job-seeking activities. Therefore, an underemployed individual is classified as willing if they were actively seeking other forms of full-time or part-time work in the week of reference (ABS, 2007:1). However, according to the 16th ICLS definition, willingness to work is not dependent on the job-seeking activities of the underemployed individual because this stipulation is not "sensitive to economic changes" and is also restrictive because individuals that are time-related underemployed generally tend to not actively seek additional hours (Greenwood, 1999:5). The willingness to work criteria should, therefore, be based solely upon the desire of the individual as opposed to the efforts which they are employing in order to improve their situation (Greenwood, 1999:5).

- Availability: The individual is in a position, which allows them to work additional hours if the opportunity for additional work presents itself during the reference period. The 16th ICLS further expands on this by adding three criteria, which classify an individual as available to work (Greenwood, 1999:5). The first is that the individual must have the time to work the additional hours, secondly, they should be available to work those hours within a specific period and lastly, the individual must have the opportunity to supplement their hours either in their current employment or through other means (Greenwood, 1999:6).

- Threshold Minimum: The individual works below a certain number of hours in all the jobs that they are engaged in during the time of interest. According to the OECD (2002:1), this threshold varies from country to country as they are chosen according to "national circumstances". In South Africa, an individual who works less than 35 hours a week is classified as time-related underemployed (Beukes *et al.*, 2016:5).

3.2.2.2 Skills-related underemployment: Definitions and theories

The term skills-related underemployment is used to define an instance in which an employee's skills or qualifications are higher than the requirements of the job in which they are engaged in (Wilkins & Wooden, 2011:25; McGuinness, 2006:391; Feldman, Leana & Bolino, 2002:454; Mavromaras, McGuinness & Fok, 2009a:61). The 16th ICLS defines the skills-related underemployed, as persons who during the reference week had a desire, and were available, to change their current employment in order to better utilise their skills (Greenwood, 1999:9). Skills-related underemployment is also referred to as invisible underemployment, job-mismatch, overskilling, overeducation, overtraining and overqualification (Borghans & de Grip, 2000:12; Beukes *et al*., 2016:9).

Two distinct but sometimes interrelated constructs exist within the framework of skills-related underemployment, which reflect on and can be used to measure overqualification (Flisi, Goglio, Meroni, Rodrigues & Vera-Toscana, 2014:4). The first is overeducation, which refers to a situation in which an individual is employed in a job that requires less education than what the individual possesses (McGuinness, 2006:391; Tsai, 2010:608). According to McGuinness (2006:387), the concept was first introduced in Richard Freeman's 1976 study of graduate labour dynamics in the United States.

Overeducation can also be divided into two distinct categories; vertical and horizontal overeducation (Kim, Ahn & Kim, 2016:68; Iriondo & Velázquez, 2014:5). Vertical overeducation refers to the instance where an individual has a higher level of education than what is required for their job (Kim *et al*., 2016:68). Contrastingly, horizontal overeducation, also known as job-field underemployment, refers to individuals that are employed in jobs or industries, which do not match their field of study (McKee-Ryan & Harvey, 2011:974; Kim *et al*., 2016:68).

The second construct of skills-related underemployment is overskilling or skills mismatch. According to (Desjardins & Rubenson, 2011:13), skills mismatch has two dimensions, which consist of under-skilling and overskilling. Under-skilling refers to the instance where an individual's skills are lower than the requirements of the job and overskilling occurs when an individual's skills or work experience is higher than what is required for their current employment (McKee-Ryan & Harvey, 2011:974). Overskilling is also seen as a broader term than

overeducation, as it encapsulates various skills, abilities and knowledge that an individual may have accumulated outside of formal education (Mavromaras *et al*., 2009a:61). Mavromaras *et al*. (2009a:61) simplify the definition of overskilling by defining it as a situation in which an individual's abilities exceed the requirements of their job.

The importance of dividing these two concepts stems from the fact that various streams of literature indicate that overeducation and overskilling are two separate constructs, which are not highly correlated and can therefore not be used interchangeably (Flisi *et al*., 2014:4; Battu & Zakariya, 2015:8; Mavromaras, McGuinness, O'Leary, Sloane & Fok, 2007:8). The empirical results provided by Battu and Zakariya (2015:8) substantiate this theory. Their 2007 study in Malaysia reveals that not only does overskilling and overeducation have a low correlation, but only a third of those who were classified as overeducated in their study, were also overskilled and only a quarter of those who were classified as overskilled were also overeducated (Battu & Zakariya, 2015:8). Furthermore, Flisi *et al*. (2014:4) report that there is very little overlap between overeducation and overskilling, where in some countries there may be high levels of education mismatch but low levels of skills mismatch.

The explanation for this is that certain individuals may have a higher level of educational attainment than is required for their current employment, but the skills which they possess may be lower or equal to the requirements of the job (Flisi *et al*., 2014:22). Flisi *et al*. (2014:21) also emphasise the importance of distinguishing between overeducation and overskilling by pointing out that overskilling is a more "superior" variable to investigate with regards to skills-related underemployment because there is a greater demand for high level cognitive skills as well as information processing, which does not necessarily require high levels of educational attainment. Furthermore, Allen and Van Der Velden (2001:449) report that the findings of their study indicate that "educational mismatches are neither a necessary nor sufficient condition for skills mismatch.

Skills-related underemployment and underemployment in general, is not associated with a variety of theoretical frameworks (Feldman, 1996). From the various studies that have been conducted on the topic, the most prevalent theories that are used to explain this concept are Human Capital Theory, Relative Deprivation Theory, Job Competition Theory and Assignment theory; these theories are discussed below.

3.2.2.3 Theories associated with skills-related underemployment

3.2.2.3.1 Human Capital Theory

Human Capital Theory is one of the dominant theories that are associated with skills-related underemployment (Beukes *et al*., 2016:9; Gibbons, 2016:14; Sutherland, 2013:79; Fernando, Fernando & Hannif, 2014:124; Livingstone, 1999:1). Human capital is defined as the reserve of "production capacities", which an individual has accrued through some form of training or instruction (Becker, 1975). According to Herrera and Merceron (2013:95), individuals choose to invest in human capital at the opportunity cost of current earnings due to the expectations of higher earnings in the future, as a result of current investment in education and training.

Human Capital Theory as a construct, is a neoclassical theory, which states that individuals who invest in training and education should be expected to obtain employment that is congruent with their skills and qualifications (Beukes, *et al*., 2016:9; Fernando *et al*., 2014:124). According to (Beukes *et al*., 2016:10; Gibbons, 2016:13), Human Capital Theory also posits that an individual that invests in education "is likely to bring about an increase in both productive potential as well as increment earnings". The theory also makes the assumptions that job seekers have perfect mobility in the labour market and also have access to perfect information (Fernando *et al*., 2014:124).

Although the Human Capital Theory is associated with skills-related underemployment, it is, however, not used by labour economists as a means to explain skills-related underemployment from a causal theory perspective. Instead, it is used as a way to highlight the abnormality of skills-related underemployment as an occurrence, which stands in direct contrast of ideal labour market outcomes (Beukes *et al*., 2016:9; Fernando *et al*., 2014:124). In relation to the Human Capital Theory, skills-related underemployment presents itself as an "erosion" of human capital; one which also results in various detrimental effects. Beukes *et al*. (2016:10) explain that one of these detrimental effects is a lower wage, which directly contradicts the expectations proposed through Human Capital Theory. Furthermore, Fernando *et al*. (2014:124) point out that the only way in which Human Capital Theory explains skills under-utilisation is through the assumption that the under-utilisation of skills "is based on value creation".

Fernando *et al.* (2014:124) criticise Human Capital Theory by indicating its failure to adequately conceptualise skills-related underemployment. According to Fernando *et al*. (2014:124), the focus should not be on value creation, it should rather be on value realisation. From this perspective, the value of education and training should be "harnessed" to ensure a return in investment on human capital (Fernando *et al*., 2014:124). Fernando *et al*. (2014:124) also imply that Human Capital Theory does not take the role of the employer, in terms of human capital realisation, into account. Luksyte, Spitzmueller and Maynard (2011:292) posit that excess human capital can have positive outcomes if employers increase the complexity of the tasks that are performed by their overqualified workers.

3.2.2.3.2 Relative Deprivation Theory

According to Feldman, Leana and Bolino (2002:456), Relative Deprivation Theory was first introduced in 1949, when Stouffer, Suchman, DeVinney, Star and Williams attempted to determine the cause of varying levels of job satisfaction amongst American soldiers. The study found that in most cases, an individual's level of job satisfaction is partly related to the desires and expectations which they have regarding their employment (Feldman *et al*., 2002:456). According to Gibbons (2016:14), unlike Human Capital Theory, Relative Deprivation Theory is more subjective as it deals with the individual's perceptions regarding the extent to which they 'feel' their skills are being utilised in their current employment. Feldman *et al*. (2002:457) further indicate that Relative Deprivation Theory is a more appropriate approach in terms of conceptualising skills-related underemployment due to its ability to outline the dissatisfaction experienced by underemployed workers.

According to Feldman and Turnley (2004:286), Crosby (1976) identified five preconditions that make workers susceptible to skills-related underemployment. Crosby (1976) identified the following preconditions (Feldman & Turnley, 2004:286):

- The individual desires an object
- The individual feels entitled to the object which they desire.
- The individual has perceived or is aware that another individual is in possession of the object which they desire.
- The individual believes that it is possible to obtain the object which they desire.

- The individual does not see themselves as being responsible for not possessing the object which they desire.

Additionally, Feldman and Turnley (2004:287) point out that relative deprivation is caused and influenced by three factors. The first is demographical factors, in these instances individuals of a certain age, gender or educational attainment may feel entitled to better employment. The second factor is standards of comparison. Feldman and Turnley (2004:287) state that perceptions of relative deprivation arise from workers comparing their work situation with some standard of comparison; this includes comparing current work conditions with previous work conditions, other employees at their level and their future career plans (Feldman & Turnley, 2004:290). Lastly, relative deprivation also depends upon the individual's motivation for accepting their current employment.

The importance of using Relative Deprivation Theory in order to understand skills-related underemployment is further highlighted by its ability to provide insight into the psychological effects which arise from under-utilised skills; something that Human Capital Theory is incapable of doing (Gibbons, 2016:15). Feldman *et al*. (2002:457) suggest that this theory "mediates the relationship between underemployment and important job outcomes" by assessing the discrepancy between actual and desired job outcomes. Furthermore, the theory postulates that the level of negativity that an individual experiences towards perceived underemployment, largely depends upon their level of "entitlement" to better job prospects.

3.2.2.3.3 Job competition Theory

Job Competition Theory arguably provides one of the most direct economic models by which to explain skills-related underemployment. The theory was first introduced by Lester Thurow (1975) in an attempt to explain discrepancies in the labour market, such as unemployment and wage rigidity; concepts which were not predicated or explained by the prevalent economic theories of that time (Tanaka, 1997:25). The model assumes that wages are reasonably stable, the labour force is heterogeneous, jobs are connected with productivity, and wages and the demand and supply of labour in the market is determined by "training costs" (Borghans & de Grip, 2000:233; Tanaka, 1997:26).

The training costs assumption is based on the hypothesis that instead of appointing individuals according to their skills, firms hire individuals in order to equip them with the necessary skills required for the job (Tanaka, 1997:25). The training costs in this case are essentially the costs that firms incur whilst training a new employee for their position. Firms will, therefore, attempt to hire individuals that will impute the lowest training costs (Borghans & de Grip, 2000:33). Workers are viewed as being 'employable' if their level of education, gender or age ranks them high enough to lower training costs for the firm; this process, which is known as labour queuing, is the criteria that is used to screen potential employees (Borghans & de Grip, 2000:233; Herrera & Merceron, 2013:87). According to Herrera and Merceron (2013:87), it is this specific hiring criterion, which leads to skills-related underemployment as employers are more likely to hire individuals that are overqualified for the requirements of the job in order to lower their training costs. The extent of skills-related underemployment can also be exacerbated if the market is inundated with skilled people, in which case those with lower skills will be "moved" down the labour queue (Borghans & de Grip, 2000:234; Brynin, 2002:605).

3.2.2.3.4 Assignment Theory

Assignment theory is also one of the theories that are affiliated with skills-related underemployment. Largely attributed to Sattinger (1993), the theory is based on two fundamental concepts, the first of which is that the activities required in each type of job are different (Sattinger, 2012:6), the second point is that "frictions" in the labour market, as well as incomplete information, make it difficult for job-seekers and firms to align the skills sets of job-seekers with the skill requirements of firms (Sattinger, 2012:7). Furthermore, Tsai (2010:607) explains that assignment theory also assumes that the productivity of an employee has a positive relationship with their levels of education. Based on this, the theory therefore assumes that an individual's' productivity will also depend upon the type of job that they have (Tsai, 2010:607).

Based on these assumptions, Sattinger (2012:7) provides the example that a job may require four different tasks, with each task requiring a certain skill level. An unemployed individual who is applying for the job may be adequately matched for one task, under-qualified for another and overqualified for two of the tasks. The firm may choose not to employ such an individual due to their under-qualification and low skill level for one of the tasks, however, if the firm does make an offer, the individual may accept the job even though they are mismatched and overqualified in

order to temporarily avoid unemployment (Sattinger, 2012:7). Sattinger (2012:7) stresses that in this regard, skills-related underemployment is caused by heterogeneities of both the individual's characteristics as well as those of the firm. Sattinger (2012:8) does, however, argue that these mismatches can be "evened out" if the overqualification for the two tasks that the individual undertakes, compensates for the task for which they are underqualified. Sattinger (2012:8) argues that in this instance, the individual's productivity levels will not be affected. Furthermore, according to this theory, skills-related underemployment can also arise due to inadequate or inappropriate recruitment processes, which do not provide a clear indication of the interviewee's level of skills (Sattinger, 2012:9). This could lead to an employer hiring an overqualified individual due to inappropriate assessment techniques, thereby contributing to skills-related underemployment.

3.2.2.4 Measuring skills-related underemployment

According to Wilkins and Wooden (2011:25), measuring skills-related underemployment is complicated because of the difficulty in establishing the skill requirements and level for each job. However, skills-related underemployment can be determined with the use of various subjective and objective measurements (McGuinness, 2006:395; Gibbons, 2016:12; Feldman, 1996:390). McGuinness (2006) proposes the following methods:

- Calculating the difference between the mean levels of education of other individuals that are employed in the same occupation as the individual that perceives themselves as being underemployed. Underemployed individuals will therefore be those whose level of education is above the calculated mean.

- Comparing the individual's level of education, with the educational level that is required for the job that they are employed in. This is often done by using an official guideline, such as the Dictionary of Occupational Titles (DOT), in order to determine the level of education required to competently perform a job.

- Comparing the individual's own opinion regarding the minimum educational level they believe they should have in order to do their job successfully, with the actual level of education that they have.

- Inquiring whether the worker believes that they are overeducated for their current employment position.

Although these measures can be used to classify an individual as being skills-related underemployed, a few criticisms can be levelled against them. McGuinness (2006:396) provides that the subjective measures which rely on the individual's opinion, may not provide a true estimation of overall skills-related underemployment due to job apathy, which may result in a lack of interest in answering questionnaires related to the topic. Secondly, workers in smaller companies may not have an appropriate benchmark against which to determine the required skills for their job (McGuinness, 2006:396). Lastly, McGuinness (2006:396) points out that even when the appropriate benchmarks are provided, workers can still apply different benchmarks, which could lead to measurement errors (McGuinness, 2006:396). Borghans and de Grip (2000:14) add that some workers could classify themselves as underemployed, even when they are not, in order to elevate their positions.

Similarly, the objective measures can also be criticised because certain occupations may require multiple skills, which means that workers with the same job title and education, could be engaged in different tasks; seemingly making them appear to be skills-related underemployed (McGuinness, 2006:396; Felstead & Green, 2013:9). An example of this would be managerial positions, which may entail tasks that differ from one company to the next (McGuinness, 2006:396). Furthermore, many occupations have evolved over time and as a result, the educational requirements of the job may be lower than they were previously; this is evident in situations where university graduates are being employed in positions that were previously held by high school graduates (McGuinness, 2006:396; Wilkins & Wooden, 2011:25). Lastly, even the standard deviation test can be criticised because the cut-off points are easily influenced by factors such as the number of overeducated people in the profession; McGuinness (2006:396) points out that if a specific occupation has a lot of overeducated individuals, it will raise the educational average as well as the cut-off point, which will understate the prevalence of skills-related underemployment.

Additionally, Wilkins and Wooden (2011:26) point towards the fact that the above-mentioned measurements are limiting as they rely heavily on the level of education that an individual has and not necessarily on their skills. The importance of this discrepancy becomes apparent when taking into account that workers accumulate skills during the course of their employment through on-the-job training (Wilkins & Wooden, 2011:26), therefore, using education as the only measure, provides an inaccurate depiction regarding the extent of skills-related underemployment. Furthermore, educational measures do not provide a clear indication regarding the requirements of the job, in some cases, educational qualifications are only relevant when screening an individual for a job; they do not, however, necessarily provide an indication of whether the qualifications match the job requirements (Wilkins & Wooden, 2011:26). Additionally, education and skills are not necessarily highly correlated (McGuinness & Wooden, 2009:266; Wilkins & Wooden, 2011:26), which makes it difficult to identify skills-underutilisation by simply investigating educational qualifications. The distinction can therefore be made, that the measures provided by McGuinness (2006) are only useful in identifying overeducation but not overskilling, which requires specific methods of measurement. McGuinness and Wooden (2009:267) propose that more direct measures should be employed, where the measurement of skills-underutilisation is concerned.

In light of this, Felstead and Green (2013:8) provide three indicators that can be used to directly classify a worker as being overskilled. The following indicators are used (Felstead & Green, 2013:8):

- The disparity between the supply of qualifications and the demand for those qualifications by employers.
- The mismatch in the level of skills held by the individual and the level of skills required to acquire the job.
- Determining whether individuals that are overeducated have the ability to use their skills in their current occupation or not.

Felstead and Green (2013:9) explain that the first indicator is not sufficient enough to provide a full estimate of skills-related underemployment; the following two indicators are, therefore, used to provide a direct measure of skills-underutilisation. Felstead and Green (2013:10) summarise that according to their indicators, an individual is classified as being skills-related underemployed

if their qualifications are higher than what was required for them to obtain employment and if they can identify an inability to utilise their skills in their job.

Although the abovementioned measures are capable of providing an overview regarding the level of skills-underutilisation, it is still plausible to argue that they do not provide a more direct measurement of overskilling, which is largely separate from overeducation. A more direct measurement of overskilling involves investigating the extent to which an individual engages in tasks that require the skills that they possess (Krahn & Lowe, 1998:27; Desjardins & Rubenson, 2011:26). According to Flisi *et al*. (2014:9), through this measurement, workers can be categorised as having medium-low, medium-high or high skills engagement. Desjardins and Rubenson (2011:26) indicate that an individual can be classified as skills mismatched if they possess medium-high skills but only have medium-low engagement with that skill.

3.2.2.5 Determinants of skills-related underemployment

Skills-related underemployment is caused by both macro and microeconomic factors. These factors can either be influenced by microeconomic decisions made by the individual regarding their preferred study field, or firm level decisions regarding factors of production. Exogenous factors such as economic climate, can also play a significant role. This section provides an outline of these factors as well as their contribution to skills-related underemployment.

3.2.2.5.1 Economic conditions

Economic conditions have been identified in various literatures as an antecedent of skills-related underemployment. Feldman (1996:391) explains that the 1974 study of Elder, indicates that periods of severe recession resulted in underemployment, due to a lack of employment opportunities and a decrease in the amount of jobs that offer a high wage rate. Abel and Deitz's (2014:1) study using 2009-2013 United States graduate data revealed that since the economic crisis of 2007, underemployment amongst American graduates rose to nearly 50%, which is the highest it has ever been since 1990. The lack of employment opportunities sparked by the economic downturn, led to more qualified individuals accepting employment that does not match their skills. Similarly, McKee-Ryan and Harvey (2011:974) indicated that skills-related underemployment in the United States rose from 8.3% at the onset of the crisis of 2007 to 16.2% during 2009.

According to Feldman (1996:392), economic conditions and trends can also occur at industry or firm level, with similar effects on skills-related underemployment such as at a macroeconomic level. According to Feldman (1996:392), the trend of de-industrialisation has meant that highly skilled workers are unable to experience career growth within their own firms and often face the probability of accepting a decrease in wages or a lower-level position. Furthermore, large-scale downsizing in specific industries can result in highly skilled workers accepting lower positions in other industries due to a lack of employment opportunities within their own industry, as well as a lack of experience in other industries. Gibbons (2016:27) states that in the United States, the reduction in government spending and home construction in response to the 2007 economic crisis contributed to skills-related underemployment in the construction industry. Similarly, Gibbons (2016:28) suggests that underemployment in the automotive industry of the United States can be traced back to industry-level economic conditions.

3.2.2.5.2 Qualifications

Although holding a tertiary level qualification increases the probability of finding good employment, certain types of tertiary level qualifications can also increase the probability of being skills-related underemployed (Abel & Deitz, 2014:2). Abel and Deitz (2014:2) reveal that graduates with more general degrees such as Liberal Arts or Business were up to three times more likely to be skills-related underemployed than those with more specialised degrees such as Engineering or Nursing. This is supported by Diem (2015:68), whose study, using data from the Swiss Federal Statistical Office (waves 2004, 2006, 2008, 2010), indicates that Swiss graduates who hold a degree in Arts or Business Administration and Services had a greater incidence of skills-related underemployment, whilst in Spain, García-Montalvo and Peiró (2009) found that the incidence of skills-related underemployment was higher amongst students that had studied Humanities and Social Sciences (Iriondo & Velázquez, 2014:8). More specifically, Chevalier and Lindley (2007:10) indicate that their study on graduates in the United Kingdom, using 1995 data from United Kingdom higher education institutions, revealed that having qualifications in Mathematics, Medicine, Engineering and Education reduced the probability of skills-related underemployment. Battu and Zakariya (2015:9) propose that the observed skills-related underemployment amongst Malaysian graduates, is partly caused by the fact that university degrees are not “occupation specific”, as opposed to college and vocational training qualifications.

Educational attainment has also been proven to have a significant effect on skills-related underemployment. Beukes *et al*. (2016:21) postulate that the probability of being skills-related underemployed is most prevalent with those in possession of secondary school education; decreasing significantly thereafter with each level of educational attainment. Using 2014 Quarterly Labour Force (QLF) data, Beukes *et al*. (2016:19) indicate that skills-related underemployment amongst primary school holders in South Africa was 0%, those with secondary school accounted for 68.36%, senior certificate holders stood at 17.07%, whilst degree holders accounted for only 14.58%. Mavromaras *et al.* (2009a:63) found similar results in Australia for the time periods 2001-2006; individuals that had a secondary level education displayed as much as 15.53% severe overskilling, whilst individuals whilst tertiary level education only had an incidence of 9.05%. Using data from the 2007 Productivity Investment Climate Survey (PICS), Battu and Zakariya (2015:9) found that tertiary education reduces the incidence of severe overskilling by up to 5.4%, whilst possession of an additional professional certification and vocational training reduced the probability of moderate overskilling. Similarly, Kim *et al.* (2016:75) found that 2005 data from the Korean National Follow-up Survey of College and Graduate School Graduates on Economic Activity (KCGEA) revealed that 21.8% of Korean students, with only a two year college qualification, were skills-related underemployed as opposed to only 8% of graduate school workers.

3.2.2.5.3 Firm level factors

Firm dynamics such as production factor input ratios can also influence the probability of skill-related underemployment. Schoeman, Botha and Blaauw (2010:286), using South African firm-level data from 1970-2004, found that a contributing factor of persistently high skills-related underemployment in South Africa was due to technological changes at firm level. Schoeman *et al*. (2010:286) discovered that over-regulation of the labour market in favour of labour, led to firms switching to more capital-intensive factors of production. The study also indicates that this has led to skills-related underemployment in South Africa becoming structural, because once firms switch from labour to capital-intensive inputs, a reversal is highly unlikely in the long-run due to the static nature of capital (Schoeman *et al*., 2010:286; Beukes *et al*., 2016:12). Likewise, the OECD (2014:9) indicate that technological changes and globalisation have also contributed to skills-related underemployment as firms require more high-skilled workers due to production

transformation. The demand for highly-skilled labourers leads to workers that are engaged in more manual or cognitive jobs, being "displaced" and unable to utilise their skills (OECD, 2014:9).

Similarly, the opposite can also be an applicable rationale for the incidence of skills-underutilisation. Lu (2017:193) indicates that the Chinese high-tech industry is still dominated by some labour-intensive enterprises, whilst the supply of highly skilled high-tech graduates has increased substantially. This would imply that the competition amongst Tech graduates has increased even though there are less adequate jobs in the market, leaving some of the graduates to face unemployment or to accept employment that under-utilises their skills. Likewise, Battu and Zakariya's (2015:10) 2007 study found that in Malaysia, labour-intensive firms have a higher incidence of overskilling than capital-intensive firms, which were defined as firms whose labour costs were less than 25%, whilst labour-intensive firms incurred labour costs of 75% and above.

Regardless of the manner in which skills-related underemployment presents itself, it still has adverse effects on both the individual as well as the economy. The following section provides an outline of the effects of skills-related underemployment as it is the focus of this study.

3.2.2.6 The effects of skills-related underemployment

Skills-related underemployment has both micro and macroeconomic implications. At a microeconomic level, workers that are skills-related underemployed incur adverse financial outcomes as well as negative job performance and psychological effects. At a national level, skills-related underemployment negatively affects important macroeconomic indicators such as GDP and National Income. This section expands on these consequences and provides empirical evidence regarding their prevalence and severity.

3.2.2.6.1 Macroeconomic effects

Skills-related underemployment has adverse effects on the economy due to the inefficient allocation of human capital (Linsley, 2005:1; Liang *et al*., 2013:1501; Kupets, 2015:1). According to Linsley (2005:1), skills-related underemployment lowers productivity, which has an adverse effect on national productivity as well as national income. Liang *et al*. (2015:1502) explain that a significant contributor of Gross National Product (GNP) growth in developed economies is labour productivity; therefore, the low levels of productivity which are associated with skills-related

underemployment have an adverse effect on economic growth. Guironnet and Jaoul-Grammare (2007:10) found that overeducated French workers significantly reduced national productivity and also led to a "deceleration" of economic growth.

Furthermore, overeducation is also inefficient as it results in lower returns to education investment, which is costly at both macro and microeconomic levels (Linsley, 2005:1). According to Liang *et al*. (2013:1501), providing a Chinese student with tertiary level education can cost the family and state between RMB (Renminbi) 5-8 million; in South Africa, government expenditure on overall education stands at R320.5 billion for the year 2017 (National Treasury, 2017:7), whilst the United States government spends an estimated 3.7% of its GDP on secondary and tertiary level education (OECD, 2012:7). Moretti (2006:43) explains that this magnitude of public expenditure on a private good is rationalised by the various social benefits and positive externalities which spill over into the economy as a result of education. Therefore, the expectation would be that an investment in education should yield an increasing private and public return. In contrast, various studies (Kedir, Kyrizi & Martinez-Mora, 2012:22; Linsley, 2005:19; Zakariya, 2013:272; Herrera & Merceron, 2013:88) indicate that overeducation reduces the expected returns to education, which implies a costly and wasteful use of government resources.

3.2.2.6.2 Income effects

The detrimental income effects of skills-related underemployment are one of the most recurring arguments related to the topic. From a theoretical perspective, it is logical to expect that individuals who are employed in positions which under-utilise their skills, have a higher probability of receiving less wages than their counterparts who possess the same level of skills and qualifications. According to Becker's 1964 theory, employees' wages will always be equal to their marginal product because firms are always willing to fully utilise labour and will adjust their production processes according to any changes in labour supply (McGuinness, 2006:389). Furthermore, wages are assumed to have a positive relationship with skills and education, therefore the expectation would be that as skills and years of schooling increase, wages should also increase (Roy, 1950; Tinbergen, 1956). Skills-related underemployment on the other hand, results in underemployed workers receiving wages that are below their marginal product (McGuinness, 2006:389).

From an empirical perspective, in terms of over-education, McGuinness (2006:407-408) reports that the results of 21 studies, ranging from 1981 to 2003, indicate that income is reduced by anything between 8% and 21%, with a mean of 15,3% (Wilkins & Wooden, 2011:27). Similarly, using micro-data between 1980 and 2012, Barnichon and Zylberberg (2014:2) revealed that American employees who are too educated for their jobs receive between 30-40% less wages than their adequately employed counterparts. Herrera and Merceron (2013:97) investigated the impact of job mismatch in Sub-Saharan Africa from the period of 2001-2005, spanning across nine African countries (Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, Togo, Cameroon and Madagascar); their findings revealed that although overeducated employees earned more than those holding similar positions with less education, they still earned less than their counterparts that were working in jobs matching their educational attainments. Using fixed and random effects models and data from 2001-2009, Sloane (2014:5) found that Australian male graduates who had moved from adequate employment to a job which under-utilised their skills and education suffered a wage penalty of just under 6%. Tsai's (2010:613) study, using panel data from 1979-2005, discovered that in the United States, overeducated college graduates suffered a 2% wage penalty, whilst Diem (2015:71) reports a 5% wage penalty for Swiss graduates who graduated between 2001 and 2009, that have qualifications in the applied sciences discipline. Chevalier and Lindley (2007:12) surveyed students in the United Kingdom who had graduated between 1990 and 1995, their study reported wage penalties of between 7% and 23% for overeducated graduates.

With regards to overskilling, Mavromaras *et al.'s* (2009a:64) 2001-2006 Household Income and Labour Dynamics in Australia (HILDA) data found that individuals who were identified as severely overskilled in Australia experienced a wage penalty of up to 10.2%, whilst those who were classified as being moderately overskilled incurred a wage penalty of 2.4%. During 2007, Battu and Zakariya (2015:14) found that severely overskilled workers in Malaysia experienced a wage penalty of between 9% and 10%, whilst those who are moderately overskilled incurred a wage penalty of 2%. Using the Ordinary Least Squares (OLS) method, Mavromaras, McGuinness and Fok (2009b:25) reported that individuals who were classified as being severely overskilled during the years 2001-2006, incurred a wage penalty of between 10% and 13.5%. Furthermore, Mavromaras *et al.* (2009b:25) found that the wage penalty for severe overskilling was highest amongst graduates at 13.8% to 18.9% and between 11.6% and 14.4% for vocationally qualified employees.

The empirical evidence, with regards to income, assists in highlighting the negative wage effects of underemployment, however, Sackey and Osei (2006:231) indicate that it is rather the welfare and 'potential' poverty effects of underemployment that are of greater concern. Participants in Gibbons' (2016:125) 2009 study, reported that the wage differential caused by their skills-related underemployment, caused them various degrees of "financial distress".

Part of this distress included being unable to afford monthly expenses or pay off outstanding student loans (Gibbons, 2016:125). Similarly, some of the respondents indicated that the wage differential restrained them from being able to achieve certain milestones such as purchasing a house or starting a family (Gibbons, 2015:125). This concurs with Adegbami's (2013:24) 2011 Nigerian study, which indicates that 21.1% of the respondents in the study reported that their skills-related underemployment contributed to their poor living standards and resulted in negative welfare outcomes. According to Adegbami (2013:24), respondents also reported that they could not afford adequate accommodation, clothing, food or education for their children.

3.2.2.6.3 Job dissatisfaction

Skills-related underemployment not only affects wages, it also affects job attitudes and employee satisfaction (Wilkins & Wooden, 2011:28; Allen & Van Der Velden, 2001:445; McKee-Ryan & Harvey, 2011:979). Addy, Nzaku and Ijaz (2012:2) describe job satisfaction as the utility that employees derive from their jobs, from factors such as wages, value of the job, growth opportunities, employment hours and security. From a theoretical perspective, Relative Deprivation Theory argues that individuals who are classified as skills-related underemployed feel "relatively deprived", due to comparing their situation with that of their peers (Peiró, Agut & Grau, 2010:669; Feldman *et al*., 2002:453). These perceptions of relative deprivation result in feelings of job dissatisfaction and negative attitudes towards current employment (Peiró *et al*., 2010:669).

Empirically, Adegbami's (2013:27) 2011 study found that in Nigeria, 45 out the 60 respondents who were classified as being skills-related underemployed, indicated that they had poor attitudes towards their work due to their 'lower' work status. In the United Kingdom, Green and Zhu (2010:iii) report that in 2006, 22% of their underemployed respondents reported that they were not satisfied with their jobs as opposed to only 7% of their well-matched counterparts. Johnson and Johnson (2000:546) report that perceived skills-related underemployment and a lack of career

growth “explained 34% of the variance in satisfaction with work” amongst members of the American Postal Workers Union (APWU) from 1993-1994. Using records from 1999-2005, spanning 15 European countries, Sánchez-Sánchez and McGuinness (2015:425) found that individuals who are overskilled are 18.2% less likely to have job satisfaction. Although both overeducation and overskilling can result in job dissatisfaction, Allen and Van Der Velden (2001:445), as well as Johnson and Johnson (2000: 548), argue that overskilling has a much higher impact on job satisfaction than over-education.

Job dissatisfaction does not only affect the individual’s feelings and attitudes towards their work, it also affects productivity (Lu, 2017:194). According to Böckerman and IImakunnas’ (2010:8) data from the European Community Household Panel (ECHP) of Finland for the period 1996-2001 revealed that a one-point increase in job satisfaction can lead to a 5% increase in the level of value added per hour by an employee. Bhagat’s 1982 study of 20 department stores in Cincinnati, found a +0.60 correlation between job satisfaction and productivity for individuals that were not put under any pressure to perform at work (Argyle, 1989:25). Argyle (1989:2) also reports that at least eight studies regarding productivity and job satisfaction indicated a correlation of +0.44 and above for individuals who are employed in a supervisory role or professional position. Tsang (1987:248) investigated 22 American Bell companies from 1981-1982 and found that a 1% increase in job satisfaction leads to a 2.53% increase in output, and a reduction of overeducation by one year in the companies would lead to 8.35% increase in firm output. Using HILDA data for the period of 2001-2007, Sloane (2014:6) found that there was a 6.9% reduction in job-satisfaction for overskilled workers, whilst those who are both overskilled and overeducated experienced a reduction of 15.2%.

3.2.2.6.4 Career outcomes

Skills-related underemployment has been argued to not only affect the individual’s current employment outcomes, but can also negatively impact the trajectory of their careers. According to McKee-Ryan and Harvey (2011:984), individuals that experience wage penalties due to overeducation also experience future penalties that often continue throughout the majority of their career span. One of the reasons provided for this, is the fact that individuals that are skills-related underemployed tend to have negative job attitudes, which have an impact on their potential to

receive promotions. This is confirmed by the findings of Abel and Deitz (2016:26), who indicate that at least 6.6% of the American graduates that were skills-related underemployed after the 2007 economic crisis, were still underemployed five years later.

Similarly, Iriondo and Velázquez (2010:1) report that six years (2002-2008) after investigating skills-related underemployment amongst Spanish graduates, 24% were still skills-related underemployed. More specifically, Iriondo and Velázquez (2010:8) argue that according to their results, the persistence of skills-related underemployment is more common amongst those that held qualifications in fields which had a high incidence of skills-related underemployment when graduates first entered the job market. Iriondo and Velázquez (2010:8) support this by indicating that 55.6% of Social Science graduates in Spain were still skills-related underemployed after six years, as opposed to 34.5% of Health Science and Economics students. Social Sciences students reported the highest percentage of "first job" skills-related underemployment out of the four fields that were investigated.

Other studies, such as that of Frenette (2004:36), found that 75% of Canadians that had graduated in the years 1982, 1986 and 1990, and had been skills-related underemployed during their first job, were still underemployed three years later. Dolton and Vignoles (2000:184) surveyed United Kingdom graduates from the year 1980 and reported that 30% of those who were skills-related underemployed during their initial year of employment, remained underemployed six years later. Likewise, García-Montalvo and Peiró (2009) found that three years after their initial job mismatch, 68% of Spanish graduates were still underemployed (Iriondo & Velázquez, 2010:8).

3.2.2.6.4 Negative psychological outcomes

The link between employment and well-being is a well-researched topic, the results of which largely reveal that there is a positive relationship between employment and well-being (Anderson & Winefield, 2011:15; Gibbons, 2016:38; Frank & Hou, 2017:2). Anderson and Winefield (2011:165) indicate that various literature links employment to self-identity, self-esteem and community involvement. It is, therefore, natural to expect that inadequate employment, such as in the case of skills-related underemployment, will have a negative effect on well-being. McKee-Ryan and Harvey (2011:984) underline the link between these two concepts by indicating that

skills-related underemployment is a significant indicator of depression, frustration, hostility and other psychosomatic symptoms.

Anderson and Winefield (2011:167) propose that low income is one of the contributing factors towards mental health deterioration in individuals that are skills-related underemployed. According to Anderson and Winefield (2011:167), the financial strain of working in a job that does not provide an adequate salary, can cause both personal and family stress. Friedland and Price (2003:33) highlight the fact that workers that under-utilise their skills are particularly predisposed to depression and also report lower levels of life satisfaction. The study of Johnson and Johnson (1996), consisting of 288 members of the APWU, found that those who were skills-related underemployed experienced more frequent incidents of depression and stress than their adequately matched counterparts. Additionally, Adegbami's (2013:24) 2011 study found that 21.1% of his 60 respondents reported being depressed due to financial strain; they also indicated that society perceives them as being lesser. Participants reported having low self-esteem and feeling "less than human" (Adegbami, 2013:25).

Alienation and loss of control are also notable characteristics of skills-related underemployment (Anderson & Winefield, 2011:169). Being employed in a job that is inadequate and having to deal with the negative consequences thereof can contribute to underemployed workers feeling alienated from society, with little control over their lives and the outcomes thereof. Psychological theory explains that most individuals want to have "primary control" over their environments (Heckhausen & Schulz, 1995) and underemployment results in a lack of control over one's goals and situation, which can lead to depression (Dooley & Prause, 2004:33). Adegbami (2013:25) reports that skills-related underemployed respondents felt socially disenfranchised as they were denied housing by landlords due to their employment positions.

The negative effects of skills-related underemployment indicate that it has serious detrimental effects on both the affected individual and their place of employment. However, in order to fully establish the extent of skills-related underemployment, it is essential to provide an overview of its prevalence from existing literature. The following section provides an outline of the empirical findings regarding the prevalence of skills-related underemployment.

3.2.2.7 The prevalence of skills-related underemployment

Various literature indicate that skills-related underemployment is significantly prevalent in most countries and has continued to increase as the demand for education and training increases (Lu, 2017:192; Tsai, 2010:606; Iriondo & Velázquez, 2014:6). Mavromaras *et al*. (2009a:63) investigated the incidence of overskilling in Australia, using data from HILDA , for the years 2001-2006; their findings revealed that 30% of the individuals in the sample were moderately overskilled, while 11% were severely overskilled. Kim *et al*. (2016:74) report that out of the 12666 Korean respondents who graduated in 2003, 44.2% were partially overeducated and 18.4% were completely overeducated. Diem's (2015:68) 2009 study reports that 16% of applied sciences graduates in Switzerland, experience skills-related underemployment. Tsai's (2010:606) study using 1979-2005 data from the Panel Study of Income Dynamics (PSID), reports that studies conducted in the United States indicate that between 11% and 50% of workers are overeducated, depending on the time period and data set which is used. Using a sample consisting of 1640 United Kingdom graduates from the years 1990 and 1995, Chevalier and Lindley's (2007:6) 2005 study found that 20% were "apparently" overeducated and 15% were "genuinely" overeducated.

Skills-related underemployment is also more prevalent amongst certain demographical groups, often affecting the most vulnerable portion of the labour market. In terms of gender, Diem (2015:70) found that female Swiss graduates in applied science had a higher chance of being skills-related underemployed, whilst Daly, Büchel and Duncan (1998:173) report that in Germany, during 1984, 21.3% of women with 20 years or more work experience were overeducated, as opposed to 14.1% of men. Weststar (2011:114) indicates that Glover and Fielding (1999) found that the majority of female graduates with science degrees in the United Kingdom during 1994, were more likely to hold lower positions than their male counterparts and were less likely to hold professional positions.

The demographics of skills-related underemployment also extend to race. According to Slack and Jensen (2011:136), United States population surveys from the period 1999-2009, revealed that Hispanics (20.8%) and Africans (19.0%) experienced the highest incidence of underemployment as opposed to Whites (11.0%). Rafferty (2012:8) found that in the United Kingdom, for the years 1992-2010, Africans and Pakistani/Bangladesh graduates were less likely to work in jobs that

required a degree qualification. More Specifically, Rafferty (2012:8) reports that 37.7 African females and 36.4% of Pakistani/Bangladeshi females were in employed in non-graduate jobs as opposed to 24% of White women in the United Kingdom. Additionally, Bonnal, Lira and Addy (2009:331) used Local Employment Dynamics (LED) data from 2000 and 2005, which revealed that in the American state of Alabama, 32.2% percent of African and Hispanic workers were skills-related underemployed, as opposed to 22.3% of the white labour force. Likewise, immigrants experience the highest incidence of skills-related underemployment; Jensen and Slack (2011:136) report that during the period of 1999-2009, non-citizens in the United States suffered the highest incidence of underemployment with Hispanics suffering the highest percentage; this is also supported by the findings of (Frank & Hou, 2017:2).

Similarly, age is another demographical criterion that influences the propensity of an individual's susceptibility to being skills-related underemployed (Jensen & Slack, 2003:28; Virick, 2011:85). According to Jensen and Slack (2003:28), the incidence of underemployment decreases with age but increases for those that are close to retiring age; affecting those between the ages of 18-24 and 55-64.

From a domestic perspective, using data from the last quarter of 2014, Beukes *et al*. (2016:18) provide that skills-related underemployment has increased significantly from 1.5 million in 1995 to 4.3 million in 2014, as a proportion of South Africa's employed labour force. Of this portion, Black South Africans accounted for a disproportionate share at 81.19% in 2014 as opposed to Indians, with the lowest percentage at 1.75% within the same year (Beukes *et al*., 2016:19). Individuals who fall between the age ranges of 25-34 and 35-44, experienced the highest levels of skills-related underemployment; 35.68% and 32.38%, respectively. Beukes *et al*. (2016:19) also report that South African women experience a higher incidence of skills-related underemployment at 53.3% as opposed to men at 46.7%.

The majority of skills-underutilisation in South Africa is also found in the urban formal sector at 64.62%, followed by the urban informal sector at 10.67%; the lowest incidence is in the rural formal sector at 5.33% (Beukes *et al*., 2016:19). In terms of occupations, those who work in "elementary occupations" as well as domestic workers reported the highest incidence of skills-related underemployment at 55.6% and 14.75%, respectively (Beukes *et al*., 2016:19). In the

"broad industry category", the community services and retail industries have the highest incidence of skills-underutilisation, while mining and electricity have the lowest (Beukes *et al*., 2016:20).

According to educational attainment, individuals with a secondary school education (68.36%) experience the highest frequency of skills-related underemployment, followed by senior certificate and degree holders at 17.07% and 14.58%, respectively (Beukes *et al*., 2016:19). Spatially, the Gauteng province has the highest incidence, followed by KwaZulu- Natal at 30.05% and 15.73%, respectively; with the Northern Cape having the lowest incidence (Beukes *et al*., 2016:19).

The following section addresses the second objective of this study which is unemployment in the day-labouring informal sub-sector. It provides a brief outline of definitions and concepts which are associated with unemployment as well as an overview of unemployment in South Africa's day-labouring market.

3.3 Unemployment

3.3.1 Definitions

According to the 13th ICLS, the standard definition of unemployment is based on three criteria, which must all be fulfilled concurrently (Hussmanns & Benes, 2012:18). The following criteria are identified (Hussmanns & Benes, 2012:18):

- Without work: This criterion stipulates that the individual should not be engaged in any kind of paying employment, including self-employment, during the reference week; however, this criterion cannot be used to describe an individual that was absent from work for a period of time

- Currently available for work: The individual must be available to work if an opportunity for employment, including self-employment, arises during the reference period. More specifically, an individual cannot be classified as unemployed if they can only begin their employment at a later date (past the reference period).

- Seeking work: The individual must be actively seeking employment, or have taken actions towards finding paid or self-employment. According to the 13th ICLS, job seeking activities include registration at any employment exchange, job applications, searching for work at job sites, responding to or placing job advertisements, taking steps towards self-employment such as searching for property or equipment, asking for help from relatives, acquiring financial resources and applying for permits.

In South Africa, the term 'unemployed' is used to refer to individuals that are between the ages of 15-64 years, who were without work during the week of reference, actively sought work in the four weeks before they were interviewed for the survey, were available to begin employment or had a job that they would be joining in the future (StatsSA, 2016:xxi). Other definitions, such as that of McConnell, Brue and Macpherson (1999:565), are much broader and make allowances for circumstances beyond the individual's control. According to this definition, an individual is classified as unemployed if they are older than 16 and are without work, had sought work within the past four weeks, were expecting to be re-hired for a job that they had been laid-off from, had a desire to seek work but had been ill or were awaiting to begin work within 30 days (McConnell *et al*., 1999:565).

3.3.2 Types of unemployment

3.3.2.1 Frictional unemployment

Frictional unemployment refers to unemployment that occurs as a result of information misalignment and time-lags in the labour market as job seekers and employers attempt to locate each other (Borjas, 2010:504; Ehrenberg & Smith, 1988:591). Frictional unemployment remains a constant feature of all economies because even during full employment, when labour demand equals supply, there are always new entrants into the labour force as well as new leavers (Ehrenberg & Smith, 1988:591). From the perspective of entrance, McConnell *et al*. (1999:575) explain that individuals continuously quit their current employment in search of better employment, lose their current employment, enter the labour force for the first time, begin seeking employment after a long absence or will be joining a new job within 30 days. Likewise, employers

are in search of new employees in order to replace workers that have quit or been fired and to fill new vacancies that arise due to firm expansion (McConnell *et al*., 1999:575).

Although frictional unemployment contributes to short-term unemployment in the labour market, it does not imply that there are fundamental problems within the labour market of an economy (Borjas, 2010:504). Furthermore, frictional unemployment can be seen as an efficient mechanism in the labour market as it results in resource allocation due to the search activities of firms and job seekers (Borjas, 2010:504). Frictional unemployment is, therefore, not the most important objective for policy makers and can be reduced by improving information sharing between the two search groups (Borjas, 2010:504).

3.3.2.2 Seasonal unemployment

Seasonal unemployment is caused by a deficiency in demand in the labour market (Borjas, 2010:504). Workers engaged in industries such agriculture, textiles as well as the automotive industry are examples of individuals that are often seasonally unemployed (Ehrenberg & Smith, 1988:604; Borjas, 2010:504). According to Mafiri (2002:11) and Borjas (2010:504), seasonal unemployment is often highly predictable with employment being available during "peak periods" and unemployment being prevalent during "off-peak periods". Much like frictional unemployment, seasonal unemployment is not of great concern to policy makers because of its predictability and temporal nature (Borjas, 2010:504).

3.3.2.3 Cyclical unemployment

Cyclical unemployment, also known as demand-deficient unemployment, occurs due to downward wage rigidity and an oversupply of labour (Borjas, 2010:505). According to Ehrenberg and Smith (1988:596) the decrease in labour demand is caused by a decrease in aggregate demand, which reduces the profits of firms and results in a pile up of inventory; unable to sell their products, firms reduce labour in order to lower their costs (McConnell *et al*., 1999:580).

The downward wage rigidity component of cyclical unemployment is caused by the fact that employers cannot cut the wages of their workers in order to reduce costs because of union representation (Ehrenberg & Smith, 1988:596). Furthermore, lay-offs are more favourable to firms

than wage decreases, as they may result in a mass exodus of talented labour, in which the firm has already invested quite heavily (McConnell *et al*., 1999:581). Likewise, workers that are offered a lay-off as opposed to a lower wage may eventually be willing to work for a lower wage (Ehrenberg & Smith, 1988:599). Secondly, most governments impose a minimum wage, therefore due to legality, firms cannot reduce wages, which makes wage flexibility and market clearing impossible (Borjas, 2010:505).

Cyclical unemployment is more problematic than frictional and seasonal unemployment as it may require policy makers to implement some macroeconomic measures (Borjas, 2010:505). These measures will mainly be aimed at stimulating aggregate demand through channels such as increasing government spending, reducing taxes and increasing money supply growth (Ehrenberg & Smith, 1988:596).

3.3.2.4 Structural unemployment

The most problematic type of unemployment is structural unemployment, which is characterised by mismatches in the labour market. Structural unemployment can be caused by skills mismatches in which job seekers do not have the skills required to occupy the vacancies which are available in the market (McConnell *et al*., 1999:577; Ehrenberg & Smith, 1988:592; Borjas, 2010:504). Skills mismatches can be caused by technological changes, occupational requirement modifications or skill redundancy (Ehrenberg & Smith, 200:592; McConnell *et al*., 1999:577). More specifically, Borjas (2010:504) explains that as some industries expand, others are simultaneously reducing in size resulting in many skilled workers being displaced, often unable to move to the expanding industries because the skill requirements may be different from what they hold.

Spatial mismatches also contribute to structural unemployment. This occurs when the jobs that are available are geographically out of reach for job seekers who hold the credentials, which are required to fill them (Ehrenberg & Smith, 1988:592). Spatial mismatches can occur due to job seekers being unaware of jobs in other locations, unwillingness to move or an inability to relocate due to moving costs (Ehrenberg & Smith, 1988:592).

3.3.3 Unemployment in the day-labouring market

One of the key points highlighted in chapter two regarding the day-labouring sub-sector is the volatile nature of employment in this sub-sector. Workers in this sector are often not assured of employment on a daily basis, which results in income uncertainty and contributes to their poverty. Literature regarding day-labouring unemployment is relatively scarce and existing literature focuses mainly on demographics and income statistics. However, Gonzo and Plattner (2003:64) investigated day-labourers in Namibia and uncovered that Namibian day-labourers face severe unemployment as three quarters of the respondents in their study reported only being hired once a week. Gonzalez's (2007:1) 2004 study reports that Californian day-labourers seek work five days a week and are employed two to three days a week on average. In terms of hours, Gonzalez (2007:1) found that day-labourers in California work an average of 23 hours per week.

In South Africa, Blaauw *et al*. (2013:639) conducted a nationwide survey involving 3812 respondents in order to determine the levels of unemployment experienced by the day-labourers; respondents had to indicate the frequency of being hired by the same employer for three days in a row or more. Blaauw *et al*. (2013:641) found that only 17% were often hired by the same employer, 13% were seldom hired by the same employer, 7% were sometimes hired by the same employer in the same month and 10% reported never being hired by the same employer consecutively for three or more days. Blaauw (2010:176) also found that day-labourers that were hired by the same employer for more than three days earned more than those who were seldom or never hired. Schenck, Xipu and Blaauw (2012:9) investigated three day-labouring sites in the Tshwane area; their study revealed that out of the 80 day-labourers gathering at site A on a daily basis, only 20 were employed each day. Site B, which had an average of 200 labourers, averaged 50 pick-ups per day, whilst site C which had 29 labourers, averaged 10 pick-ups a day.

3.4 Summary and conclusion

The theoretical and statistical overview of skills-related underemployment in this chapter has provided insight into its severity and prevalence. Literature on this topic indicates that skills-related underemployment consists of overeducation and overskilling, both of which are pervasive

multi-disciplinary problems with various detrimental consequences at both micro- and macroeconomic level. The theories highlighted with regards to skills-related underemployment do not all provide a direct explanation regarding the genesis and evolution of skills-related underemployment. However, through Human Capital Theory, the wastefulness of skills-related underemployment is emphasised through its ability to offset the returns of investment in education and increase the opportunity cost of foregoing a current income for future earnings. Relative Deprivation Theory provided an overview regarding the basis of subjectivity, which is associated with skills-related underemployment and the Job Competition Model provided a hypothesis with regards to the labour market hiring practices, which contribute towards skills-related underemployment. Lastly, assignment theory provided an indication of how labour market failures can result in skills-related underemployment.

The literature also shed light on the measuring discrepancies of skills-related underemployment due to methods which were either too subjective or allowed for quantitative errors to occur. Furthermore, the necessity for differentiating between overeducation and overskilling when employing measurement techniques, is also made apparent. The measurement problems associated with skills-related underemployment indicates room for future research into more specific and less subjective quantifying techniques, which can be used to acquire more accurate estimates.

Statistics regarding the prevalence of skills-related underemployment indicate that it is a global occurrence, which affects the most demographically vulnerable according to race, gender, educational attainment, age and citizenship. This not only highlights the ‘problem areas’ in which skills-related underemployment is most prevalent, but also emphasises its severity, as it largely affects members of the labour force that are already disenfranchised.

The cost of skills-related underemployment to the individual as well as the economy, indicates its overall harmful effects, and the antecedents thereof provide a glimpse into possible policy strategies. Domestically, skills-related underemployment statistics were found to be in congruence with international theory and findings in terms of demographics and prevalence, thereby indicating that South Africa has as much of a skills-related underemployment problem as is evident in the rest of the world.

The section on unemployment provided a brief overview of unemployment in the day-labouring sector. The empirical findings indicate that day-labouring is a volatile occupation due to the

inconsistency in day to day employment. The few studies that have been conducted in South Africa indicate that South African day-labourers face the probability of unemployment daily; a daily average of less than half being employed from most hiring sites. However, the scarcity of empirical evidence, both internationally and domestically, makes it difficult to determine the prevalence of unemployment within the day-labouring informal sub-sector. Furthermore, this chapter also highlighted the limited literature on skills-related underemployment in the informal sector as well as unemployment in the day-labouring sector. This emphasises the importance of the empirical analysis of this study.

In consideration of this, the following section, chapter four, provides an outline regarding the methods that the study employs in order to answer the questions posed in chapter one. The chapter will expand upon the methodology which is employed in this study as well as ethical considerations and limitations regarding the data.

Chapter Four

Research Methodology

4.1 Introduction

This study is aimed at investigating the car-guarding, day-labouring and waste-picking informal sub-sectors of Potchefstroom. The methodology that is employed in this study primarily follows the structure and methodological design, which has been employed by researchers such as Blaauw and Bothma (2003), Schenck and Louw (2005), Blaauw *et al.* (2006), Louw (2007), Blaauw (2010) and Viljoen (2014), who have investigated the same informal sub-sectors that are explored in this research. This chapter therefore aims to provide a description regarding the research methods that are used in this study in order to provide an adequate response to the research questions, which are posed in chapter one. A description of the area of interest, research design, data collection methods, sampling, estimation technique and ethical considerations is provided. Furthermore, the chapter also aims to provide justification for the techniques and methods that are used in the study as well as to underline the empirical limitations of this study.

4.2 Area of interest

The data for the study was collected in the city of Potchefstroom which is located in the North West Province. The selection was based on ease of access with regards to the desired population group as well as financial restrictions. Potchefstroom has a population size of 162 762 residents and an unemployment rate of 21.6% (StatsSA, 2017:1). The city has a racially skewed distribution consisting of 71.3% Africans, 20.6% Whites and 8.1% of individuals from other racial categories (StatsSA, 2017:1). In terms of education, only 30.3% of individuals above the age of 20 have completed matric and 14.2% have attained some degree of higher learning; 6.9% have no formal education at all. (StatsSA, 2017:1).

4.3 Research design

The research design of this study was largely influenced by the findings of the literature review in chapter three, which revealed that acquiring adequate data from the targeted population would

present some difficulties. Blaauw (2010) confirms that the informally employed are a difficult demographic to acquire data from, and therefore, creative research methods are often needed in order to collect useable information. As such, the following factors had to be taken into consideration:

- Day-labourers are employed by various employers for different jobs, ranging in length from hours to days and sometimes weeks (Blaauw 2010). The labour market status of a day-labourer changes constantly from being informally employed, in the informal sector, to being unemployed. The inclusion or exclusion of a day-labourer as part of the research population will depend on his/her status at the time of any counting or interview. Counts at hiring sites are, therefore, accepted as being the best possible estimate of status and consequently the size of the research population (Louw, 2007:60; Blaauw, 2010).

- It is a difficult task to keep track of the hiring sites of day labourers (Xipu, 2009:26); locations constantly appear and disappear.

- Interviewing informal sector workers can also be challenging because of the opportunity cost imposed by spending time answering a questionnaire as opposed to earning an income. Waste-picking is fairly competitive, therefore waste-pickers at a landfill site may be unwilling to be interviewed due to a fear of losing out on collecting the best and most profitable material. Likewise, day-labourers and car-guards may be unwilling to participate in surveys because of the probability of missing out on being selected by a client.

These factors necessitate a creative and flexible research approach; therefore, the research process had to adapt to the schedule of the day-labourers, car-guards and waste-pickers in order to conduct interviews.

Furthermore, in order to obtain a more holistic perspective on informal employment, the interview questions were structured according to the mixed method approach. The mixed method is described by Johnson and Onwuegbuzie (2004:17) as a research approach that uses a combination of quantitative and qualitative methods, concepts and language. De Vos, Strydom, Fouché and Delport (2011:434) explain that the mixed method approach generally involves the collection of numerical data as well as “text information” in the form of open or closed ended questions. The

use of mixed as opposed to a singular research method is justified by De Vos *et al.* (2011:435) in the following manner:

- Through a mixed method approach, researches are able to offset the shortcomings of singular qualitative and quantitative methods by combining both methods which provides better insights.
- The mixed method approach is more helpful in eliminating bias as well as explaining "the true nature of the phenomenon under investigation".

- The mixed method allows for a greater assortment of perspectives and views; thereby indicating the multifaceted nature of most research topics.

- The mixed method approach eliminates the limitations that are present when using a singular approach, thus allowing researchers the freedom to use various methods to answer their research problem.

- The mixed method approach provides a more comprehensive examination of the problem statement thereby, inspiring more confidence in the conclusions and findings of the study.

With regards to this study, the use of a mixed method approach instead of a singular quantitative or qualitative method is largely motivated by the 'social' and complex nature of the subject matter. Due to the fact that the study focuses on individuals and requires subjective information, the mixed method approach was deemed vital in providing a more inclusive answer to the research questions (Morgan, 2014:50). Furthermore, employing a strictly quantitative method, poses the risk and limitation of not understanding the respondents from their own socio-economic aspect. Not only will this limit the evidence provided by the study, it also restricts the policy recommendations, which can be made as a result of not understanding the social aspects of the respondents. Furthermore, the use of qualitative data allows for more 'concrete' evidence to be supplied instead of assumptions being made; thereby eliminating the likelihood of bias or misinterpretation.

More specifically, this study uses a concurrent mixed method approach. According to Creswell and Plano Clark (2007:66), the concurrent mixed method "occurs when the researcher implements

both the quantitative and qualitative strands during a single phase of the research study". Furthermore, the study incorporates a convergent parallel design; this, according to Creswell and Plano Clark (2007:70), entails concurrently implementing qualitative and quantitative methods during the "research phase", but keeping them separate during analysis, thereafter mixing them for holistic interpretation.

4.4 Research population

Although the focus of this study is under- and unemployment among the informally employed, the research population for the three informal employment activities did not include all under- or unemployed individuals.

4.4.1 Waste-pickers

The population for waste-pickers was selected according to the definition provided by Viljoen (2014:18), which describes waste-pickers as informal workers that collect waste on the street or landfill sites. The waste-picker population in this study is comprised of waste-pickers from a formal municipal waste site in Potchefstroom.

4.4.2 Day-labourers

In terms of day-labourers, it specifically includes those waiting at informal hiring sites or pick-up points at street corners, or in front of formal businesses in Potchefstroom. Studies conducted by Valenzuela Jr *et al*. (2006), Blaauw *et al*. (2006) and Louw (2007), provided the premise for this as they also used the same classification. The day-labouring sites included individuals that were formally employed and merely awaiting public transport as well as unemployed individuals that were either begging or scouting for opportunities to engage in criminal activity such as drug dealing (Louw, 2007:67; Blaauw 2010). These individuals were not included in the research population.

4.4.3 Car-guards

With regards to car-guards, the population was selected according to the definition provided by Blaauw and Bothma (2003:41), in which car-guards are classified as "someone who, in exchange

for a donation, offers to guard vehicles in a public or private parking area". Similar to the Blaauw and Bothma (2003:41) study, both formal and informal car-guards were interviewed. Formal car-guards are those who are affiliated with a shopping centre and pay an amount of money to the shopping centre or a security company for the right to patrol a certain area or number of lines in the shopping centre. Car-guards that operate purely on an individual basis are referred to as informal car-guards, as they are not related to any organisation (Uys & Blaauw, 2006:250). The formal car-guards were interviewed at the two main shopping malls in Potchefstroom (Mooirivier and Riverwalk) as well as Spar shopping centre. The informal car-guards were found on the street in an area called 'The Bult'. This area is within close vicinity of the North-West University's Potchefstroom Campus.

4.5 Sampling method

Sampling is defined as the process of drawing a representative segment of a research population for actual inclusion in a study (Rubin & Babbie, 1997:233). Effective sample design can minimise the element of sample error. For a sample to be considered representative, it should have roughly similar characteristics as the population. In practice, this implies that as many of the variables of the population as possible, must be included in the sample and every member of the population should have the same probability of being included in the sample for investigation (Louw, 2007:72; Blaauw 2010).

The sampling process was guided by the same principles that were used by Blaauw and Bothma (2003), Blaauw *et al*. (2006), Louw (2007), Blaauw (2010) and Viljoen (2014). One of the challenges that were encountered during the sampling process involved compiling a complete name list of the all of the respondents; this was largely due to the fact that respondents from all three informal employment sub-sectors often change their contact details and physical work locations. However, willing and available respondents were found for each sub-sector and because Potchefstroom is a small geographical location the entire research population for all three sub-sectors was reached.

This gave the study enhanced representativeness in terms of the number of respondents covered in the process. The sample population, earmarked for investigation, was therefore deemed to be all car-guards, day-labourers and landfill waste-pickers who were available and willing to participate

at the time of the interviews. For this purpose, detailed questionnaires for each of the three target groups were designed.

4.6 Questionnaire design

This study uses primary data that was collected with the use of comprehensive questionnaires (Annexure A). The questionnaires for this research project were designed using a similar format to previous studies, beginning with the study by Blaauw and Bothma (2003) on car-guards in Bloemfontein. The day-labour questionnaire was based on the study of Blaauw (2010) and the landfill waste-pickers questionnaire followed the style used by Viljoen (2014). Several improvements were made on the questionnaires that were used in previous studies in order to acquire specific data pertaining to this study. All three questionnaires were in the form of a structured interview suitable to be used in the context of each of the three informal employment activities.

Questionnaires were specifically chosen for this study because they were deemed the most suitable method for generating primary data to describe the research population and provide data in the same form for all respondents (Louw, 2007:68; Blaauw, 2010). The following advantages were specifically earmarked as motivation for using interview surveys (Bless & Higson-Smith, 1995:111; Rubin & Babbie, 1997:358):

- This method can help to prevent misunderstandings and misinterpretations of questions and can be administered to respondents with limited levels of literacy.
- The presence of a fieldworker generally decreases the number of “no” and “do not know” answers.
- Fieldworkers can provide additional information because they can record their observations as well as collect data.

However, Rubin and Babbie (1997:364), as well as Louw (2007:68), also mentioned the following inherent weaknesses of the survey method:

- They may appear to be superficial in their coverage of complex issues.
- Survey research may not be able to provide the context and appreciation for the total situation of the respondents.

- Surveys are not flexible, as they cannot be adjusted to incorporate new variables of which the interviewer may become aware.

The overall quality of an interview survey is ultimately determined by the quality of the sampling, the questionnaire, the fieldworkers and the interview itself (Louw, 2007:69; Blaauw, 2010). With this in mind significant effort was put into all of these aspects, including the design of the questionnaire.

Bless and Higson-Smith (1995) provide the following important general principles for formulating questions:

- The best practice for drafting a questionnaire is to begin by listing the issues to be explored and not by starting to draft questions. By doing this, the kind of data needed to explore these is analysed. Only then can specific questions be formulated. The design of the questionnaire should be centred on the respondent (Louw, 2007:76; Blaauw, 2010).

- The wording of questions should be brief, simple and unambiguous. It should use understandable vocabulary and should not use leading or double-barrelled questions (Bless & Higson-Smith, 1995: 117).

- The structure of the questionnaire should be logical. One aspect should be exhausted before moving onto the next topic. In order to check the consistency of the responses, some questions should be repeated but formulated differently. The monotonous sequence and format of questions and response categories should be changed to avoid a situation where respondents answer all questions in a specific direction, without due attention to their contents (Bless & Higson-Smith, 1995:116).

The questionnaire that was used in the 2007/8 countrywide interviews in the Blaauw (2010) study was used as the basis for formulating the questions that were used in the Potchefstroom questionnaires. The questionnaire did not focus much attention on the issue of on-the-job injuries for day-labourers. This was an important issue in the studies from the United States, but the study

in Pretoria in 2004 of Blaauw *et al*.(2006) indicated that on-the-job injuries was perhaps not such a pivotal issue for South African day-labourers. However, it was retained in the questionnaire for the landfill waste-pickers, as this was an important safety concern for this group of people (Viljoen, 2014). Other aspects that proved to be of less or no relevance in the Blaauw (2010) day-labour study, which did not yield significant results, were excluded in the subsequent designs.

An important element in the design of the questionnaires was to keep it at a manageable length. The main purpose behind this was to minimise the probability of respondents' missing an employment opportunity due to partaking in the survey (Blaauw, 2010). The literature emphasises the importance of a draft questionnaire being piloted to test it for length, relevance, wording, sequence of questions and the overall impact on respondents (Bless & Higson-Smith, 1995:43, 50; Henderson & Thomas, 2001:70). The advantage of this study was that the survey instruments were tested in the field, in various previous studies, by experienced research teams (Blaauw, 2010; Viljoen, 2014).

The final questionnaires covered ten aspects of interest to the various members of the project team. The questionnaires that were used are presented as Annexure A. Three sections contain questions pertaining to the personal background of the respondent in order to identify the basic demographic characteristics of the research population. A section was included to investigate the employment history, income earned and working conditions of the informally employed; this section is particularly imperative for achieving the objectives of this study. Sections on housing, food consumption and the conditions under which the respondents live on a daily basis provided information on the possible abuse of these vulnerable groups in the economy. There were also several open-ended questions included in the questionnaires. The aim of these questions was to facilitate possible qualitative analysis of certain demographic features such as the reasons for not completing their schooling.

4.7 Fieldworkers

Fieldworkers were recruited in order to conduct the surveys, and relevant training was provided to them by Professors Schenck and Blaauw for the day-labour and waste-pickers' surveys; Doctor Carike Claassen assisted in the training of the fieldworkers who interviewed the car-guards. The training was done according to the outline given by Rubin and Babbie (1997: 356–358). This

process entailed fieldworkers being well-informed about the objective of the study, improving interviewing skills, going through the questionnaire question by question to familiarise themselves with the content of the questionnaire and looking for evidence of misunderstanding. The training further provided the fieldworkers with guidance on how to handle certain hypothetical situations. Demonstration and role-play interviews were also undertaken by the trainees and trial runs were conducted before the actual interviews for the research took place (Rubin & Babbie, 1997:358). The same method was also employed in the study of Blaauw *et al*. (2006) and Blaauw (2010).

The study greatly benefited from the involvement of the authors of Blaauw *et al*. (2006), who were involved in previous studies and fieldwork expeditions on informal employment in South Africa. The School of Economics at the North-West University's (NWU) Potchefstroom Campus, provided fieldworkers for the study among the day-labourers. The Department of Social Work at the University of the Western Cape (UWC) as well as the School of Economics at the North-West University provided the fieldworkers for the interviews of the landfill site in Potchefstroom, and the car-guards were interviewed by the NWU School of Economics students as well. Senior staff members of both the NWU and UWC were present during all fieldwork expeditions.

4.8 Data collection

Each of the three informal employment activities required a specific time frame in which the interviews could be conducted. Day-labourers, for example, are present at the identified street corners from as early as 06:00 to approximately 12:00, hoping to be hired (Louw, 2007:88-89; Blaauw, 2010). Some of the day-labourers might be hired before an interview is completed and might leave the street corner after 12:00 for various reasons. Car-guards often work in shifts. Their surveys were therefore conducted from 09:00 until 15:00, when most of the shopping centres are open and the largest possible sample would therefore be available. The business hours (08:00 to 16:00) on the landfill sites were used as a guideline for the timing of the interviews of the landfill waste-pickers.

It was also equally important to realise that inclement weather, such as extreme heat, cold, rain and wind tends to reduce the number of potential respondents. Therefore, the interviews were planned on days where the maximum number of respondents were expected to be available to make sure that maximum coverage of the research population was achieved. The fieldwork itself

was preceded by several days of reconnaissance by Prof Blaauw and Dr Claassen in order for the locations of the car-guards and day-labourers to be identified and recorded. The number of car-guards and day-labourers were also documented and used to plan the fieldwork.

The fieldwork commenced in phases from October 2014, when the car-guards were interviewed, until March 2016, when the landfill waste-pickers were interviewed. The first phase was a week in October 2014, where all the car-guards and day-labourers who were available for interviews in Potchefstroom were interviewed. The first part of 2015 was used to do the same for the car-guards and day-labourers. The interviews of the landfill waste-pickers on the landfill site in Potchefstroom were the last element of the study; final interviews were conducted in March 2016. The response rate of all three surveys was encouraging; only a few of the potential respondents chose not to participate in the study. This placed the response rate for all three surveys above 90 per cent.

Each completed questionnaire was scrutinized in order to ensure that the questions were conducted properly and the filled-in answers were readable. At this stage of the research, a number of questionnaires that were deemed to be unreadable or otherwise lacking in quality were discarded. This data-cleaning process helped to ensure that the results were as accurate and representative of the research population as possible.

4.9 Data analysis and reporting of the results

The completed questionnaires were captured in Excel for the descriptive analysis; this was done for both the quantitative and qualitative responses. The captured data was then analysed with the use of appropriate software such as SPSS and E-views in order to achieve the research objectives set out in chapter one. The results from the primary research, as well as recommendations and conclusions based on the results from the primary research are presented in the following chapters of the dissertation.

4.10 Data limitations

Several limitations and challenges were anticipated for the empirical analysis of this study due to the fact that the study uses cross-sectional data, which was collected in one geographical location. The first of these pertains to the sample sizes of the three sub-sectors. Potchefstroom is a relatively small town and although it has a thriving informal sector, it is not as large as areas like Tshwane

or Cape Town, in which studies of this nature have been conducted. This is especially evident with the waste-picking sub-sector, which only consists of 17 respondents. However, the data collected for the purpose of this study included every possible known location where suitable respondents could be found, thereby confidently covering the entire research population.

The second limitation pertains to the nature of the data itself. This study uses cross-sectional data, which places a limitation on determining causality. Therefore, the regressions which are estimated do not attempt to identify antecedents, they do, however, attempt to identify possible relationships between the dependent and independent variables in this model. Furthermore, due to the nature of the sample size, the study is largely limited to singular regression analysis. In order to address this problem, several regressions are proposed for each analysis where applicable. In addition, it may be probable that certain individuals 'self-selected' themselves into the informal sector, thereby creating a selection bias which can only be overcome with the use of panel data. Lastly, because of the sample size, distribution problems are present with some of the variables; this lack of variation with some of the variables can be attributed to the relatively small size of the informal sector in Potchefstroom.

4.11 Ethical considerations

The literature on day-labourers (Schenck & Louw, 2005; Valenzuela Jr *et al*., 2006; Blaauw *et al*., 2006; Louw, 2007; Blaauw, 2010) indicates that many of the informally employed, such as day-labourers, were victims of harassment and those without legal documentation were especially wary of being officially documented in any way. In order to adhere to the "doing no harm" ethical principle in research, fieldworkers were trained to clearly identify themselves, explain that the research was purely being conducted for academic purposes and that they were not linked to any law enforcement agency (Bless & Higson-Smith, 1995:102; Rubin & Babbie, 1997:59-63). The fieldworkers had their student cards with them at all times and also had a letter from the research team in their possession, which explained the purpose of the research.

Respondents were at all times given the right to choose not to participate in the research process. This was further enforced by making it clear to respondents that they could terminate the interview at any stage. Where possible, consent forms were completed for each participant. The principle of voluntary participation was thus adhered to (Louw, 2007:86; Xipu, 2009:24; Blaauw, 2010). The

principle of confidentiality and anonymity was adhered to throughout the course of the survey process. This was achieved by refraining from questions which could potentially expose the identity of the respondents without their consent.

Furthermore, the issue of deception of respondents is at the forefront of ethics in survey research. This principle was also adhered to at all times during the course of the research design and data-gathering process. This implies that there should be no premeditated misinterpretation of facts; therefore, data must be used only for the stated purpose of the research (Louw, 2007:87; Blaauw, 2010). No false promises were made to the respondents about how they would benefit from the findings of the study. This was done orally in response to questions that that were raised by the participants during the completion of the study.

4.12 Summary and conclusion

This chapter presented in detail, the procedures followed to ensure that the research methodology followed in the study is scientifically well-founded, and that the survey data extracted from the questionnaires is suitable in this format to make substantive inferences on the research objectives identified in chapter one. The process in terms of the research population and sampling was discussed in detail. The development of the questionnaire was discussed along with the process of recruiting suitable fieldworkers and conducting their training. The importance of aspects, such as timing and seasonality in planning the fieldwork, was also explained. The relevant ethical considerations were also reviewed and the handling thereof in the research process described. The timing and length of the fieldwork was presented as well as the empirical limitations of the study. The results of the analysis of the data are reported in the chapter that follows.

Chapter Five

Empirical analysis and Results

5.1 Introduction

The aim of this chapter is to empirically analyse the informal sub-sectors of interest in this study. This entails determining the prevalence and type of skills-related underemployment, which is present in these sub-sectors as well as isolating their possible determinants. The chapter also aims to assess the effects of skills-related underemployment on the wages and poverty levels of those involved in these sub-sectors. Furthermore, unemployment in the day-labouring sub-sectors is analysed in order to determine its prevalence and potential determinants. All this will be achieved through regression-based models, which are estimated using the OLS method as well as probit analyses and correlation matrices where applicable. This chapter also provides a brief qualitative analysis regarding certain socio-economic aspects of the respondents in each sub-sector. This will focus specifically on educational attainment as well as the overall well-being of the respondents.

The chapter is divided into four sections. The first section is aimed at responding to the research questions regarding the car-guarding sector. This includes wage equations, which attempt to determine the potential determinants of wages amongst the car-guards in Potchefstroom as well as a probit analysis, which aims to determine the probability of being underemployed as well as living below the poverty line as a car-guard in the Potchefstroom area. The second section also provides a wage equation, a poverty line and underemployment probit analysis as well as an unemployment probit analysis for the day-labouring sub-sector. The third section consists of a correlation matrix for income analysis in the waste-picking sub-sectors as well as a description regarding the underemployment and poverty characteristics of the waste-picking sector in Potchefstroom; this is followed by a qualitative analysis section.

The outline of the chapter is as follows; Section 5.2.1 provides a brief introduction to the chapter, 5.2.2 is an empirical analysis of the car-guarding sector, Section 5.2.3 delivers an analysis for the day-labouring sub-sector and Section 5.2.4 gives an analysis of the waste-picking sub-sector. Section 5.2.5 consists of a qualitative analysis followed by a summary and conclusion in Section 5.3.

5.2 Empirical analysis of the informal sub-sectors of Potchefstroom

5.2.1 Introduction

Skills-related underemployment is the main focus of this study, therefore, in order to investigate it, it must first be defined according to this study. The variable underemployment, as it is used in this study, is essentially a binary variable, which consists of values either 0 or 1. The value 1 is assigned to respondents that are classified as being underemployed and a 0 is assigned to those who are not. Furthermore, for the purposes of this study, both formal and informal vocational training are clustered together as 'vocational training', as a general classification method, however, distinction between the two is made where applicable. Table 5.2.1A provides a summary of the skills-related underemployment classification scheme, which is employed in this study.

Wage equations are estimated for the car-guarding and day-labouring sub-sectors. The purpose of deriving these wage equations is to identify whether skills-related underemployment could possibly affect the wages of the car-guards and day-labourers. The wage equations are estimated in order to achieve this, and are based on the principle of the Mincerian earnings function (equation 1), which presents wages as a function of schooling and work experience (Heckman, Lochner & Todd, 2003:1).

lnW = $f(s,x) = \ln Wo + \rho s + \beta_1 x + \beta_2 x^2$ ……..**Equation 1**

In this equation, wage (W) is presented as a function of years of schooling(s), years of potential work experience (x) as well as the intercept (Wo), which represents the earnings of an individual without any work experience or education.

Table 5.2.1A Skills-related underemployment classification scheme.

RESPONDENT	ASSIGNMENT	RATIONALE
No education or vocational training.	Binary value 0.	The individual is neither overeducated nor overskilled.
Some primary schooling but no vocational training.	Binary value 0.	The individual is neither overeducated nor overskilled.
Some secondary schooling but no vocational training.	Binary value 0.	Skills-related underemployment in South Africa mostly affects individuals that have completed secondary level schooling (Beukes *et al.* (2016:19)
Some secondary schooling and vocational training.	Binary value 1.	The individual is overskilled due to their vocational training.
Secondary schooling completed.	Binary value 1.	The individual is overeducated.
Tertiary qualification.	Binary value 1.	The individual is overeducated for these informal sub-sectors.
Vocational training.	Binary value 1.	The individual is overskilled for these informal sub-sectors.

(Source): Author's own compilation.

The wages of the respondents in each informal sub-sector are compared to a poverty line. In terms of the car-guarding and day-labouring poverty probit analysis, the study uses a poverty line of R1252.00, which is based on the 2014 March per capita poverty line provided by Budlender, Leibbrandt and Woolard (2015:35). This specific year was chosen because the data for both sub-sectors was collected in this particular year. The waste-picking poverty line is R1307.00, which is based on the March 2015 poverty line by Budlender *et al.* (2015:35). The poverty lines presented by Budlender *et al*. (2015) are calculated according to a "subsistence level of living", based on food and non-food items (Isaacs, 2016:22).

5.2.2 Empirical analysis of the car-guarding sub-sector

Introduction

As mentioned in chapter four, the data which pertains to the car-guarding section was collected through the use of surveys. The original dataset consisted of 49 respondents, however, upon closer inspection of the average daily wage information provided; two of the respondents' answers appeared to be anomalous. In order to 'clean' the data, the information provided by the two respondents was subsequently eliminated in order to reduce the probability of discrepancies in the analysis, thereby reducing the sample to 47 respondents. Although the sample size is not extensive, it is justified by the fact that the survey process included every known formal and informal car-guarding site within the entire Potchefstroom area.

5.2.2.1 Wage equation analysis

The independent variables used to estimate the wage equation of the car-guards, were chosen according to the questions from the survey, which are applicable in this regard. Table 5.2.2A provides a summary and rationale of all of the variables which were selected for the original equation, as well as the expected result. Race and gender were not included in the wage equations because of distribution problems that affected the models (Appendix one); 68% of the respondents are black and 77% are male. Similarly, educational attainments lower than secondary school were added together to create a dummy variable (DUMLOWED), which allows a more even distribution. The years of car-guarding experience was not included as a dependent variable either because it proved to be weakly correlated with the absolute ages of the respondents (Appendix two). In terms of the ages of the respondents, dummy variables were created in order to determine whether certain age groups were affected more than others; 'DUMYOUNG' refers to the age group (18-24), 'DUMMIDDAGE' refers to age groups (35-50), and 'DUMOLD' refers to age groups of 50 and upwards for the purpose of this study.

The dependent variable (WAGE) is represented by an estimated average monthly wage, which was determined by multiplying the average daily wage indicated on the questionnaire by the amount of days per week that the individual had worked. This figure was then multiplied by the

number of weeks in a month. The term wage, with reference to the car-guards in the context of this study, is used as a proxy term for income because car-guards are self-employed.

Table 5.2.2A Variables of the car-guard wage equation.

VARIABLE	**RATIONALE**	**EXPECTED COEFFICIENT**
AGE (DUMOLD) (DUMYOUNG) (DUMMIDDAGE)	According to Van Ours and Stoeldraijer (2010:21), productivity decreases with age, which indicates that younger car-guards would be expected to have a higher productivity level than older ones; thereby earning more.	Negative for older car-guards.
WORK DAYS (WORKDAYS)	Working longer hours increases the probability of earning a higher wage.	Positive.
FORMALITY (DUMFORMAL)	Formal sector car-guards have been proven to earn higher wages than informal car-guards (Uys & Blaauw, 2006:253).	Positive for formal car-guards.
EDUCATION (DUMLOWED)	Human Capital Theory posits that education plays a significant role in determining earning potential.	Negative for car-guards with less than secondary school completion.

NUMBER OF DEPENDENTS (DEPENDENTS)	This study proposes that the higher the number of dependents an individual has, the higher their probability of earning higher wages due to their increased motivation to earn more.	Positive.
UNDEREMPLOYMENT (UNDER)	Underemployment results in job dissatisfaction, which lowers productivity and in the case of the car-guards, can have an effect on their wages.	Negative.

(Source): Author's own compilation.

The following models were estimated:

WAGE= $C + \beta_1 WORKDAYS + \beta_2 DUMFORMAL + \beta_3 DUMOLD + \beta_4 DEPENDENTS + \beta_5 DUMLOWED + \varepsilon$.....**Model 1**

WAGE= $C + \beta_1 WORKDAYS + \beta_2 DUMFORMAL + \beta_3 UNDER + \beta_4 DUMYOUNG + \varepsilon$…….**Model 2**

WAGE= $C + \beta_1 WORDAYS + \beta_2 DUMFROMAL + \beta_3 UNDER + \beta_4 DUMYOUNG + \beta_5 DUMLOWED + \varepsilon$…….**Model 3**

All three models were corrected for possible heteroscedasticity with the White's adjustment option; the following results were achieved:

Table 5.2.2B Car-guard wage equation results.

Model One (WAGE)

Variables	Coefficient	P-value
CONSTANT	-880.132	0.431
WORKDAYS	578.434	0.026**
DUMFORMAL	1174.508	0.015**
DUMLOWED	-1426.809	0.004***
DEPENDENTS	122.333	0.242
DUMOLD	-553.425	0.576
R-SQUARE	0.391	NA
F-STATISTIC	3.216	0.00***

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Two (WAGE)

Variables	Coefficient	P-value
CONSTANT	-128.740	0.926
WORKDAYS	536.123	0.054**
DUMFORMAL	1478.408	0.007***
UNDER	-1365.203	0.058**
DUMYOUNG	720.923	0.189
R-SQUARED	0.331	NA
F-STATISTIC	3.7135	0.017**

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Three (WAGE)

Variables	Coefficient	P-value
CONSTANT	-1293.839	0.301
WORKDAYS	483.981	0.076*
DUMYOUNG	1502.72	0.006***
DUMFORMAL	1583.549	0.006***
UNDER	-1289.547	0.075*
DUMLOWED	1394.256	0.087*
R-SQUARED	0.355	NA
F-STATISTIC	3.091	0.002**

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

All three models indicate that the amount of work days, level of formality, being underemployed as well as educational attainment, all have a significant relationship with the wages of the car-guards. With regards to age, model three indicates that being young has a highly significant and positive relationship with the wages of the car-guards; the dummy denoting old age was not, however, found to be significant in model one. All the models indicate that the work days, educational attainment of the car-guards as well as their formality are robust variables because they are significant in all three models. Furthermore, this is substantiated by the models in Appendix one, which indicate that even with the addition of race and gender, which have a low distribution, the amount of workdays, level of formality and 'youth' are robust determinants of wages in this sub-sector in Potchefstroom. Model two and three indicate that skills-related underemployment has a moderately significant and negative relationship with the wages of car-guards.

The signs of the coefficients also appear as predicted in Table 5.2.2A, thereby indicating that having a low education and being underemployed may have a negative effect on wages, whereas working longer days as a formal car-guard and being younger potentially increases wages in this sub-sector. In terms of 'goodness of fit' all three models have an R-squared that lies between 0.39 and 0.33, which indicates a good fit. Furthermore, the F-Statistics of all three models are significant, which indicates that the variables of all three models are jointly significant.

The significance of the skills-related underemployment variable, as well as its negative sign, possibly indicates that the hypothesis of this study could be correct; skills-related underemployment could lead to lower levels of productivity and consequently, lower wages. This would also fall in line with the theory of job dissatisfaction which is a consequence of skills-related underemployment and leads to lower levels of productivity (Lu, 2017:194). However, this could also be indicative of a self-selection problem; the individuals who are classified as being underemployed in this study could possibly also be individuals who have deliberately chosen to work in the informal sector and all share the commonality of low productivity, regardless of whether they work in the formal or informal sector.

5.2.2.2 Underemployment probit analysis

The following independent variables (Table 5.2.2C) were selected as possible explanatory variables for the probit analysis regarding skills-related underemployment in the car-guarding sector. Although race is considered a determinant of skills-related underemployment, it was not included in the model due to its skewed distribution, which negatively affected the estimated models. In terms of age, the variables 'DUMYOUNG' and 'DUMOLD' were added together (VUL_AGE) in order to determine whether the most vulnerable age groups, according to skills-related underemployment theory, might influence the likelihood of being skills-related underemployed in the car-guarding sub-sector of Potchefstroom.

The following two regressions were deemed the best models for estimation:

UNDER= $C + \beta_1 FORMAL\ W\_EXP + \beta_2\ VUL\_AGE + \beta_3 DUMFORMAL + \beta_4 DUMMALE + Ɛ$……...**Model 4**

UNDER= $C + \beta_1 FORMAL\ W\_EXP + \beta_2 VUL\_AGE + \beta_3 DUMMALE + Ɛ$……...**Model 5**

Table 5.2.2C Underemployment independent variables.

VARIABLES	RATIONALE	EXPECTED COEFFICIENT
GENDER (DUMMALE)	Females have a higher probability of being skills-related underemployed than males. (Weststar, 2011:114; Diem, 2015:70).	Negative for males.
FORMAL WORK EXPERIENCE (FORMAL W_EXP)	Skills-related underemployment theory posits that the more work experience an individual has, the higher the probability of them being skills-related underemployed (Mavromaras *et al*., 2009a:61).	Positive.
AGE (VUL_AGE)	The younger or older an individual is, the higher the probability of them being skills-related-underemployed (Jensen & Slack, 2003:28; Virick, 2011:85).	Positive for vulnerable ages (young and old).
FORMALITY (DUMFORMAL)	According to Beukes *et al*. (2017:50) informal workers have a higher likelihood of being skills-related underemployed than formal sector workers. Therefore, the same could be true for formal as opposed to informal car-guards.	Positive.

(Source): Author's own compilation.

The following results were obtained after corrections were made for possible heteroscedasticity in the models using the Huber/White's covariance adjustment option:

Table 5.2.2D Underemployment probit analysis results.

Model Four (UNDER)

Variables	**Coefficient**	**P-value**
CONSTANT	-0.305	0.584
FORMAL W_EXP	-0.052	0.114
VUL_AGE	1.233	0.041**
DUMFORMAL	0.197	0.688
DUMMALE	0.961	0.094*
R-SQUARED	0.215	NA
LR-STATISTIC	8.476	0.075*
OBS with DEP=0	9	NA
OBS with DEP=1	25	NA

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Five (UNDER)

Variable	**Coefficient**	**P-value**
CONSTANT	-0.166	0.726
FORMAL W_EXP	-0.051	0.111
VUL_AGE	1.266	0.041**
DUMMALE	0.904	0.121
R-SQUARED	0.212	NA
LR-STATISTIC	8.349	0.039**
OBS with DEP=0	9	NA
OBS with DEP=1	25	NA

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

The probit analysis results indicate that the only variables that are significant in model four are the gender and age dummy variables. The age dummy is significant at a 95% confidence interval, whilst the gender dummy variable is weakly significant at a confidence interval of 90%. The sign of the age dummy appears as expected, which indicates that being a younger or older car-guard

could increase the likelihood of being skills-related underemployed in the Potchefstroom car-guarding sector. However, the sign of the male gender dummy is positive, which is contrary to underemployment theory. This could be attributed to the distribution problems that are associated with this variable in the data set or because the likelihood of being underemployed according to gender "varies across demographics and work-related factors" (Beukes *et al*., 2017:39; Cam, 2014; Walling & Clancy, 2010).

The second model indicates that the age dummy is still significant, which indicates that it could possibly be a robust determinant of skills-related underemployment in this sector. The variable which represents formal work experience is not significant, however, its sign is negative, which according to Beukes *et al*. (2017:50), "suggests that those employed with fewer years of experience could be reluctantly underemployed". Furthermore, both models indicate that skills-related underemployment is present amongst car-guards in the Potchefstroom area because 74% of the respondents in the sample were identified as being underemployed through the binary classification. Furthermore, 17% of the underemployed portion of the sample indicated that they had completed secondary schooling as opposed to 32% that had undergone some level of vocational training. This indicates that overskilling is the main form of skills-related underemployment in the car-guarding sub-sector of Potchefstroom.

In terms of goodness of fit, the McFadden R-squared of both models is 0.21, which indicates that the variables explain 21% of the variation in the model. Furthermore, the LR-statistic of model four is significant at a 90% confidence interval, which indicates that the variables in the model are weakly jointly significant; the LR-statistic of model five is significant at a confidence interval of 95% which indicates that model five is a better fit than model four.

5.2.2.3 Poverty probit analysis

The per capita earnings of each respondent were determined by dividing their monthly earnings by the number of family members in each respondent's household in order to determine the income theoretically available from this activity to support each dependent.

Table 5.2.2E Poverty analysis independent variables.

VARIABLE	RATIONALE	EXPECTED COEFFICIENT
Workdays (WORKDAYS)	The more days an individual works, the higher the probability of earning a subsistence wage.	Negative.
Formality (DUMFORMAL)	Formal car-guards earn more than informal car-guards (Uys & Blaauw, 2006:253).	Negative.
Age (DUMMIDAGE)	Age has a negatively inverse relationship with productivity, which in the case of car-guards, could influence their earnings (Van Ours & Stoeldraijer, 2010:21).	Negative.
Years of car-guarding experience (YEARSCARG)	This study posits that having years of experience as a car-guard could increase the probability of earning higher wages, thereby decreasing the probability of living below the poverty line.	Negative.
Underemployment (UNDER)	Being skills-related underemployed increases the probability of poverty as it affects wages (Wilkins & Wooden, 2011:27).	Positive.

(Source): Author's own compilation.

The following model was estimated:

POOR= $C + \beta_1 WORKDAYS + \beta_2 DUMFORMAL + \beta_3 DUMMIDAGE + \beta_4 DUMFULLJOB + \beta_5 AGE + Ɛ$……...**Model 6**

Table 5.2.2F Poverty probit analysis results.

Model Six (POVERTY)

Variables	Coefficient	P-value
CONSTANT	1.638	0.434
WORKDAYS	-0.125	0.692
FORMAL	0.054	0.904
AGE	-0.00	0.698
UNDER	0.227	0.845
R-SQUARED	0.008	NA
LR-STATISTIC	0.348	0.986
OBS WITH DEP=0	9	NA
OBS WITH DEP=1	26	NA

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

The results indicate that none of the variables are significant at confidence intervals of 99%, 95% or 90%. However, the signs of the coefficients are correct according to the predictions presented in Table 5.2.2E. Furthermore, the observations indicate that 74% of the respondents in the sample are classified as living below the poverty line. This is exactly equal to the proportion of respondents that were identified as being skills-related underemployed in the sample, hereby indicating, along with the positive sign of the underemployment variable, that there could be a distinct relationship between poverty and underemployment.

A multicollinearity test (Appendix 3.1) was conducted on the model in order to identify possible econometric problems in the model, which might explain the insignificance of all the variables, the results of which indicated that there is a weak correlation between underemployment and the number of workdays. However, even after removing the 'WORKDAYS' variable (Appendix 3.2), the model was still not a good fit.

5.2.3 Empirical analysis of the day-labouring sub-sector

Introduction

The day-labouring sample consists of 71 respondents. Data for this analysis was collected from every known day-labouring site within the Potchefstroom area; thereby making this sample as complete and thorough as possible. Limitations in the data largely pertain to distribution problems, especially with regards to demographical variables such as nationality, race and gender. Therefore, these variables were not included in any of the models, to avoid biased results.

5.2.3.1 Wage Equation analysis

Two wage equations were estimated in this section, each with a different dependent variable. In order to arrive at a best monthly wage and a bad monthly wage, the respondent's answers regarding the daily wages they had received during the week of reference, were added together and multiplied by four. The first model is based on information provided by the respondents regarding their best monthly wage, whilst the second equation uses data regarding the worst monthly wage. The explanatory variables are presented in Table 5.2.3A, with their rationale and acronyms.

The following wage equations were estimated based on the variables in Table 5.2.3A:

GOOD MONTH: $C + \beta_1 NEGOTIATED + \beta_2 DUMPRIM + \beta_3 RESERVATION + \beta_4 DL\_EXP + \beta_5 HIRED\_BRICKLAY + \beta_6 HIRED\_PAINTING + \beta_7 HIRED\_PLUMBING + \varepsilon$ ..... **Model 1**

BAD MONTH: $C + \beta_1 NEGOTIATED + \beta_2 DUMPRIM + \beta_3 RESERVATION + \beta_4 DL\_EXP + \beta_5 HIRED\_BRICKLAY + \beta_6 HIRED\_PAINTING + \beta_7 HIRED\_PLUMBING + \varepsilon$ ..... **Model 2**

The variable which represents being hired more than three times by the same employer was removed from both models because it was not only insignificant, but also had a negative influence on the other variables; its results are indicated in appendix four.

Table 5.2.3A Variables of the day-labour wage equation.

VARIABLE	RATIONALE	EXPECTED COEFFICIENT
Wage Negotiations (NEGOTIATED).	The hypothesis for the purpose of this study is that day-labourers who negotiate their wages might receive a higher wage than those who accept any wage that they are offered.	Positive.
Education. (DUMPRIM)	Human Capital Theory proposes that a current investment in education will yield a higher return in future wages (Herrera & Merceron, 2013:95).	Negative for less than secondary school level.
Reservation wage. (RESERVATION)	This study posits that having a reservation wage has a positive influence on your overall wages. This is dependent though on the ability to enforce the reservation wage.	Positive.
Day-labouring experience in years. (DL_EXP)	This study hypothesises that an individual with a lot of day-labouring experience has a higher probability of being employed and negotiating for good wages.	Positive.
Previously hired as a bricklayer. (HIRED_BRICKLAY)	Blaauw *et al*. (2006:465) found that bricklaying was one of the most sought-after skills at hiring sites in Pretoria.	Positive.
Previously hired as a painter. (HIRED_PAINTER)	Blaauw *et al.* (2006:465) found that painting was one of the most sought-after skills at hiring sites in Pretoria.	Positive.
Previously hired as a plumber. (HIRED_PLUMBING)	Blaauw *et al.* (2006:465) found that plumbing was one of the most sought-after skills at hiring sites in Pretoria and it also yielded the highest wages.	Positive.

(Source): Author's own compilation.

The following results were achieved after making corrections for possible heteroscedasticity using the White's adjustment option:

Table 5.2.3B Day labouring wage results.

Model One (GOOD MONTH)

Variables	**Coefficient**	**P-value**
CONSTANT	-151.226	0.807
NEGOTIATED	672.572	0.020**
DUMPRIM	-748.481	0.051**
RESERVATION	14.554	0.004***
DL_EXP	-44.335	0.016**
UNDER	362.701	0.240
HIRED_BRICKLAY	552.665	0.094*
HIRED_PAINTING	354.862	0.141
HIRED_PLUMBING	547.915	0.186
R-SQUARED	0.416	NA
F-STATISTIC	3.839	0.004***

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Two (BAD MONTH)

VARIABLES	**Coefficient**	**P-value**
CONSTANT	-256.927	0.436
NEGOTIATED	459.426	0.004***
DUMPRIM	-148.048	0.519
RESERVATION	7.295	0.031**
DL_EXP	-19.216	0.087*
UNDER	66.642	0.700
HIRED_BRICKLAY	286.929	0.169
HIRED_PAINTING	67.033	0.689
HIRED_PLUMBING	93.101	0.623
R-SQUARED	0.313	NA
F-STATISTIC	2.868	0.010**

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

The results of model one indicate that wage negotiation, educational attainment, reservation wage, having day-labouring experience and having bricklaying experience are significantly associated with the day-labouring wage market in Potchefstroom. The variables that represent wage negotiation and educational attainment appear to have the biggest impact on obtaining a good monthly wage because they have the largest coefficients for both models. Furthermore, the signs of the coefficients of both these variables are congruent with the expectations of the study, as they indicate that day-labourers who negotiate their wages and have higher educational attainment than primary school, tend to have better wages. The results produced, using a bad monthly wage, indicate that the only highly significant variables in the model are wage negotiation and having a reservation wage.

Both models indicate that having day-labouring experience has a significant association with the wages of the day-labourers, however, the sign of the coefficient is negative, thereby nullifying the hypothesis of this study. This could be caused by the fact that that day-labouring activities are often physically strenuous, which could possibly motivate potential employers to hire younger workers who have less years of experience and can also be easily exploited in terms of wages. Furthermore, as opposed to the nationwide Blaauw (2010) study, having been previously hired as a painter or plumber does not seem to have a significant effect on the wages of day-labourers in Potchefstroom; bricklaying experience is also only weakly significant at a confidence interval of 90%. In terms of robustness; wage negotiation and having a reservation wage are the most robust variables associated with this market; this is further substantiated by the results in appendix four.

Both models indicate that in this particular market and location, skills-related underemployment probably does not have a significant relationship with wages. The insignificance of skills-related underemployment, and the variables that represent work experience in painting, bricklaying and plumbing, could indicate that the majority of the wage-determining factors for day-labourers in Potchefstroom may be largely exogenous. The only endogenous factors are a willingness to negotiate one's wages and having a reservation wage.

The R-squared of both models indicates that the explanatory variables explain 41% and 31% of the variation in the models, respectively, which indicates that the models are a good fit. Furthermore, the F-statistics of both models are significant at a 95% confidence interval, which indicates that the variables in both models are jointly significant, further indicating goodness of fit.

5.2.3.2 Underemployment probit analysis

The following two equations were estimated, based on the determinants of skills-related underemployment, which were presented in chapter three as well as the answers that were provided in the survey and are applicable to the theory of skills-related underemployment:

UNDER: $C + \beta_1 FULLTIME + \beta_2 DL\_EXP + \varepsilon$……...…...**Model 3**

UNDER: $C + \beta_1 FULLTIME + \beta_2 DL\_EXP + \beta_3 HIRED\_BRICKLAY + \beta_4 HIRED\_PLUMBING + \beta_5 HIRED\_PAINTING + \varepsilon$……**Model 4**

The variable 'FULLTIME' is a proxy variable, which represents years of experience as a formal sector employee, and 'DL_EXP' represents years of experience in the day-labouring market. Variables that represent previous work experience in specific vocational fields are introduced into model four, with the aim of determining whether having work experience in certain vocational fields leads to underemployment in the day-labouring sector. Using the work experience variables is also supported by the fact that Beukes *et al.* (2017:49) found "a significantly convex relationship between years of work experience and the likelihood of underemployment".

The coefficients of both models are expected to be positive; both models were corrected for heteroscedasticity, using the Huber/White standard errors and covariance adjustment and the following results were obtained:

Table 5.2.3C Underemployment results.

Model Three (UNDER)		
Variables	**Coefficient**	**P-value**
CONSTANT	-0.943	0.005***
FULLTIME	1.309	0.018**
DL_EXP	0.123	0.000***
R-SQUARED	0.103	NA
LR-STATISTIC	9.444	0.000***
OBS WITH DEP=0	34	
OBS WITH DEP=1	32	

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Four (UNDER)		
Variables	**Coefficient**	**P-value**
CONSTANT	-0.775	0.041**
FULLTIME	0.902	0.011**
DL_EXP	0.080	0.007***
HIRED_BRICKLAY	-0.028	0.935
HIRED_PAINTING	-0.374	0.311
HIRED_PLUMBING	0.039	0.914
R-SQUARED	0.116	NA
LR-STATISTIC	10.666	0.058**
OBS WITH DEP=0	34	
OBS WITH DEP=1	32	

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

The results from model three indicate that having day-labouring experience and previous formal work experience is significant at a confidence level of 95%. The coefficients of both variables also have a positive sign, indicating that having work experience, either in the formal or informal sector, is associated with the probability of being skills-related underemployed in this sub-sector. The second model reveals that even with the addition of three control variables, having previous formal sector work experience and day-labouring work experience still has a positive and significant relationship with the probability of being underemployed as a day-labourer in Potchefstroom. This indicates that work experience is a possible robust determinant of skills-related underemployment

in this specific market. None of the variables that represent work experience in specific vocational fields are significant, which indicates that they are not associated with the probability of being skills-related underemployed in this market. The LR-statistics of both models are significant, thereby indicating joint significance of the variables and goodness of fit.

The binary assignments of both models indicate that the Potchefstroom day-labouring market has a fairly even distribution of underemployed individuals, where 48% of the day-labourers can be classified as being skills-related underemployed. Furthermore, only 12% of the respondents indicated on the surveys that they had completed secondary level schooling; however, 45% gave an indication of having some form of vocational training. This shows that the type of skills-related underemployment present in the day-labouring sub-sector of Potchefstroom is overskilling and not overeducation.

5.2.3.3 Poverty probit analysis

The independent variables for this estimation were selected according to the rationale provided in Table 5.2.3A. Due to the slightly skewed distribution, two models were estimated in order to avoid biased results. The following two models were estimated after corrections were made for heteroscedasticity using the Huber's covariance adjustment option:

POOR= $C + \beta_1 NEGOTIATED + \beta_2 DUMPRIM + \beta_3 RESERVATION + \beta_4 UNDER + \varepsilon$……**Model 5**

POOR= $C + \beta_1 HIRED\_BRICKLAY + \beta_2 HIRED\_PAINTING + \beta_3 HIRED\_PLUMBING + \beta_4 DL\_EXP + \varepsilon$…….....**Model 6**

The following results were obtained:

Table 5.2.3D Day-labouring poverty probit results.

Model Five (POOR)		
Variables	**Coefficient**	**P-value**
CONSTANT	0.214	0.765
NEGOTIATED	-0.662	0.090*
UNDER	0.459	0.226
DUMPRIM	0.906	0.030**
RESERVATION	-0.007	0.193
R-SQUARED	0.147	NA
LR-STATISTIC	10.47	0.033**
OBS WITH DEP=0	36	
OBS WITH DEP=1	19	

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model Six (POOR)		
Variables	**Coefficient**	**P-value**
CONSTANT	-0.134	0.669
HIRED_BRICKLAY	-0.027	0.940
HIRED_PAINTING	-0.598	0.085*
HIRED_PLUMBING	-0.118	0.785
DL_EXP	0.002	0.300
R-SQUARED	0.055	NA
LR-STATISTIC	4.228	0.376
OBS WITH DEP=0	38	
OBS WITH DEP=1	21	

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

Model five indicates that negotiating wages as well as the individual's level of education have a significant relationship with the poverty which is found amongst day-labourers in Potchefstroom at a confidence interval of 95%. Reservation wage and underemployment are not, however, significantly associated. According to the signs of the coefficients, negotiating wages may reduce the probability of being poor and day-labourers with only primary level schooling have a higher

likelihood of living below the poverty line. Similarly, even though the reservation wage variable is not significant, the sign of its coefficient indicates that having a reservation wage could decrease the likelihood of poverty.

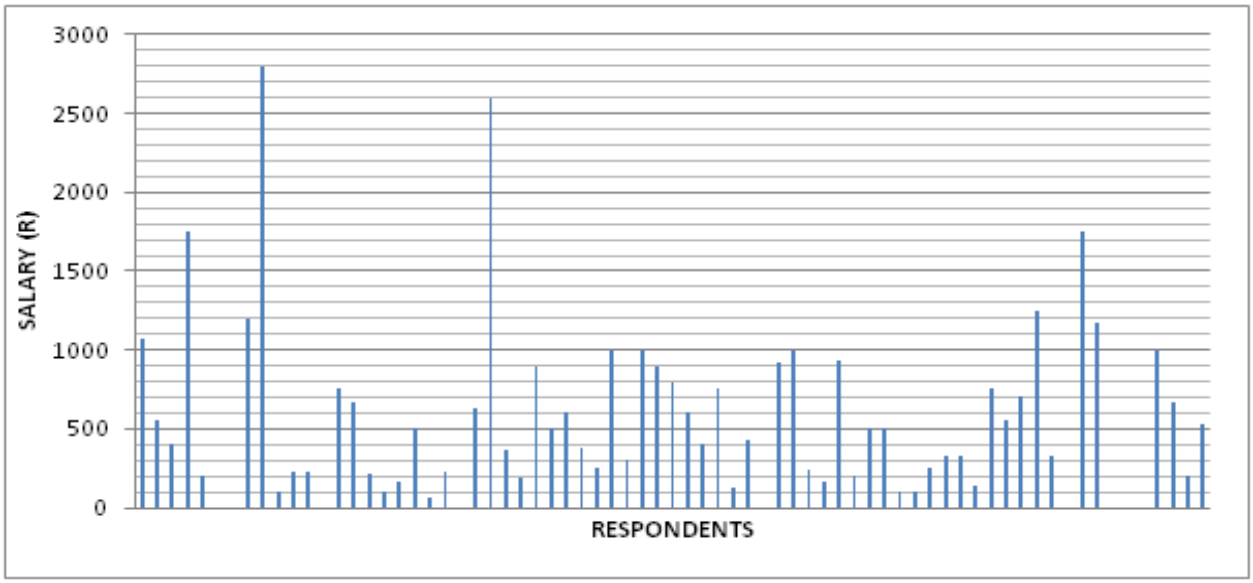
The results of model six indicate that having previous work experience as a painter may have a weakly significant, and positive, influence on the probability of a day-labourer in Potchefstroom living below the poverty line. The sign of this variable's' coefficient indicates that having work experience as a painter could decrease the probability of living below the poverty line as a day-labourer in Potchefstroom. Similarly, the signs of the coefficients that represent work experience in bricklaying and plumbing are also negative; general day-labouring experience, however, is negative, which indicates that if it was significant it could increase the probability of living below the poverty threshold in this specific labour market.

5.2.3.4 Poverty distribution

The models in the poverty analysis both indicate that when comparing the best monthly wage of the respondents to the per capita poverty line, only a third of the respondents can be classified as living below the poverty line. In fact, according to the data collected in the survey, most of the day-labourers not only earn more than the specified poverty threshold amount of R1252.00, but at least 39% of them earn above R2000.00 in a good month, which places them significantly above the per capita poverty line.

However, Figure 5.2.3A indicates that if the income per capita for each household is calculated, 93% of the respondents can now be classified as living below the poverty line. This severely skewed distribution indicates that most day-labourers in the Potchefstroom area are vulnerable to poverty. The high prevalence of poverty in this market could be attributed not only to low market wages, but also the lack of daily job security, which characterises all day-labouring markets. The following section explores the plausibility of this theory by investigating the distribution of unemployment in this market.

Figure 5.2.3A Potchefstroom day-labourer's per capita income.



(Source): Author's own compilation.

5.2.3.5 Unemployment in the day-labouring sector

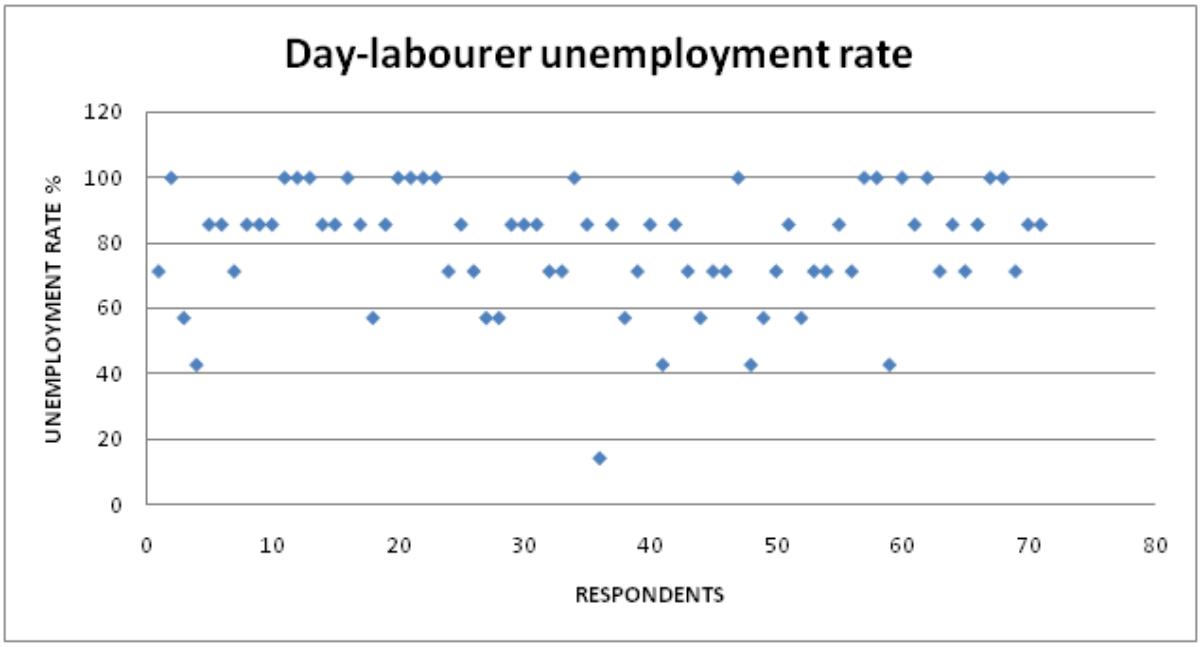
One of the recurring themes regarding the day-labouring sub-sector is the high rates of unemployment due to the lack of job stability on a day to day basis. The unemployment rate for each respondent was calculated using the following formula:

Unemployment rate= (Days unemployed during the reference week/5)*100.....**Equation 2**

A five-day working week is used in the formula in order to be able to adhere to the general standard of the economy. In addition, the survey data revealed that on average, day-labourers in Potchefstroom stand for five days a week at hiring sites.

Figure 5.2.3B indicates that the vast majority of the respondents face an unemployment rate of above 60% per week. Around 39% of the day-labourers faced 80% unemployment in the reference week and a further 25% faced 100% unemployment in the week of reference. This indicates that much like previous studies, day-labourers in Potchefstroom face severe unemployment within this market due to a lack of job security.

Figure 5.2.3B Unemployment rate amongst Potchefstroom day-labourers.



(Source): Author's own compilation.

Two models were estimated in order to identify possible significant relationships of unemployment in the Potchefstroom day-labouring sector. However, the results (Appendix five) revealed that none of the variables were either singularly or jointly significant. Furthermore, the R-squared of both models was below 10%; the F-statistic for model seven was insignificant and only weakly significant for model eight, which indicates that none of the models are a good fit. This could indicate that the factors which influence unemployment in this specific market may be largely exogenous.

5.2.4 Empirical analysis of the waste-picking sub-sector

Introduction

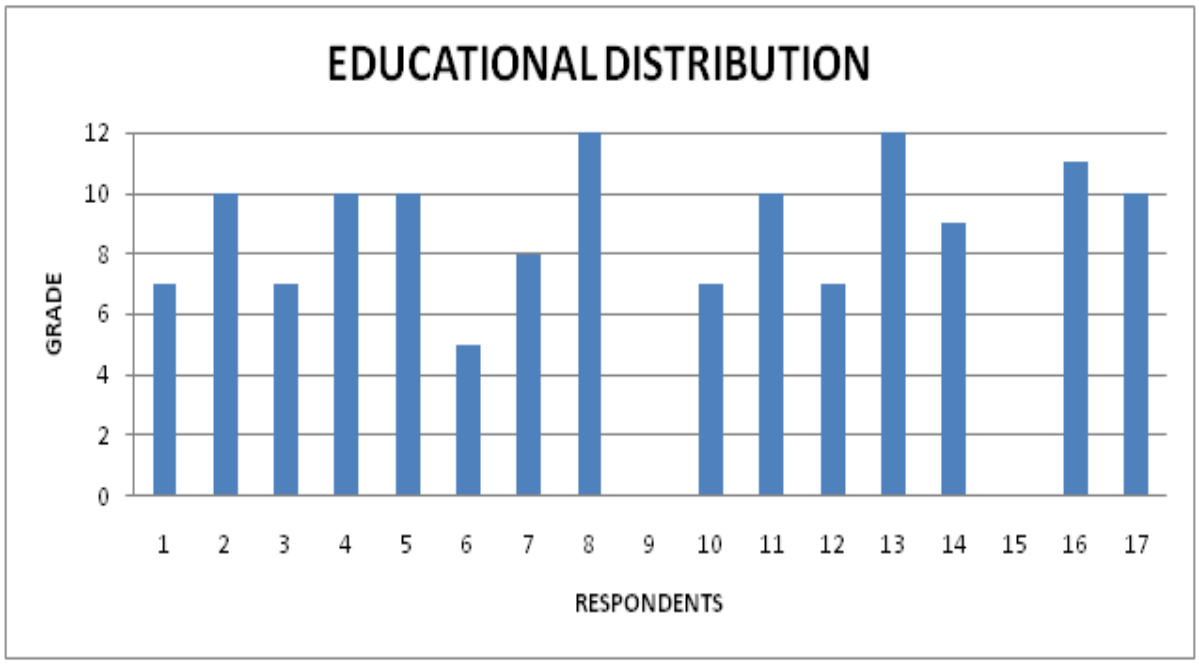
The waste-pickers data was collected at a local municipal landfill site in Potchefstroom. The sample consisted of 17 respondents, which makes accurate regression analysis impractical. This section is therefore aimed at a more descriptive, as opposed to regression-type analysis; correlation matrices are, however also used, in order to determine possible relationships amongst certain variables. The first section provides a demographical description of the waste-pickers in

Potchefstroom, whilst the second section aims to determine whether the income of the waste-pickers are correlated with certain demographical characteristics. The third section provides an analysis of the prevalence of skills-related underemployment as well as the type of underemployment that is present in the waste-picking sub-sector of Potchefstroom.

5.2.4.1 Demographical description

The landfill waste-pickers in Potchefstroom are disproportionately male (100%) and black (94%); the age of the waste-pickers ranges from 24 to 48, where the mean age is 29. All of the respondents indicated that they originate from South Africa, with 83% from the North West Province, 11% from Gauteng and 6% from the Eastern Cape. The educational distribution of the sample is indicated by Figure 5.2.4A.

Figure 5.2.4A Waste-pickers' educational distribution.



(Source): Author's own compilation.

Most of the waste-pickers have achieved some level of secondary schooling, however, only two of the respondents completed their secondary schooling. Furthermore, only three out of the seventeen respondents indicated that they have held formal sector jobs and a further seven indicated that they have engaged in other forms of informal sector work.

5.2.4.2 Wage correlation

The income analysis for the waste-pickers consists of correlation matrices, which are aimed at detecting variables that may be associated with the income of the workers. Asteriou and Hall (2011:101) indicate that a correlation of 0.90 indicates a significant relationship between variables. The sign of the correlation coefficient indicates the direction of the relationship between the variables (Asteriou & Hall, 2011:101). The main variables that are investigated are age, educational attainment, vocational training and previous work experience in the formal sector. Due to a lack of variation, variables such as gender and race were not included in order to eliminate biased results. Wages were calculated based on the respondent's answer regarding the best income they receive on average in a good week or a bad week; these were then multiplied by four in order to arrive at a monthly wage.

Table 5.2.4A Correlation matrix results.

Variables	AGE	GRADES	FORMAL W_EXP	UNDER
GOOD MONTH	-0.32	0.10	0.10	-0.14
BAD MONTH	-0.12	0.49	0.36	-0.20

(Source): Author's own calculation.

The matrices indicate that none of the variables are highly or even moderately correlated with a good income. Age is the only variable that appears to be weakly correlated with the income of the waste-pickers. According to the signs of the coefficients, age has a negative correlation with waste-pickers' income. This could be explained by the fact that waste-picking is a physically strenuous task, which also involves long working hours, therefore, younger waste-pickers can be expected to earn more than older waste-pickers. The other variables are very weakly correlated with income and their signs indicate that educational attainment and having some form of work experience have a positive relationship with income in this sub-sector. However, being skills-related underemployed has a negative relationship with income.

The correlation matrix of a bad monthly income indicates that educational attainment plays the biggest role in increasing income levels during a bad month, followed by having had previous

work experience in the formal sector. Similarly, skills-related underemployment has a slightly larger negative correlation with income in a bad month as opposed to a good income month.

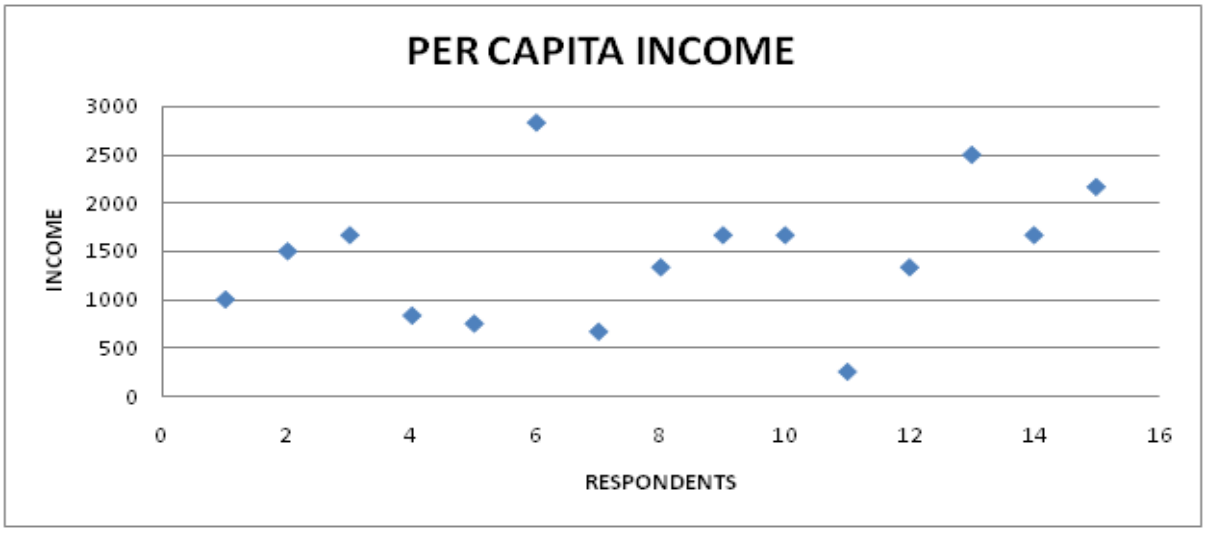
5.2.4.3 Prevalence of skills-related underemployment

Correlation matrices could not be estimated so as to identify potential determinants of underemployment in this sub-sector due to a lack of variation in the variables, which could have been used in the matrix. However, according to the data, skills-related underemployment is evenly distributed in the Potchefstroom waste-picking sub-sector. According to the classification criteria, nine out of the seventeen respondents can be classified as being skills-related underemployed. The majority of the skills-related underemployment is concentrated in vocational skill attainment because only two of the respondents have completed secondary school whilst nine out of the ten respondents have received some form of vocational training. This indicates that overskilling is the type of skills-related underemployment which is present in this informal sub-sector within the Potchefstroom area.

5.2.4.4 Incidence of poverty

The per capita income of waste-pickers was determined using the best monthly wage they have received so far, whilst working as waste-pickers, divided by their number of dependents. Figure 5.2.4B indicates that poverty amongst the waste-pickers is evenly distributed; 50% of the waste-pickers reported monthly per capita incomes, which placed them below the R1307.00 poverty threshold which is specified in this study. The highest per capita monthly income reported is R3000 whilst the lowest is as little as R250.00. This indicates that the poverty levels in this sub-sector are highly polarized, with some waste-pickers acquiring subsistence income levels whilst others are living well below the poverty threshold. However, when considering a bad income month, most of the waste-pickers fall beneath the poverty threshold.

Figure 5.2.4B Waste-pickers per capita income.



(Source): Author's own calculation.

5.2.5 Qualitative analysis

The quantitative analysis revealed that for the most part, the members of these informal employment sub-sectors have low levels of educational attainment. Table 5.2.5A gives an indication of the educational levels of each sub-sector. The most common educational level is secondary school with most of the respondents having only begun this level without completing it. Table 5.2.5A indicates the most common responses which were provided regarding the discontinuation of studies amongst those who had not achieved secondary level schooling; percentages were calculated out of the sum total of respondents in each sample that agreed to answer this specific question.

Table 5.2.5A Educational attainment of the respondents.

	NO EDUCATION	PRIMARY	SOME SECONDARY	SECONDARY COMPLETED	Total
CAR-GUARDS	0%	16%	72%	12%	100%
DAY-LABOURERS	0%	24%	63%	13%	100%
WASTE-PICKERS	12%	29%	47%	12%	100%

(Source): Author's own calculation.

Qualitative responses from the respondents regarding the discontinuation of their studies indicate that a disproportionate number of the respondents were unable to complete their schooling due to social and financial reasons; this is indicated in Table 5.2.5B. More often than not, respondents cited financial problems or the death or illness of a parent as part of their reason for discontinuing their studies.

Table 5.2.5B Main responses for discontinuation of schooling.

	FINANCE	**DEATH/ ILLNESS**	**WORK / FARM**	**FAILURE/ DISINTEREST**	**FAMILY**	**PREGNANCY**	**Total**
CAR-GUARDS	35%	7.5%	7.5%	10%	32%	8%	100%
DAY-LABOURERS	27%	18%	27%	9%	10%	9%	100%
WASTE-PICKERS	17%	32%	17%	17%	17%	0%	100%

(Source): Author's own calculation.

The loss of an income in the home meant that some of the respondents had to start working or stay home. Furthermore, some of the female respondents indicated that they had discontinued their studies due to pregnancy. Likewise, a portion of the male respondents indicated that living on farms contributed towards their inability to complete secondary school. Walking distances to school from farm areas, a lack of farm schools and work obligations on farms were the main reasons that were cited in this regard. These reasons are indicative of failings in the South African social systems, which are clearly not adequate enough to provide safety nets for the most vulnerable members of society. Furthermore, these circumstances indicate that due to a lack of adequate educational attainment, the vast majority of these respondents were probably left with no other option than to join the informal sector.

The waste-picking and car-guarding respondents were also required to indicate their level of overall satisfaction and happiness with their circumstances. Responses were based on a scale of

one to ten, with ten being very happy. Only 20% of the waste-pickers indicated that they were very happy with their circumstances; only one of these was classified as skills-related underemployed. The portion of the sample that is categorised as being skills-related underemployed reported happiness indices between five and two. Surprisingly, the car-guards data reveals that 80% of the respondents, which indicated that they are very happy with their circumstances, were those that are classified as skills-related underemployed. However, the rest of the underemployed respondents indicated 'happiness' ranges between five and one. The 'happiness' profile indicates that a vast majority of those engaged in these activities are at most, only moderately satisfied with their circumstances.

5.3 Summary and conclusion

This chapter set out to determine the prevalence, type and effects of skills-related underemployment in the informal employment sub-sectors of interest in this study. The results of all three sub-sectors indicate that skills-related underemployment is prevalent in all three sub-sectors. With regards to extent, the waste-picking and day-labouring sectors point towards an even distribution of skills-related underemployment amongst those that are engaged in these activities in Potchefstroom. The most severe incidence of skills-related underemployment presents itself within the car-guarding sub-sector, with more than 70% of the respondents being classified as skills-related underemployed.

Investigations into the effects of skills-related underemployment found that skills-related underemployment has a significant and negative relationship with the income of car-guards as well as a weakly negative correlation with the income of waste-pickers. However, the day-labouring market analysis indicated that skills-related underemployment is not associated with the wages of those engaged in it. The significant association with the car-guarding and waste-picking sectors could be caused by the fact that skills-related underemployment results in low levels of productivity, which would explain the negative sign of the coefficients, however, the association could also be caused by a selection problem, which could only be clarified with a panel data analysis. In the day-labouring sub-sector, skills-related underemployment does not have a significant relationship with the wages of the day-labourers. This could be caused by the fact that unlike waste-picking and car-guarding, day-labouring does not largely depend upon the productivity levels of the individual but rather hiring through random selection. Therefore, being

skills-related underemployed may not necessarily have a significant influence on the wages of the day-labourers.

The results of the underemployment probit analyses indicated that skills-related underemployment in these informal sub-sector could be mostly caused by exogenous factors in the car-guarding and day-labouring sub-sectors. These include factors such as age, gender and having work experience. Out of the three, the car-guarding sub-sector had the highest incidence of skills-related underemployment, whilst day-labourers and waste-pickers had an even distribution of underemployment. Furthermore, all three sub-sectors indicate that the type of skills-related underemployment that is prevalent is overskilling and not overeducation.

The poverty analysis of all three sub-sectors indicates that poverty is prevalent in all three informal sectors of Potchefstroom. The day-labouring sector presented the highest incidence of poverty followed by the car-guarding sector. The high level of poverty in both of these sub-sectors is understandable because of the nature of these sectors; car-guards depend upon donations provided by motorists, whereas day-labourers depend on an unpredictable hiring market. Therefore, workers in both sub-sectors do not have a reliable, predictable and consistent source of income. Waste-pickers on the other hand present the lowest incidence of poverty which could be linked to the fact that waste is a consistently supplied product and therefore presents consistent opportunities for income generation. Nevertheless, skills-related underemployment does not appear to have a significant association with the poverty levels of those that are engaged in these informal sectors.

Although the results of this chapter indicate that skills-related underemployment does not have a large effect on the income and poverty levels of those engaged in these sub-sectors, the analysis did reveal that overskilling is prevalent. Policy measures can therefore be implemented in order to reduce the prevalence as well as the impact of overskilling in these informal sub-sectors. Furthermore, policy measures can also be directed at assisting the workers in these sub-sectors to use the skills that they possess in order to increase their income or to enter into the formal market. The following chapter explores various frameworks that can be implemented in this regard, per sub-sector, and a summary and conclusion of the whole dissertation.

Chapter Six

Summary, Conclusion and Policy Recommendations

6.1 Introduction

The aim of this chapter is to provide a summary of the findings of this study as well as an outline of the conclusions drawn from the empirical analysis in light of the objectives outlined in chapter one. This is followed by policy recommendations which are aimed at providing possible solutions for the problems that were identified in this study. The final section provides recommendations for further research, based on the findings and limitations of this study.

6.2 Summary of the study

Unemployment is a persistent and pervasive characteristic of all economies; with the solution often involving various interventions. The informal sector is a long-standing and self-constructed option for unemployed members of the labour force. Although it is largely unregulated, it can theoretically contribute significantly towards job creation and poverty reduction. Informal sector work can either be a primary or secondary source of income, which makes the informal sector a rational point of interest when designing policies that are aimed at decreasing unemployment and poverty. However, the limitations of the informal sector should be investigated in order to create appropriate and applicable policies in this regard.

The aim of this study was to investigate the possibility of skills-related underemployment within the informal economy as one of these weaknesses. The specific objectives of the study included determining the prevalence, extent and type of skills-related underemployment that may be present in the car-guarding, day-labouring and waste-picking sub-sectors of informal employment in Potchefstroom. The study also aimed to determine the impact, if any, of skills-related underemployment on the wages and standard of living of those engaged in these sub-sectors.

Chapter two provided an overview of the informal sector from a theoretical perspective. This included a discussion regarding the various definitions of the informal sector according to criteria such as work force characteristics, activities, informal enterprise characteristics and legal compliance. The four schools of thought which govern the main concepts and theories regarding

the informal sector were also presented. This includes the dualists, who view the informal sector as an entity which operates independently and which acts as a temporary safety net for the low-skilled unemployed portion of the labour force. The structuralists oppose this notion and propose that the informal sector is closely linked to the formal sector through firms that attempt to lower their costs by outsourcing informal sub-contractors. The legalists and voluntarists focus more on informal enterprise; both schools argue that individuals self-select into the informal sector. However, voluntarists argue that individuals enter the informal sector strategically, whilst legalists propose that bureaucracy and high legal costs in the formal sector make the informal sector an attractive alternative.

Regarding the informal sector of South Africa, literature indicates that it is relatively smaller than the informal sectors of other Sub-Saharan African countries. Factors such as crime, the size of the South African formal sector and a lack of access to financial services such as credit for lower income groups, are recognized as reasons for the size of South Africa's informal sector. Trade and services are the dominating sectors in South Africa's informal sector; spatially, Gauteng and KwaZulu-Natal have the highest incidence of informality. Furthermore, the informal sector of South Africa is dominated by vulnerable groups such as Africans, immigrants, low-skilled individuals and unemployed youth.

Chapter two also explored the characteristics of the three informal employment sub-sectors of interest in this study. From a South African perspective, all three sub-sectors have some overlapping characteristics. These include race, educational attainment and socio-economic status. All three sub-sectors are characterised by individuals with low levels of educational attainment, and who are predominantly African and from poverty stricken backgrounds. The waste-picking sector has an equal share of males and females, whereas car-guarding and day-labouring is dominated by males. Conversely, the waste-picking sector does not have a strong immigrant component as opposed to the car-guarding and day-labouring sectors. Literature on the day-labouring sector revealed a unique component of unemployment caused by the inconsistent hiring patterns faced by the day-labourers. Furthermore, individuals employed in all three sub-sectors share the same characteristics of low incomes and perpetual poverty. The majority of those engaged in these activities tend to be motivated by poverty and a lack of formal employment opportunities.

The literature review in chapter three presented a theoretical overview of underemployment as well as a brief discussion on unemployment in the day-labouring sub-sector. The chapter focussed primarily on skills-related underemployment, which is the focus of this study. Previous studies aimed at conceptualising skills-related underemployment highlight the various complexities related to skills-related underemployment. The first of these underscores the necessity of separating overskilling and overeducation, both of which are classified under skills-related underemployment but have very little overlap. The measurement of skills-related underemployment is also problematic due to methods which are either too subjective, or are unable to directly capture or quantify certain aspects of overskilling. Similarly, most of the theories that are associated with skills-related underemployment are theories which are associated with other concepts but are also inadvertently applicable to skills-related underemployment.

Much like the informal sector, skills-related underemployment affects the most vulnerable groups of the labour market. This includes females, 'minority' racial groups, immigrants as well as those who are either very young or very old. Furthermore, skills-related underemployment presents various negative effects, such as lower income, negative psychological outcomes and lower productivity. The overall negative impact of skills-related underemployment is highlighted by a combination of these two aspects. The fact that these negative outcomes are experienced by the most vulnerable groups in the labour force indicates the overall negative impact of skills-related underemployment.

The scarcity of literature on skills-related underemployment in South Africa indicates that very little attention has been paid to this topic domestically. The most comprehensive study so far has been conducted by Beukes *et al*. (2017); the findings of which, are largely congruent with international literature on skills-related underemployment. Beukes *et al.* (2017) indicate that skills-related underemployment in South Africa has increased significantly since 1995 due to an increase in educational attainment amongst previously disadvantaged groups.

Chapter three also explored the incidence of unemployment in the day-labouring sub-sector. Literature regarding this indicated that very few studies have been conducted on this topic. However, a comprehensive nationwide study conducted in South Africa by Blaauw (2010), revealed that unemployment in the day-labouring sub-sector is a persistent feature across all nine

provinces. Furthermore, this characteristic of the day-labouring sector further exacerbates the poverty of those engaged in this activity, leading to various negative socio-economic outcomes.

Chapter four provided an outline of the methodology that is employed in the study. In order to achieve more comprehensive results a two-prong mixed method approach was selected. This consists of using qualitative and quantitative data in order to arrive at an answer for the research questions that were posed in chapter one. The study used a survey questionnaire method and interviews were conducted with the entire population of each informal sub-sector, who were able and willing to participate in the interviews. However, due to the relatively small size of the Potchefstroom area, extensive datasets could not be compiled. The survey process also adhered to all the ethical requirements of the study, thereby ensuring that the respondents' identities and privacy was not infringed upon.

OLS, probit analysis and correlation matrix estimation techniques were used, where applicable, in order to empirically analyse each informal sub-sector; the results of which were presented in chapter five. The analysis of the car-guarding sector revealed that not only is skills-related underemployment present in the car-guarding sector of Potchefstroom; it also has a negative relationship with the income of car-guards in this area. The probit analysis revealed that the ages of the car-guards, as well as their gender, influenced their probability of being skills-related underemployed. However, being skills-related underemployed did not have a significant relationship with the poverty levels of the car-guards.

Examination of the day-labouring sub-sector indicated that there is an even distribution of skills-related underemployment within the sample; however, it does not have a significant relationship with the wages of the day-labourers. The probit analysis revealed that having previous work experience could increase the likelihood of day-labourers being skills-related underemployed. The poverty probit analysis disclosed that negotiating wages, reservation wages and having been previously hired as a painter were all significantly affiliated with the poverty levels of the day-labourers.

The waste-picking sample only consisted of seventeen respondents, two of which had to be removed due to inconsistencies in their responses regarding income. Correlation matrices were used to analyse the sample because regression analysis would yield unreliable results. The correlation matrices revealed that skills-related underemployment does not have a significant

correlation with the income of waste-pickers in Potchefstroom. However, the age of waste-pickers had the highest correlation with their income. Furthermore, similar to day-labourers, skills-related underemployment is evenly distributed amongst waste-pickers. The poverty analysis revealed that at least 50% of waste-pickers live below the poverty lines that are employed in this study.

The results for all three sub-sectors revealed that overskilling is the main type of skills-related underemployment that is present in these informal sub-sectors within the Potchefstroom area. However, the analysis also indicated that there might be some exogenous factors that influence the wages and overall standard of living of the individuals which engage in these activities.

6.3 Conclusion

Unemployment in South Africa is a persistent problem, which negatively affects individuals and the economy. In order to escape crippling poverty, members of the most vulnerable portion of the labour force often engage in informal activities such as car-guarding, day-labouring and waste-picking due to a lack of employment opportunities in the formal sector. Furthermore, the low levels of education and skill that often characterise this portion of the labour force, creates a barrier that inhibits them from entering or re-entering the formal market, where more secure and well-paying jobs can be found. This often means that some of the individuals who engage in informal employment may never be able to enter the formal market and will therefore be stuck in an endless poverty trap. Therefore, understanding the inner workings of the informal sector, as well as the factors which can influence the career trajectories of those who are engaged in it, can provide insight into policy interventions that could either increase their earnings potential in the informal sector or allow for an easy transition into the formal market.

Skills-related underemployment is a negative feature of the labour market that affects participants of both the formal and informal sector. In South Africa, Beukes *et al*. (2017:50) indicate that informal sector employees have a higher likelihood of being skills-related underemployed than formal sector workers. The results of this study have found that skills-related underemployment is present in these informal sub-sectors in Potchefstroom and although it does not have a direct impact on the income and the poverty levels of those employed in these sub-sectors, it does highlight an inefficient allocation of skills, which has detrimental effects on those that are affected

by it. Human Capital Theory dictates that present investment in education and training at the opportunity cost of present earnings, should result in higher future earnings; however, this is not true for at least half of the respondents in this study.

Policy interventions are therefore necessary in order to remedy the effects of skills-related underemployment in these sub-sectors. Furthermore, policy measures should also address exogenous factors that may be present in these informal markets. The following section provides an overview of possible policy measures that can be implemented in each sub-sector as well as recommendations for further studies.

6.4 Policy recommendations and considerations

Introduction

The results of the empirical chapter indicated that although overskilling is prevalent in the informal sub-sectors of interest in this study, it does not have a large impact on the income and living standards of those engaged in these sectors. This indicates that policy measures which are only directed at enhancing the skills of those that were identified as being underemployed may not be a sufficient remedy to the problem. Policy recommendations should therefore consist of frameworks that aim at improving skills and also identifying the cause of the overskilling, which is apparent in these markets. Interventions should also be aimed at increasing the likelihood of these individuals' transition into the formal market.

The following sections provide possible policy interventions which may be applicable to each informal sub-sector that was investigated in this study.

6.4.1 Car-guarding sub-sector

The empirical analysis indicated that skills-related underemployment is not only prevalent in the car-guarding sector, but also has a negative relationship with the income of car-guards. This could be specifically applicable for the formal car-guards in Potchefstroom because they are required to have an E-level security certificate in order to work formally as car-guards. Holding this qualification implies that they have a higher probability of obtaining formal job prospects, which come with a more consistent and higher income than their informal counterparts. Policy

interventions can therefore be aimed at providing additional training to car-guards that have security qualifications in order to increase their probability of entering the formal market. Furthermore, business owners, for whom formal car-guards operate, can be provided with incentives by government to formally hire car-guards as security guards instead of outsourcing to private security companies.

Policy interventions for informal car-guards are not as easy to implement due to a complete lack of regulation. Furthermore, car-guards that are employed formally, are required to have a security qualification, which increases their earning potential; contrastingly, informal car-guards can operate without any training. Therefore, municipalities can formally register informal car-guards and provide them with opportunities to receive formal security training in order to increase their chances of being hired as formal car-guards or formal security guards. Municipalities can also provide car-guards with free security equipment and uniforms in order to make it easier for the public to trust them and avail of their services more freely, which would also assist in increasing their earning potential.

Furthermore, the 'Cape Town model' indicated by Bernstein (2003:6) can also be implemented, which entails municipalities formally hiring informal car-guards as parking meter marshals, who collect money from vehicles owners when they park in certain areas of town. This would benefit the informal car-guards because of being elevated to a status of formality, which has job security and a steady income; the incentive for municipalities to do this would be motivated by the revenue that the municipality would accrue through implementing this framework.

6.4.2 Day-labouring sub-sector

The day-labouring sector in Potchefstroom is characterised by high rates of unemployment and an even distribution of skills-related underemployment. The empirical analysis indicated that the income and living standards of those engaged in this sector do not have a relationship with skills-related underemployment. This may be an indication that exogenous market forces might have a bigger impact on the earnings of the day-labourers in Potchefstroom. Furthermore, the empirical results revealed that the specific vocational skills that the day-labourers in Potchefstroom possess do not have a significant effect on their wages. Therefore, simply upgrading the skills of day-labourers may not be sufficient to increase their earnings.

Policy frameworks should therefore be aimed at making the day-labouring market environment more favourable for those engaged in it. Policy makers can investigate the possibility of adopting the "work centre" model, which is used in certain states of the United States, such as California (Gonzalez, 2007:4). These centres not only provide a formal structure from which the day-labourers can hire themselves out, they are also a mechanism for regulation that would otherwise be largely impractical on the informal street corners that day-labourers normally use. These centres can act as labour brokers, where employers can formally hire day-labourers according to their skills. This regulation can further be formalised by registering both day-labourers and potential employers according to their national identification numbers. The aim of this would be to keep track of day-labourers operating in the centre, in order to avoid potential criminal activity, and to reduce the likelihood of wage theft by employers.

The empirical analysis revealed that day-labourers who negotiate their wages and have a reservation wage are more likely to earn a higher wage than those who do not. In light of this, day-labouring centres could assist in setting minimum wages according to the skills of the day-labourers. Furthermore, day-labouring centres can also assist in reducing the incidence of unemployment by using a roster system that rotates the workers on a daily basis, thereby allowing an even distribution of employment opportunities.

Day-labouring centres can also act as centralised conduits for training and skills upgrading. Centres can provide opportunities for day-labourers to attend skills-upgrading courses on days that they cannot find employment. Upgrading the skills of the day-labourers will not only increase their probability of being hired often but can also increase their probability of securing permanent formal employment. Furthermore low levels of education are a common feature amongst day-labourers; the sample of this study indicates that only 13% have completed secondary school. In addition, the empirical analysis revealed that educational attainment is significantly associated with their wages and poverty levels. Therefore, day-labouring centres can also provide adult education classes that will assist the day-labourers to achieve secondary level schooling.

Day-labouring centres also provide the potential opportunity of acting as a platform for formal and permanent employment. Construction companies and sub-contractors can be provided with incentives by government if they officially hire a formally registered day-labourer. Incentives can

be tax rebates or financial assistance, especially for small to medium sub-contracting enterprises. Municipalities can also offer local government construction tenders with the stipulation that registered day-labourers must be hired for all projects.

6.4.3 Waste-pickers sub-sector

The waste-picking analysis found that skills-related underemployment and poverty are evenly distributed in the Potchefstroom area. Furthermore, skills-related underemployment does not seem to have a significant relationship with the income of waste-pickers. This means that policy recommendations should be directed towards upgrading the skills of waste-pickers as well as creating enabling environments that will increase the income of waste-pickers. In addition, policy frameworks should also be aimed at reducing the transport costs that waste-pickers incur. This is largely due to the fact that survey data revealed that waste-pickers in Potchefstroom incurred transport costs of R20.00-R60.00, per trip, when transporting waste to buyers. Policies can therefore be directed towards providing the waste-pickers with trolleys that will allow them to transport large amounts of waste at one time. This will also contribute towards making older waste-pickers as 'competitive' as younger waste-pickers; this is especially important because the empirical results revealed that age has a negative correlation with the income of waste-pickers in Potchefstroom.

Educational attainment also appears to be a serious problem amongst waste-pickers in Potchefstroom, where only two out of the seventeen respondents reported having finished secondary school. Most of the respondents indicated that their chief reason for not completing school was poverty. This is congruent with the findings of Viljoen (2014) and indicates that there may not be sufficient mechanisms in the South African educational system to prevent impoverished students from leaving school prematurely (Viljoen, 2014). Waste-pickers should be provided with opportunities to complete their secondary schooling in order to increase the likelihood of them entering the formal market.

6.4.4 Vocational skills policies

Part of the aim of this study was to investigate the type of skills-related underemployment that is prevalent in these sub-sectors. Overskilling was identified, which indicates that the vocational training which the respondents have received is either inadequate or redundant. The survey data revealed that the respondents of each sector possess a wide variety of skills, some of which are unrelated to each other. This made it difficult to narrow down the main types of vocational training which pose the biggest problems. However, policies can be designed to target specific skills such as those that are used in the construction and security industries. Policies can be used to provide informal workers that have vocational training experience, with opportunities to upgrade their skills and acquire official vocational training documentation, which will increase their probability of being hired in the private sector. Nevertheless, in order for this to work, weaknesses with vocational training should be identified and policy measures should also include interventions that are aimed at dealing with these weaknesses.

Hoeckel (2007:6) identifies several reasons that explain how vocational training could lead to skills-related underemployment. Hoeckel (2007:6) indicates that a change in sectoral demand for certain skills can contribute to the redundancy of those skills. This could be buffered by implementing frameworks that enable clear communication between the demand and supply sides of vocational training in order to ensure that training centres provide skills that are in demand in the formal sector. Furthermore, vocational skills are continuously changing with market conditions, as well as technological advancement (Hoeckel, 2007). Therefore, government should provide informal workers that have vocational training with opportunities to continuously upgrade their skills as market requirements change. Hoeckel (2007:6) indicates that Continuous Vocational Training (CVT) increases the probability of being employed and lessens the likelihood of job loss. Hoeckel (2007:6) also identifies a lack of firm-based training, which can be attributed to ineffective incentive schemes. Increasing the amount and variety of firm-based incentives can assist in ensuring that informal sector workers have more opportunities for acquiring practical and current vocational training, which would also increase the probability of formal employment.

6.4.5 Consideration for future studies

The direction of future studies should mainly be focused on addressing the limitations and inconclusive findings of this study. The first of these pertains to the data, the use of cross-sectional data meant that determining causality was not feasible. A more comprehensive study should therefore make use of panel data in order to gain better insights into the direction of causality. The use of panel data would also assist in determining whether there is a self-selection problem in these sub-sectors. This would give a better indication of whether some of the individuals that are classified as being skills-related underemployed are underemployed by choice or through labour market conditions. Furthermore, a bigger research population should be selected in order to be able to regress more comprehensive models without distribution problems. Research can also investigate the exogenous factors that influence the wages of those engaged in these sub-sectors. This can be expanded into research regarding various types of institutional support structures that can be implemented in order to counteract negative exogenous factors.

In terms of skills-related underemployment, future research can investigate the main types of vocational skills training, which increases the likelihood of being overskilled in South Africa. This can also be expanded into investigating the factors which increase the likelihood of certain vocational training leading to skills-related underemployment. This can also be directed at identifying potential problems in the curriculum or training techniques, which are used in vocational institutions.

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Empirical Appendices

1. Appendix one

1.1 Car-guard wage model including race and gender (model 1)

Variable	Coefficient	P-value
CONSTANT	693.949	0.653
WORKDAYS	449.090	0.069*
DUMFEMALE	366.977	0.615
DUMFORMAL	1119.552	0.053**
UNDER	-935.063	0.234
DUMBLACK	-467.822	0.473
R-SQUARED	0.325	NA
F-STATISTIC	2.818	0.003***

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

1.2 Car-guard wage model including race and gender (model 2)

Variable	Coefficient	P-value
CONSTANT	-815.749	0.612
WORKDAYS	244.441	0.343
DUMFEMALE	1155.714	0.109
DUMFORMAL	1249.904	0.032**
DUMYOUNG	1730.879	0.045**
DUMBLACK	-522.303	0.498
DUMLOWED	1747.935	0.119
R-SQUARED	0.347	NA
F-STATISTIC	2.391	0.003***

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

2. Appendix two

2.1 Correlation between age and years of car-guarding experience

VARIABLES	AGE	YEARS CAR-GUARDING
AGE	1.000	1.000
YEARS CAR-GUARDING	0.459	0.459

(Source): Author's own calculation.

3. Appendix three

3.1 Multicollinearity test

Variables	UNDER	WORKDAYS	FORMALITY	AGE
UNDER	1.000	0.315	0.140	-0.127
WORKDAYS	0.315	1.000	0.097	0.113
FORMALITY	0.141	0.097	1.000	0.102
AGE	-0.127	0.113	0.102	1.000

(Source): Author's own calculation.

3.2 Poverty probit model

Variable	Coefficient	P-value
FORMAL	0.109	0.877
UNDER	0.107	0.861
R-SQUARED	0.005	NA
LR-STATISTIC	0.973	0.986

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

4. Appendix four

4.1 Day-labouring model with 'GOOD MONTH' including the 'hired_often' variable

Variables	Coefficient	P-value
CONSTANT	-429.780	0.533
NEGOTIATED	684.217	0.021**
DUMPRIM	-567.400	0.128
RESERVATION	15.929	0.006***
HIRED_OFTEN	232.225	0.568
UNDER	63.623	0.817
HIRED_BRICKLAY	717.965	0.044**
HIRED_PAINTING	250.731	0.338
HIRED_PLUMBING	152.830	0.713
R-SQUARED	0.343	NA
F-STATISTIC	2.947	0.000***

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

4.2 Day-labouring wage results 'BAD MONTH' with the 'HIRED_OFTEN' variable

Variables	Coefficient	P-value
CONSTANT	-318.374	0.334
NEGOTIATED	479.758	0.003**
DUMPRIM	-34.185	0.885
RESERVATION	7.310	0.030**
HIRED_OFTEN	77.025	0.690
UNDER	-60.644	0.714
HIRED_BRICKLAY	349.293	0.102
HIRED_PAINTING	47.553	0.791
HIRED_PLUMBING	-91.263	0.601
R-SQUARED	0.296	NA
F-STATISTIC	2.429	0.027**

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

5. Appendix five

5.1 Model seven (UNEMPLOYMENT RATE)

Variables	Coefficient	P-value
CONSTANT	82.29	0.000***
RESERVATION	0.013	0.896
DUMPRIM	-6.140	0.233
DL_EXP	0.369	0.299
NEGOTIATED	-6.223	0.178
R-SQUARED	0.063	NA
F-STATISTIC	0.905	0.467

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

5.2 Model eight (UNEMPLOYMENT RATE)

Variables	Coefficient	P-value
CONSTANT	78.024	0.000***
HIRED_BRICKLAY	-1.124	0.816
HIRED_PAINTING	1.637	0.746
HIRED_PLUMBING	1.114	0.789
R-SQUARED	0.003	NA
F-STATISTIC	0.973	0.074*

(Source): Author's own calculation.

***Significant at 1%

**Significant at 5%

*Significant at 10%

ANNEXURE A

Case number:	
Cell phone number	
Formal	**1**
Informal	**2**

CAR GUARD SURVEY IN POTCHEFSTROOM, 2014

SURVEY DETAILS
(Can be completed after the interview)

Interviewer: Complete the following questions after the interview.

Date of interview…… Fieldworker's name…….....

City/town: **Potchefstroom** Time of interview……..

Mention suburb……

Questionnaire

Completed	Not Completed

Site description:

THIS SECTION OF THE QUESTIONNAIRE RELATES TO THE RESPONDENT YOU ARE INTERVIEWING.
PERSONAL BACKGROUND
Interviewer: Explain that this next set of questions is about their personal background.

1. Respondent's gender:

Male	1
Female	2

2. With which racial group do you identify yourself? **Mark ONE only**

Black	1
White	2
Coloured	3
Asian	4
Other (Specify)	5

1. Language predominantly spoken by respondent. **Mark ONE only**

English	1
Sesotho	2
Sepedi	3
Isizulu	4
Isindebele	5
Xhitsonga	6
Afrikaans	7
Setswana	8
Isixhosa	9
Tshivenda	10
SiSwati	11
Other Specify……	12

2. From which country do you originate from?

South Africa	1
Zimbabwe	2
Namibia	3
Swaziland	4
Mozambique	5
Botswana	6
Lesotho	7
Other Specify……	8

3. If from South Africain which province were you born?

Gauteng	1
Mpumalanga	2
Kwa Zulu-Natal	3
Eastern Cape	4
Limpopo	5
North West	6
Free State	7
Northern Cape	8
Western Cape	9

4. With which cultural group do you associate yourself with?

…….

7. How old are you? …….

under 20	1
21-25	2
26-30	3
31-35	4

36-40	5
41-45	6
46-50	7
51-55	8
56-60	9
over 60	10
Refused to answer	11
Do not know	12

EDUCATION

8. What is the **highest** school or tertiary qualification you have passed? Indicate the qualification:

No schooling	1
Some Primary Schooling: **Please indicate the grade……**	2
Completed Primary Schooling	3
Some Secondary Schooling **Please indicate the grade……**	4
Completed Secondary Schooling	5
PostSchool Qualification	6

9. If the car guard left school before passing Gr. 12, why did he leave school?

.....

10. What other vocational training or courses did you complete?

None	1
Bricklaying	2
Painter	3
Plumbing	4
Tiler	5
Electrical work	6
Cabinet maker	7
Carpenter	8
Other Specify……	9

11. Which of the following describes you current marital status?

Never married / Single	1
Separated / Divorced	2
Married (Traditional or Western)	3
Widowed	4
Living with a partner	5
Other (Specify)…….	6

EMPLOYMENT AND EMPLOYMENT SEEKING HISTORY

Interviewer: Explain that the next set of questions are about your past work experience.

8. Have you ever had a full time job? (Full time with benefits)

Yes	1
No	2

9. **IF YES**, What was your last full time job?

Job title: ……

10. How long did you have the **last** full time job?

……Years

15. What did the company make/produce?.....

16. Why did you leave the last full time job? **(Interviewer: Only mark one)**

Laid off business/mine/factory closed	1
Laid off business down sizing	2
Laid off business moved	3
Disciplinary reasons	4
Quit the job because wage was too low	5
Quit the job because of medical reasons	6
Other Specify……..	7
Refused to answer	8

17. Are you currently looking for a full time job?

Yes	1
No	2

18. If no, why not?……..

YOUR WORK AS A CAR GUARD

19. How long were you unemployed before becoming a car guard?.....

20. Describe how the process work i.t.o. working as a car guard?

21. How long have you been a car guard?.....

22. How many people (excluding yourself) depend on your income?

Number of people ..... □ □

22. How many households depend on your income?.....

23. Are any of your family members car guards?

☐ ☐ **(Interviewer: mark all applicable)**

None	1
Spouse	2
Child	3
More than one child	4

24. How many days per week do you work as a car guard?.....

25. How much do you earn on average **per day** as a car guard**ON A GOOD DAY?.....**

26. How much do you earn on average **per day** as a car guard **ON A BAD DAY?.....**

27. How much did you earn as a car guard **YESTERDAY?..... .....**

28. How many children do you have?

Number of children …….

Number of children under 18 ☐

29. What are the sources of income available to them?

Child support grant	1
Disability grant	2
Old age grant	3
Other salaries	4
Other specify ……	5

30. Where do you get water when work as a car guard…....……..

32. Where do you get food while working?.....

33. Where do you go if you need a toilet?…….

CONSUMPTION &FOOD

34. How much money do you spent on Food per month?.....

35. What other items do you spend money on?.....

Item	**R**

36. The next questionsare about the food you have eaten in the last week.

During each of the following days of the past week, where did you get food?
Mark all applicable

The Employer	Somebody else e.g. church	Ate at home	Brought food from home	Bought food from the shop	Did not eat	From other car guards
1	2	3	4	5	6	7

Fieldworker: read the following statement to the car guard and he select one

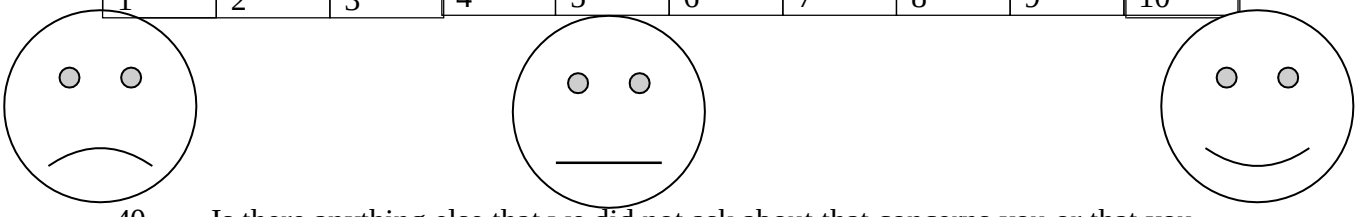
37. Which of the following statements is correct for the last week?

I had enough of the kinds of food I want to eat	1
I had enough food but not always the kinds of food I want	2
I did not have enough to eat	3
Refused to answer	4

38. What did you eat in the last 24 hours?.....

39. On a scale of 1-10 (10 being very happy and 1 very unhappy) how happy are you with life at the moment?

1	2	3	4	5	6	7	8	9	10



40. Is there anything else that we did not ask about that concerns you or that you think we should have asked you about?

Specify……

Interviewer: Thank the responder for his participation.

GENERAL OBSERVATIONS: TO BE COMPLETED AFTER COMPLETION OF THE QUESTIONNAIRRE

Interviewer: Make notes on any other relevant information shared by the person, e.g.

Concerns about his existence as a car guard. What is he/she worried about? How has

working as a car guard affected relationships with family?

What are the things that still make him hopeful or positive?

What are the hazards of being a car-guard?

Department of Economics and Econometrics – University of Johannesburg

School of Economics – North-West University

Department of Social Work – University of the Western Cape

Dear Sir/Madam

We are researchers from the University of Johannesburg's Department of Economics and Econometrics, North-West University's School of Economics and University of the Western Cape, Department of Social Work. We are doing research on waste pickers in South Africa. The information resulting from the study will be used to inform policy makers on policies which can make a difference in the lives of waste pickers. The results from the research might also be published in scientific journals.

Activities of the project:

- We are going to ask you some questions that will take about 30 minutes of your time.

Please remember that:

- You do not have to do this. If you feel that you do not want to be part of the study you are free to withdraw at any time and your information will not be included in the results of the study.
- Your personal details and any other information will be kept confidential at all times.
- You have the right to ask questions about this study. If any questions arise while I am explaining this form, please ask them whenever you are ready. I will also give you time to think – please indicate if you want this time.
- No monetary compensation is offered for your participation.

We value your cooperation in this matter.

LANDFILL WASTE PICKERS SURVEY IN SOUTH AFRICA, 2015

Department of Economics and Econometrics – University of Johannesburg
School of Economics (North-West University)
Department of Social Work – University of the Western Cape

SURVEY DETAILS
(Can be completed after the interview)

Interviewer: Complete the following questions after the interview.

Date of interview..... Time of interview.....…….....

Fieldworker name…….....

Geographical details of the site where interview took place:

Name of the Landfill site.....……

Street Address (of site): …….

City/Town/Suburb: .....…….

Questionnaire

Completed	Not Completed

SECTION A
This set of questions relates to the personal background of the respondent you are interviewing.

1. Respondent's gender:

Male	1
Female	2

2. With which cultural group do you associate yourself with?

African/Black	1
Coloured	2
White	3
Indian/Asian	4
Other	5
If other, please specify	

1. Language predominantly spoken by respondent. **Mark ONE only**

English	1
Sesotho	2
Sepedi	3
Isizulu	4
Isindebele	5
Xhitsonga	6
Afrikaans	7
Setswana	8
Isixhosa	9
Tshivenda	10
SiSwati	11
Shona	12
Other	13
If other please specify …….....	

2. From which country do you originate from?

South Africa	1
Zimbabwe	2
Namibia	3
Swaziland	4
Mozambique	5
Botswana	6
Lesotho	7
Other	8
If other please specify …….....	

3. If from South Africa, in which province were you born?

Gauteng	1
Mpumalanga	2
KwaZulu-Natal	3
Eastern Cape	4
Limpopo	5
North West	6
Free State	7
Northern Cape	8
Western Cape	9

4. How old are you?

1. Which of the following describes your current marital status?

Never married / Single	1
Separated / Divorced	2
Married (Traditional or Western)	3
Widowed	4
Living with a partner	5
Other	6
Other, specify.....…….....….....	

SECTION B
This set of questions relates to the respondent's education

2. What is the **highest** school or tertiary qualification you have **passed**?

Grade

0	1	2	3	4	5	6	7	8	9	10	11	12
Post School Qualification												13
Post School Qualification. Please mention the qualification …….……..…….....…..												

Ask question 9 only if the waste pickers left school before passing Gr. 12.

3. Why did you leave school before completing Gr. 12?

.....

4. Do you have any other training or skills that you might be able to use in another job?

Yes	1 Go to question 11
No	2 Go to question 12

5. If your answer in question 10 is **Yes**, please specify **what** training and skills you have, where you obtained the training and skills and whether it was formal or informal training**. (field worker needs to probe)**

1	2	3
Type of training/skill	Where obtained	Formal or informal

6. How well can you understand English? (field worker ask the question in English)

Not at all	1
Somewhat	2
Well	3

1. How well can you speak English?

Not at all	1
Somewhat	2
Well	3

2. Hoe goed kan jy Afrikaans verstaan? (Ask the question in Afrikaans)

Not at all	1
Somewhat	2
Well	3

3. Hoe goed kan jy Afrikaans praat?

Not at all	1
Somewhat	2
Well	3

SECTION C
This set of questions relates to the respondent's employment history.

4. Have you ever worked where you received a payslip?

Yes	1 Go to Question 17
No	2 Go to Question 20

5. If YES, what was your last **full** time job? (field worker needs to probe)

Job title:.....

6. How long did you have the last full time job?

Years ☐☐ Months ☐☐

7. Why did you leave your last job?

Laid off business/mine/factory closed	1
Laid off business moved	2
Laid off business downsizing	3
Disciplinary reasons	4
Quit the job because wage was too low	5
Quit the job because of medical reasons	6
Quit because of bad treatment from employer	7
Other, specify	8
Refused to answer	9

1. Are you currently looking for a full time job?

Yes	1
No	2

2. If not, why not?

.....

3. What other job/s have you done before becoming a waste picker or while being a waste picker?

.....
.....
.....

SECTION D

This set of questions relates to the respondent's work as a waste picker.

4. What do you like about your work as waste picker? (fieldworker needs to probe)

.....
.....
.....
.....

5. What about your work as waste picker don't you like? (field worker needs to probe)

.....
.....
.....
.....

6. Why did you decide to collect waste? (field worker needs to probe)

.....
.....
.....
.....

7. How long have you been doing this job?

Years [ ] Months. [ ]

1. What recyclable waste do you collect? (Mark all applicable)

Paper	1
Cardboard	2
Plastic	3
Cans	4
Glass	5
Tetrapak	6
Metals	7
Batteries	8
Globes	9
Other	10
If other, specify	

2. To whom do you sell the waste? Mark all applicable.

Private individuals	1
People from a Buy-back centres/depots	2
Other sellers	3
If other buyers, please specify	

3. Indicate whether buyers collect the waste products from you or whether you have to take (deliver) it to them?

They collect	1
I have to deliver to them	2

4. What does it cost you to get the waste from the landfill site to the buyer?

Rand

5. Are there goods that you collect for personal use?

No	1
Yes	2
If yes, please specify	

6. Do you collect food from the landfill site for own and/or family consumption?

Yes	1 Go to question 33
No	2 Go to Question 34

1. If your answer is Yes to Question 32, what food do you collect for consumption?

.....
.....
.....

SECTION E
This set of questions relates to the income patterns of the respondents.

2. How much income did you earn last week for the waste you have collected?

Rand.....

3. How much income do you earn from the waste collected during a **good week** and during a **bad** week?

1	Good week	R
2	Bad week	R

(Round off to the nearest Rand)

4. Is your income as waste picker as good as expected?

Better	1
Worse than expected	2
As good as expected	3

5. What are the other sources of income available to you?

	Sources of income	**You (Rand)**	**Other household members (Rand)**
1	Another job		
2	Child support grant?		
3	Disability grant?		
4	Old age grant?		
5	Pension from a previous job?		
6	Other		
If other, please specify			

6. How many people (excluding yourself) depend on your income?

Number of people ☐☐

7. How many children do **you** have?

Number of children ☐☐

Number of children under 18 ☐☐

1. Do you send money away to relatives that do not live with you?

Yes	1
No	2

2. If your answer is yes to question 45, how often do you send them money?

.....

SECTION F

This set of questions relates to the respondent's access to basic needs.

3. In what type of structure do you usually sleep?

Construction Site	1
Backyard room with sleep in domestic worker	2
Backyard room	3
Veld/bushes	4
On the street	5
Backyard shack	6
Shack	7
Hostel/shelter	8
House (bricks/reeds etc)	9
Buy-back centre/ depot	10
Other	11
If other, please specify	

4. How many times <u>in the last month</u> was there no food to eat of any kind in your household because of lack of resources to get food?

5. How many times <u>in the last month</u> did **you** go to sleep at night hungry because there was not enough food?

6. How many times <u>in the last month</u> did **anyone in your household** go to sleep at night hungry because there was not enough food?

7. How many times in the last month did **you** go for a whole day and night without eating anything at all because there was not enough food?

1. How many times in the last month did **anyone in your household** go for a whole day and night without eating anything at all because there was not enough food?

2. Where do you get your food? (Mark all applicable)

Prepare food at home	1
Buy ready-made food	2
On the landfill-site	3
From other waste pickers	4
Somebody else, e.g. church/ individuals/restaurants etc	5

3. If you receive food from somebody else, e.g. church/ individuals, specify from whom…….....

4. Do you have access to the following while collecting waste? Please specify?

	Basic Needs	**No**	**Yes, specify**
1	Drinking water		
2	Food		
3	Toilet		
4	Place to wash yourself		

SECTION G
This set of questions relates to the respondent's relationship with the municipality, buyers of waste and co-waste pickers.

5. How do the municipal workers treat you on the landfill-site?

.....
.....
.....

6. Do you work together with other waste pickers to help one another?

Yes	1 Go to question 53
No	2 Go to question 54

1. If yes, in what way do you help each other? **Mark all applicable.**

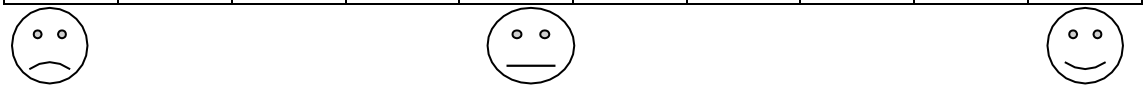
Transport/getting lifts	1
Loans	2
Food	3
Shelter to sleep/housing	4
Care when sick	5
Personal care products	6
Help to collect/share what they have collected	7
Selling for each other	8
Clothing	9
Other	10
If other, please specify	

SECTION H
This question relates to work related injuries and health risks.

2. What are the health and injury risks when collecting recyclable goods?
……..
……..

3. On a scale of 1-10 (10 being very happy and 1 very unhappy) how happy are you with life at the moment?

1	2	3	4	5	6	7	8	9	10



4. Would you like to tell us anything else that concerns you or that you think we should know?

Specify…….....
.....

Interviewer: Thank the respondent for his participation.

For more information contact:
Dr Viljoen: 084 556 2253 or
Prof Schenck: 082 864 0600

REGION:

Gauteng	
Mpumalanga	
KwaZulu-Natal	
Eastern Cape	
Limpopo	
North West	**X**
Free State	
Northern Cape	
Western Cape	

DAY LABOURERS' SURVEY IN POTCHEFSTROOM, 2014

SURVEY DETAILS
(Can be completed after the interview)

Interviewer: Complete the following questions after the interview.

Date of interview…… Fieldworker's name…….....

City/town…… Time of interview……..

If city, mention suburb……

Questionnaire

Completed	Not Completed

Site description:

Address of the site: mention the closest corner e.g. c/o…….....str and ……..... str

GPS Coordinates……..S……..E

1. Type of site: <u>Mark all applicable</u>

Public space (e.g. park/sidewalk/parking area)	
Residential area	
Related Business/shops e.g. builders warehouse	
Unrelated business/shops	
Taxi/bus hub	
Other transport hub	
Open space (e.g. undeveloped veld)	
Road junction	
Dept of Labour	
Other (specify)……..	

2. Estimate amount of people at the hiring site .....

THIS SECTION OF THE QUESTIONNAIRE RELATES TO THE RESPONDENT YOU ARE INTERVIEWING.

PERSONAL BACKGROUND

Interviewer: Explain that this next set of questions is about their personal background.

1. Respondent's gender:

Male	1
Female	2

2. With which racial group do you identify yourself? **Mark ONE only**

Black	1
White	2
Coloured	3
Asian	4
Other (Specify)	5

3. Language predominantly spoken by respondent. **Mark ONE only**

English	1
Sesotho	2
Sepedi	3
Isizulu	4
Isindebele	5
Xhitsonga	6
Afrikaans	7
Setswana	8
Isixhosa	9
Tshivenda	10
SiSwati	11
Other Specify……	12

4. From which country do you originate from?

South Africa	1
Zimbabwe	2
Namibia	3
Swaziland	4
Mozambique	5
Botswana	6
Lesotho	7
Other Specify……	8

1. If from South Africa in which province were you born?

Gauteng	1
Mpumalanga	2
Kwa Zulu-Natal	3
Eastern Cape	4
Limpopo	5
North West	6
Free State	7
Northern Cape	8
Western Cape	9

2. With which cultural group do you associate yourself with?

…….

3. How old are you?

under 20	1
21-25	2
26-30	3
31-35	4
36-40	5
41-45	6
46-50	7
51-55	8
56-60	9
over 60	10
Refused to answer	11
Do not know	12

4. Which of the following describes you current marital status?

Never married / Single	1
Separated / Divorced	2
Married (Traditional or Western)	3
Widowed	4
Living with a partner	5
Other (Specify)…….	6

EDUCATION

1. What is the **highest** school or tertiary qualification you have passed? Indicate the qualification:

No schooling	1
Some Primary Schooling: **Please indicate the grade……**	2
Completed Primary Schooling	3
Some Secondary Schooling **Please indicate the grade……**	4
Completed Secondary Schooling	5
Post School Qualification	6

2. If the day labourer left school before passing Gr. 12, why did he leave school?

Lack of funds	1
Discouraged by not passing grade 12	2
Other Please specify.....	3

3. What other vocational training or courses did you complete?

Bricklaying	1
Painter	2
Plumbing	3
Tiler	4
Electrical work	5
Cabinet maker	6
Carpenter	7
Other Specify……	8

EMPLOYMENT AND EMPLOYMENT SEEKING HISTORY

Interviewer: Explain that the next set of questions are about your past work experience.

1. The following questions will be about the jobs you did during the last 7 days, hired from street corner hiring sites/labour markets (ask all questions for each day of the week.
Interviewer: If the respondent did not work record "no work" in column A. and continue till the chart is complete. Write in the days of the week according to the present day. If today is Friday enter the first day as Friday (last week) and continue yesterday (Thursday).

DAY 1:

Description of job:

How many hours did you work?

How much were you paid?

DAY 2:

Description of job:

How many hours did you work?

How much were you paid?

DAY 3:

Description of job

How many hours did you work?

How much were you paid?

DAY 4

Description of job

How many hours did you work?

How much were you paid?

DAY 5:

Description of job

How many hours did you work?

How much were you paid?

DAY 6

Description of job

How many hours did you work?

How much were you paid?

DAY 7:

Description of job

How many hours did you work?

How much were you paid?

2. How many days did you stand and wait for work as day labour during the last week?

1, 2, 3, 4, 5, 6, 7, ☐

1. What is **the lowest wage** you have been paid **for a day** as a day labourer during the past 12 months?

R………..

2. What is **the best wage** you have been paid **for a day** as a day labourer during the past 12 months?

R…….

3. **What is the lowest** wage per day that you are **currently willing to work** for as a day labourer?

R……

Does this amount stay the same if you are not hired for more than one day in the week before this interview?

Yes	No
1	2

If no, why does it change and by how much?

.....

4. Is your income as day labourer as good as expected?

BETTER	1
WORSE THAN EXPECTED	2
AS GOOD AS EXPECTED	3

5. Approximately, how much did you earn in wages last month?
R …….. (Round to the nearest Rand)

6. During a **good** month of work, how much do you earn as a day labourer?

R…… (Round off to the nearest Rand)

7. During a **bad** month of work, how much do you earn as a day labourer?

R…… (Round off to the nearest Rand)

1. What kind of jobs have you had as a day labour in the last month?
Interviewer: Do not read the list. Use the list to mark "yes" for those jobs that are mentioned.

	Yes	**No**
1. Gardening	1	2
2. Digging/ shovelling	1	2
3. Loading and unloading	1	2
4. Construction (demolition/cleanup)	1	2
5. Bricklaying	1	2
6. Bricklaying assistant	1	2
7. Roofing	1	2
8. Roofing assistant	1	2
9. Carpentry	1	2
10. Carpenter assistant	1	2
11. Painting	1	2
12. Painter assistant	1	2
13. Plumbing	1	2
14. Plumber assistant	1	2
15. Car wash	1	2
16. Farming activities	1	2
17. Electrician	1	2
18. Electrician assistant	1	2
19. Domestic work	1	2
20. Plastering	1	2
21. Other: Specify……	1	2

2. How often do you get hired by the same employer more than three times?

Often	1
Sometimes	2
Seldom	3
Never	4

3. Indicate which answer is relevant:

The last time when you were employed

	YES	**NO**
Did you negotiate with the employer about wages before starting with the job?	1	1
Do you usually negotiate your wages with the employer	2	2

4. During the last month have you turned down a

Yes	1
No	2

job?

27. If yes, why did you turn down the job?.....

LANGUAGE PROFICIENCY TO BE ABLE TO COMMUNICATE WITH EMPLOYERS

28. How well can you…

Understand English: (fieldworker ask the question in English)

Not at all	1
Somewhat	2
Well	3

29. How well can you speak English?

Not at all	1
Somewhat	2
Well	3

30. Hoe goed kan jy… (Ask the question in Afrikaans)

Afrikaans verstaan:

Not at all	1
Somewhat	2
Well	3

31. Hoe goed kan jy Afrikaans praat?

Not at all	1
Somewhat	2
Well	3

32. What language do most of the employers speak to you?

Afrikaans	1
English	2
Both	3
Other: Specify……	4

33. Have you ever had a full time job? (Full time with benefits)

Yes	1
No	2

28. **IF YES**, What was your last full time job?

Job title: ……

29. How long did you have the **last** full time job?

Months…….. Years…….....

36. What did the company make/produce?.....

37. Why did you leave the last full time job? **(Interviewer: Only mark one)**

Laid off business/mine/factory closed	1
Laid off business down sizing	2
Laid off business moved	3
Disciplinary reasons	4
Quit the job because wage was too low	5
Quit the job because of medical reasons	6
Other Specify……..	7
Refused to answer	8

38. Are you currently looking for a full time job?

Yes	1
No	2

39. If no, why not?……..

DEPENDENTS

40. How many people (excluding yourself) depend on your income?

Number of people ☐☐

41. How many households depend on your income? ☐☐

If the day labourer has no dependants you do not have to ask questions 40 - 43

42 In which province do they live?

Gauteng	1
Mpumalanga	2
Kwa Zulu-Natal	3
Eastern Cape	4
Limpopo	5
North West	6
Free State	7
Northern Cape	8
Western Cape	9
Other. Specify	10

43. Which of the following best describes your home where your family/families stay? (If there are more than one family, indicate both)

Brick house	1
Traditional house	2
Shack	3
Homeless living in a shelter	4
Homeless living on the street	5
No family	6
Other specify	7

44. How many children do you have?

Number of children …….

Number of children under 14 | |

45. What are the sources of income available to them?

Child support grant	1
Disability grant	2
Old age grant	3
Other salaries	4
Other specify ……	5

46. Do you stay with your family?

Yes	1
No	2

47. How often do you visit your family (if you do not live with them)?

Daily	1
Weekly	2
Monthly	3
4 Times a year	4
Twice a year	5
Once a year	6
Other Specify……	7
Refused to answer	8

48. How often do you take/send money home?

Weekly	1
Each month	2
4 times a year	3
Twice a year	4
Once a year	5
No money to take/send home	6

HOUSING
***Fieldworker: do not read the list. Tick what have been answered.**

49. In which town/township/suburb do you sleep?.....

50. In what type of structure do you usually sleep?

Construction Site	1
Backyard room with sleep in domestic worker	2
Backyard room	3
Veld/bushes	4
On the street	5
Backyard shack	6
Shack	7
Hostel/shelter	8
House (bricks/reeds etc)	9
Place of work	10
Other Specify……	11

51. How much per month do you pay to sleep at this place?

Nothing	1
R 1.00 – R49.00	2
R50.00-R99.00	3
R100.00-199.00	4
R200.00-299.00	5
More than R300.00	6

HIRING SITE

Interviewer: Explain that this set of questions is about the hiring site.

52. In what year did you start standing as a day labourer?
……

53. How many years and months in TOTAL have you been a day labourer?

Years……..……
Months…….

***Fieldworker: we want to get an idea on the movement of the day labourer**

50. When did you start as day labourer in this site?

Less than 3 months	3 – 6 months	6 months to 1 year	1 to 2 years	2 – 5 years	More than 5 years ago
1	2	3	4	5	6

51. Did you stand at other sites before this one?

Yes	1
No	2

52. If yes, at how many sites did you stand?.....

53. Have you ever day laboured in any of the following cities?

Johannesburg	1
Pretoria	2
Bloemfontein	3
Polokwane	4
Cape Town	5
Durban	6
Port Elizabeth	7
East London	8
Kimberley	9
Nelspruit	10
Other Specify…….	11

54. If not, why did you never move to a city to look for work?.....

55. For which of the following reasons did you move to this site?

This is a bigger place	1
I wanted to be closer to my family	2
Someone told me there are better opportunities here	3
Other Specify……..	4

56. Are the job opportunities at this site better, worse or about as good as you expected?

BETTER	1
WORSE THAN EXPECTED	2
AS GOOD AS EXPECTED	3

50. If the answer is **worse** or **the same** why is he/she still here?

……

* **Fieldworker: In the next question try and get a single time not a time range e.g. 5:00**

51. At what time in the morning do you usually **leave** the place where you sleep/stay to come to this site to look for work?

	am	Pm

52. At what time in the morning do you usually **arrive** at this hiring site?

	am	Pm

53. What time do you usually leave this site if you did not get work for the day?

	am	Pm

54. Where do you get water when you stand here for the day……..

55. Where do you get food while standing at the hiring site?.....

56. Where do you go if you need a toilet…….

68. Where do you wash yourself?.....

69. Where do you wash your clothes?.....

70. Does any person/group/organisation bring food to the hiring site

Yes, always	Yes, sometimes	No, never
1	2	3

71. Specify who these people are e.g. church group…….…….

FOOD

70. The next questions are about the food you have eaten in the last week.

During each of the following days of the past week, where did you get food?
Mark all applicable

The Employer	Somebody else e.g. church	Ate at home	Brought food from home	Bought food from the shop	Did not eat	From other day labourers
1	2	3	4	5	6	7

Fieldworker: read the following statement to the day labourer and he select one

71. Which of the following statements is correct for the last week?

I had enough of the kinds of food I want to eat	1
I had enough food but not always the kinds of food I want	2
I did not have enough to eat	3
Refused to answer	4

TREATMENT BY POLICE

72. Have you experienced the following types of treatment from the police or metropolitan police at the day labour site in the last month?

During the past month police/metro police	**Yes**	**No**
Helped /assisted me	1	2
Insulted or harassed me	1	2
Arrested me	1	2
Threatened me	1	2
Confiscated papers/ documents from me	1	2
Asked me about the legality of my presence	1	2
Assaulted me	1	2
Questioned me	1	2
Forced to pay bribes	1	2
Other: Specify	1	2

WORK RELATED INJURIES

Interviewer: Explain that you will now ask questions about any job injuries that he may have had while working as a day labourer. If they did not experience any injuries, skip the section

I would like to ask you about your last work related injury.

70. As a day labourer, have you in the last year suffered a serious work related injury that prevented you to work for some time?

Yes	1
No	2

RELATIONSHIPS AND SOCIAL NETWORKS.

Interviewer: Explain that the following questions are about social relationships and other activities.

71. Are you part of a group of day labourers that support one another?

Yes	1
No	2

72. In what way do help each other?

Mark all applicable

Finding work	1
Transport/getting lifts	2
Loans	3
Food	4
Shelter to sleep/housing	5
Care when sick	6
Other Specify……..	7

73. Is there anything else that we did not ask about that concerns you or that you think we should have asked you about?

Specify……

74. If the Day labourer has documents let them show it to you- if you

Documents shown:

SA ID	1
Visitors passport	2
SA Passport	3
Visa	4
None/illegal	5
Any other document Specify……..	6

Interviewer: Thank the responder for his participation.

GENERAL OBSERVATIONS: TO BE COMPLETED AFTER COMPLETION OF THE QUESTIONNAIRRE

Interviewer: Make notes on any other relevant information shared by the person, e.g.

Concerns about his existence as a day labourer. What is he worried about?

How has working as a day labourer affected relationships wit family?

What happens if he gets home without having worked that day?

How do they survive on a daily basis if he did not get a job for the day/week?

What are the things that still make him hopeful or positive?

What are the hazards being a day labourer?

Observation notes about the site

Are there different groups of people how do they relate