AN EXPLORATION OF THE CORRELATES OF LONG-TERM UNEMPLOYMENT IN SOUTH AFRICA USING NATIONAL SURVEY DATA, 2001-2007

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A dissertation submitted to the School of Development Studies University of KwaZulu-Natal, Durban, in partial fulfilment of the requirements for the degree of Master of Development Studies in the School of Development Studies.

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ABSTRACT

This dissertation provides an empirical analysis of the correlates of long-term unemployment in South Africa using national survey data from 2001 and 2007. Within the South African context, very little research relating to the length of unemployment spells has been conducted. The negative implications of long-term unemployment necessitate a clearer understanding of the factors that affect this phenomenon. Of particular interest to this study is the impact of human capital variables, measured by education and previous work experience, on the length of unemployment spells.

The results indicate that in 2001 a degree or diploma was the only level of education that reduced the probability of long-term unemployment amongst the strictly unemployed. By 2007, no level of the education had an effect on the probability of long-term unemployment. These results raise serious questions about the ability of formal South African education qualifications to act as a proxy for human capital and thus the productive capacity of individuals. In contrast, having previous work experience significantly reduced the probability of long-term unemployment amongst the strictly unemployed in both 2001 and 2007. These results suggest that relative to education, previous work experience is a more accurate and thus acceptable measure of an individual's productive potential amongst prospective employers.

Finally, given the variety of negative effects associated with long-term unemployment such as crime, poverty as well as human capital depreciation, it is important that steps are taken to reduce the phenomenon. A short discussion is provided on the implementation of a wage subsidy which could be targeted towards the unemployed most prone to long-term unemployment; this would help these individuals to secure employment and thus gain valuable work experience. It is this work experience which will play a critical role in determining the future employment prospects of individuals within the South African economy.

DECLARATION

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. It is being submitted for the degree of Development Studies in the Faculty of Humanities, Development and Social Science, University of KwaZulu-Natal, Durban, South Africa. None of the present work has been submitted previously for any degree or examination in any other University.

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Student signature

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Date

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CHAPTER ONE: INTRODUCTION

1.1 Unemployment in South Africa

Since the advent of democracy in 1994, the South African economy has undergone a number of significant changes; the government has invested heavily in redressing the injustices of the past, increasing social spending and promoting equitable education for all South Africans. These policies have directly and indirectly affected the labour market and, as a result, the lives of many South Africans. However, despite these efforts the historical legacies of the South African economy have played an important role in determining the current structure of the labour market and thus provide an important contextual basis for any research pertaining to unemployment in South Africa.

Historically, the legacies of colonialism and apartheid have resulted in a particular path of economic development, which has been largely driven by primary production and mineral exports (Jauch, 2004). This particular development trajectory has created a number of structural constraints within the economy, inhibiting the creation of a more inclusive and equitable labour market. The historical agricultural and industrial policies, the associated regional labour migration policies, discriminatory education policies and the focus on extractive industries have among others, resulted in a situation where a significant proportion of the South African labour force are unable to engage in productive activities within the formal economy in an equitable manner (Mhone, 2000).

The residual effects of these policies can still be seen within the current structure of the South African economy. The economy has been described as dualistic, in the sense that there exists a well-developed formal sector existing side by side with a large unregulated informal sector (Mhone, 2000). The nature of the informal sector ensures that a significant proportion of the labour force is unable to effectively participate in the capital accumulation process (Mhone, 2000). This dualistic nature of the economy has resulted from the fact that South Africa's development trajectory was initially controlled by

external parties, whose primary interest was the extraction of resources and wealth. This created a situation where the broader native population was largely inhibited from participating in the accumulation process (Jauch, 2004).

It has been argued that the persistence of the poor labour absorptive capacity of the South African economy in post apartheid South Africa continues due to the existence of sectoral imbalances (Mhone, 2000). Employment creation within the South African economy has been primarily driven by the tertiary sector. Between 1995 and 2005 the primary sector grew at an average annual rate of 1.5 percent, the secondary sector grew at an average annual rate of 2.9 percent and the tertiary sector grew at an annual average rate of 3.9 percent during this period (Bhorat & Oosthuizen, 2008). The tertiary sector thus accounted for 76 percent of the total output expansion between 1995 and 2005 (Bhorat & Oosthuizen, 2008). These results indicate the changing structure of the South African economy, which is increasingly biased towards tertiary outputs. Unfortunately, the development of the tertiary sector as the primary driver of economic growth was not preceded by the exhaustive development of the primary and secondary sectors which have a relatively high labour absorptive capacity of low and semi-skilled workers (Bhorat & Oosthuizen, 2008).

The fact that the tertiary sector is now the primary driver of economic growth in the South African economy means that individuals seeking employment in this sector require a certain level of human capital to secure employment. Unfortunately previous discriminatory education and employment policies effectively inhibited the development of human capital among the majority of the population, and thus these individuals find it increasingly difficult to find employment within the tertiary sector. The residual effects of these discriminatory policies remain an important factor in the structure of the current labour market.

As a result of these structural constraints, the South African economy has been characterised by extremely high levels of unemployment for some time, and it may be

said that the country is experiencing an unemployment crisis. The incidence of unemployment may be measured by two unemployment statistics, the strict and the broad (or expanded) unemployment rates. According to Statistics South Africa (StatsSA) (2007: 2) strictly unemployed individuals are defined as, "persons aged 16 to 65 who did not have a job or business in the seven days prior to the survey interview but had looked for work or taken steps to start a business in the four weeks prior to the interview and were available to take up work within two weeks of the interview". Broadly unemployed individuals are defined in a similar manner, except that the requirement of job search within the four weeks prior to the interview is dropped.

In many developed countries the difference between the incidence of unemployment reported by the strict and broad definitions is often marginal. In the South African context however, the difference is significant. The national Labour Force Survey (LFS) data indicate that in 2007, approximately 23 percent of the labour force aged 18 to 65 years was strictly unemployed. The unemployment rate increased to approximately 36.5 percent when measured using the broader definition (own calculations from LFS, 2007). The large disparity in the incidence of unemployment measured by the strict and broad definitions in the South African context has been attributed to the discouraged work seekers phenomenon (Kingdon & Knight 2000). Kingdon and Knight (2000), note that at high unemployment rates individuals may stop actively seeking employment as they become discouraged by the high incidence of unemployment or by the length of time they have been seeking employment. In the South African context, job search is often inhibited by poverty, the cost of searching for employment and adverse local economic conditions (Kingdon & Knight, 2000).

Related to the high incidence of unemployment in South Africa are a number of important demographic and geographic characteristics. For example, Africans are more likely to be unemployed relative to other race groups, particularly Whites. Women are more prone to unemployment than men. There are also significant regional differences in the incidence of unemployment. Unemployment rates in the provinces which generate a

significant proportion of South Africa's GDP are generally much lower than in those provinces which do not.

1.2 Long-Term Unemployment

Although unemployment figures such as those reported above are widely used indicators of the prevailing macroeconomic conditions within the South African economy, they provide an incomplete picture of the labour market. The length of unemployment spells faced by individuals within the labour force provides a more enlightening indicator of labour market dynamics. For example, consider the case where 10 percent of the working-age population is unemployed for the whole year, or where for each month of the year, a different 10 percent of the population experiences unemployment. In both cases the aggregate unemployment level within the economy is 10 percent. However, the length of unemployment spells has important consequences for the individuals experiencing unemployment. This example illustrates the complex dynamics that occur within the labour market, which are often masked by traditional unemployment statistics (Corak & Heisz, 1995).

Within the South African labour market long-term unemployment is a serious cause for concern. Internationally long-term unemployment is often defined as being unemployed for 12 months or more. In 2007, approximately 49 percent of the strictly unemployed had been seeking employment for over a year. Furthermore, approximately 28 percent of the strictly unemployed had been seeking employment for three years or more (own calculations from LFS, 2007). [1] Unfortunately no comparable data exist for other African countries, but when compared to the incidence of long-term unemployment amongst OECD countries in 2006, the proportion of South Africans experiencing long-term unemployment ranks amongst the worst performing OECD countries (OECD, 2006).

[1] South African Labour Force Survey data only collects information on the length of unemployment amongst the strictly unemployed. The South African statistical analysis in this study therefore has to be restricted to this group of the unemployed. This will be discussed in more detail in the data and methodology sections.

It is important to note that in the OECD countries with high levels of long-term unemployment such as Germany and Belgium, there are generally well-developed social safety nets for the unemployed. Unfortunately, the unemployed in South Africa do not share the same level of protection. Approximately 99.5 percent of unemployed South Africans do not receive unemployment insurance (own calculations from LFS, 2007). The lack of unemployment insurance support amongst the unemployed may be due to the fact that a significant proportion of the unemployed, around 55 percent, have never worked before (own calculations from LFS, 2007). Furthermore, many of the unemployed who have worked before are likely to have been employed within the informal sector and thus would not have made contributions towards unemployment insurance.

The importance of understanding the length of unemployment spells stems from the differential impacts of short and long-term unemployment on both individuals and the broader economy. At the individual level the length of an unemployment spell has a direct impact on personal welfare. Financially, unemployment results in the inability to generate income for personal support and for the support of dependants. It has been argued that the non-financial effects of being unemployed such as the loss of self-esteem and social status may even be greater than the effect that results from the loss of income (Brown & Sessions, 1997; Ochsen & Welsch, 2006; Stankunas *et al*, 2006). As a result, the consequences of unemployment on individual happiness have become an important area of research within the fields of psychology and economics. Ochsen and Welsch (2006) have shown that that the length of unemployment spells has a significant impact on the reported life satisfaction of citizens in various European countries. Within these countries being unemployed rated as one of the strongest determinants of individual unhappiness.

Within South Africa, unemployment is strongly associated with a variety of socio-economic ills such as alcoholism, crime, poverty, HIV/AIDS as well as poor educational attainment and skills development (Duff & Fryer, 2005). Furthermore, the length of

unemployment spells experienced by households is an important determinant of economic risk. In the absence of functioning credit markets, extended periods of unemployment can cause significant fluctuations in consumption expenditure (Dendir, 2007). It has been argued that the individual and social costs that arise from long-term unemployment imply that controlling the length of unemployment spells may be more important than controlling unemployment incidence (Coles & Masters, 2000; Ochsen & Welsch, 2006).

From a macroeconomic perspective, it has been noted that individuals experiencing long-term unemployment experience human capital or skills depreciation over time, thus reducing their chances of securing employment in the future (Jackman & Layard, 1991; Pissarides, 1992). As a result these individuals may become detached from the labour market and thus do not play a significant role in competing for jobs. This may result in the phenomenon of hysteresis, whereby their absence from the labour market may reduce the downward wage pressure causing an overall rise in unemployment (Blanchard & Summers, 1988; Baffoe-Bonnie, 2003; Machin & Manning, 1999). As a result of the depreciation of the human capital stock during lengthy unemployment spells, it has been argued that government policies should be directed at the prevention of long-term unemployment, as such polices are more cost effective than attempting to retrain and rehabilitate the long-term unemployed (Coles & Masters, 2000).

1.3 Research Objectives

There exists a significant amount of literature relating to the factors affecting the probability of being unemployed in South Africa, (for examples see Bhorat & Leibbrandt, 2001; Dias & Posel, 2007; Kingdon & Knight, 2005). However, the impact of factors affecting the length of unemployment spells has not been studied in any great depth. [2] The prevalence of long-term unemployment in South Africa and the associated negative

[2] One working paper by Kingdon and Knight (2005) briefly explored this issue for South Africa as a part of a much larger review of the nature of unemployment in South Africa. This study will be discussed in more detail in the next chapter.

impacts noted above necessitates a comprehensive analysis of the factors affecting this phenomenon.

The main motive of this study is to add to the current body of knowledge on the nature of unemployment in South Africa by exploring the impact of various demographic, geographic and human capital characteristics on long-term unemployment in South Africa. Bhorat and Oosthuizen (2008) have noted that the majority of the employment growth in South Africa is being driven by the tertiary sector. As a result, individuals seeking employment need to possess a certain level of human capital in order to secure a job in this sector. Thus the role of human capital variables, namely the level of formal education and the skills acquired through previous work experience, in determining the length of unemployment spells, is of particular interest in this study. It is hypothesized that given the skills bias evident in the South African economy (see Edwards, 2001; Behar, 2006; Daniels, 2007; Bhorat & Oosthuizen, 2008), higher levels of human capital, proxied by the level of education attained and previous work experience, would reduce the length of unemployment spells experienced by strictly unemployed individuals within the labour force. In light of this, three research questions will be explored.

1. To what extent are various demographic, geographic and human capital characteristics among the unemployed in South Africa correlated with long-term unemployment?

2. How have these correlations changed over time between 2001 and 2007?

3. In particular, how do human capital variables, measured by education and previous work experience, affect the length of unemployment spells in the South Africa, and how have these changed over time?

These questions will be answered through a descriptive and econometric analysis of the unemployment data provided by the South African Labour Force Survey (LFS). The econometric analysis will involve the specification of a probit model to determine the

factors that affect the probability of being in long-term unemployment amongst the strictly unemployed. The analysis will make use of the September 2001 and 2007 LFS in order to provide a comparison of the impact of these factors over time.

The rest of this dissertation is structured as follows. Chapter Two provides an introduction to human capital theory and its application in the South African context, as well as a review of the international and South African literature pertaining to length of unemployment spells. Chapter Three describes the data used in the empirical analysis and lays out the methodology relating to the descriptive and econometric analysis of the length of unemployment spells in South Africa. Chapter Four presents the results of the analysis and discusses the implications of the findings for policy initiatives. Chapter Five concludes.

CHAPTER TWO: THEORETICAL FRAMEWORK & LITERATURE REVIEW

2.1 Introduction

The problem of high levels of unemployment within the South African labour force has not gone unnoticed by the government. As a result various policies have been implemented in an attempt to redress the imbalances in labour supply and demand. The first part of this chapter introduces the theory of human capital as a theoretical framework through which unemployment in South Africa may be analysed. This is in light of the government's primary initiative to tackle the unemployment problem, the National Skills Development Strategy (NSDS) which aims to promote human capital accumulation amongst labour force participants.

The second part of the chapter provides a review of the international and South African literature pertaining to the length of unemployment spells. Any research into the length of unemployment spells requires comprehensive labour force data collected on a regular basis. In many developed countries comprehensive data sets pertaining to labour force dynamics exist, however in many developing countries such data sets are often hard to come by, as they are either not collected regularly or information relating to the length of unemployment spells is not suitably recorded. As a result of these limitations it should be noted that literature relating to unemployment duration in developing countries, particularly in Africa, is relatively scarce.

2.2 Theoretical Framework

2.2.1 Human Capital Theory

Although it is called human capital theory, Blaug (1976) notes that the work pertaining to human capital cannot be reduced to one single theory. Rather, it is a result of the extension of standard capital theory to various economic phenomena. The term human capital, conceptualizes workers as embodying a set of skills that can be 'rented out' to employers. The knowledge and skills a worker possesses, which come with education and training as well as the acquired skills that result from work experience, creates a stock of productive capital within an individual (Ehrenberg & Smith, 2003). The particular value of the productive capital embodied in an individual is derived from how much these skills can earn in the labour market (Ehrenberg & Smith, 2003). The origins of human capital theory can be traced to the work of Adam Smith; subsequently it has been extensively developed by amongst others, Theodore Schultz, Gary Becker and Jacob Mincer. The central theme of human capital theory is that individuals make current investments aimed at expanding their knowledge base or skill set in order to secure a variety of financial and non-financial returns in the future (Mincer, 1958; Becker, 1962, 1997; Blaug, 1976; Ehrenberg & Smith, 2003).

Within the lifetime of an individual the acquisition of human capital occurs in three basic stages. The first stage is early childhood where general human capital attributes such as basic numeracy and literacy skills, as well as attitudes towards learning are acquired (Ehrenberg & Smith, 2003). In this stage of human capital, development is largely determined by the decisions of others such as parents and the broader cultural environment within society (Ehrenberg & Smith, 2003). The second stage involves the acquisition of more specific human capital by young adults in secondary and tertiary education. In this stage individuals are likely to have more control over the specific human capital attributes they acquire through the choice of particular education paths. Finally human capital is continually acquired by individuals over their working life

through on the job training and work experience (Ehrenberg & Smith, 2003). It is important to note that the investment in human capital not only refers to investment in education, but rather to a diverse range of factors with the expectation of gaining financial and non-financial benefits in the future. For example investments in personal health and migration may be viewed as investments in human capital provided these investments are made with the aim of securing a stream of benefits in the future (Blaug, 1976).

2.2.2 Human Capital and Employment

The primary focus of the empirical work relating to human capital has largely been on the impact of human capital on individual earnings (Mincer, 1958; Weisbrod, 1962; Freeman, 1986; Willis, 1986). This work has shown that greater levels of human capital result in greater earnings over an individual's lifetime. The relationship between human capital and the incidence of unemployment has not been given as much attention. Nickell (1979) as well as Dias and Posel (2007) have suggested a number of reasons why the probability of employment would rise with higher levels of human capital. The level of human capital among prospective employees is likely to determine their level of productivity, and thus firms are more likely to hire individuals who possess greater levels of human capital.

According to Dias and Posel (2007: 3), "in cases where higher formal education may not directly increase an individual's productivity, employers with imperfect information about prospective employees may use education as a 'sorting device' to help evaluate the future worth of an employee." Furthermore, " the level of formal education an individual has attained may be used to predict how quickly an individual will acquire new skills on the job, how productive the individual will be after training, the individual's work ethic and his or her commitment to the job" (Dias & Posel, 2007: 3). Parsons (1972) and Nickell (1979) argue that if part of an employee's human capital is specific to a particular firm, the more human capital an individual has, the less likely firms are to make them

redundant. According to Dias and Posel (2007), the relationship between human capital and employment is likely to be influenced by the structure of the labour market. For example, in the South African economy where there is a disproportionately high demand for skilled labour, individuals with higher levels of human capital are more likely to secure employment (Behar, 2006; Dias & Posel, 2007). In the South African context, Wittenberg (2002) has noted that given the poor quality of education in South Africa, employers may be unwilling to use education as a proxy for human capital. As a result previous work experience may provide a better signal to employers of an individual's productive potential and skills acquisition (Dias & Posel, 2007).

Although there appears to be a clear link between human capital and the probability of an individual being employed, the relationship between human capital and the length of unemployment is more complex. Nickell (1979) has argued that the increased costs associated with hiring and training skilled relative to unskilled workers and the fact that unskilled workers can presumably work in any unskilled job, may result in unskilled workers being more readily hired, as long as wage levels for unskilled workers remain low. Assuming a direct relationship between education and skill level, this would imply that unemployment duration is an increasing function of education. In Sri Lanka it was found that the unwillingness of educated individuals to take low paying jobs particularly in the agricultural sector resulted in longer unemployment spells amongst educated individuals relative to individuals without such education (Dickens & Lang, 1996).

There are, however, a number of offsetting tendencies. First, skilled workers may take unskilled jobs while waiting for more suitable employment and secondly unskilled workers are known to be less geographically mobile and have higher replacement ratios (Nickell, 1979). It should however be noted that in the South African context where there is a shortage of skilled individuals within the labour market, the length of unemployment is expected to be a declining function of education and previous work experience.

2.2.3 The Application of Human Capital Theory in South African Policy

Over the past decade the South African government has shifted to an increasingly human capital oriented approach to tackle the issue of unemployment and drive economic growth (Baatjes, 2008). The realisation that growth within the economy is being driven by sectors reliant on skills and that a significant proportion of the non-youth unemployed may be unemployable due to their lack of previous work experience, long duration of unemployment and lack of skills has led to a strong emphasis on the development and upgrading of human capital factors within the labour force. For example, the National Skills Development Strategy (NSDS) forms an integral part of government's primary growth policy, the Accelerated and Shared Growth Initiative for South Africa (ASGISA). The NSDS has a number of important objectives specified by the Department of Labour (DOL). These objectives are listed below (DOL, 2007):

1. Prioritising critical skills for sustainable growth, development and equity.
2. Promoting and accelerating quality training for all in the workplace.
3. Promoting employability and sustainable livelihoods through skills development.
4. Assisting designated groups, including new entrants to participate in accredited work, integrated learning and work-based programmes to acquire critical skills to enter the labour market and self-employment,
5. To improve the quality and relevance of skills provision.

The sector education and training authorities (SETAs) are the primary agents through which the government plans to achieve the objectives set out by NSDS. Currently 23 SETAs are in operation, attempting to redress the skills imbalance within the economy. According to the DOL (2007: 3), "the main responsibilities of the SETAs are to develop Sector Skills Plans (SSPs), approve, register and promote learnerships, disburse mandatory grants to employers on the receipt and approval of Workplace Skills Plans (WSPs) and Annual Training Reports (ATRs), disburse discretionary grants for projects that address specific sectoral needs identified in their SSPs, and administer income from skills development levies". Furthermore SETAs are responsible for assuring the quality

standards of the training provided through their Education and Training Quality Assurance bodies (ETQAs).

Since the South African government has placed such a high emphasis on the development and upgrading of human capital within the labour force, it is vitally important to understand how the human capital characteristics of the population affect issues relating to long-term unemployment. Dias and Posel (2007) have suggested that in the South African context education and work experience are likely to affect an individual's employment probability through a number of ways discussed above. This study aims to add to the South African literature relating to unemployment by determining how human capital characteristics, namely the education levels and previous work experience of individuals, affect the length of unemployment within the South African context. It is important to note that while the link between education and unemployment and employment has been tested empirically, the effect of previous work experience has not. The South African LFS data do not contain employment histories for the currently employed. As a result, the impact of previous work experience can only be examined in relation to the length of unemployment amongst the strictly unemployed.

2.3 Literature Review

2.3.1 Unemployment Duration: The International Literature

There has been a significant amount of literature pertaining to the length of unemployment in OECD countries (for examples see Hunt 1995; Boheim & Taylor 2000; Roed & Zhang 2003; Tatsiramos 2006). These studies predominantly examine the effects of unemployment insurance on the length of unemployment spells, and in many cases make use of comprehensive panel data that unfortunately are not available in South Africa or in many other developing countries. It is important to note that within the South African context unemployment insurance is unlikely to have a significant impact on the length of unemployment spells. In 2007, 99.51 percent of unemployed individuals did not

receive any support form the Unemployment Insurance Fund (UIF) (own calculations from LFS, 2007). The majority of the strictly unemployed in South Africa (approximately 77 percent) were supported by other individuals in their households (own calculations from LFS, 2007). As a result of these important contextual differences in the issues relating to the length of unemployment spells in developed and developing countries, the focus of this review will be on the developing country literature.

Before an analysis of the literature, it is important to note that data on the length of unemployment spells may either be recorded through complete or incomplete spells. Completed spells refer to retrospective data, where information is captured on the length of time currently *employed* individuals spent seeking employment. Incomplete spells relates to the length of time that currently *unemployed* individuals have been seeking employment. Guell and Hu (2006) have noted that relative to completed spells, incomplete spells are suggestive of the actual length of unemployment, but are subject to two biases.

Firstly, a length bias emerges when unemployment duration is analysed using incomplete unemployment spells. This is due to the fact that true lengths of the unemployment spells are not captured, as individuals remain unemployed after the survey is conducted and as a result the actual length of unemployment spells is understated. Secondly, what Corak and Heisz (1995) refer to as a sampling bias exists. This bias operates in the opposite direction. The sampling bias refers to the fact that in a point in time survey such as the South African LFS, the probability that an unemployed individual will be captured as unemployed at that time, is proportional to the length of their unemployment spell (Corak & Heisz, 1995). Individuals with short unemployment spells over the previous year would be more likely to be captured at a point in time as either employed or inactive. Thus, the greater the spell length the greater is the chance that an individual will be included in the sample of unemployed. As a result, those individuals with shorter spells are likely to be underrepresented in the sample of unemployed. If this were the only bias it would overstate the average unemployment duration, however both biases are at play

thus it is unclear whether the average length of unemployment as measured by incomplete spells understates or overstates the actual length of unemployment spells (Corak & Heisz, 1995).

Dendir (2007) analyzed unemployment duration in Ethiopia using both completed and uncompleted spells. The length of unemployment spells were found to be significant in Ethiopia, with the average completed spell lasting 3 years and uncompleted spells lasting 4.7 years. It was found that age had a significant negative impact on the length of unemployment, a one year increase in the age of an individual resulted in a 5.5 percent decrease in the length of unemployment. Although Dendir (2007) did not specifically examine the effects of previous work experience, he argued that age partly captured experience and thus older individuals with more work experience had shorter spells of unemployment.

Within Ethiopia, the level of education achieved played an important role in determining the length of unemployment. Individuals with a college diploma or a university degree experienced much shorter spells of unemployment than those with only high school qualifications (Dendir, 2007). Interestingly individuals with only primary school education had shorter unemployment spells than individuals with secondary education. This was probably caused by the fact that individuals with only primary school education had a lower reservation wage and thus were more likely to accept employment offers that secondary school graduates deemed unsuitable. The impact of previous work experience was not analysed in this study.

Surprisingly, given the specific household roles of males and females in Ethiopian society, gender was not found to have a significant impact on the length of unemployment. It was found that married individuals experienced shorter spells of unemployment. This was believed to be due to the increased responsibilities faced by married individuals with dependants, as a result married individuals would have higher job search intensities and would be less likely to decline employment offers (Dendir,

2007). Furthermore, employers may be more willing to employ married men if they are considered more stable or conform to certain social norms. An analysis of the support mechanism for job searchers found that individuals relying on their own support were found to have longer unemployment spells than those relying on their families. It was argued that the longer unemployment durations of individuals who supported themselves, was indicative of a lesser urgency in the search for a job due to the availability of alternative livelihoods. Individuals who relied on their family were more likely to be pressurized into finding jobs sooner in order to become independent (Dendir, 2007).

Tansel and Tasci (2004) used household labour force surveys to analyse the determinants of unemployment length for men and women in Turkey. The fact that these surveys captured completed unemployment spells meant that a more formal analysis of unemployment duration was undertaken. In contrast to the study by Dendir (2007) gender differentials played an important part in determining the length of unemployment in Turkey. It was found that women experienced significantly higher unemployment durations than men. It was argued that women played a valuable role within households and thus had a higher reservation wage than men (Tansel & Tasci, 2004). Furthermore it was found that married women experience significantly longer spells of unemployment than unmarried women. The analysis of marital status indicated that for the male sample being married increased the probability of exiting unemployment, relative to unmarried men. For women being married reduced the probability of exiting unemployment, thus men appear to have greater labour market attachment resulting from marital responsibilities relative to women (Tansel & Tasci, 2004).

In this study the education coefficients were found to be highly significant and positive indicating that educated individuals had shorter unemployment spells relative to individuals without education. Furthermore, it was noted that the educational effects are much larger for woman than men (Tansel & Tasci, 2004). In contrast to the study in Ethiopia, Tansel and Tasci (2004) found that individuals aged 45 years and above had a lower probability of exiting unemployment than those in the age group 15 to 19 years. The effects were larger for women than for men in older age groups. It was found that the

local unemployment rate in particular regions played an important role in determining the exit rate from unemployment for both men and women (Tansel & Tasci, 2004). Furthermore the length of unemployment spells in urban areas were shorter than those in rural areas; it was argued that the prevalence of rural to urban migration in Turkey was most likely a result of the increased probability of securing employment in urban areas (Tansel & Tasci, 2004).

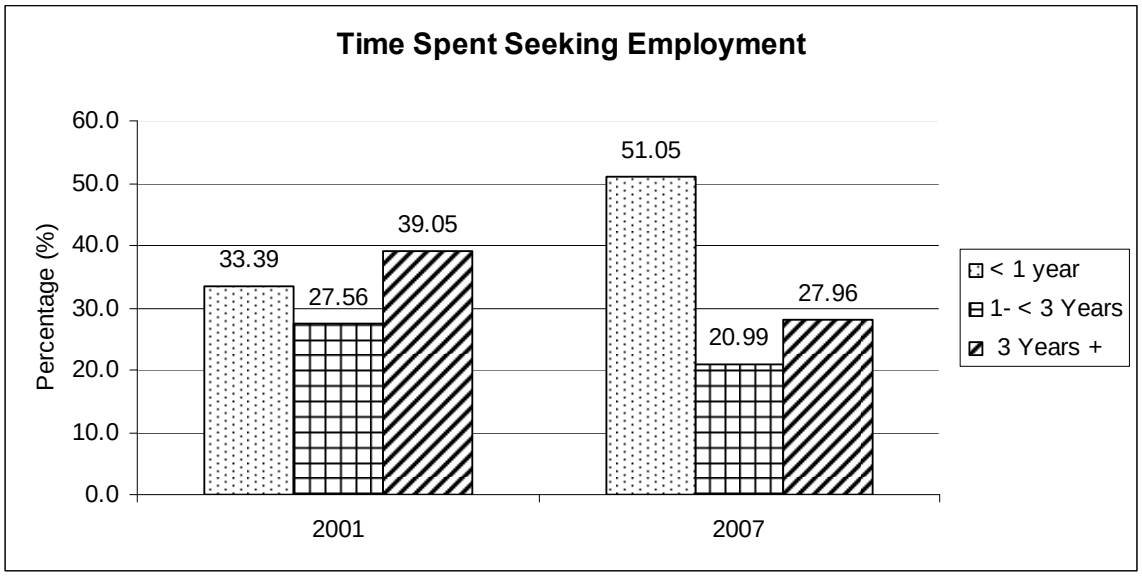
Unfortunately the lack of literature relating to the impact of human capital variables on the length of unemployment spells in developing countries limits the scope of this literature review. It is important to note that the studies by Dendir (2007) and Tansel and Tasci (2004) had a strong emphasis on gender which is not the focus of this study. They did however provide some evidence that the impact of education on the length of unemployment spells is positive and significant. Dendir (2007) inferred that decreasing length of employment spells with age may partly capture previous work experience. Tansel and Tasci (2004) did not include the analysis of previous work experience in their study.

2.3.2 Unemployment Duration in South Africa

The severity of long-term unemployment within the South African labour force is indicated in Figure 1 below. In 2001, approximately 67 percent of the strictly unemployed had been searching for employment for over a year. By 2007, approximately 49 percent of the strictly unemployed had been searching for over a year. Furthermore, in 2001, approximately 39 percent of the strictly unemployed had been searching for three years or more. By 2007, approximately 28 percent of the strictly unemployed had been searching for three years or more. Although there is a decline in the proportion of individuals experiencing lengthy search times between 2001 and 2007, the proportion of individuals experiencing long-term unemployment is still high by international standards.

Unfortunately no comparable data exists for other African countries, but when compared to the prevalence of unemployment spells of greater than one year amongst OECD countries shown in Figure 2, the proportion of South Africans experiencing long-term unemployment spells ranks amongst the worst performing OECD countries. It is important to note the differing context in which long-term unemployment occurs in developed and developing countries. Within developed countries such as many OECD states, the high levels of long-term unemployment are associated with well developed social safety nets for the unemployed. Unfortunately the unemployed in South Africa do not share the same level of protection; approximately 99.5 percent of unemployed South Africans do not receive unemployment insurance (own calculations from LFS, 2007).

Figure 1: Search times amongst the strictly unemployed, 2001 and 2007

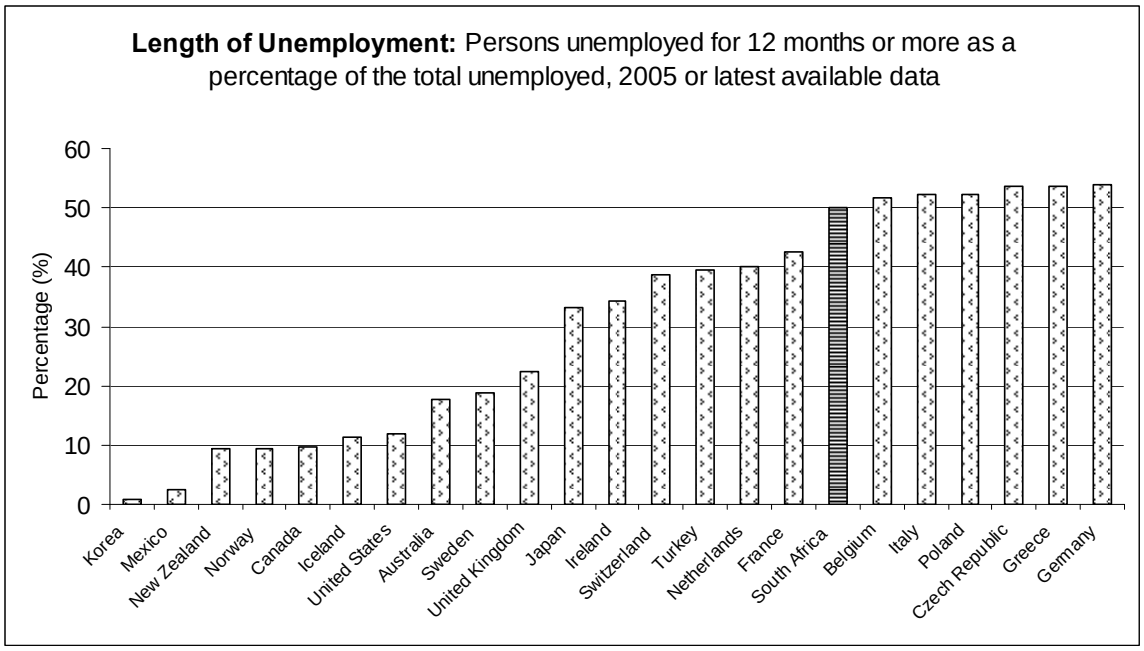


Source: Own calculations from LFS, 2001 & 2007

Furthermore, consider the hypothetical case of a developed country with a similar sized labour force as South Africa. The incidence of unemployment in this developed country is likely to be much lower than in South Africa, for example the German unemployment rate was 8.6 percent in 2009. As a result, even if the proportion of the unemployed experiencing long-term unemployment is similar, the absolute number of individuals

experiencing long-term unemployment in this developing country would be much lower than in South Africa.

Figure 2: The incidence of unemployment spells greater than one year amongst the unemployed in South Africa and various OECD countries



Source: OECD, 2006; own calculations from LFS, 2007

Within the South African context the analysis of the determinants of unemployment duration in is an important area in which very little research has been conducted. Kingdon and Knight (2005) included a brief analysis of unemployment duration within their broader review of unemployment in South Africa from 1995 to 2003. Kingdon and Knight (2005) conducted a descriptive analysis of long-term employment as well as an econometric analysis through the application of a binary probit model to determine what factors influence the length of unemployment spells.

The descriptive analysis by Kingdon and Knight (2005) produced some interesting results. Between 1995 and 2003 the proportion of the unemployed who had been searching for three years or more (the long-term unemployed) increased from 32.5 to 37.1

percent. It was found that in this time period the incidence of long-term unemployment increased the most amongst White individuals with higher education, older labour force participants and in the North West and Limpopo provinces. It was argued that the increasing incidence of long-term unemployment among Whites was a result of African work seekers becoming discouraged and exiting the labour force while Whites continue to search since their unemployment rates are much lower and the probability of securing employment much greater (Kingdon & Knight, 2005).

The econometric analysis by Kingdon and Knight (2005) [3] involved the specification of a binary probit model to determine the impact of a number of variables on the probability of an individual searching for three years or more. The variables analysed were race, age, gender, education, province and whether an individual resided in an urban or rural area. Relative to Whites, Africans, Indians and Coloureds all had a higher probability of being in long-term unemployment in both 1995 and 2003. In both these years women had a marginally greater probability of being in long-term unemployment than men. The analysis of the age variables indicated that younger individuals were less likely to be experiencing long-term unemployment; furthermore the declining probability of young individuals experiencing long-term unemployment between 1995 and 2003 suggested that younger individuals were staying in school and joining the labour force when they were older (Kingdon & Knight, 2005).

In 1995 individuals with secondary and higher education had a lower probability of experiencing long-term unemployment of between five and six percentage points relative to individuals who had no schooling. Interestingly by 2003, secondary and higher education did not significantly reduce the chances of experiencing long-term unemployment in comparison to those with no schooling (Kingdon & Knight, 2005). Controlling for other factors between 1995 and 2003, the chances of being in long-term unemployment increased by 5 to 9 percentage points for persons with at least junior education, compared to those with no education (Kingdon and Knight, 2005).

[3] There are two versions of Kingdon and Knight's ten year review of unemployment. The 2005 unpublished manuscript is cited here. The 2007, *Journal of African Economies*, version did not include the probit analysis presented in the earlier unpublished manuscript.

Taking into account the available data, this study aims to update and extend the brief analysis of long-term unemployment conducted by Kingdon and Knight (2005). This study involves both a descriptive and econometric analysis of long-term unemployment using directly comparable data provided by the 2001 and 2007 September LFSs. One advantage of this study over Kingdon and Knight (2005) is that comparable data from 2000 to 2007 are now available. The 1995 data used in Kingdon and Knight's (2005) analysis was from the October Household Survey (OHS), a precursor to the LFS which is used for the 2003 data. Unfortunately significant differences in the sampling frames and questionnaire design of these surveys suggest that the data sets are not directly comparable (Casale *et al*, 2004).This research will focus more specifically on the impact of human capital variables, namely education and previous work experience on the length of unemployment spells. The effect of previous work experience on the length of unemployment spells has not been studied in the South African context, thus this study aims to add an analysis of this important factor to the literature regarding unemployment in South Africa.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The prevalence of long-term unemployment and its associated negative impacts necessitate a clearer understanding of the phenomenon. The fact the government has implemented the NSDS as the primary strategy for achieving economic growth and tackling the problem of unemployment, necessitates a deeper understanding of how the human capital attributes possessed by the labour force affect long-term unemployment. As was outlined by the previous chapter, this is an area in which little research has been conducted in South Africa, thus the aim of this study is to add to the literature in this regard. The specific research questions that will be explored are:

1 To what extent are various demographic, geographic and human capital characteristics among the unemployed in South Africa correlated with long-term unemployment?
2 How have these correlations changed over time between 2001 and 2007?
3 And more specifically, how do human capital variables, measured by education and previous work experience, affect the length of unemployment spells in the South Africa, and how have these effects changed over time?

3.2 Data

In order to answer the above stated questions a descriptive and econometric analysis of the Labour Force Survey (LFS) unemployment data will be conducted. The LFS is a bi-annual household survey, specifically designed to measure a variety of factors within the labour market, conducted by Statistics South Africa (StatsSA). It also provides insight into a variety of issues relating to the labour market, including the level and pattern of unemployment as well as the industrial and occupational structure of the economy. The LFS involves the collection of detailed information on approximately 67 000 adults of

working age (15 to 65 years) living in over 30 000 households across the country (Stats SA, 2007).

The LFS collects data on incomplete unemployment spells as information pertaining to the length of unemployment spells of the currently unemployed only, is collected. No data is collected on the length of time that the currently *employed* individuals spent seeking employment before they found a job. Secondly, unemployment data is only collected for strictly unemployed individuals; that is individuals who have been actively searching for employment within the past four weeks. [4] As a result, the analysis of length of unemployment spells in South Africa can only be undertaken for the strictly unemployed.

Kingdon and Knight utilised the October Household Survey (OHS) 1995 and the Labour Force Survey (LFS) 2003 for their analysis of unemployment and the length of unemployment. This study utilises directly comparable data from the September 2001 and 2007 LFSs in order to conduct the analysis. Furthermore an analysis of data from the 2000 and 2006 LFSs was undertaken in order to ensure that the results obtained in this study were consistent when using different start and end points. [5] The sample included all unemployed individuals between the ages of 18 and 65. [6] In 2001 and 2007 the samples consisted of 10707 and 8317 strictly unemployed individuals respectively. When weighted these samples represent 4582434 and 3837263 individuals respectively.

A number of variables were analysed to ascertain their level of correlation with the length of unemployment. Of particular interest were human capital variables, namely the level of education and the previous work experience of the unemployed. The impacts of a

[4] See Appendix 1 for the specific questions in the LFS related to length of unemployment, as well as an explanation of how these questions exclude the broadly unemployed.
[5] There has been some concern over the collection of informal employment data in September 2000, which could directly impact the unemployment data (Casale *et al*, 2004). It was therefore decided to rather use 2001 as the start point.
[6] It is important to note however that in the context of this study the strictly unemployed will only include individuals aged 18 to 65 years; this is due to the fact that the primary focus of this study is on long-term unemployment defined as being strictly unemployed for three years or more. The minimum age for the strictly unemployed is increased to 18 in order to ensure that the majority of the sample is active within the labour force rather than in schooling.

number of other variables on the length of unemployment were also analysed. The individual level variables of interest were age, gender and race and the regional variables included indicators for province and urban/rural residence.

3.3 Empirical Methodology

The analysis of the length of unemployment spells amongst the strictly unemployed consists of two main parts. The first part involves a descriptive analysis which presents the correlation of the various human capital, demographic and regional variables with the length of unemployment spells. The second part of the analysis consists of a multivariate econometric analysis of these variables on the length of unemployment spells in South Africa. The multivariate analysis involves estimating the impact of various explanatory variables on the probability of being in long-term unemployment. I also estimate the probability of being strictly unemployed (versus employed) to be able to compare the effect of the explanatory variables on the probability of unemployment, with the probability of long-term unemployment. I would expect the effects to work in the same direction. Although literature exists on the application of a probit model to the probability of unemployment in South Africa (for example see, Bhorat and Leibbrandt, 2001; Kingdon and Knight, 2005; Dias and Posel, 2007), none of these studies use the 2001 and 2007 data for direct comparability with the long-term unemployment results.

In this analysis long-term unemployment is defined as being unemployed for three years or more. Within the international literature long-term unemployment is usually defined as being unemployed for over a year. However due to the fact that in the South African context a significant proportion of the unemployed have been unemployed for three years or more, and because Kingdon and Knight (2005) use this definition this time frame was chosen for comparability.

The suitable econometric model to use in this analysis is the probit model as it allows for the specification of a binary or dichotomous dependant variable. In other words, it allows an analysis of the impact of various explanatory variables on the probability of the

individual being in one of two states. For example a probit model can be used to determine the impact of various explanatory variables on the probability that an individual will either be in long-term or in short-term unemployment. An important characteristic of econometric analysis is that, unlike in simple descriptive statistics, the specific impact of a particular variable on the probability of long-term unemployment may be estimated whilst controlling for the impact of the other the specified variables. Thus the independent impact of each explanatory variable may be analysed in relation to the effects of the other specified variables.

Two probit models are estimated in this study: a model to determine what factors affect the probability of an individual being strictly unemployed relative to employed in 2001 and 2007; and a model to determine, amongst the strictly unemployed, what factors affect the probability of being in long-term unemployment (relative to short-term unemployment) in 2001 and 2007.

3.3.1 Probability of unemployment

In this model, the dependant variable is the employment status of individuals aged 18 to 65 years. The dependant variable (*Un*) is categorical and may take one of two values; 0 if the individual is employed and 1 if the individual is strictly unemployed. The following model (referred to as equation 1) determines the individual impact of a variety of demographic, human capital and regional explanatory variables in determining the probability that an individual (*i*) will be unemployed in 2001 and 2007.

All the explanatory variables used in the final specification are categorical variables. The education categories included in the model are grade 1-7, grade 8-11, matric and degree or diploma. The impact on the probability of being unemployed for each of these categories is determined in relation to the base category, that is individuals with no schooling. It is expected that relative to individuals with no schooling individuals with higher levels of education will have a reduced probability of experiencing

unemployment. Education is the only human capital variable included here because previous work experience information was not captured for the currently employed.

Equation 1:

$$Un_i = \beta_1 + \beta_2 Gr1\text{-}7_i + \beta_3 Gr8\text{-}11_i + \beta_4 Matric_i + \beta_5 Dipdeg_i + \beta_6 Age\ 25\text{-}34_i + \beta_7 Age\ 35\text{-}44_i + \beta_8 Age\ 45\ \text{-}54_i + \beta_9 Age\ 55\text{-}65_i + \beta_{10} Male_i + \beta_{11} African_i + \beta_{12} Coloured_i + \beta_{13} Indian_i + \beta_{14} ECape_i + \beta_{15} NCape_i + \beta_{16} FState_i + \beta_{17} KZN_i + \beta_{18} Northwest_i + \beta_{19} Gauteng_i + \beta_{20} Mpumalanga_i + \beta_{21} Limpopo_i + \beta_{22} Urban_i + \varepsilon_i$$

where ε_i is the error term

The age categories included in the model are 25 to 34 years, 35 to 44 years, 45 to 54 years and 55 to 65 years, with the omitted category representing individuals aged 18 to 24 years.[7] It is expected that given the high and rising youth unemployment problem in post-apartheid South Africa noted by Mlatsheni and Rospabe (2002), older individuals are likely to have a lower probability of unemployment. A dummy variable for males is included in the model. The expected sign on this coefficient would be negative as men are less likely to be unemployed in South Africa (Kingdon and Knight, 2005; Dias and Posel, 2007).

In the LFS the racial groups are defined as White, African, Coloured and Indian. Relative to Whites (the omitted category) it is expected that individuals from other population groups are likely to have a greater probability of being unemployed. This is primarily to the historical legacy of discriminatory educational and labour market policies which have disadvantaged the African, Coloured and Indian population groups.

In order to account for regional differences in the probability of being unemployed, provincial variables and an indicator for urban residence are included in the model. For

[7] Age and age^2 were included in an alternative specification but this made no difference to the results. I chose to rather include age in discrete categories to determine the impact of particular age groups on the probability of being unemployed.

the provincial variables, the Western Cape is classified as the base category, thus the impact of residing in the various provinces on the probability of unemployment is determined in relation to the Western Cape. This set of variables is included to account for the differences in the probability of employment that result from the variation in the economic potential of each of the provinces. It is expected that residing in provinces that account for significant proportions of national GDP, such as the Western Cape, Gauteng and KwaZulu-Natal would reduce the probability of unemployment. It is expected that the probability of being unemployed will be lower in urban areas relative to rural areas as these areas have historically been relatively neglected in terms of economic development.

3.3.2 Probability of Long-Term Unemployment

This model relates to the primary objective of the study, namely determining the probability of long-term unemployment within the South African context. In this model the binary dependant variable is long-term unemployment (*LTU*), with 0 indicating that an individual had been unemployed for less than three years and 1 indicating that an individual had been unemployed for three years or more. This sample includes all those aged 18 to 65 years, classified as strictly unemployed. The specification of the probit model is given below in Equation 2.

Equation 2:

$$LTU_i = \beta_1 + \beta_2 Gr1\text{-}7_i + \beta_3 Gr8\text{-}11_i + \beta_4 Matric_i + \beta_5 Dipdeg_i + \beta_6 Workexp_i + \beta_7 Age\ 25\text{-}34_i + \beta_8 Age\ 35\text{-}44_i + \beta_9 Age\ 45\ \text{-}54_i + \beta_{10} Age\ 55\text{-}65_i + \beta_{11} Male_i + \beta_{12} African_i + \beta_{13} Coloured_i + \beta_{14} Indian_i + \beta_{15} ECape_i + \beta_{16} NCape_i + \beta_{17} FState_i + \beta_{18} KZN_i + \beta_{19} Northwest_i + \beta_{20} Gauteng_i + \beta_{21} Mpumalanga_i + \beta_{22} Limpopo_i + \beta_{23} Urban_i + \varepsilon_i$$

where ε_i is the error term

The explanatory variables which are expected to affect the probability of being long-term unemployed are predominantly the same as those used in the unemployment probit, except that this model includes a categorical variable for previous work experience. The impact of previous work experience on the probability of long-term unemployment has not been analysed in the South African context. However, given the discussion in Chapter 2, it is expected that individuals with previous work experience are less likely to be in long-term unemployment relative to those without previous work experience. This is due to the fact that these individuals have acquired skills and experience and thus are more likely to secure employment in a shorter time frame than those individuals who have no previous work experience. This would be the case particularly if South African employers view previous work experience as a better signal of an individual's human capital and productivity than education.

For all the other variables in the long-term unemployment probit, it is expected that the direction of effect would be similar to the direction of the effect on the probability of being unemployed. That is those variables which would reduce the probability of unemployment would reduce the probability of long-term unemployment. The one exception to this might be age. While we would expect the probability unemployment to decrease with age, as mentioned earlier (and given previous research in South Africa), once unemployed, the probability of being in long-term unemployment might increase with age due to the simple age effect, where with time, the length of unemployment will increase for individuals in that state.

A number of other explanatory variables were tested for inclusion in both models such as, marital status, household size and the support mechanisms used by the unemployed. These were mostly insignificant however and have therefore been excluded from the final model. The two exceptions were that being married reduced the probability of being unemployed and using previous savings as a support mechanism reduces the probability of being in long-term unemployment. Nevertheless, these variables were not included in the final model due to concerns over endogeneity. The causal relationship between marital status and employment is unclear. Firstly, individuals who are married may have

a higher probability of being employed due to higher search intensities as a result of the need to support dependants. Secondly, being married may increase the probability of being employed as employers may be more willing to employ these individuals as they are considered to be more stable, or conform to certain social norms. Dendir (2007) found that in Ethiopia the length of unemployment was affected by the particular support mechanisms available to the unemployed. In the South African context however, individuals who support themselves with previous savings are more likely to be in short-term unemployment as these individuals are likely to have only recently become unemployed, rather than the fact that these individuals have a greater incentive to find employment quickly. The main results on the human capital variables did not change regardless of the inclusion or exclusion of these variables.

CHAPTER FOUR: RESULTS & DISCUSSION

4.1 Introduction

The first section of this chapter provides an analysis of descriptive statistics relating to a number of socio-demographic variables and their correlation with long-term unemployment in 2001 and 2007. The human capital variables of interest include education and previous work experience. Other individual level variables, such as age, gender and race are analysed, as well as provincial and urban/rural variables to capture regional differences.

The second section of the chapter presents the econometric analysis of factors affecting the probability of unemployment and long-term unemployment in 2001 and 2007. Two probit models were specified, the first model determines the impact of the above-stated variables on the probability that an individual within the labour force will be strictly unemployed in 2001 and 2007. Although the focus of this paper is on the length of unemployment spells, this model was included in order to examine whether the factors that determine the probability of being strictly unemployed are similar to the factors that determine the length of unemployment spells amongst the strictly unemployed. The second probit model is specified to determine how the above-stated variables affect the probability of long-term unemployment amongst the strictly unemployed in 2001 and 2007.

The third section of this chapter provides a more detailed descriptive analysis of the correlation between previous work experience and tertiary education and the length of unemployment. In particular the *type of* work held (i.e. the occupation and sector of employment) and the field of study in tertiary education is compared across the strictly unemployed and the currently employed. The final section discusses the implications of the findings within the South African policy context.

4.2 Descriptive Analysis

The severity of the unemployment problem in the South African economy can be seen below in Table 1. Although there was a decline in the incidence of both strict and broad unemployment between 2001 and 2007, unemployment as measured by both definitions remained high in 2007. The incidence of strict unemployment declined by approximately six percentage points, to 23.24 percent in 2007; broad unemployment declined by four percentage points to 36.2 percent.[8]

Table 1: Strict and broad unemployment, 2001 and 2007

UNEMP RATES	2001	2007
Strict Unemp Rates	29.22	23.24
	(0.30)	(0.58)
Absolute Number	4582434	3837263
N$^{\alpha}$	10707	8317
Broad Unemp Rates	40.25	36.20
	(0.30)	(0.61)
Absolute Number	7476422	7190472
N	17385	15964

Source: own calculations from LFS, 2001 & 2007
Notes: Standard errors are in parentheses. $^{\alpha}$ N refers throughout to the unweighted sample size.

Associated with the declining incidence of strict unemployment between 2001 and 2007 has been the general shift towards shorter search times amongst the strictly unemployed. This trend is shown in Table 2 below, for example, in 2001 approximately 39 percent of the unemployed had been searching for three years or more; by 2007 this figure had fallen to approximately 28 percent. Similarly there has been an increase in the proportion of individuals experiencing shorter search times, for example in 2001 approximately six percent of the unemployed had been searching for under a month; by 2007 this figure had increased to approximately 16 percent.

There could be a number of intuitive explanations for this phenomenon of declining search times between 2001 and 2007. Firstly, this could indicate that because unemployment actually fell during this period search times also decreased as a result of

[8] All the statistics presented in the results are weighted using the population weights published by StatsSA, based on the 2001 census

unemployed individuals securing employment. Secondly, this could indicate that a significant proportion of the unemployed population had become disheartened in their search for employment and thus had exited the labour force or had stopped searching and as a result ended up being classified as broadly unemployed. This would have resulted in a reduction of the proportion of unemployed individuals in the labour force in 2007.

Table 2: Search times for the strictly unemployed, 2001 and2007

Search Time	UNEMPLOYED	
	2001	2007
< 1 month	6.14	16.27
	(0.28)	(1.02)
1-2 months	4.44	8.74
	(0.23)	(0.57)
2-3 months	3.52	5.73
	(0.23)	(0.51)
3-4 months	3.34	4.11
	(0.21)	(0.36)
4-6 months	3.84	4.98
	(0.25)	(0.45)
6m - 1 year	11.64	11
	(0.37)	(0.62)
1 - 3 years	27.56	20.99
	(0.53)	(0.79)
≥ 3 years	39.05	27.96
	(0.58)	(0.91)
Don't Know	0.47	0.23
	(0.07)	(0.09)
Total	100	100
N	10502	8065

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

However, Table 3 indicates that the labour force participation rates, defined as the ratio of the employed and unemployed to all individuals within the working-aged population (defined here as 18 to 65 years), were relatively similar in both 2001 and 2007. The labour force participation rate using the strict definition was approximately 62 percent in both 2001 and 2007. Similarly, the labour force participation rate using the broad definition was approximately 74 percent in both 2001 and 2007. These results would suggest that the declining search times shown in Table 2 would most likely result from an increase in employment between 2001 and 2007 rather than individuals exiting the labour force. A decrease in search times could also be the result of more churning in the labour

market. So even if the unemployment rate stayed the same, the number of individuals going in and out of unemployment could have increased.

Table 3: Labour force participation, 2001 and 2007

LFP RATES	2001	2007
Strict LFP Rates	62.08	61.74
	(0.38)	(0.29)
Absolute Number	15681041	16510557
N	36532	33853
Broad LFP Rates	73.53	74.28
	(0.41)	(0.32)
Absolute Number	18575029	19863765
N	43210	41500

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

4.2.1 Education and Work Experience Descriptive Statistics

It is hypothesized that given the skills bias evident in the South African economy (Edwards, 2001; Behar, 2006; Daniels, 2007; Bhorat and Oosthuizen, 2008), higher levels of human capital, proxied by the level of education attained and previous work experience, would reduce the length of unemployment spells experienced by strictly unemployed individuals. Thus the first step in this analysis is to determine the extent to which these factors are correlated with long-term unemployment.

Table 4: Long-term unemployment by education category, 2001 and 2007

	2001				2007			
EDUCATION	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
No Schooling	51.51	48.49	0.94	486	58.06	41.94	0.72	263
	(3.01)	(3.01)			(4.61)	(4.61)		
Grade 1-7	55.51	44.49	0.80	2510	67.19	32.81	0.49	1671
	(1.56)	(1.56)			(1.93)	(1.93)		
Grade 8-11	60.76	39.24	0.65	4178	73.18	26.82	0.37	3466
	(1.11)	(1.11)			(1.25)	(1.25)		
Matric	65.71	34.29	0.52	2641	74.06	25.94	0.35	2286
	(1.24)	(1.24)			(1.37)	(1.37)		
Dip/Deg	68.29	31.71	0.46	595	73.69	26.31	0.36	346
	(2.23)	(2.23)			(3.33)	(3.33)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

In the context of this study individuals are classified as long-term unemployed if they have been searching for employment for three years or more. Table 4 above shows the proportion of the strictly unemployed in short and long-term unemployment as well as the ratio of long-term to short-term unemployment for each of the education categories. In both 2001 and 2007 the general pattern is that the ratios of short-term to long-term unemployment decline as the level of education increases. These results indicate that higher education levels provide increased protection against long-term unemployment. By 2007 the ratios for all education categories had declined, most likely a result of the declining average search times between 2001 and 2007.

Table 5: Search times for the unemployed with and without previous work experience, 2001 and 2007

	2001				2007			
SEARCH TIME	Work Experience				Work Experience			
	No	Yes	Y/N	N	No	Yes	Y/N	N
<1 month	46.91	53.09	1.13	670	44.74	55.26	1.24	1135
	(2.31)	(2.31)			(2.31)	(2.31)		
1-2 months	49	51	1.04	470	47.08	52.92	1.12	709
	(2.70)	(2.70)			(2.95)	(2.95)		
2-3 months	45.22	54.78	1.21	367	48.28	51.72	1.07	467
	(3.27)	(3.27)			(4.34)	(4.34)		
3-4 months	52.29	47.71	0.91	366	48.47	51.53	1.06	334
	(3.18)	(3.18)			(3.89)	(3.89)		
4-6 months	49.87	50.13	1.01	398	64.11	35.89	0.56	407
	(3.32)	(3.32)			(3.29)	(3.29)		
6 m - 1 year	57.47	42.53	0.74	1274	52.87	47.13	0.89	874
	(1.67)	(1.67)			(2.65)	(2.65)		
1 - 3years	58.95	41.05	0.70	2845	59.67	40.33	0.68	1742
	(1.11)	(1.11)			(1.69)	(1.69)		
≥ 3 years	53.69	46.31	0.86	4062	52.17	47.83	0.92	2382
	(0.95)	(0.95)			(1.41)	(1.41)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

The relationship between previous work experience and length of unemployment spells in 2001 and 2007 is shown Table 5 above. In both 2001 and 2007 the ratios of the unemployed with work experience to those without work experience indicate that generally, amongst the unemployed individuals who had been searching for shorter periods of time, a greater proportion had previous work experience. Conversely, amongst the individuals who had been searching for longer periods of time, for example those searching for between six months and a year, a greater proportion had no previous work

experience. These results suggest that previous work experience amongst the unemployed may play an important role in determining the length of unemployment spells.

4.2.2 Age, Gender and Race Descriptive Statistics

Along with the human capital variables, a number of demographic characteristics amongst the strictly unemployed are likely to have an effect on the length of unemployment; these include age, gender and race. Table 6 below shows the proportion of strictly unemployed individuals in various age categories experiencing long-term unemployment. In 2001 and 2007 the proportion of unemployed individuals experiencing long-term unemployment generally increases as the age categories increases. In both years the lowest incidence of long-term unemployment occurs amongst the unemployed individuals aged 18 to 24 years, the greatest incidence of long-term unemployment occurs amongst individuals aged 55 to 65 years. This may simply be a result of an age effect whereby younger individuals have been in the labour market for a shorter period of time, and thus are less likely to be in unemployment for a longer period of time. It would also indicate that those in the older age cohorts are less likely to find or be offered employment quickly. Between 2001 and 2007 the incidence of long-term unemployment amongst unemployed individuals in all age categories declined.

Table 6: Long-term unemployment by age category, 2001 and 2007

	2001				2007			
AGE	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
Age 18-24	78.13	21.87	0.28	3141	84.73	15.27	0.18	2674
	(1.08)	(1.08)			(1.11)	(1.11)		
Age 25-34	56.00	44.00	0.79	4231	69.05	30.95	0.45	2981
	(1.14)	(1.14)			(1.36)	(1.36)		
Age 35-44	48.05	51.95	1.08	1974	60.53	39.47	0.65	1451
	(1.44)	(1.44)			(2.23)	(2.23)		
Age 45-54	50.52	49.48	0.98	856	61.43	38.57	0.63	755
	(2.16)	(2.16)			(2.66)	(2.66)		
Age 55-65	38.58	61.42	1.59	250	54.79	45.21	0.83	189
	(3.64)	(3.64)			(5.25)	(5.25)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

The differences in the incidence of long-term unemployment between men and women were marginal in 2001. Table 7 below indicates that in 2001, 38.66 percent of strictly unemployed men and 39.77 percent of strictly unemployed women were in long-term unemployment. In 2007, the proportion of both unemployed men and women in long-term unemployment declined. However, there was an increased divergence between the incidence of long-term unemployment amongst unemployed men and women. The difference in the incidence of long-term unemployment between unemployed men and women increased from an approximately one percentage point gap in 2001 to approximately four percentage points in 2007. This divergence suggests that between 2001 and 2007, men were increasingly more likely to secure employment at a faster rate than women.

Table 7: Long-term unemployment by gender category, 2001 and 2007

	2001				2007			
GENDER	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
Male	61.34	38.66	0.63	4864	73.92	26.08	0.35	3610
	(1.01)	(1.01)			(1.25)	(1.25)		
Female	60.23	39.77	0.66	5588	70.27	29.73	0.42	4434
	(1.01)	(1.01)			(1.08)	(1.08)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

Table 8: Long-term unemployment by race category, 2001 and 2007

	2001				2007			
RACE	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
African	58.87	41.13	0.70	9144	70.69	29.31	0.41	6804
	(0.85)	(0.85)			(0.99)	(0.99)		
Coloured	75.66	24.34	0.32	934	80.76	19.24	0.24	1029
	(1.92)	(1.92)			(2.59)	(2.59)		
Indian	82.09	17.91	0.22	165	79.66	20.34	0.26	102
	(2.99)	(2.99)			(8.05)	(8.05)		
White	67.40	32.60	0.48	207	85.42	14.58	0.17	112
	(4.62)	(4.62)			(4.51)	(4.51)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

An analysis of the incidence of long-term unemployment amongst the unemployed within various race groups is shown above in Table 8. The ratios indicate that in both 2001 and 2007, the incidence of long-term unemployment is greatest amongst unemployed Africans. This is primarily a result of historical discriminatory education and labour market policies that have disadvantaged the African population from competing in the current labour market. Between 2001 and 2007, the incidence of long-term term unemployment declined for the African, White and Coloured population groups. The Indian population experienced a marginal increase in the incidence of long-term unemployment between 2001 and 2007. It is important to note however that the small sample sizes of the unemployed Whites and Indians, as well as the large standard errors implies that the results for these population groups should be treated with caution.

4.2.3 Provincial and Urban/Rural Descriptive Statistics

Table 9: Long-term unemployment by provincial category, 2001 and 2007

	2001				2007			
PROVINCIAL	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
Wetsern Cape	79.22	20.78	0.26	816	85.82	14.18	0.17	583
	(2.43)	(2.43)			(2.65)	(2.65)		
Eastern Cape	64.99	35.01	0.54	1254	70.01	29.99	0.43	949
	(2.29)	(2.29)			(2.51)	(2.51)		
Northern Cape	69.74	30.26	0.43	412	68.78	31.22	0.45	642
	(3.96)	(3.96)			(3.06)	(3.06)		
Free State	61.78	38.22	0.62	976	60.55	39.45	0.65	695
	(2.26)	(2.26)			(2.66)	(2.66)		
KwaZulu-Natal	59.36	40.64	0.68	1957	78.74	21.26	0.27	2196
	(1.99)	(1.99)			(1.59)	(1.59)		
North West	63.40	36.60	0.58	978	70.39	29.61	0.42	651
	(2.09)	(2.09)			(4.08)	(4.08)		
Gauteng	51.21	48.79	0.95	2036	68.27	31.73	0.46	1073
	(1.54)	(1.54)			(2.29)	(2.29)		
Mpumalanga	63.69	36.31	0.57	933	75.35	24.65	0.33	622
	(2.32)	(2.32)			(3.15)	(3.15)		
Limpopo	65.04	34.96	0.54	1090	61.12	38.88	0.64	639
	(2.12)	(2.12)			(2.56)	(2.56)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

In the South African economy regional differences in economic potential are likely to play an important role in determining the incidence of long-term unemployment. Table 9 above provides a descriptive picture of the incidence of long-term unemployment

amongst the strictly unemployed in each of the nine provinces. The data indicate that there are significant provincial differences in the incidence of long-term unemployment amongst the unemployed. In both 2001 and 2007 the Western Cape has the lowest incidence of long-term unemployment amongst the strictly unemployed, at approximately 21 and 14 percent respectively. In 2001 the highest incidence of long-term unemployment occurs in the Gauteng and KwaZulu-Natal provinces where approximately 49 and 41 percent of the strictly unemployed were in long-term unemployment.

The high incidence of long-term unemployment in the Gauteng province in 2001 occurs despite the fact that Gauteng generates a significant proportion of South Africa's GDP. This indicates the importance of labour migration in the context of the South African labour market as the high incidence of long-term unemployment in Gauteng is likely to result from significant labour migration, as unemployed individuals in other provinces hope to find employment in Gauteng. By 2007, the Free State and Limpopo provinces had the highest incidence of long-term unemployment at approximately 39 percent. The results indicate that the incidence of long-term unemployment generally declined or remained relatively constant for most provinces between 2001 and 2007. It did however increase significantly amongst the strictly unemployed in the Limpopo province by approximately four percentage points, between 2001 and 2007.

Table 10: Long-term unemployment by rural/urban category, 2001 and 2007

	2001				2007			
URBAN/RURAL	Strictly Unemployed				Strictly Unemployed			
CATEGORY	< 3 Years	≥ 3 years	L-T/S-T	N	< 3 Years	≥ 3 years	L-T/S-T	N
Rural	64.15	35.85	0.56	3599	69.80	30.20	0.43	2801
	(1.39)	(1.39)			(1.24)	(1.24)		
Urban	58.89	41.11	0.70	6853	72.81	27.19	0.37	5249
	(0.96)	(0.96)			(1.17)	(1.17)		

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

The incidence of long-term unemployment in urban and rural areas in 2001 and 2007 is shown above in Table 10. In 2001, the incidence of long-term unemployment in rural areas was approximately five percentage points lower than in urban areas where it was approximately 41 percent. Between 2001 and 2007 the proportion of the unemployed in

long-term unemployment declined in both urban and rural areas. However the extent of the decline for unemployed individuals in urban areas resulted in these individuals having a lower incidence of long-term unemployment by 2007. The decline in the incidence of long-term unemployment in urban areas during this time period was approximately 14 percentage points, compared to the decline in rural areas of approximately 6 percentage points.

These results may indicate that between 2001 and 2007, job creation was most likely to have occurred in urban areas and thus relatively shorter search times would be registered in these areas. Furthermore, unemployed individuals in the urban areas who had been unsuccessfully searching for employment for a long time may have moved back to rural areas where the cost of living was lower, further reducing the average length of unemployment spells in urban areas relative to rural areas.[9]

4.3 Econometric Analysis

This section provides a multivariate regression analysis of the factors affecting the probability of unemployment as well as the probability of long-term unemployment. It is important to note that although a descriptive analysis of the correlation between the specified variables and length of unemployment spells provides an indication of the important factors affecting the length of unemployment, an econometric analysis provides a more rigorous test of the relationship between these variables and the length of unemployment. In order to understand the individual role of each of these variables on the probability of unemployment and long-term unemployment, it is important to control for the individual effects that each variable induces. The probit models used in this research allow for the independent effect of each variable to be identified in relation to the independent effect of the other specified variables.

[9] It is important to note here that the urban/rural classification in 2007 does need to be treated with some caution. The urban/rural definition is based on census 1996 classifications. Because they were becoming outdated, StatsSA stopped publishing this information from the LFS 2004:2. With help from StatsSA we have been able to acquire the urban/rural information for 2007. However, the 1996 definitions would be even less applicable in 2007.

As explained in more detail in the methodology section, the econometric analysis will involve the specifications of two probit models. The first model will determine how the set of explanatory variables affect the probability of strict unemployment and the second model will determine the probability of long-term unemployment amongst the strictly unemployed. Although the focus of this dissertation is to understand the determinants of the length of unemployment in 2001 and 2007, it is important to understand the related impact of these variables on the probability of unemployment during the same time period.

4.3.1 Probability of Unemployment

The results of the unemployment probit are presented below in Table 11. The dependant variable in the model is the employment status of an individual; the variable is a binary taking the value of 0 if an individual is employed and 1 if an individual is strictly unemployed. The specified variables are shown in the left hand column of the table. The first column of figures presents the estimated coefficients of the probit model. The second column presents the t values of the estimated coefficients as well as their statistical significance. The third column presents the marginal effect of the specified variables. As all of the variables in the model are dummy variables taking the value of either 0 or 1 the marginal effect shows the impact of the specified variable on the probability of being unemployed relative to the base category.

Interestingly, in both 2001 and 2007 increases in the level of education achieved up to matric actually increase the probability of unemployment relative to those individuals with no schooling. These results are all significant at the one percent level except for the matric category, which is significant at the ten percent level in 2001 and insignificant in 2007. This may indicate that a situation similar to that found in Sri Lanka by Dickens and Lang (1996) arises in the South African context. As individuals attain higher levels of education they develop higher reservation wages and thus turn down menial jobs in search of higher paying jobs that may not be currently available within the South African economy. It may also be indicative of a situation of high and generally rising levels of

unemployment over the past 15 years, where the youth who have left school with more education than their parents have faced dire employment opportunities and have been unable to find any work.

Table 11: Probability of unemployment, 2001 and 2007

Dep: Employment status
0 = Employed
1 = Strictly Unemployed

	2001			2007			Change in ME
	Coefficient	t-value	Marginal Effect	Coefficient	t-value	Marginal Effect	(2007-2001)*100
Education							
Grade 1-7	0.13	3.17*	0.05	0.24	3.82*	0.06	0.24
Grade 8-11	0.23	5.35*	0.09	0.28	4.37*	0.07	-1.70
Matric	0.09	1.99**	0.05	0.09	1.38	0.03	-1.58
Dip/Deg	-0.41	-7.51*	-0.10	-0.46	-6.04*	-0.12	-1.84
Age							
Age 25-34	-0.49	-18.38*	-0.16	-0.59	-16.79*	-0.13	2.76
Age 35-44	-0.96	-31.26*	-0.27	-0.97	-21.91*	-0.21	5.34
Age 45-54	-1.16	-31.47*	-0.28	-1.15	-23.72*	-0.23	4.81
Age 55-65	-1.30	-24.47*	-0.26	-1.40	-21.08*	-0.22	3.86
Gender							
Male	-0.25	-12.18*	-0.07	-0.25	-8.96*	-0.07	-0.82
Race							
African	1.07	18.88*	0.26	0.82	8.63*	0.21	-5.40
Coloured	0.65	9.79*	0.22	0.63	5.33*	0.24	1.92
Indian	0.44	4.58*	0.12	0.12	0.93	0.10	-1.75
Province							
Eastern Cape	0.31	4.93*	0.11	0.32	4*	0.15	3.67
Northern Cape	0.24	3.53*	0.08	0.32	4.17*	0.16	8.05
Free State	0.21	3.31*	0.09	0.25	2.74*	0.15	6.05
KwaZulu-Natal	0.33	5.52*	0.12	0.42	4.89*	0.18	5.63
North West	0.24	3.73*	0.10	0.29	3.12*	0.16	6.79
Gauteng	0.27	4.73*	0.09	0.09	1.04	0.11	1.66
Mpumalanga	0.19	2.97*	0.08	0.20	2.3**	0.11	2.94
Limpopo	0.40	6.01*	0.13	0.45	4.73*	0.21	7.32
Urban							
Urban	0.16	5.17*	0.06	0.17	3.94*	0.06	0.04
cons	-1.14	-13.2*		-1.15	-8.31*		
N	36481			33771			
F Statistic	111.94*			62.71*			

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level
Omitted Categories: No schooling, Age 18-24, Female, White, Western Cape and Rural
Source: own calculations from LFS, 2001 & 2007
Note: The data are weighted and the errors are corrected for stratification and clustering

In 2001 and 2007 only individuals who have obtained a degree or diploma had a significantly reduced chance of being unemployed relative to individuals with no schooling. The degree or diploma education category was highly significant in both 2001 and 2007. The change in the marginal effects indicate that in 2001 individuals with a

degree or diploma were 10 percentage points less likely to be in unemployment relative to individuals with no schooling. By 2007 the impact of a degree or diploma had increased slightly to 12 percentage points.

The probability of being unemployed is significantly lower for older age groups relative to individuals in the 18 to 24 age category in both 2001 and 2007. In 2001 the marginal effects indicate that relative to individuals aged 18 to 24 years, those in the 45 to 54 and 35 to 44 age cohorts, were 28 and 27 percentage points less likely to be in unemployment respectively. Because information pertaining to previous work experience for the employed is not available in the data, it cannot be included in the model. As a result the inverse relationship between the probability of unemployment and age is likely to reflect the effect of previous work experience being partially captured by the age variable. Older individuals in the labour force are expected to have greater work experience and acquired skills than individuals aged 18 to 24 years, and thus a reduced probability of being unemployed. Furthermore, the problem of high and rising youth unemployment in South Africa would result in younger labour force participants being more susceptible to unemployment. It is interesting to note that the marginal effects of all the age categories relative to the base category declined by between approximately three and six percentage points between 2001 and 2007.

Relative to females, males were approximately seven percentage points less likely to be in unemployment in both 2001 and 2007. As one would expect, race plays an important role in determining the probability of unemployment in South Africa. Relative to Whites, Africans have the greatest probability of being unemployed. In 2001, Africans were 26 percentage points more likely to be unemployed than Whites. By 2007, the marginal effect had declined to 21 percentage points. The coefficients for Coloureds and Indians are both positive in 2001 and 2007, however the Indian coefficient is not significant in 2007 which may be a result of the relatively small sample size.

The regional variables also appear to play an important role in determining the probability of an individual experiencing unemployment. In 2001, individuals in all

provinces had a higher probability of experiencing unemployment relative to the Western Cape, with the most prone to unemployment being individuals in Limpopo, KwaZulu-Natal and the Eastern Cape. Individuals within these provinces were 13, 12 and 11 percent more likely to be unemployed than individuals within the Western Cape, respectively. By 2007, individuals in KwaZulu-Natal and Limpopo were the most prone to unemployment relative to the Western Cape. It is interesting to note that the changes in the marginal effects indicate that the probability of unemployment in all provinces increased relative to the Western Cape between 2001 and 2007. The probability of unemployment among individuals in the Northern Cape, Free State, North West and Limpopo provinces increased by more than six percentage points relative to the Western Cape between 2001 and 2007.

In both 2001 and 2007 individuals residing in rural areas were six percentage points less likely to be unemployed than individuals in urban areas. It would be expected that given the lack of economic opportunities in rural areas these individuals would have a greater probability of unemployment. The relatively greater probability of unemployment in urban areas may be a result of rural migrants attempting to find work in urban areas, or because the strictly unemployed in rural areas become discouraged work seekers due to the lack of employment opportunities and thus are either classified as broadly unemployed or even exit the labour force.

4.3.2 Probability of Long-Term Unemployment

The results of the probit model presented in Table 12 indicate the various effects of the specified variables on the probability of long-term unemployment amongst the strictly unemployed in 2001 and 2007. The results of this model provide the main focus of this research and display some interesting results. Of particular interest is the impact of the human capital variables, namely education and previous work experience, on the probability of long-term unemployment. The dependant variable in this model is the length of time that strictly unemployed individuals have been searching for employment. Once again the variable is binary; with 0 indicating that an individual has been searching

for less than three years and 1 indicating that an individual has been searching for three years or more.

Table 12: Probability of long-term unemployment, 2001 and 2007

Dep: Search Time/ Length of Unemployment
0 = Less than three years
1 = Three years or more

	2001			2007			Change in ME
	Coefficient	t-value	Marginal Effect	Coefficient	t-value	Marginal Effect	(2007-2001)*100
Education							
Grade 1-7	0.03	0.38	0.02	-0.06	-0.51	-0.02	-3.92
Grade 8-11	-0.05	-0.68	-0.01	-0.12	-0.96	-0.02	-1.23
Matric	-0.14	-1.58	-0.04	-0.12	-0.91	-0.01	2.30
Dip/Deg	-0.28	-2.72*	-0.08	-0.12	-0.76	-0.02	6.06
Work Exp							
Work Exp	-0.26	-5.51*	-0.09	-0.27	-4.95*	-0.11	-1.18
Age							
Age 25-34	0.67	15.14*	0.26	0.58	10.2*	0.20	-6.55
Age 35-44	0.94	15.73*	0.37	0.85	11.1*	0.30	-6.29
Age 45-54	0.89	11.84*	0.36	0.85	10.6*	0.34	-1.53
Age 55-65	1.24	11.65*	0.43	1.06	7.16*	0.42	-0.82
Gender							
Male	-0.04	-1.06	0.00	-0.07	-1.52	-0.03	-2.87
Race							
African	0.26	1.94***	0.12	0.47	2.24**	0.13	0.98
Coloured	0.09	0.57***	0.05	0.31	1.34	0.08	2.87
Indian	-0.44	-2.33**	-0.10	0.28	0.83	0.01	11.05
Province							
Eastern Cape	0.31	2.55**	0.12	0.31	2.06**	0.09	-2.92
Northern Cape	0.27	1.96***	0.04	0.50	3.26*	0.15	11.13
Free State	0.40	3.2*	0.11	0.65	4.33*	0.23	12.26
KwaZulu-Natal	0.54	4.48*	0.16	0.05	0.37	0.06	-9.97
North West	0.37	2.98*	0.12	0.30	1.57	0.15	2.85
Gauteng	0.67	5.88*	0.22	0.45	3.04*	0.17	-5.17
Mpumalanga	0.41	3.19*	0.12	0.16	0.94	0.06	-5.93
Limpopo	0.36	2.85*	0.10	0.52	3.29*	0.17	6.82
Urban							
Urban	0.15	2.8*	0.05	-0.07	-0.92	0.01	-3.90
cons	-1.42	-7.34*		-1.52	-5.37*		
N	10450			8041			
F Statistic	28.92*			12.58*			

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level
Omitted Categories: No schooling, No previous work experience, Age 18-24, Female, White, Western Cape and Rural.

Source: own calculations from LFS, 2001 & 2007
Note: The data are weighted and the errors are corrected for stratification and clustering

Interestingly, the impact of education on the probability of long-term unemployment varies significantly between 2001 and 2007. In 2001, the degree or diploma category is

the only education category that reduced the probability of long-term unemployment relative to individuals with no education. The impacts of all other education categories on the probability of long-term unemployment were insignificant in 2001. These results are similar to those obtained in the unemployment probit, where the degree or diploma category was the only education category that reduced the chances of unemployment in 2001.

By 2007 none of the education categories had a significant impact on the probability of experiencing long-term unemployment. To test for the robustness of these results, the probability of being in long-term unemployment is also estimated using different start and end points. Appendix 2 presents the regressions using LFS data from 2000 and 2001. It is interesting to note that in 2000, the degree or diploma category was significant at the one percent level and in 2006 it was only significant at the 10 percent level. This would appear to indicate a declining trend over time in the importance of having a degree or diploma on the probability of long-term unemployment. Thus while having a degree or diploma protects an individual against experiencing unemployment in both 2001 and 2007, it only provides protection against long-term unemployment in the earlier years. This may indicate that the ability of formal tertiary education qualifications to act as a proxy for the productive capacity of strictly unemployed individuals declined between 2001 and 2007. These results are similar to those found by Kingdon and Knight (2005), where the ability of tertiary education to protect against long-term unemployment declined significantly between 1995 and 2003.

The analysis of the previous work experience variable produces some important results. In both 2001 and 2007 the coefficients were highly negative and significant. In 2001 an individual with previous work experience was nine percentage points less likely to be in long-term unemployment than an individual without previous work experience. By 2007 the marginal effect had increased to 11 percentage points. The results indicate that in 2001 previous work experience is as important as having a degree or diploma in protecting against long-term unemployment, but counts for more than a degree or

diploma in 2007. Furthermore the results regarding the importance of work experience in determining the length of unemployment spells hold for both 2000 and 2006. [10]

In both 2001 and 2007, relative to the base category of age 18 to 24, individuals in older age categories have a significantly greater probability of experiencing long-term unemployment. This is in contrast to the unemployment probit results which indicate that younger individuals have a greater probability of unemployment. This implies that while the young are more likely to be unemployed, once unemployed older individuals are likely to stay in unemployment for longer, this could be a result of an 'age effect' or it could be a result of the inclusion of the previous work experience variable in the length of unemployment probit. In the unemployment probit the impact of previous work experience was partially captured in the age variable. In the length of unemployment probit the impact of previous work experience and age on the probability of long-term unemployment are individually assessed. Thus in this model, controlling for work experience, older individuals are more likely to experience long-term unemployment. Between 2001 and 2007 the marginal effects of the older age categories on the probability of experiencing long-term unemployment fell for all the age groups but particularly for individuals aged between 25 and 34, and 35 and 44, where the marginal effects declined by over six percentage points. This indicates that the difference in the probability of long-term unemployment between 18 to 24 year olds and older labour force participants declined between 2001 and 2007.

In contrast to the unemployment probit where men are slightly less likely to be unemployed than women, amongst the strictly unemployed, gender does not have a significant impact on the probability of long-term unemployment in 2001 or 2007. The results indicate that race had a varying impact on the probability of experiencing long-term unemployment over time. In 2001 and 2007 unemployed Africans were 12 and 13 percentage points respectively, more likely to be in long-term unemployment than Whites. In 2001 the Coloured population had a marginally greater chance of experiencing

[10] See Appendix 2 which shows the results of the length of unemployment probit model applied to the 2000 and 2006 LFS data.

long-term unemployment than Whites, with the coefficient being significant at the 10 percent level. The Indian population actually had a smaller chance of experiencing long-term unemployment relative to Whites, with the coefficient being significant at the five percent level. In 2007 the coefficients for the Coloured and Indian populations were not significantly different from Whites.

As was the case in the unemployment probit, geographical location plays an important role in determining the probability of long-term unemployment. In 2001 all provinces had a higher probability of experiencing long-term unemployment than the Western Cape. In 2007 the trend is similar; however the Mpumalanga, North West and KwaZulu-Natal coefficients are insignificant. It is interesting to note the change in the marginal effects of the provincial categories over time. Between 2001 and 2007the marginal effects increased by approximately 11, 12 and 7 percentage points for the Northern Cape, Free State and Limpopo provinces, respectively. In contrast, the marginal effects on the probability of long-term unemployment for unemployed individuals in the Eastern Cape and Gauteng provinces declined by approximately three and five percentage points respectively.

In 2001 residing in an urban area increased the probability of experiencing long-term unemployment amongst the strictly unemployed relative to residing in a rural area. This result is similar to that obtained in the unemployment probit, where the probability of unemployment was slightly greater in urban areas. By 2007 however there was no significant difference between rural and urban areas regarding the probability of the strictly unemployed being in long-term unemployment. Again this could signal that those in long-term unemployment move back to rural areas where the cost of living is cheaper.

4.4 Limitations

It is important to note that there are a number of limitations with regard to this study. Firstly, the fact that data are only available for the strictly unemployed prevents an analysis of the impact of these variables on the length of unemployment experienced by

broadly unemployed individuals. It is predicted that the omission of the broadly unemployed from the sample is likely to underestimate the length of unemployment amongst the unemployed. In 2007, 28.1 percent of the strictly unemployed had matric, compared to 23.2 percent of the broadly unemployed. Furthermore 5.3 percent of the strictly unemployed had a degree or diploma, compared to 2.2 percent of the broadly unemployed. In terms of previous work experience, 44.9 percent of the strictly unemployed had worked before, whereas, only 38.4 percent of the broadly unemployed had worked before. These results indicate that the human capital factors that protect against long-term unemployment are relatively scarce amongst the broadly unemployed, and thus the results based on the data for the strictly unemployed are likely to underestimate the length of unemployment that would be observed if the broadly unemployed were included in the sample.

Secondly, the LFS only captures data on uncompleted unemployment spells. As a result information on those individuals who manage to find employment quickly is not captured. It is expected that if information regarding these individuals were captured it would reinforce the results of the study. It would be expected that those individuals who manage to secure employment more quickly would have relatively high levels of education and work experience, and thus be more desirable in the workplace.

Finally, the effect of tertiary education on unemployment length is estimated, but this is an aggregate effect. There may be different types of tertiary education that are more important than others. Similarly the impact of previous work experience is an average effect; a certain type of work experience may be more valuable in the labour market. It is difficult to test this econometrically, thus I descriptively explore the type of tertiary education and work experience in the next section, using what additional information is available within the LFS.

4.5 Previous Work Experience & Degree/Diploma Descriptive Statistics

4.5.1 Previous work experience

The results of the long-term unemployment probit presented above indicate the importance of previous work experience in determining the length of unemployment spells amongst the strictly unemployed in both 2001 and 2007. Tertiary education played an important role in determining the length of unemployment spells in 2001, but by 2007 it no longer played a significant role. This section provides a more detailed descriptive analysis of previous work experience and tertiary education by comparing the type of jobs and the field of study of the unemployed and currently employed.

Table 13 presents the occupational distribution of the last job held by the unemployed and the current job held by the employed. The third column of each panel indicates the ratio of the long-term to short-term unemployed by field of previous occupation and the sixth column shows the ratio of total unemployed to employed by field of previous occupation. It is important to note that the ratios reported in Tables 13 to 16 (of long-term to short-term unemployment and of unemployment to employment) are calculated as the ratio of shares of category, and not as the ratio of absolute numbers.

In both 2001 and 2007, the proportion of individuals with previous experience in relatively high-skilled occupations is greater amongst the short-term unemployed relative to the long-term unemployed. This would suggest that individuals with previous experience in relatively high skilled occupations would generally experience shorter unemployment spells. However an anomaly appears for individuals with previous experience in legislative and managerial occupations. It would be expected that for individuals with previous work experience in these fields the long-term to short-term unemployment ratio would be less than one. It should be noted however, that the number of observations are small and the standard errors large in this category.

Table 13: Previous occupation of the unemployed and current occupation of the employed, 2001 and 2007

	2001						2007					
	Unemployed		Ratio	Total	Current Occ	Ratio	Unemployed		Ratio	Total	Current Occ	Ratio
Occupation	< 3 Years	≥ 3 years	L-T/S-T	Unemp	Employed	Un/Emp	< 3 Years	≥ 3 years	L-T/S-T	Unemp	Employed	Un/Emp
Legislative/managerial	1.16	1.30	1.11	1.22	6.00	0.20	0.81	1.11	1.38	0.89	7.49	0.12
	(0.22)	(0.46)		(0.23)	(0.22)		(0.23)	(0.43)		(0.21)	(0.40)	
Professionals	0.64	0.56	0.88	0.61	4.39	0.14	1.43	0.73	0.51	1.24	6.57	0.19
	(0.18)	(0.22)		(0.14)	(0.19)		(0.35)	(0.28)		(0.26)	(0.34)	
Technical and associate professionals	4.56	3.61	0.79	4.18	10.62	0.39	4.06	3.22	0.79	3.83	9.55	0.40
	(0.48)	(0.46)		(0.34)	(0.28)		(0.56)	(0.61)		(0.45)	(0.37)	
Clerks	10.84	9.08	0.84	10.14	9.83	1.03	7.84	10.65	1.36	8.61	9.40	0.92
	(0.75)	(0.80)		(0.55)	(0.25)		(0.77)	(1.37)		(0.69)	(0.33)	
Service/shop/sales workers	15.72	13.48	0.86	14.83	12.83	1.16	15.39	12.63	0.82	14.64	12.20	1.20
	(0.84)	(0.95)		(0.63)	(0.27)		(1.39)	(1.34)		(1.07)	(0.38)	
Skilled agriculture and fishery	2.28	1.73	0.76	2.06	4.58	0.45	2.73	3.43	1.26	2.92	2.53	1.15
	(0.33)	(0.34)		(0.24)	(0.16)		(0.29)	(0.57)		(0.33)	(0.13)	
Craft and related trades workers	16.16	17.05	1.06	16.51	13.77	1.20	18.19	14.34	0.79	17.14	14.24	1.20
	(0.81)	(1.04)		(0.64)	(0.30)		(1.30)	(1.65)		(1.03)	(0.41)	
Plant and machine operators	12.24	15.00	1.23	13.34	10.16	1.31	8.11	11.81	1.46	9.13	9.25	0.99
	(0.77)	(1.01)		(0.61)	(0.23)		(0.89)	(1.38)		(0.76)	(0.29)	
Elementary occupations	23.43	24.29	1.04	23.77	19.88	1.20	28.75	25.34	0.88	27.81	21.09	1.32
	(0.97)	(1.19)		(0.75)	(0.30)		(1.30)	(1.97)		(1.08)	(0.40)	
Domestic workers	12.89	13.83	1.07	13.26	7.95	1.67	12.69	16.74	1.32	13.80	7.68	1.80
	(0.71)	(0.89)		(0.55)	(0.19)		(0.95)	(1.50)		(0.78)	(0.32)	
Total	100	100		100	100		100	100		100	100	
N	2941	1945		4886	25774		2679	1045		3724	25465	

Source: own calculations from LFS, 2001 & 2007

Note: Standard errors are in parentheses.

An analysis of the ratios of the previous job of the total unemployed to the current job of the employed reveals a similar trend. In 2001 the ratio of the strictly unemployed to the employed is greater than one amongst clerks; service, shop and sales workers; craft and related trade workers; plant and machine operators; elementary workers and domestic workers.

It is interesting to note that the occupations that have a ratio of unemployment to employment larger than one are predominantly the low skilled occupations. This would support the notion of a skills bias within the economy, as labour demand within the economy is largely geared towards relatively high skilled occupations. For example, the ratios of the unemployed to the currently employed in the relatively high skilled legislative/managerial and professional occupations of 0.2 and 0.14 respectively, indicates that the strictly unemployed individuals with previous work experience in these occupations make up a very small proportion of the unemployed relative to the proportion of the currently employed in these occupations.

4.5.2 Sector of Occupation

Table 14 presents the sectoral distribution of the last job held by the unemployed as well as the current job held by the employed. In 2001, long-term to short-term unemployment ratios greater than one were recorded for the mining; manufacturing; electricity; community and social services; private households and exterior organisations and foreign government sectors. This indicates that individuals with previous work experience in these sectors were more likely to be in long term unemployment, than individuals with previous work experience in the other sectors. By 2007 the results were similar; however, there was a significant increase in the long-term to short-term unemployment ratios for individuals with previous work experience in the agriculture and electricity sectors. This indicates that over time individuals with previous work experience in these sectors became increasingly prone to long-term unemployment.

Table 14: Previous Sector of the unemployed and current sector of the employed, 2001 and 2007

	2001						2007					
	Unemployed		Ratio	Total	Current Sect	Ratio	Unemployed		Ratio	Total	Current Sect	Ratio
SECTOR	< 3 Years	≥ 3 years	L-T/S-T	Unemp	Employed	Un/Emp	< 3 Years	≥ 3 years	L-T/S-T	Unemp	Employed	Un/Emp
Agriculture	7.72	4.86	0.63	6.58	10.22	0.64	8.21	8.23	1.00	8.22	7.97	1.03
	(0.94)	(0.65)		(0.64)	(0.42)		(0.67)	(1.17)		(0.61)	(0.41)	
Mining	3.19	5.93	1.86	4.28	4.99	0.86	1.87	3.57	1.91	2.34	3.41	0.68
	(0.36)	(0.66)		(0.34)	(0.47)		(0.38)	(0.72)		(0.33)	(0.39)	
Manufacturing	20.84	23.49	1.13	21.90	14.59	1.50	15.90	16.52	1.04	16.07	13.23	1.21
	(0.96)	(1.25)		(0.79)	(0.38)		(1.14)	(1.67)		(0.96)	(0.47)	
Electricity	0.97	1.12	1.15	1.03	0.85	1.21	0.48	1.17	2.43	0.67	0.78	0.86
	(0.20)	(0.29)		(0.17)	(0.09)		(0.18)	(0.50)		(0.19)	(0.12)	
Construction	10.25	9.79	0.95	10.06	5.72	1.76	12.72	9.03	0.71	11.71	8.30	1.41
	(0.68)	(0.91)		(0.53)	(0.22)		(1.11)	(1.40)		(0.88)	(0.43)	
Wholesale/retail trade	22.30	21.65	0.97	22.04	21.90	1.01	23.52	22.20	0.94	23.16	23.14	1.00
	(0.97)	(1.21)		(0.76)	(0.42)		(1.30)	(1.86)		(1.11)	(0.67)	
Transport	4.75	4.54	0.95	4.67	4.92	0.95	3.96	3.69	0.93	3.88	4.65	0.83
	(0.46)	(0.56)		(0.37)	(0.19)		(0.78)	(0.80)		(0.62)	(0.28)	
Financial	8.15	5.50	0.67	7.09	9.34	0.76	9.88	6.61	0.67	8.99	10.69	0.84
	(0.64)	(0.96)		(0.55)	(0.35)		(1.37)	(1.34)		(1.09)	(0.53)	
Community/social services	7.29	8.18	1.12	7.65	17.93	0.43	7.80	10.68	1.37	8.59	18.74	0.46
	(0.60)	(0.73)		(0.47)	(0.43)		(0.68)	(1.20)		(0.60)	(0.57)	
Private households	14.30	14.64	1.02	14.44	9.30	1.55	15.62	18.15	1.16	16.31	9.05	1.80
	(0.80)	(0.98)		(0.64)	(0.27)		(1.15)	(1.60)		(0.94)	(0.38)	
Exterior organisations/foreign govern	0.04	0.23	5.57	0.12	0.03	3.83	0.03	0.15	4.46	0.06	0.04	1.77
	(0.03)	(0.13)		(0.05)	(0.01)		(0.03)	(0.11)		(0.04)	(0.02)	
Total	100	100		100	100		100	100		100	100	
N	2941	1945		4886	25774		2679	1045		3724	25465	

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

An analysis of the ratios of the previous sector of employment of the total unemployed to the current sector of the employed reveals a similar trend. In 2001, unemployment to employment ratios larger than one were recorded in the manufacturing; electricity; construction; wholesale and retail trade; private households and exterior organisation and foreign government sectors. Thus, relative to the employed a greater proportion of the unemployed had previous work experience in these sectors in 2001.

By 2007, the results were similar except for a significant increase in the agriculture sector and significant declines in the exterior organisations and foreign government as well as the electricity sector. Between 2001 and 2007 there was a substantial decline in the proportion of the employed in the agricultural sectors. In 2001 the agricultural sector provided 10.22 percent of total employment. By, 2007 this figure had declined to 7.97 percent. There was however, an increase in the proportion of the employed in the construction sector between 2001 and 2007. In 2001, the construction sector provided 5.72 percent of the total employment. By 2007 this figure had increased to 8.30 percent.

4.5.3 Degree and Diploma

A breakdown of tertiary education by either diploma or degree is given in Table 15 below. In both 2001 and 2007 the ratio of the strictly unemployed to currently employed differed significantly for individuals with diplomas relative to individuals with degrees. In both years the ratio of strictly unemployed individuals with diplomas to currently employed individuals with diplomas was greater than one. The fact that the proportion of unemployed individuals with a diploma is greater than the proportion of employed individuals with a diploma indicates that diplomas may not provide individuals with the necessary set of skills to secure employment in the South African labour market.

In contrast, a ratio of less than one for individuals with a degree indicates that the proportion of strictly *unemployed* individuals with a degree is less than the proportion of the currently *employed* individuals with a degree. This indicates that relative to

individuals with a diploma there is a greater demand for individuals with degrees in the South African labour market. Furthermore, by 2007, a smaller proportion of tertiary education was made up by degrees, indicating an increased scarcity of degrees and an increased supply of diplomas. This may explain why the degree or diploma coefficient in the unemployment probit became less important in 2007. Individuals held diplomas that were less desirable to employers.

Table 15: Tertiary education of the unemployed and employed, 2001 and 2007

	2001					2007				
Qualification	Unemployed			Currently	Ratio	Unemployed			Currently	Ratio
Level	< 3 Years	≥ 3 Years	Total	Employed	Un/Emp	< 3 Years	≥ 3 Years	Total	Employed	Un/Emp
DIPLOMA	81.24	73.23	78.75	58.05	1.36	85.68	85.75	85.69	62.05	1.38
	(2.34)	(3.91)	(2.07)	(1.27)		(2.90)	(4.51)	(2.44)	(2.04)	
DEGREE	18.76	26.77	21.25	41.95	0.51	14.32	14.25	14.31	37.95	0.38
	(2.34)	(3.91)	(2.07)	(1.27)		(2.90)	(4.51)	(2.44)	(2.04)	
Total	100	100	100	100		100	100	100	100	
N	472	119	591	3615		298	48	346	3614	

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

It is also interesting to note the relationship between various fields of study undertaken by individuals with tertiary education and the length of unemployment, as well as the relationship between the total unemployed and the currently employed by field of study. The third column of figures in Table 16 below presents the ratio of the long-term to short-term unemployed individuals with tertiary education by field of study. In 2001, ratios greater than one were recorded in the fields of education, training and development; law, military and security studies; health sciences and social services; culture and arts and physical construction and planning.

The result that individuals who studied in these fields made up a greater proportion of the long-term unemployed relative to the short-term unemployed in 2001, indicates that those who trained in these fields were more prone to long-term unemployment. By 2007 the trend was similar, however a few interesting differences were recorded. The ratios associated with the business, commerce and management studies as well as the physical, mathematical, computer and life sciences fields of study were now also greater than one. Furthermore the ratio of the long-term unemployed to short term unemployed in the physical planning and construction sector fell substantially between 2001 and 2007. This

could be an indication of the infrastructural investment by the government in the lead up to 2010.

An analysis of the ratios of the total unemployed to the currently employed reveals a similar trend. In 2001 the fields of communication studies and languages; education, training and development; manufacturing and engineering technology; law, military and security studies; health sciences and social services; agriculture and conservation services as well as physical planning and construction had a ratio of less than one. That the unemployment to employment ratios of individuals who have studied in these fields is less than one indicates that individuals with a degree or diploma in one of these fields is more likely to secure employment than individuals who trained in fields with a ratio greater than one. In 2001, the fields of study with the largest ratios are business commerce and management studies; services and the physical, mathematical, computer and life sciences respectively. This suggests that in 2001 the economy was not sufficiently able to absorb the number graduates emanating from these fields. In 2007, a number of changes in the ratios of unemployment to employment are evident. The ratio for the manufacturing engineering and technology field of study became greater than one and the ratio for the culture and arts field of study fell below one.

Table 16: Field of study of the unemployed and employed, 2001 and 2007

	2001						2007					
	Unemployed		Ratio	Total	Currently	Ratio	Unemployed		Ratio	Total	Currently	Ratio
Field of Study	< 3 Years	≥ 3 years	LT/ST	Unemp	Employed	Un/Emp	< 3 Years	≥ 3 years	LT/ST	Unemp	Employed	Un/Emp
Communication studies/languages	1.81	0.92	0.51	1.53	2.03	0.75	2.44	2.04	0.84	2.34	3.08	0.76
	(0.60)	(0.68)		(0.46)	(0.29)		(1.75)	(1.28)		(1.34)	(0.60)	
Education/training/development	22.50	35.11	1.56	26.52	29.44	0.90	7.70	15.13	1.96	9.64	23.20	0.42
	(2.59)	(3.95)		(2.17)	(1.00)		(1.99)	(3.99)		(1.80)	(1.16)	
Manufacturing/engineering/technology	11.19	7.16	0.64	9.91	10.83	0.91	21.24	7.89	0.37	17.76	14.15	1.26
	(1.79)	(2.50)		(1.45)	(0.68)		(3.41)	(2.61)		(2.67)	(1.15)	
Human and social sciences	5.16	1.81	0.35	4.09	3.67	1.12	7.93	2.94	0.37	6.63	4.92	1.35
	(1.28)	(0.83)		(0.92)	(0.51)		(2.31)	(2.09)		(1.80)	(0.76)	
Law/military studies/security	2.61	4.93	1.89	3.35	6.47	0.52	2.05	9.12	4.45	3.89	5.57	0.70
	(1.07)	(1.81)		(0.93)	(0.73)		(0.75)	(5.52)		(1.60)	(0.68)	
Health sciences and social services	3.03	3.49	1.15	3.18	12.58	0.25	6.07	7.44	1.23	6.43	11.47	0.56
	(1.07)	(1.60)		(0.89)	(0.80)		(1.50)	(2.54)		(1.29)	(0.97)	
Agriculture and nature conservation	1.96	0.98	0.50	1.65	3.50	0.47	0.97	0.74	0.76	0.91	2.74	0.33
	(0.83)	(0.60)		(0.60)	(0.50)		(0.55)	(0.75)		(0.45)	(0.78)	
Culture and arts	2.54	5.32	2.10	3.42	2.74	1.25	1.55	2.41	1.56	1.77	2.87	0.62
	(0.92)	(2.36)		(0.99)	(0.35)		(0.73)	(1.70)		(0.70)	(0.74)	
Business/commerce/management studies	30.15	23.54	0.78	28.04	20.63	1.36	31.53	35.57	1.13	32.58	22.27	1.46
	(2.80)	(3.55)		(2.23)	(0.96)		(3.75)	(7.20)		(3.37)	(1.49)	
Physical/mathematical/computer/life sci	15.18	13.74	0.91	14.72	5.72	2.58	11.88	14.86	1.25	12.66	6.28	2.01
	(1.98)	(3.02)		(1.65)	(0.50)		(3.03)	(4.51)		(2.52)	(0.75)	
Services	2.99	1.74	0.58	2.59	1.62	1.59	3.63	1.28	0.35	3.02	1.43	2.11
	(0.97)	(1.23)		(0.77)	(0.29)		(1.41)	(0.74)		(1.06)	(0.28)	
Physical planning/construction	0.31	0.79	2.56	0.46	0.67	0.69	3.01	0.58	0.19	2.38	1.66	1.43
	(0.31)	(0.78)		(0.33)	(0.18)		(1.66)	(0.42)		(1.24)	(0.39)	
Total	100	100		100	100		100	100		100	100	
N	380	185		565	3498		253	104		357	3580	

Source: own calculations from LFS, 2001 & 2007
Note: Standard errors are in parentheses.

4.6 Discussion

4.6.1 Education and Work Experience in South Africa

The analysis of South African Labour Force data has produced a number of interesting findings pertaining to unemployment in general and more specifically long-term unemployment in South Africa. Firstly, there is the evidence of the declining importance of education in determining the length of unemployment spells. A degree or diploma was the only level of education to protect the strictly unemployed from long-term unemployment in 2001 but was no longer effective by 2007, with a greater proportion of these individuals holding a diploma in 2007. Secondly, in both 2001 and 2007 previous work experience plays an important role in determining the length of unemployment spells amongst the strictly unemployed. The declining importance of tertiary education qualifications in determining the length of unemployment spells amongst the strictly unemployed raises the question of the ability of these qualifications to act as an accurate proxy for the productive potential of strictly unemployed individuals.

Wobmann (2003) argues that although the theory of human capital is highly developed there remains significant scope to improve the proxies through which human capital is measured. The declining importance of education in determining the length of unemployment spells may be interpreted in a number of ways. Firstly, the fact that the South African economy displays a skills bias where the majority of development and employment growth occurs in sectors requiring skilled individuals, means that education up to matric may not equip individuals with the necessary skills to secure employment in these sectors. As a result it is necessary for individuals to obtain some form of tertiary education before they become eligible for employment. Secondly, the fact that levels of education excluding tertiary qualifications do not have any significant negative impact on the probability of unemployment or the probability of long-term unemployment relative to no schooling indicates that employers in South Africa may not be willing to use education as an accurate proxy for human capital.

Although significant progress has been made in the provision of education for all South Africans, there remains highly variable access to education between and within provinces and amongst the racial groups (Shindler & Fleisch, 2007). According to Wobmann (2003) the quality of the education system plays an important role in determining the rate of human capital accumulation. Thus inter-temporal and regional differences in the quality of education are likely to affect the accumulation of human capital. Case and Yogo (1999) have shown that there is significant evidence to suggest that the variation in the quality of education within the South African education system affects the ability of individuals to obtain employment. Thus, although a matric leaver's certificate provides a standard benchmark for judging the educational attainment of school leavers, it fails to capture information regarding the quality of the education. Therefore a matric certificate may not be able to give a definitive assessment of the actual ability and productive potential of the individuals concerned.

The declining impact of having even a degree or diploma may indicate that the value associated with such qualifications is declining in the view of prospective employers. This may be a result of the focus on maximizing the number of individuals enrolling in tertiary institutions within South Africa. Crouch and Vinjevold (2006) have noted that there exists a trade-off in the provision of mass access to education and average quality. The current focus on quantity rather than the quality of tertiary education could be affecting prospective employers' perception of the quality of the graduates exiting tertiary institutions (Pauw *et al*, 2008). This perceived decline in the potential of tertiary graduates may be causing prospective employers to use other means of judging an individual's human capital, namely work experience. Dias and Posel (2007) have suggested that previous work experience is used as a measure of an individual's acquired skills which may be applied productively to their new job. This research presents empirical evidence suggesting that this is indeed the case in South Africa. The importance of previous work experience as a proxy for human capital, and thus in determining the length of unemployment spells is understandable in the South African

context where the level of education achieved fails to transmit satisfactory information about an individual's productive potential to prospective employers.

The descriptive analysis of the type of work experience amongst the unemployed indicates that individuals with previous work in relatively high-skilled occupations are likely to experience shorter lengths of unemployment. Furthermore relative to individuals with a diploma, those with degrees are also likely to have shorter spells of unemployment. As a result it is important that individuals entering tertiary institutions are aware of their future employment prospects in the South African economy. It would be recommended that, unless employers begin to view diplomas in a more favourable light, degrees should be the tertiary qualification of choice. The results reinforce the concept of a skills bias in the economy, thus tertiary students should undertake courses providing them with the skills necessary to secure employment. Furthermore, it is important to identify the specific sectors which would provide the greatest chance of future employment and promote fields of study relevant to these sectors in tertiary institutions.

4.6.2 Tackling Long-term Unemployment

Given the failure of the South African education system to transmit satisfactory information relating to the productive potential of unemployed individuals to prospective employers, the question remains of how these individuals are to find suitable employment. In the current context a 'catch twenty-two' situation arises where an individual needs previous work experience in order to find their first job. Thus assuming there will be no immediate overhaul of the education system's ability to act as an accurate proxy for an individual's human capital potential; other measures need to be taken to ensure that individuals have a chance of securing employment.

The South African government has noted the structural constraints of the economy, namely the bias towards high-skilled sectors and has attempted to address the unemployment problem through the implementation of a number of initiatives aimed at developing various skills within the labour force (Behar, 2006). One such initiative is the

sector education and training authorities (SETAs) aimed at developing critical skills within the economy. SETAs are funded through the skills development levy, whereby private sector employers are required to pay the equivalent of one percent of their payroll to the South African Revenue Service (SARS). SARS allocates 80 percent of the levies collected to the SETAs and the remaining 20 percent is allocated to the National Skills Fund (DOL, 2007).

The SETAs are required to spend at least 90 percent of the income from the levies on grants and skills development activities, and the remainder on administration (DOL, 2007). Once private sector employers have developed a suitable workplace skills programme, they are entitled to have the costs of the training programme reimbursed by the relevant SETA. The aim of the initiative with respect to training and skills development has been to "universalise basic generic and job specific skills throughout the working population" (Lundall, 2003). It is hoped that the increased productivity returns from training achieved by firms will provide the platform for more continuous forms of learning to take place. Since the inception of the SETAs they have faced enormous pressure to deliver tangible results; however they have faced a number of constraints and have often tended to focus on quantity rather than quality (Marock *et al*, 2008). As a result the contribution of SETAs to skills development in South Africa has been limited and they do not appear to have made significant inroads to alleviating the unemployment crisis in South Africa (Grawitzky, 2007).

Abhijit *et al* (2006) have argued that the structural nature of the unemployment crisis in South Africa means that it is unlikely to be overcome by macroeconomic management or temporary changes in aggregate demand. Thus there is a pressing need for proactive policy interventions such as a wage subsidy. They argue that a wage subsidy provides an attractive option to promote employment within the South African economy, given the need for previous work experience amongst the unemployed (Abhijit *et al*, 2006).

There are a variety of forms a wage subsidy may take. In its basic form it entails the government paying a specified portion of an employee's monthly wage. In this context

the wage subsidy would have to be targeted towards individuals whom have never worked before, these individuals are concentrated among the youth, Africans and females (own calculations from LFS, 2007). By targeting this group of the unemployed the government would provide an incentive to employers to employ these individuals by reducing the cost of labour which is likely to increase the demand for this type of labour in the South African economy. Securing employment for these individuals will also give them a chance to develop important skills through work experience. The implementation of a wage subsidy would provide transitional support for unemployed individuals as well as provide an incentive for those who have never been employed to seek employment. Furthermore those individuals at risk of becoming the long-term unemployed will be more likely to enter into employment.

According to Go *et al* (2009) the impact of a wage subsidy on unemployment will be affected by the elasticity of substitution for factors of production as well as the structural characteristics of the labour market. If the elasticity of substitution is high, a reduction in the cost of labour associated with a wage subsidy would induce firms to switch to more labour intensive modes of production resulting in increased labour absorption. It is important that a wage subsidy is carefully designed if it is to achieve its desired objective. Issues pertaining to the amount of the subsidy, its duration and other attached conditions, such as compulsory skills training during employment, require careful consideration. According to the Centre for International and Comparative Labour and Social Security Law (CICLASS) (2007) there has been evidence of poorly designed wage subsidy schemes in Argentina and Chile, failing to deliver meaningful results. A number of possible downfalls associated with wage subsidy schemes have been noted by (CICLASS, 2007).

Firstly, the introduction of a wage subsidy may cause firms to replace unsubsidised workers with subsidised workers. Furthermore, wage subsidies which promote the hiring of the long-term unemployed may lead to inefficient hiring practices and 'discrimination' against short-term unemployed (CICLASS, 2007). Secondly, wage subsidies may stigmatise the beneficiaries in the eyes of potential employers. According to CICLASS

(2007), a wage subsidy may convey a negative signal of the productivity and motivation of the beneficiaries to potential employers. Finally a targeted wage subsidy would only be effective with firms in the formal sector, as informal employers are unlikely to register with the authorities who would administer the wage subsidy. These examples indicate the complex dynamics at play within the labour market, all of which require careful consideration in order to ensure the success of a wage subsidy.

A successfully designed and effectively implemented wage subsidy would promote the employment of low and semi-skilled labour, as it is these individuals with limited skills who have largely been excluded from the formal labour force. In contrast to skills training which is essentially a means to employment, a wage subsidy has employment as its direct goal (CICLASS, 2007). Furthermore, a wage subsidy has the important effect of allowing individuals to participate in the formal labour market and gain valuable work experience. It is this work experience, which will play a critical role in determining the future employment prospects of individuals within the South African economy.

CHAPTER FIVE: CONCLUSION

The problem of unemployment in South Africa is a serious cause for concern. Not only is there a high incidence of unemployment in South Africa but a significant proportion of the strictly unemployed suffer from long-term unemployment. It is thus imperative that a more comprehensive understanding of the various dynamics within the labour market is achieved. It is important to note that the current structure of the labour market has been heavily influenced by the unique historical legacy of this country. A large majority of the South African population experienced socio-economic marginalisation under colonialism and apartheid. As a result they have been inhibited from effectively participating in current the formal labour market.

This historical marginalization associated with the shift towards increasingly skills intensive industries within the South African economy has resulted in a large proportion of the labour force without the necessary productive human capital needed to secure employment. Since the advent of democracy significant steps have been taken to provide access to equitable education for all South Africans. Furthermore affirmative action policies have been implemented in an attempted to give previously disadvantaged individuals a foothold in the formal labour market. However, the implementation of these policies requires a number of tradeoffs to be made. For example, there exists a trade-off between the quantity and quality of education that the government is able to provide. The implementation of affirmative action policies presents the possible trade off between equality and efficiency. Thus although significant steps have been made to redress the injustices of the past it may require a significant amount of time for these imbalances to be corrected. As a result the legacy of discrimination is still powerfully present within the South African labour market.

The implementation of the National Skills Development Strategy (NSDS) by the government indicates an acknowledgment of the unemployment problem as well as the need for more proactive measures to address the issue. The primary aims of the SETAs include the identification of skills bottlenecks within the economy, and the allocation of

funding to ensure that adequate training within these fields is carried out by firms. Given this focus on the development of human capital within the NSDS it is imperative to understand the effect of human capital variables on labour market dynamics. The main focus of this study was to understand the effect of human capital variables, measured by education and previous work experience on the length of unemployment.

The results of the study indicated that in 2001 having a degree or diploma was the only level of education that protected the strictly unemployed against long-term unemployment amongst the strictly unemployed. However, by 2007 having a degree or diploma no longer protected strictly unemployed individuals against long-term unemployment. These results raise serious questions about the ability of formal South African education qualifications to act as a proxy for human capital and thus the productive capacity of individuals. They also highlight the possible human capital depreciation over a prolonged period of high unemployment in post-apartheid South Africa.

It has been noted that there exists a trade off between the quality and quantity of education. In the South African context, the disparity in the quality of education available to individuals suggests that although individuals may complete the same formal education qualification, the differences in the productive potential of these individuals are likely to be significant. The declining importance of education in determining the probability of long-term unemployment amongst the strictly unemployed, suggests that over time firms have become increasingly unwilling to use formal education qualifications as a measure of an individual's productive potential. Furthermore, it may also indicate that the fields of study undertaken by tertiary graduates do not match the demand for skills within the economy.

Relative to education, the results suggest that previous work experience is a more accurate and thus acceptable measure of an individual's productive potential. In both 2001 and 2007 having previous work experience significantly reduced the probability of experiencing long-term unemployment amongst the strictly unemployed. The failure of

education to act as an accurate proxy for human capital has resulted in the importance of previous work experience as a screening mechanism for prospective employers to determine productive potential amongst the strictly unemployed. Work experience in relatively high-skilled occupations was associated with shorter lengths of unemployment, reinforcing the notion of a skills bias in the South African economy.

In light of these results the question of how long-term unemployment within the South African labour market may be reduced remains. Due to the enormity of the task associated with providing quality education to all South Africans it is unlikely that formal education qualifications will be able to act as an effective proxy for the productive potential of individuals in the South African labour force in the near future. Thus the focus in the South African context should be on providing employment that allows individuals to enhance their human capital stocks which would further enhance their future career development prospects. The importance of previous work experience as a screening mechanism for prospective employers presents a 'catch twenty-two' situation where an individual needs previous work experience in order to find their first job.

In order to overcome this problem it has been suggested that the government introduces a wage subsidy. A wage subsidy would reduce the cost of labour for employers and thus is likely to increase the labour absorption capacity of the economy. It is important to be aware of the potential for undesirable outcomes to emanate from the implementation of a wage subsidy. For example, employers may substitute current employees for individuals eligible for wage subsidies, in order to gain from reduced labour costs. Alternatively employers may stigmatize the beneficiaries of wage subsidy schemes and call into question their motivation and productive potential. Issues such as these indicate that wage subsidies have to be carefully designed and implemented taking into account all the potential benefits and pitfalls.

Due to the likelihood that the negative implications of long-term unemployment in South Africa are manifested in a number of social ills such as poverty, crime, alcoholism and HIV/AIDS, it is imperative that individuals who are prone to long-term unemployment

are provided with an opportunity to participate in the formal labour force and to gain valuable work experience. It is this work experience, which will play a critical role in determining the future employment prospects of individuals within the South African economy as well as ultimately increasing the stock of human capital within the South African labour force.

APPENDIX

APPENDIX 1: LFS Questions relating to unemployment.

3.8	**During the past four weeks, has …… taken any action** a) to look for any kind of work b) to start any kind of business *If "No" to both a) and b)* → ***Go to Q 3.11***	YES NO ☐ 1 ☐ 2 ☐ 1 ☐ 2

Question 3.8 in the LFS, asks individuals if they have taken any action to seek employment in the last four weeks. Individuals who answer no to this question (the broadly unemployed) proceed to question 3.11. The fact these people have not been actively seeking employment in the past four weeks excludes them from answering question 3.10 which relates to the length of time that unemployed individuals have been seeking employment. As a result the length of unemployment spells is only captured for the strictly unemployed.

3.10	**How long has …… been trying to find work or start a business?** 1 = LESS THAN A MONTH 2 = 1 MONTH TO LESS THAN 2 MONTHS 3 = 2 MONTHS TO LESS THAN 3 MONTHS 4 = 3 MONTHS TO LESS THAN 4 MONTHS 5 = 4 MONTHS TO LESS THAN 6 MONTHS 6 = 6 MONTHS TO LESS THAN 1 YEAR 7 = 1 YEAR TO LESS THAN 3 YEARS 8 = 3 YEARS OR MORE 9 = DON'T KNOW → ***Go to Q 3.12***	☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

3.11	***If "No" to both Q 3.8.a and b*** *(has not been looking for work or trying to start a business in the past four weeks)* **What was the main reason why …… did not try to find work or start a business in the past four weeks?**	
	01 = HAS BEEN TEMPORARILY LAID OFF WORK	☐ 01
	02 = ILL HEALTH/INJURY/PHYSICAL DISABILITY	☐ 02
	03 = PREGNANCY	☐ 03
	04 = FAMILY CONSIDERATIONS/CHILD CARE	☐ 04
	05 = UNDERGOING TRAINING TO HELP FIND WORK	☐ 05
	06 = NO JOBS AVAILABLE IN THE AREA	☐ 06
	07 = LACK OF MONEY TO PAY FOR TRANSPORT TO LOOK FOR WORK	☐ 07
	08 = UNABLE TO FIND WORK REQUIRING HIS/HER SKILLS	☐ 08
	09 = LOST HOPE OF FINDING ANY KIND OF WORK	☐ 09
	10 = NO TRANSPORT AVAILABLE	☐ 10
	11 = OTHER REASON	☐ 11

APPENDIX 2: Probability of long-term unemployment, 2000 and 2006

Dep: Search Time/ Unemployment Duration
0 = Less than three years
1 = Three years or more

	2000			2006			Change in ME
	Coefficient	t-value	Marginal Effect	Coefficient	t-value	Marginal Effect	(2006-2000)*100
Education							
Grade 1-7	0.04	0.55	0.01	-0.08	-0.77	-0.02	-3.70
Grade 8-11	0.06	0.73	0.00	-0.11	-1.06	-0.02	-2.35
Matric	-0.07	-0.88	-0.03	-0.11	-1.03	-0.01	2.22
Dip/Deg	-0.28	-2.54**	-0.10	-0.29	-1.89***	-0.04	5.56
Work Exp							
Work Exp	-0.35	-7.32*	-0.15	-0.29	-5.67*	-0.10	4.89
Age							
Age 25-34	0.65	11.77*	0.28	0.64	12.25*	0.24	-4.51
Age 35-44	0.91	14.53*	0.39	0.92	14.78*	0.33	-6.18
Age 45-54	1.06	13.55*	0.45	0.95	11.02*	0.38	-6.84
Age 55-65	1.16	10.03*	0.46	1.20	8.47*	0.42	-3.69
Gender							
Male	-0.09	-2.44**	-0.02	-0.06	-1.44	-0.02	0.27
Race							
African	0.53	2.82*	0.18	0.58	2.61*	0.18	0.06
Coloured	0.43	2.06**	0.16	0.39	1.6	0.13	-3.29
Indian	0.60	2.24**	0.17	-0.15	-0.46	-0.03	-20.47
Province							
Eastern Cape	0.42	3.85*	0.15	0.39	2.82*	0.17	2.52
Northern Cape	0.38	2.92*	0.09	-0.26	-1.79***	0.00	-8.77
Free State	0.63	5.55*	0.19	0.26	1.92***	0.14	-4.66
KwaZulu-Natal	0.56	4.9*	0.16	0.26	1.97**	0.11	-5.28
North West	0.71	6.35*	0.24	0.33	2.52**	0.21	-3.11
Gauteng	0.55	5.18*	0.17	0.50	4.1*	0.24	7.00
Mpumalanga	0.58	5*	0.17	-0.07	-0.55	0.03	-14.17
Limpopo	0.53	4.27*	0.19	0.53	3.76*	0.26	7.06
Urban							
Urban	0.13	2.56**	0.06	0.11	1.45	0.04	-1.99
cons	-1.79	-7.78*		-1.61	-5.96*		0.00
N	9386			9192			
F Statistic	18.09*			21.52*			

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level
Omitted Categories: No schooling, No previous work experience, Age 18-24, Female, White, Western Cape and Rural.

Source: own calculations from LFS, 2001 & 2007
Note: The data are weighted and the errors are corrected for stratification and clustering

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