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Graduate unemployment in South Africa: Extent, nature and causes

by

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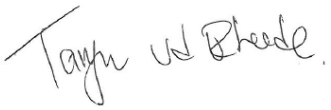
DECLARATION

I declare that *Graduate unemployment: Extent, nature and causes* is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

Taryn van de Rheede

Signature: 

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ABSTRACT

The South African economy faces a challenging socio-economic problem of high and persistent unemployment since the transition. Looking at the unemployment problem in greater perspective, numerous studies found that it is most serious amongst the youth. Since the beginning of the 2000s, a few studies focused particularly on youth and graduate unemployment, but there has been a lack of research in this area in recent years. Hence, this dissertation aims to fill some gap in the available research by investigating the extent, nature and causes of graduate unemployment in South Africa.

This study firstly defined the relevant concepts and discussed some theories relevant to graduate unemployment, before reviewing the results of the past studies on the nature and extent of graduate unemployment. Thereafter, the possible causes were investigated, such as lack of experience, lack of soft skills, skills mismatch, poor quality of education of the graduates, discrimination by employers, etc. Graduate unemployment in India, China and Europe were also considered, and it was found that graduate unemployment was not in a unique problem in South Africa.

The study proceeded with an analysis the Statistics South Africa 1995-2010 labour survey data and conducted more up-to-date statistical analyses of the profile of graduate unemployed. The results showed that the characteristics of unemployed graduates were, in general, the same as what was found by the previous studies, as graduate unemployed were more likely to be female and black, aged 15-34 years at the time of the survey, residing in Gauteng, with only post-Matric certificates or diplomas, and graduating from the fields of Business / Commerce / Management, and Education / Training / Development. The Oaxaca-Blinder decomposition was also applied, and the results indicated that employment discrimination against black graduates was very likely, after controlling for differences in demographic and educational attainment blacks and whites. Hence, the results of the empirical analysis showed that graduate unemployment persists.

Finally, graduate employment elasticity coefficients and employment absorption rates were derived by educational attainment category, and the results showed that although graduate unemployment is clearly less serious than unemployment in other educational categories, the labour demand for graduates is not rapid enough to absorb all the graduates.

KEYWORDS: Graduate unemployment, labour market trends, South Africa

LIST OF ABBREVIATIONS

AGR	Actual growth rate
BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
DPRU	Development Policy Research Unit
EAR	Employment absorption rate
GDP	Gross Domestic Product
HBU	Historically Black University
HSRC	Human Sciences Research Council
HWU	Historically White universities
LFS	Labour Force Survey
OECD	Organisation for Economic Co-operation and Development
OHS	October Household Survey
QLFS	Quarterly Labour Force Survey
SET	Science, Engineering and Technology
SME	Small and Medium-sized Enterprises
Stats SA	Statistics South Africa
TGR	Target growth rate

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CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

The South African economy experienced a structural shift in recent years, away from the primary and secondary sectors towards the services or tertiary sectors. This is a natural phenomenon for any developing economy and, as a result, there has been a notable increase in the demand for skilled at the expense of unskilled labour (Pauw, Oosthuizen and Van der Westhuizen 2006:4). On the other hand, the ongoing globalisation of the world economy, together with stronger competitive pressures, had adjustment costs in the form of job losses. The country's competitive position is adversely affected by the shortage of skilled labour as well as emigration of highly skilled workers, together with a weak level of human resource development (Barker 2007:148). As a result, in recent year, huge public and private investment have been made in tertiary education, while increased access to higher education institutions has been an important strategy of the South African government to create a more skilled labour force. This resulted in an increasing rate of labour force participation by graduates in recent years. Despite this, the economy suffers from a serious lack of skills that constrains the prospects for economic growth and job creation.

The term graduates generally refer to individuals with any type of post-matriculation or tertiary qualification. A tertiary qualification may include different kinds of qualifications from a variety of institutions, technikons as well as universities, as a result of which output is varied according to field of study, entry requirements, length of study, real and perceived quality of the qualification, etc. The growth of joblessness amongst tertiary educated individuals in South Africa stands in sharp contrast to the above-mentioned shortage of highly skilled labour. According to MacGregor (2008:1), unemployment among graduates grew from 6.6% in 1995 to 9.7% in 2005 and, although it remains low relative to overall unemployment, it increased by almost 50% between 1995 and 2005, making it the fastest growing section of the unemployed in South Africa.

From the literature it is clear that the nature of graduate unemployment is complex and relates to various factors such as the quality of education, lack of experience, discrimination, labour market inflexibility and other structural elements. For example, it is evident that the rates of unemployment differ considerably between graduates from different race groups. In 1995 the unemployment rate amongst African graduates, at 10.1 per cent, was four times that of

Whites. This number further increased to more than six times higher in 2004 (Oosthuizen 2006:41). Graduate unemployment is also most prevalent among graduates from historically Black institutions. This may be related to statistical discrimination, where employers discriminate because of a perception that on average workers from certain groups are less productive. Furthermore, there is evidence of a skills mismatch, where graduates accumulated human capital in fields of expertise that are not in demand by employers (such as humanities, teaching and nursing). This may be the result of impaired access to studies in medical and natural sciences as well as engineering courses. Some graduates also lack soft skills, such as general communication skills, presentation skills, financial management skills, time management skills or creative thinking skills. Pauw *et al.* (2006:26) claim that graduates may have relatively high reservation wages and expect their qualifications to immediately open doors at middle management level. They are often unwilling to start at entry level.

The problem of graduate unemployment is not unique to South Africa. The problem exists in both emerging and developed countries and is thus a universal issue. However, whilst the South African government is taking youth unemployment very seriously, their focus is not specifically on graduate unemployment and research on this topic is rather limited. Primarily, research specifically focused on graduate unemployment in South Africa was done by the Development Policy Research Unit (DPRU) and the Human Sciences Research Council (HSRC) covering the period 1995 - 2005. There are vey few studies on youths in the labour market after this date.

The research problem thus relates to the problem of graduate unemployment in South Africa: its extent, specific nature and causes in a dynamic context. The study investigates underlying supply and demand as well as institutional and global factors that determine outcomes in the market for graduates.

1.2 RESEARCH OBJECTIVES

More specific objectives of the study are:

- To lay down the necessary conceptual and theoretical framework as the basis for the study on graduate unemployment;
- To present a descriptive overview of the literature related to findings of earlier studies on the problem of graduate unemployment in South Africa;
- To present a comparative overview of the problem in an international context;

- To conduct a more advanced analysis, using later data, also using more than one data source as well as more sophisticated analytical techniques to assess the current situation.

1.3 METHODOLOGY AND ORGANISATION OF THE STUDY

The nature of the methodology is qualitative, quantitative and analytical. The study presents a descriptive overview of the literature on the graduate unemployment problem. A comparative overview is presented of empirical evidence from some selected countries. In order to analyse the latest data sources, descriptive statistics and other relatively advanced econometric techniques were used, and tables and graphs were constructed from the following secondary sources: Stats SA (October Household Survey, Labour Force Survey and the Quarterly Labour Force Survey) and the South African Reserve Bank Quarterly Bulletin data.

This study is divided into five chapters. Chapter One introduces the topic, explaining the objectives and structure of the study. Chapter Two presents the conceptual and theoretical framework, focusing specifically on some relevant terminology, on the human capital theory, the screening hypothesis and various theories of discrimination. Chapter Three presents a literature review of the problem in the South African context together with some empirical evidence from other countries. Chapter Four updates knowledge and information on the South African case by investigating graduate unemployment between 1995 and 2010. Chapter Five presents the conclusions of the study.

CHAPTER TWO: CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1 INTRODUCTION

This chapter presents the conceptual and theoretical framework which will serve as ~~the~~ foundation for the study of the problem of graduate unemployment in South Africa. It ~~will~~ firstly defines the relevant terminology and then presents a descriptive overview of the relevant theories, such as the theory of human capital, the screening/signalling hypothesis as well as the different types and theories of discrimination.

2.2 RELEVANT CONCEPTS

- *Discrimination:* in an economic sense it exists "…when female or minority (i.e. black workers – who have the same abilities, education, training and experience as white male workers – are accorded inferior treatment with respect to hiring, occupational access, promotion, wage rate, or working conditions.", (McConnell et al, 2006:428 as referred to in Barker 2007: 229). It is the valuation in the market place of personal characteristics of the worker that are unrelated to worker productivity (Riley and College 2006:1).

- *Employment elasticity of economic growth (employment coefficient):* the sensitivity or the degree of responsiveness of employment to changes in economic growth (Barker 2007:44). In this study it will refer to the extent to which graduate employment will change as a result of changes in economic growth.

- *Employment gap*: the difference between employment of comparable groups at a specific period of time due to economic circumstances or choice (Brooks and Hinks 2004: 575). In the case of graduate unemployment, it is important to investigate the factors behind such any employment gap.

- Employment growth rates:[1]
    - *Actual growth rate (AGR):* the rate of employment growth in the labour market over a period (Oosthuizen and Bhorat 2004:7).

[1] The formulas to calculate AGR, TGR and EAR will be presented in section 4.4. In addition, these ratios will be calculated to determine the extent of graduate unemployment.

- *Target growth rate (TGR):* the extent to which employment would have had to grow to provide jobs for all net entrants into the labour market over a specific period (Oosthuizen and Bhorat 2004:7).
- *Employment absorption rate (EAR):* the ratio between the target rate and the actual employment growth, expressed as a percentage. The closer the employment absorption rate is to 100, the actual growth rate is to the desired employment performance (Oosthuizen and Bhorat 2004:7).

- *Human capital:* Filer, Hamermesh and Rees (1996:84) define human capital as "…all acquired characteristics of workers that make them more productive". It is a general term used for the accumulation of education and other human capacities that can raise productivity (Todaro and Smith 2006:369). It is relevant for this study because graduates have invested in tertiary education and training to enhance their stock of human capital.

- *Jobless growth* has two definitions:
  - Firstly, it occurs when economic growth takes place, but the number of unemployed increases (Altman 2003:12).
  - Secondly, jobless growth can also occur when economic growth is complemented with an increasing unemployment rate (Altman 2003:12).

- *Labour market rigidity (or inflexibility*): the extent to which an enterprise's productivity is constrained because it is prevented from adjusting aspects of its work or workforce to "…technological transformation, changing economic circumstances, external shocks and more intense international competition" (Barker 2007:127). The rigidities of the South African labour market may impact on the employment prospects of graduates.

- *Reservation wage:* the value of leisure if the person is not working (Filer, Hamermesh and Rees 1996: 12). It is the minimum wage that an individual will accept, considering the expenses and other factors such as travelling and the nature of the work, impacting on the decision to accept the wage. Christensen (2002: 4) states that it is the wage demand of unemployed individuals.

- *Underemployment* can be visible or invisible:
    - Visible underemployment refers to a person who works for less time than what is considered normal as per the respective job and who is seeking or who would want to work additional hours or full time (Pollack 1997:19).
    - Invisible underemployment refers to the inefficient allocation of human resources, when people earn lower incomes than expected by their qualifications. They carry out tasks that require a lower level of educational attainment than they actually possess (Pollack 1997:19).

- *Unemployed:* This includes all people who are 15 years and older, who are without work, but who are available for work and who are job searching (Barker, 2007:174). Stats SA distinguishes between two definitions, the strict (narrow) and the expanded, (broad)[2] when determining the extent of unemployment:
    - Strict definition: the unemployed are those people who are part of the labour force who (a) did not work seven days prior to the survey interview; (b) were available and wanted to start work within a week of the survey interview and (c) took active steps to look for work in the four weeks prior to the survey interview (Kingdon and Knight 2000:4).
      The strict definition is the official one used by Stats SA.
    - Expanded definition: This refers to unemployed people who meet the first two criteria above but who have not taken active steps to seek work (Kingdon and Knight 2000:4). This definition captures discouraged individuals and those without the resources to search for jobs.

- *Unemployment rate*: the unemployed as percentage of the economically active population (or labour force), which includes the employed and unemployed.

2.3 TYPES OF UNEMPLOYMENT

In order to investigate the nature of graduate unemployment in South Africa, it is necessary to distinguish between the different types.

- *Frictional unemployment* "…arises as a result of normal labour turnover that occurs in any dynamic economy and the time lags involved in the re-employment of labour.'' (Barker 2007:176). Ehrenberg and Smith (2009:503) mention that frictional

[2] In the remainder of the dissertation only the terms strict and expanded will be used.

unemployment will exist even in a situation of full-employment or market equilibrium situation because some people will always be between jobs. There may be unemployed graduates as well as vacancies at the same time, as people are moving between jobs and others enter the labour market for the first time. This type of unemployment is usually of short duration and is a function of labour market information.

- *Cyclical unemployment* occurs during periods of recession when aggregate demand and the derived demand for labour are low (Barker 2007:177). During an economic downturn this time few or no jobs are created for new entrants to the labour market. Demand/deficient unemployment occurs because the level of aggregate expenditure in the economy is insufficient to provide employment opportunities for all labour market participants (Bosworth, Dawkins and Stromback 1996:410). When graduate unemployment increases during periods of economic downturns and decreases during boom periods, the nature of the unemployment is cyclical.

- *Structural unemployment* refers to the overall inability of the economy, due to structural imbalances, to accommodate the total labour force even at the peak of the business cycle (Barker 2007:177). It also refers to a skills mismatch between the fields of education supplied by graduates and those demanded by employers. Therefore, there is a difference between the skill that the employers require and those that employees offer.

- *Seasonal unemployment* occurs due to "normal and expected changes in economic activities during the course of a single year" (Barker 2007:177). This type occurs on a regular and predictable basis and although found in various sectors, it is especially relevant in the agriculture and retail trade. Bosworth *et al* (1996:410) adds that seasonal unemployment refers to the component of unemployment with a 12 month cycle. Furthermore, it arises because of variations in product demand and the timing of labour inputs over the year.

Although all types may be relevant in the case of graduates, structural and cyclical unemployment seem predominantly to affect graduates.

2.4 THEORIES APPLICABLE TO GRADUATE UNEMPLOYMENT

The following sub-sections give a brief descriptive overview of the human capital theory, the screening hypothesis as well as various theories of discrimination.

2.4.1 Human Capital Theory

2.4.1.1 The theory

The theory of human capital explains the positive relation between educational qualifications and higher earnings over the working life of a person as a result of which a person will invest in education. The basic premise of the theory is that education and training augment an individual's stock of human capital and therefore increase that person's productive potential. This, in turn, leads to higher earnings. The human capital theory claims that education increases the productivity of workers. It does so through increased knowledge and skills and therefore augments the workers' future income by increasing their lifetime earnings (Xiao 2001:2). Barker (2007:206) adds that education and training provide not only immediate benefits such as subjective satisfaction and status, but also long-term monetary benefits through higher earnings. Filer *et al.* (1996:90) claim that people with more education typically have higher age-earnings profiles with later peaks and steeper age-earnings than those with less education.

It is however the case that the more educated workers occasionally start out with lower earnings than those with less education, but quickly overtake the less educated and enjoy higher earnings on average over the rest of their working lives. In addition to higher earnings, Ehrenberg and Smith (2009: 281) mention that with an investment in education, there is an expectation of increased job satisfaction over individuals' lifetime and a greater appreciation of nonmarket activities and interests. According to Barker (2007:208), such investment will result in sharp improvements in the earnings and, therefore, standards of living of workers in the labour market, without causing inflation, because of the higher productivity of workers.

Given this and the option of higher earnings over a lifetime, why would a person then not invest in further education? The fact is that there are direct (class fees, books, living expenses) as well as indirect costs (in terms of earnings forgone) involved in improving education as well as psychic costs (occurs because learning is often difficult and tedious) (Ehrenberg and Smith 2009: 281). Todaro and Smith (2006:363) state that the envisaged income gains from education must be compared with the total costs incurred to understand the decision to invest

in further education. Both the costs and the benefits, some of which will only accrue much later in the person's life, need to be considered to determine the rate of return on the investment in education.[3]

The rate of return is determined by calculating the present discounted value of the increased income stream made possible by these investments and then comparing it with their direct and indirect costs. Stroomberger, Rote and Nana (2002:3) also claim that the interest rate used to measure the present value of an expected future stream of benefits needs to take account of both the individual's time preference and the uncertainty inherent in any assessment of expected future benefits. Thus the opportunity cost of investing in education can be determined by a range of variables of interest to the individual, which need to be measured. These opportunity costs are beyond the foregone income.

The human capital theory assumes that people are utility maximisers and take a lifetime perspective when making decisions about investing in education (Ehrenberg and Smith 2009: 283). In the long run human capital theory suggests that skilled workers will be supplied at that wage which compensates them for the costs of attaining those skills (Bosworth *et al* 1996:14).

2.4.1.2 Criticisms of the human capital theory

Measurement: The measurement of human capital is complex by nature. To calculate the effect education and training have on productivity, the education and training as well as the productivity of the individual need to be measured. How would this quality and quantity of education and training be measured? Years of educational attainment are not an indication of the quality of education and training (Barker 2007:209). Additionally, there is the problem of measuring both worker productivity and the future income attached to the respective career, which the theory fails to explain (Marshall 1998:1).

An individual may also be poorly educated relative to the market. This can occur if skills are out-dated or if character or culture is not conducive to profit gain. Thus human capital levels are by definition low, since they constitute small increases in productivity (Darwin 2010:2). Consequently, one cannot assume that because of increased years of education, the individual is necessarily more productive in the workplace. The extent to which these factors inhibit productivity are immeasurable.

[3] See Filer, Hamermesh and Rees (1996: 91-103) for a detailed discussion on the decision to invest in education.

Ability and Attributes: Graduates with the same level of educational attainment may have very different abilities. Workers with the necessary abilities attain higher educational qualifications and it is therefore ability, not necessarily educational qualifications, which is rewarded with higher earnings (Barker 2007:209). If this is the case, increases in educational spending would not necessarily lead to increases in productivity and higher earnings over a person's lifetime. As a result of an innate inability to acquire the necessary skills to find employment, many students will initially invest in education but then fail to attain their qualifications, or fail to procure employment.

The human capital theory does not distinguish between actual human capital and the attributes of individuals, which both influence the graduate's ability to perform productively. Failing to distinguish between these, means in the context of the theory of human capital that those attributes seen as improvements in the qualitative nature of the factor labour are in reality 'enhancements' of labour power (Krul 2010:1). These attributes determine the extent to which graduates are able to successfully apply their knowledge and function efficiently in terms of personal skills in the workplace. Therefore the attributes of graduates are pivotal in explaining their employability. Stroomberger *et al.* (2002:5) state that knowledge, skills, competencies and attributes embodied in individuals, facilitates the creation of personal, social and economic wellbeing.

Family background and financial status: Both these factors could lead to higher educational qualifications and then to higher earnings, without there being a direct relationship between education and earnings. Family background and financial status could facilitate entrance to certain higher-paying occupations, which might otherwise have been more difficult to access (Barker 203:249). According to Schugurensky (2010: 3), these social forces prevent people from having equal access to employment despite their skill and experience. For this reason graduates who may be better suited for a job and who may be more productive, would have a greater chance of being unemployed if they do not have the necessary contacts or status. This may be of particular relevance in the South African context as referred to in Chapter 3.

Change of demand for human capital: The human capital theory does not consider the fact that the labour market changes over time which affects the specific human capital that is demanded. The changing structure of final demand and level of labour productivity change as a country develops (Stryker, Cassim, Rajaratnam, Bhorat, Leibbrandt and Plunkett 2001:27).

It is impossible to accurately predict future labour market needs (Schugurensky 2010: 3). Organizations value particular skills and what these skills are often changes over time. There are not necessarily better skills, just ones that fit the needs of the organization at the time. For this reason graduates may study in fields of education which, once they enter the labour market, are no longer in demand.

In order to keep up with the changing needs of employers, individuals tend to over-invest in education. Work has not become more complex; in fact, with technology it should have become easier (Schugurensky 2010: 3) The need to improve one's skills comes from having to compete in a job market with people who are in many cases over-qualified (Schugurensky 2010: 3). The human capital theory does not consider that over time the encouragement to invest in education can result in a market of over-qualified labour. This over-qualification results in it taking longer to gain the return on investment in human capital as the qualification is not met by an appropriate job. A market of labour with inflated qualifications may cause that those with an adequate qualifications to perform the job remain unemployed because the playing field is not level.

Quality of education: According to Fedderke (2005:38), "...a crucial finding is that it is the quality of human capital rather than the quantity of human capital that is an important determinant of employment, which the human capital theory does not take cognisance of. Policy on education cannot focus simply on a quantity dimension." Investment in human capital offers a means of improving growth performance, provided that we recognize that the impact is one that is manifest in the long run and that requires close attention to quality education as well as widening access to education. In Chapters Three and Four it is shown that the quality of education largely determines the probability of finding employment. This means that increasing access and the level of education is not necessarily a true signal of the employability and productivity of the graduate.

The existence of graduate unemployment thus contradicts this positive relation between investment in education and higher productivity as well as higher earnings. Employment is not guaranteed and the expected rate of return is not achieved. The theory assumes that through investment in education, productivity also increases. However, there are other factors, such as an inborn ability, which are not considered that lead to increased productivity. Likewise, increased education does not necessarily result in augmented productivity.

2.4.1.3 Relevance of the human capital theory

The human capital theory has been used to motivate and justify massive investments in education as a tool to enhance economic development and growth. However the expected future benefits from this investment are undetermined as graduates are not guaranteed to find employment or at least employment which is equivalent to their investment in education. The mere existence of graduate unemployment contradicts the prediction of the human capital theory. Instead of being able to increase productivity and earnings, graduates who have invested in education are unemployed. Some may even be over-qualified in comparison to what the market wants.

Furthermore, the model implies that the person, once leaving school or graduating, will immediately be employed and will continuously be employed over the years until retirement. However, it is possible that the person would only find a job few years after leaving school or graduating. Also, the person could be suddenly unemployed during a certain period. For instance, the person's skills become obsolete and he/she might need to attain training to upgrade his/her skills, before having a chance to be employed again.

2.4.2 The screening / signalling hypothesis

2.4.2.1 The theory

The screening/signalling hypothesis, like the human capital theory, also encourages investment in education. It proposes that education plays a filtering role which conveys much needed information to the economic agents in the markets. Arrow (1973:194) states that higher education serves as a screening device, in that it sorts out individuals with different abilities, and thereby conveys information to employers". However, human capital theory is focused the role of learning in determining the return on schooling, whilst screening models, while allowing for learning, focus on the ways in which education serves as a signal for productivity differences (Weiss 1995:135). Lee, Thakor and Vora (2004:1507) confirm that signalling eliminates information asymmetry.

Spence's (1973, 1974) work on market signalling is one of the first treatments of incomplete information (Kubler, Muller and Norman 2003:4). This presupposes that one market participant may hold private information that for some reason cannot be verifiably revealed, and which affects the other participants' incentives (Horner 2006:1). However an employer can observe certain indicators that are positively correlated with productivity, such as age, experience, education and other personal characteristics (Ehrenberg and Smith 2009:307).

Bosworth et al. (1996: 316) mention that additional indicators such as appearance and presentation as well as aptitude and ability tests can provide a substantial amount of information.

A particularly important reason why workers may invest in education is that it may serve as a signal to potential employers (Kubler *et al.* 2003:4). Consequently, students will choose a length of schooling to signal their ability to employers, and employers will demand a minimum level of education from applicants in order to screen their workers (Weiss 1995:134). The productivity and ability of a potential employee are not publicly observable, but diplomas and degrees are. The potential employers cannot observe the ability of the workers, but they know that investing in education is cheaper for highly able workers. Therefore, education serves as a credible signal of unobserved productivity and it is rewarded with a higher wage.

Moreover, Filer *et al.* (2006:104) state that educational attainment sorts individuals with traits that employers find attractive into those jobs that pay higher wages. Years spent in college may be a way of signalling to employers that the graduates have the self-discipline, motivation and ability to perform well on the job. On the other hand, the screeners argue that the attainment of human capital may have the same apparent effect on earnings, either because the productivity linkage is a valid one, or because it is the instrument through which the effect of some other background variables are transmitted (e.g., family background).

2.4.2.2 Criticism

The screening/signalling theory assumes that education is homogeneous. Therefore signals may be misleading and do not accurately reflect the productivity of the graduate. Among other information asymmetries, employers are therefore not sure of the productive capabilities of a potential employee at the time of hiring. Nor will this information become available immediately after hiring. Using the level of education as a proxy serves as an effective tool to circumvent information asymmetries; nevertheless, there are other factors which should to be considered when determining a graduate's level of productivity.

2.4.2.3 Relevance of the hypothesis

The screening hypothesis hold, Filer *et* al (1996: 105) claimed that the investment in education may generate a relatively high private return when those who have invested and acquired the education enjoy the higher earnings.

However, should the level of educational attainment be used as a screening device, it will keep people out of jobs when the specific requirement for the job is wrongly pitched. This may be relevant in the case of graduate unemployment.

2.4.3 Types and theories of discrimination

Due to discrimination graduates may experience varied probabilities of finding employment. For this reason certain graduate cohorts are more likely than others to be unemployed. Various types of discrimination exist which may be relevant to the problem of graduate unemployment. On the other hand, various theories of discrimination may also enhance a deeper understanding of the problem.

2.4.3.1 Types of discrimination

Barker (2007:275) distinguishes between three types of possible labour market discrimination. The first type of discrimination – human capital discrimination – is referred to as before-the-market discrimination as it occurs before the individual seeks employment or, in the case of on-the-job training, before the individual is fully productive in the labour market. The remaining two types of discrimination – employment and occupational discrimination – are referred to as within-the-market discrimination, because they are encountered after the individual has entered the labour market:

Human capital: This implies discrimination in respect of education and training, which could include impaired access or inferior quality (Barker 2007: 229). Inequalities persist in terms of access to quality tertiary education in South Africa. This variation in quality, which may be real or perceived, can impact on the employability of graduates. In addition, the requirements to access quality institutions are high, while discrimination stems from the low standards of certain secondary institutions, which do not deliver on the criteria necessary to gain access to higher education institutions.

Employment: Some groups bear a disproportionate share of the burden of unemployment (Barker 2007: 229). For instance, if 99% of the cashiers of a big retail store are females because the owner of the store discriminates against hiring males as cashiers (despite the fact that the male applicants meet the necessary skills requirements for the vacancy), this is defined as employment discrimination.

Occupational: This type of discrimination occurs when the type of occupation influences the discrimination coefficient of the employer (Filer et al 1996:537). As a result of occupational discrimination, specific groups may be under-represented in skilled occupations, although they are as capable as other groups and also have the necessary qualifications (Barker 2007:275). The discrimination model of occupational crowding provides more detail on this type of discrimination.

2.4.3.2 Theories of discrimination

(a) Becker's 'taste for discrimination'

The most prominent theory of discrimination is based on the work of Gary Becker in 1957. ~~In~~ According to this model employers have a 'taste for discrimination,' implying that there is a disamenity value to employing 'minority group' workers (Autor 2003:3). No justification is given as to why this prejudice exists. Instead it is assumed that there is a 'taste' or preference to avoid employing people from disadvantaged groups. Hence, minority workers may have to 'compensate' employers by being more productive at a given wage or by accepting a lower wage for equal productivity.

In the taste-based theory, some economic actors prefer not to interact with a particular class of people and are willing to pay a financial price to avoid such interactions. Each employer's taste for discrimination is measured by the wage that the employer would offer a minority worker compared to that of a majority worker (Filer *et al.* 1996:530).This is confirmed by Riley and College (2006:1), who state that discrimination arises because employers and workers have a distaste for working with people from different ethnic backgrounds, or final customers dislike buying from salespeople of different races.

Regardless of this, discriminatory employers see value in their discrimination and consequently Becker introduced the taste parameter of employers. This parameter he called the coefficient of discrimination, which explains that when employers are prejudiced the coefficient will take on a positive value (Autor 2003:3).

A denotes the majority group and B denotes the minority group, and let d be the coefficient of discrimination and W indicates the wage of the respective groups. Employers who are prejudiced (d >0) and have a positive discrimination coefficient, will act as if the wage of b group members is $(W_b + d)$. Hence, they will only hire b group members if $(W_a - W_b) \geq d$.

To summarise: if employers have a positive coefficient of discrimination, they have a taste for discrimination which is based on prejudice. Graduates may be affected by such discrimination, which may result in the minority graduates having to 'compensate' employers by being more productive at a given wage or accepting a lower wage for equivalent productivity. This is highly unrealistic in the South African context where wages are rigid downwards.

(b) Statistical discrimination

"Statistical discrimination can be viewed as a part of the screening problem that arises when observable personal characteristics that are correlated with productivity are not perfect predictors" (Ehrenberg and Smith 2009: 421). In models of statistical discrimination, economic actors have no animus (unlike taste-based models), but discrimination nonetheless arises (Autor 2003:2). This discrimination is based on either (1) signals of ability are less informative within that group or (2) in the presence of human capital investment, equilibria exist in which negative prior beliefs about members of a particular cohort become rewarding.

The premise of this theory of discrimination is that firms have limited information about the skills of job applicants. This gives them an incentive to use easily observable characteristics such as race or gender to infer the expected productivity of applicants (if these characteristics are correlated with productivity). Statistical discrimination therefore provides a rationale behind which employers with no taste for discrimination might discriminate in favour of particular groups and against others. Under circumstances of asymmetric information it is rational for employers to take account of personal characteristics in hiring decisions. However this has the effect that wages and employment of particular groups are below the levels what it would have been, had they been given equal treatment (Bosworth et al. 1996:335).

In the labour market it may be too costly for employers to obtain sufficient information to make accurate inferences about the productivity of each prospective employee (Bosworth *et al* 1996:335). Furthermore Ehrenberg and Smith (2009: 422) states that firms can legitimately use both individual data (test scores, educational attainment, experience) and group data when the former is not an accurate predictor of productivity. Nonetheless the use of group data may result in discrimination because people with the same productive characteristics (test scores, education, etc) will be treated differently depending on the group they affiliated with. If statistical discrimination is not derived from prejudice, then employers will show evidence of

learning (relying less on group affiliation) as more accurate information on individuals become available (Ehrenberg and Smith 2009: 422).

In summary, due to asymmetric information firms use observable characteristics such as race and gender to determine employment prospects. Therefore graduates from particular groups are less likely to be employed regardless of their actual potential.

(c) Transaction cost model

This model may be relevant to explain labour market outcomes for cultural, ethnic and linguistic minorities (Filet et al, 1996: 542). According to Barker (2007: 232) employers may encounter higher costs to restructure the workplace, because African workers have their own languages and culture and often lower educational qualifications. In this model, there are transaction costs within a firm when some members of the firm have to learn the language of other members; this can also refer to differences in proficiency (Hellerstein and Neumark 2002: 24).

Additional training and other courses may be necessary to accommodate these differences which will increase the cost of labour. Another example of transaction cost may be in the mining sector, an area not traditionally suited for woman. It may be necessary to provide special facilities to cater for the needs of woman. The transaction cost of employing blacks or woman may result in discrimination.

(d) Occupational crowding model

According to the crowding model graduates are sorted into two groups, based on factors other than their productivity, and then allocated between two markets (Bosworth, Dawkins and Stromback 1996:334). The crowding models emphasise historical and discriminatory forces that have limited the mobility of black graduates into some job markets, while crowding them into others (Hirsch and Schumacher 1991:15). Occupational crowding results in an increase in labour supply into a specific occupation and depresses equilibrium wages for both white and black workers in crowded job markets (Hirsch and Schumacher 1991:1516).

In general crowding models are more applicable to the position of woman in the labour market, in which case perceptions changed slowly. For example, woman should be secretaries and primary school teachers, but not engineers, pilots and CEO’s of large corporations.

2.5 CONCLUSION

This chapter firstly presented some basic concepts related to labour market issues in general, but that are important for the investigation into the problem of graduate unemployment in South Africa. The theoretical framework highlighted three main theories pertaining to graduate unemployment. The human capital theory maintains that by investing in education, labour productivity will be enhanced and this increased productivity will result in higher earnings over the person's lifetime. The screening/signalling theory is built on the premise that the educational level transmits a signal to employers about the level of productivity of the candidate. This signal therefore eliminates information asymmetry. Both these theories encourage investment in education and explain the rationale behind graduates' decisions to invest in further education and training.

However, there are points of criticism against the theories. For example, a person's productivity may be a function of innate ability. Furthermore, employers value factors beyond just the level of education, as a result of which certain graduates are more employable than others, regardless of the fact that they may have the same level of education.

Various theoretical models of labour market discrimination ('taste' for discrimination; statistical; transactions cost and occupational crowding) were also discussed. The literature overview of Chapter Three and the more advanced analysis of Chapter Four will investigate whether any of these theories are relevant in the case of graduate unemployment in South Africa.

CHAPTER THREE: GRADUATE UNEMPLOYMENT IN SOUTH AFRICA AND IN A COMPARATIVE CONTEXT

3.1 INTRODUCTION

This chapter reviews the literature on graduate unemployment in South Africa. Its key focus is on understanding which graduates are most likely to be unemployed and the factors (such as structural elements, market inflexibility and discrimination) leading to graduate unemployment. It draws on existing studies which predominantly analysed trends for the period 1995 to 2005. Additionally, a comparative overview is done to explore the extent, nature and causes of graduate unemployment in international context.

Section 3.2 presents a descriptive overview of the extent, specific nature and causes of the graduate unemployment problem in South Africa. Section 3.3 focuses on graduate unemployment in an international context and determines if graduate unemployment is unique to South Africa. Finally 3.4 will conclude the chapter.

3.2 GRADUATE UNEMPLOYMENT IN SOUTH AFRICA

3.2.1 The extent of graduate unemployment

Mac Gregor (2008:1) claims that graduate unemployment rate increased from 6.6% in 1995 to 9.7% in 2005. Consequently graduate unemployment shows an overall increasing trend in South Africa for this period. Although graduate unemployment remained low relative to overall unemployment, with graduates amounting to only 2.6% of the unemployed, their actual unemployment figure rose by 51.2% for the period 1995 and 2005 compared to 26% in national unemployment overall for the same period (Feathermen, Hall and Krislov 2010:139). Therefore graduate unemployment is the fastest growing type of unemployment in South Africa since 1995.

In the study by Oosthuizen (2006), he found that the unemployment rate for this cohort in particular increased from 6.6 % in 1995 to 14.6% in 2002 and then decreased to 10.4% in 2004. This is a statistically significant increase highlighting the severity of graduate unemployment. In 2004, approximately 204 000 members of the labour force with tertiary education were unemployed, representing less than 2.6% of the unemployed (Oosthuizen 2006:40). Graduate unemployment is concentrated amongst graduates with certain

demographic characteristics and who have attained particular types and fields of human capital from specific institutions. Through determining the nature of graduate unemployment, the likelihood of having a tertiary education and being unemployed is identified.

3.2.2 The nature of graduate unemployment

Graduates who enter the labour market are heterogeneous and therefore disparities exist between which graduates are more likely to be unemployed. These disparities are caused by demographic differences as well as differences between human capital attainment. To determine which groups of graduates are more likely to be unemployed, the nature of graduate unemployment will be examined.

3.2.2.1 Demographic characteristics[4]

a) Race

Graduate unemployment is distinguishable across races. Black graduates account for the highest share of graduate unemployment. Oosthuizen (2006:41) explicitly states the unemployment rate amongst Black graduates in 1995 was 10.1%. This is four times greater than the rate of graduate unemployment for Whites. This unemployment rate amongst black graduates increased to six times more than White graduates in 2004 (18.1% vs. 2.8%).

Between 1995 and 2004 the unemployment gap between non-African and African graduates widened. The differences in post-tertiary education unemployment rates among Africans, Coloureds and Asians were insignificant in 1995. However, the rate for Africans was statistically different from that for unemployed Coloured and Asian graduates in 2004 (Oosthuizen 2006:41). Therefore, graduate unemployment rates among African graduates became notably higher than that of other races while on the other hand, unemployment rates amongst Coloured and Asian graduates declined slightly. In addition, Pedersen and Lund (1987:229) stated that the labour market hierarchy is restricted by social constraints and networks instead of guided by the level of productivity.

There was an 11.8% decline in employment levels for Black graduates, indicating a decrease in demand for these graduates between 1995 and 2005 (Pauw *et al.* 2007). The number of unemployed African graduates more than doubled from under 10 000 to approximately 25 000 between 1995 and 2004 (Oosthuizen 2006:41). Africans comprised just over half of the unemployed with degrees in 1995, this proportion had risen to 70% in 2004 (Oosthuizen 2006:41). Employment generation in South Africa was evident for only 28.74% of all new

[4] Gender issues and provincial detail could not be derived from available literature

African entrants into the labour market, while 74.69% of all new White entrants were able to find employment. This resulted in the unemployment levels of African graduates being higher than that of Whites (Bhorat and Lundall 2003:27).

In contrast, the demand for non-African graduates increased between 1995 and 2005, with Whites experiencing the highest increase in employment (Pauw *et al.* 2007: 22). In absolute terms, unemployment amongst White graduates remained relatively unchanged between 1995 and 2004 (Oosthuizen 2006:41). The impact of the type of human capital attained further impacts the differences between graduate unemployment across races. The probability of White candidates attending university rather than college is higher than for Black candidates, therefore White graduates are less likely to be unemployed (Branson, Leibbrandt and Zuze 2009:55).

In 2005, 73% of unemployed graduates were Blacks with a certificate/ diploma. This presents an increase from 63% in 1995 to 73% in 2005. Africans attending technikons in 1990 amounted to 19% of the total number of technikon students this amount increased to 73% of the total technikon students in 2000. By 2003 Africans accounted for 76% of all technikon students and 60% of students in all state-subsidised universities and technikons (Pauw *et al.* 2006:25). This increased access of Africans is related to the fact that the burden of graduate unemployment falls predominantly on Africans. The type of human capital which graduates attain is also a cause of graduate unemployment and will be examined from this context in Section 3.2.2.

African graduates additionally account for the highest share of graduate unemployment because of the field of study they choose. Africans tend to enrol in fields of study with higher unemployment prospects; this is largely because they do not qualify to enrol in mathematics, science and engineering courses, which are fields in greater demand.

Du Toit (2003:6) stipulates that approximately 97% of economically active white youths who hold qualifications in the business, commerce and management fields are employed. This is can be compared with only 53.3% of African youths with qualifications in this field who were able to find employment. Du Toit also states that this is the result of African youths who are pursuing training in business, commerce and management specializing in fields such as human resource management and marketing, which are not in demand when compared to subjects like finance, accounting and economics.

The majority of Africans also study in fields such as humanities and the arts field of education which accounts for one of the highest proportions of graduate unemployment. In contrast, Africans in professionally orientated study fields were doing well; they experienced zero unemployment in fields such as engineering and medical sciences, while there were positive levels of unemployment for White graduates in all fields of education (Moleke 2005:10). The field of education as a cause of graduate unemployment will be discussed further in Section 3.2.2.

b) Age

Graduates which fall under the youth age category often have inflated expectations of finding employment and, furthermore, the reservation wages of unemployed youths are generally higher than what these people could expect to earn in employment (Roberts 2011:6). Graduates at this age are also more susceptible to losing their jobs because this is cheaper for employers than dismissing someone who has worked for an extended period of time and also because the youths have less experience (Du Toit 2003:6).

In the evaluation of the age composition of the unemployed graduates in 2005, it was found that about 77% of graduate unemployed are young, suggesting that they are recent graduates (Pauw *et al.* 2006:14); 54.9% of unemployment among those with a tertiary qualification are between the ages 25 to 34 at the time of survey (Pauw *et al.* 2006:14). Therefore most of the graduate unemployed are youngsters who just entered the labour market with no previous work experience. Unemployment among educated youths is potentially damaging for the economy as it can lead to frustration and discouragement among young people. In addition, extended periods of unemployment may result in young people's skills base becoming outdated.

3.2.2.2 Human capital characteristics

a) Type of qualification

The type of qualification determines the probability of graduates being unemployed. Graduates who attain human capital from technikons or colleges account for a higher share of graduate unemployment than graduates with a degree from a university. In August 1999 the Ministry of Education released statistics indicating that an increasing number of South Africans are deciding to study at technikons instead of universities. This trend may be attributed to an array of factors, including the lower entrance requirements at the technikons

and the vocational nature of technikon qualifications. Enrolments at technikons rose by 46%, while at the universities they increased by only 8% between 1993 and 1997. Total higher education enrolments increased from 496 000 in 1993 to 594 000 in 1997 (Ministry of Education 1999:4).

However, more recent statistics illustrates that university enrolment has increased the most, with university of technology enrolment numbers decreasing since the 1990's. More specifically in 2002, the enrolment shares between university, university of technology and college were 41%, 29% and 30%, respectively. By 2007 this had shifted to 54%, 15% and 31% (Branson *et al* 2009:25). This shift in enrolment emphasises the increase in demand from individuals for a university education because of the competitive nature of the graduate labour market and the fact that graduates with a degree have become more employable. Graduates with a degree are also advantaged in that they are better able to signal their levels of productivity to employers and thereby decreasing their chances of unemployment.

There is a clear distinction between graduates when comparing the types of qualifications attained. When comparing employed matriculants (reference group) to individuals who have attained higher education there is a distinctive difference in earnings between the types of qualifications. The financial return (wage premium) from attaining a diploma/certificate is between 170% and 220% higher than employed matriculants. On the other hand, the average graduate with a degree gains between 250% and 400% higher earnings than the reference group (Branson *et al.* 2009:12). These statistics relate to the theory of human capital, which postulates that increased investment in education results in an increase in future earnings.

Table 3.1 shows that the majority of unemployed tertiary education graduates have a diploma or a certificate. In 1995 and 2005 graduates with a diploma or a certificate accounted for 80.9% and 82% of graduate unemployment respectively, whereas in 1995 degree holders made up 19.1% of unemployed graduates, which decreased marginally to 18% in 2005. The fact that the highest proportion of unemployed are graduates with a diploma/ certificate could be attributed to the quality of these institutions and the negative perception amongst employers of these institutions causing statistical discrimination. Therefore those graduates with a diploma/ certificate are more likely to be unemployed than graduates with a degree.

Table 3.1 Breakdown of tertiary unemployment by type of qualification

	1995	2005
Diploma/ certificate	80.9%	82.0%
Degree	19.1%	18.0%
Total	100.0%	100.0%

Source: Pauw et al. 2006:19

b) Field of study

Graduate unemployment is concentrated amongst students aspiring to work in particular fields. Based on a study done between 1990 and 1998 by Moleke, it was found that the humanities and the fields of study accounted for 53.5% of unemployed graduates. This is the highest proportion of unemployed by field when compared to other fields of studies, indicating an over-supply of these graduates during this period (Moleke 2005:15). This is followed by education and economic and management sciences, which account for 17.9% and 10.3% respectively. However these trends of graduate unemployment by field of education changed over time.

Table 3.2 distinguishes between particular fields of education according to post-Matric qualifications between 2000 and 2005. Based on the analysis, business, commerce and management account for the highest proportion of graduate unemployment over the period 2000 to 2005. Graduates with qualifications in education, training and development accounted for the second highest share of unemployed graduates reaching its peak in 2001 at 26.5% and then in 2005 it decreased to 14.1%. Substantial shares of graduate unemployment were also accounted for by graduates with qualifications in physical, mathematical, computer and life sciences or manufacturing, engineering and technology. Human and other social sciences accounted for the lowest proportion of graduate unemployment for this same period. According to Moleke (2005:15) other fields of study such as medical sciences, engineering and natural sciences account for a combined total of only 7.6% of graduate unemployment (Moleke 2005:15).

Table 3.2 Breakdown of tertiary unemployment by field of Study, 2000-2005

Field of study	2000	2001	2002	2003	2004	2005
Business, Commerce & Management	30.5%	26.9%	28.2%	27.6%	28.2%	28.1%
Education, Training & Development	25.6%	26.5%	23.2%	19.0%	21.1%	14.1%
Physical, mathematical, Computer & Life Sciences	11.3%	15.1%	10.5%	14.4%	9.8%	16.5%
Manufacturing, Engineering & Technology	8.6%	9.2%	12.4%	13.7%	10.8%	11.6%
Health Sciences & Social Sciences	5.8%	3.4%	5.7%	5.5%	8.3%	9.7%
Human& Other Special Sciences	2.7%	3.8%	6.8%	4.4%	4.9%	4.9%
Other/ Unspecified	15.5%	15.1%	13.1%	15.4%	16.9%	15.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Pauw *et al* 2006:20

However these statistics need to be read within the correct context. It is important to keep in mind that commerce students typically make up a very large proportion of students at tertiary institutions; this is even true for technical institutions, which partially explains why graduate unemployment would be concentrated in this field. Hence it is not surprising to see that they represent a large share of the unemployed (Pauw *et al*. 2006:22).

In addition, it was proven in the above section that graduates from technical institutions account for higher shares of graduate unemployment. This point is related to the fact that graduates with qualifications in physical, mathematical, computer and life sciences as well as those who graduated in manufacturing, engineering and technology make up over 80% of technical college enrolments. Nonetheless this remains contrary to the demand figures, which indicates that engineers, accountants and auditors are in high demand. Therefore, one should also consider the impact the quality of qualifications inherent in technical institutions (Pauw *et al*. 2006:23).

Moleke (2005:11) notes that almost two thirds of economic and management studies (EMS) university graduates found work immediately after completing their studies. This statistic compares positively to the average of 60% of university graduates across all other fields of education. The fact that the majority of graduates who are unemployed among commerce students are non-university students explains that graduate unemployment of commerce students is largely concentrated amongst those with a diploma or a certificate in this field. This again highlights the importance of choosing the right the type of qualification and field of education to signal the value of human capital and determining the prospect of graduate unemployment.

c) Institutional Context

The legacy of the apartheid education system continues to plague tertiary institutions. Consequently graduates experience different prospects of unemployment based on the tertiary institution they attend. Despite the improvement in resources and increase in funding directed at African tertiary institutions in attempts to equalise education, there is still evidence of persisting inequalities, which are reflected in differences in the quality of education. Incidentally, findings regarding the employment prospects of graduates from historically White universities (HWUs) and historically Black universities (HBUs) are particularly interesting.

Students from HWUs are found to have much better employment prospects than those from HBUs. This can also be seen in the fact that, when considering all post-matric qualifications, 84.6% of graduate unemployment was experienced by Black graduates, whereas White graduates only accounted for a share of 8.2 % between 2008 and 2010 (Stats SA, own calculations).

According to Moleke (2005:12), a survey was conducted and at that time the results revealed that the percentage of graduates unemployed from HBUs in South Africa is approximately 82.1% while those from HWU's is only 17.9%. Therefore unemployment of graduates from HBU's has increased which is predominantly explained by the quality of these institutions and the perceptions employers have of these institutions which causes discrimination. Furthermore, higher proportions of graduates from HWUs, approximately 69% are absorbed in the labour market immediately compared to only 40% of graduates from HBUs (Moleke 2005:3). This is partly explained by employers' perception about the quality of the institutions (Pauw *et al.* 2006:24). Additionally, this points to the poor signalling value of HBUs. However, it is also important to note that HBUs enrol disproportionate numbers of students in fields of study with poor employment prospects, resulting in a skills mismatch. In addition, HBUs are perceived to be of a lower quality causing human capital discrimination and thus leading to graduate unemployment.

Unfortunately, anecdotal evidence indicates that employers are biased against employing graduates from specific institutions, and perhaps quality of education at certain institutions needs to be investigated. Employers may also engage in statistical discrimination based on the institution students attended and thus employers would be more reluctant to employ graduates from HBUs. Moses (2011:3) states that the number of years spent attending school is unlikely

to be a reliable signal of actual productivity as graduates attain various standards of education based on quality differences. Therefore statistical discrimination is likely to occur in South Africa.

3.2.2.3 Duration of job search

Duration refers to the length of time graduates take to find employment. Determining the duration is important considering that the greater the length of unemployment, the more discouraged graduates become. The duration of unemployment is related to the type of tertiary education attained and the graduates' field of education.

In 2005 Moleke (2005: 10) administered a postal survey among employed university students in South Africa. Findings suggest that 60% of graduates found a job immediately, a further 28% found employment between a month and six months after qualifying, 6% took between seven and twelve months, while the remainder 6% took more than a year to find a job. Furthermore, those graduating from the historically black tertiary institutions from the fields of Humanities and Arts, as well as Commerce were more likely to take a longer time (e.g., more than six months) before finding employment.

More than half of all the graduates found their first job in the public sector, with 46.8% finding employment in the private sector and 2.4% being self-employed (Moleke 2005:11). This analysis found that 76.6% of Africans found their first job in the public sector, while 57.5% of White graduates and 51.2% of Asian graduates found their first job in the private sector. This alludes to the fact that the private sector is more reluctant to employ African graduates which is largely due to statistical discrimination.

However, to more directly determine the employment prospects of graduates, it is important to look at which fields of education absorb graduates more rapidly in order to determine where the demand for graduates lies. The absorption rates therefore reflect the demand for a particular field of education and how this aligns with the supply of graduates. 79.3% of graduates from the medical sciences find work immediately, while 77.2% of engineering graduates finds work immediately (Moleke 2009:11). Other fields of education which have a relatively high demand for graduates include economic and management sciences and agriculture, while among those who study in fields of humanities and arts only 46.8% find a job immediately, while 4.2% may take up to 2 years to find their first job (Moleke 2009:11). Therefore, graduates in the medical sciences and engineering fields find jobs sooner, meaning

that the period of job search is shorter than those from other fields of education and consequently the likelihood of graduate unemployment in less.

3.2.3 Causes

Unemployment in South Africa is a key concern, however more alarming is the fact that graduates who should be the most likely to find employment have illustrated increasing shares of unemployment in South Africa. Therefore in order to target the problem of Graduate unemployment it is important to understand the primary causes from which graduate unemployment stems from.

3.2.3.1 Structural problems

Graduate unemployment is particularly caused by a mismatch between the skills demanded by the economy and the skills supplied by graduates resulting in structural unemployment among graduates. It was estimated that in 2002 the vacancy rate was about 4% for high-skill and skilled levels, translating into 90 700 vacancies (Altman 2007:11).[5] Therefore had all vacancies been filled, graduate unemployment might have been halved (Altman 2007:11). However, the leading cause of these vacancies not being filled was that the available vacancies did not correspond with the field in which graduates had studied.

The structural change in the demand for graduates is linked to the pressure of globalisation to focus on particular fields of education in order to remain competitive. Demand shocks are transmitted into the unemployment of graduates (Pedersen and Lund 1987:5), therefore globalisation causes a change in the demand for graduates and thus a mismatch between demand and supply.

Moreover, in order to remain competitive, the market for labour changes, which often results in the field of education in which graduates studied no longer being in demand once they graduate. There is a demand specification problem in the graduate labour market, which means that graduates have been accumulating human capital in fields of expertise not in demand by employers and thus causing unemployment. The specific fields in which graduates study and those demanded by the economy was presented in Section 3.2.2.2.

[5] Caution should be taken when using vacancy rates as a proxy for employment opportunities as vacancies may not necessarily be open to the public.

This demand-specification problem among graduates reveals that students are not informed about the demand for labour. However, information is not perfect and people are not perfectly matched to opportunities, so some mismatch is always likely (Altman 2007:11). Therefore there is a need for collaboration between industry and institutions to target this information gap. It is important that institutions of supply, i.e. the tertiary institutions, produce graduates with a skills profile that matches current demand trends and become informed about the future skill needs of the economy.

3.2.3.2 Discrimination

Inter-racial differences in unemployment figures in South Africa continue to prevail due to discrimination in the labour market. This is predominantly due to our history of racial segregation, which impacted on unemployment figures. To correct the wrongs of the past will take many years to reflect in labour market figures.

An HSRC survey indicated that by the mid-1990s the unemployment rate for white graduates of tertiary institutions in South Africa was approximately 2%. On the other hand, it was almost 25% for black tertiary graduates. The African unemployed individuals are more than twice as likely as Whites not to have worked. Therefore, Africans bear a disproportionate share of the burden of unemployment which illustrates that employment discrimination exists in the South African labour market. This could be due to the inferior employment-enhancing qualities of Africans such as low quality of education and lack of soft skills compared to Whites. It could also be due to the racial discrimination of employers.

According to the DPRU study (2007:7), discrimination favours Whites in that it is more likely for other races to be discriminated against in terms of employment opportunities. It is assumed that the majority of the African youths attained their qualifications from previously disadvantaged institutions, which encourages discrimination amongst employers. This is because Africans are more likely to be accepted at these institutions than at Historically White Institutions who have more restrictive access. Therefore, it seems that employers have the perception that African graduates from these institutions lack essential competencies causing human capital discrimination (Du Toit 2003).

Before the market discrimination is evident from the DPRU firm survey of 2006. From this survey it was found that employers are biased in that they prefer not to hire graduates from historically Black institutions. Some firms who participated in this survey explicitly stated

that they do not approach historically black institutions during campus recruitment drives because of concerns about the quality of education at these institutions. Thus graduates from these institutions are more likely to be unemployed because of human capital discrimination.

Dube (2009:2) alludes to within-the-market discrimination by stating that there are numerous stories of continued discrimination against black professionals in the corporate world. It shows that there is continued resistance among the White captains of the economy to embrace the idea of total inclusiveness, the recognition of talent as well as progression based on merit alone. There is a need for institutions which were previously disadvantaged to be fully equipped and informed, so that graduates from these institutions have the same employment prospects and to avoid statistical discrimination by employers.

Statistical discrimination by employers is predominantly related to the quality perceptions of certain institutions. These quality issues can be traced back to secondary education and tertiary education. "Educational quality differs widely across race groups. In terms of outcomes, the South African school system performs much the same as during apartheid, with most historically black schools (despite vast improvements in resources) still performing abysmally in terms of cognitive outcomes and most historically white schools (despite significantly reduced funding and now also containing many black children) largely performing as successfully as in the past" (Burger and van der Berg 2011:1). The quality of education will be further detailed in the following section.

3.2.3.3 Quality of education

a) Tertiary

The quality of education is an important factor determining the employment prospects of graduates. Returns to tertiary human capital is limited by the impact of poor quality of education which results in a negative signal of productivity to employers and increases the chances of graduates being unemployed (Chamberlain and Van der Berg 2002: 19). The quality of tertiary education plays a direct role in establishing whether the graduate will be able to perform in a work environment. Although quality is difficult to measure, there are many proxies available in this regard. Quality of education can be measured by establishing how relevant and up to date the curriculum is, the availability of resources such as libraries and internet access, lecturer-pupil ratios, and pass and graduation rates.

Tertiary institutions in South Africa have been enrolling increasing numbers of students. This point is further established in Section (c). This increased access to tertiary education is the result of various factors, including the requirements to enter tertiary institutions being lowered to make tertiary education more accessible coupled with the low quality of secondary education which results in students performing well, thereby gaining admission into tertiary institutions and the fact that many formerly disadvantaged individuals are now able to access study loans and bursaries more easily than in the past (Letseka *et al.* 2010:3). This increase in access has, however, been together with decreasing trends in public expenditure on tertiary institutions in South Africa. "As a percentage of educational expenditure the proportion of higher educational expenditure dropped from 15.43% in 1987 to 14.03% in 1999 and thereafter decreased even further to 11.51% in 2009" (De Villiers and Nieuwoudt 2010:16). This increase in expansion relative to a decrease in public spending reflects how the quality of institutions can be negatively impacted.

With that said, however, students find difficulty in managing the academic workload at these institutions, given poor quality teaching and preparation at secondary schools. Consequently high failure rates are experienced at institutions. Certain institutions find themselves under pressure, knowingly or not, to lower the standards and maintain throughput rates to ensure that the system does not congest (Pauw *et al.* 2006:24). However, resorting to such measures influences the quality of education being delivered and thereby negatively affects the marketability of graduates.

In 2001, South Africa's graduation rate was 15%, making it one of the lowest in the world (Letseka and Maile 2008:1). There is also inequality in the graduation rates of black and white students. Evidence suggests that the average graduation rate of White students tends to be more than twice that of Black students. Drop-out rates reflect the effect of the quality issues around secondary education and thus its impact on a tertiary level. Letseka, Cosser, Breier and Visser (2010:3) reported that in 2005, of the 120 000 students that enrolled in higher education in 2000, 3 600 (30%) dropped out in the first year of study. A further 24 000 (20%) dropped out during their second and third years of study. Of the remaining 60 000 (50%) only 22% graduated with a generic bachelors degree within the specified three-year period (Letseka *et al.* 2010:3). The quality of graduates' human capital is predominantly influenced by the institution they attend. Admittance to tertiary institutions is determined by students' performance at secondary institutions and the quality of the respective secondary education, which will be discussed in the next section.

b) Secondary

The quality of secondary education has a great impact on the occurrence of graduate unemployment. Matriculation results determine options for university entry, bursaries, career choice and labour market prospects (Taylor, van der Berg, Reddy and Van Rensburg 2011:1). Secondary education also determines the field of study students will choose and their performance at tertiary institutions. The quality of education, however, is difficult to measure. Nonetheless particular variables are considered when determining the quality of education. These variables include school resources, the pass rates of Senior Certificate students and the pass rates of Senior Certificate students in science and mathematics.

Of the half a million learners who wrote the final exams in 1995 (508 363), 68.3% passed. From those who were successful, 25% passed with exemption, qualifying them to apply to university (Papier 2006). This statistic is important as only a quarter qualify to obtain a degree and those graduates with a degree are more likely than those with a diploma or a certificate to find employment. This leaves the remaining 75% qualifying for a diploma/certificate (Department of Education 2007). In 2001 approximately 13% of those who passed with a Senior Certificate qualified to attend university. This represents a decline over this period.

Furthermore, the continuous assessment of students in secondary education signals to them their strengths and guides them into which field of education they should enrol in at a tertiary level. However the quality of such assessments needs to be of a high quality in order for accurate inferences to be made from them. Van der Berg and Shepherd (2010:29) indicates that continuous assessment accuracy was weakest in terms of the great leniency of assessment in many schools (inflated CASS marks), although irregularity of assessment was also a key concern. These quality issues in assessment therefore incorrectly signals to students which fields of study they should enrol in and could also impact on which type of tertiary education they apply to.

The low quality of secondary education is indicated by the fact that 82% of students accepted into tertiary institutions are functionally illiterate (literacy rate below grade eight). Moreover, 60% experience difficulty in mathematics and science. The lowest average scores were among those individuals attending African schools, when compared to the former House of Assembly schools, who achieved much higher scores (Moleke 2005:8)

Moreover, South Africa has experienced declining numbers of Matric candidates who pass with exemption for university entrance, which is particularly worrying. Based on Department of Education data of 2007, the number of candidates passing the Senior Certificate has increased in comparison with those sitting for exams. However, of those who passed the Senior Certificate, only 13.6% passed with exemption in 2001 which qualified them to apply at a university.

Regardless of resource transfers to Black schools and large influxes of Black pupils to historically White schools, historically White and Indian schools still far outperform Black and Coloured schools in matriculation examinations and performance tests at various levels of the school system (Van der Berg 2006:1). These differences point to quality deficiencies of schools which expedite the racial inequality which already exists in South Africa.

60% of students cannot cope with the level of mathematics and science offered at university, which is evidence of the poor quality of both primary and secondary schools (DPRU 2006:17). In addition, the figures based on those who wrote the 2010 National Senior Certificate examination indicate that there has been a national decline in the number of learners registering to write the mathematics exam. Enrolment in the mathematics exams showed a decline between 1998 and 2010 (Department of Education 2010:92). This trend is in contrast with the demand for graduates because it is necessary for students to enrol and pass mathematics, in order for them to qualify to study in fields such as engineering and medical sciences, as demanded by the labour market.[6] The pass rate in mathematics increased from 46% in 2009 to 47.4% in 2010; however, the overall pass rate is low when compared to other subjects such as Life Sciences which have a 75% pass rate.

Since 2008 the number of learners taking physical sciences has dropped in all provinces except the Eastern Cape and Limpopo. Physical science is another important subject necessary to qualify for the tertiary fields of education demanded by the economy and the drop in enrolment in this subject will result in shortage of graduates studying in fields of education linked to physical science. Nationally the enrolment in the physical science has dropped from 218 749 to 202 604, a percentage of 7.3%. The overall pass rate in physical science dropped from 54% in 2008 to 36% in 2009. In 2010 the pass rate increased to 49%.

[6] It is possible that the black students who performed poorly in Matric were not accepted to study in fields under demand in the labour market, such as Engineering and Medical Sciences, and hence pursued their post-Matric studies by enrolling in the fields like Humanities and Arts as well as Commerce. As a result, this could worsen the skills mismatch problem (because there is already an oversupply of these graduates), and they struggle to find employment upon graduating.

However, this still represents a decrease in in pass rate from 54% in 2008 to 49% in 2010 (Department of Education 2010:113). This decline in both enrolment and pass rates in mathematics and science means that students are not able to register in the fields offered at tertiary institutions which are in demand by the labour market.

In South Africa the increase in resources in formerly disadvantaged schools after 1994 did not bring about the anticipated developments in educational outcomes (Burger and Van der Berg 2011:6). Some schools may have had difficulty filling positions for quality educators, particularly schools located in deep rural areas, because quality educators prefer teaching in richer, urban schools. Consequently this impact on the quality of the education delivered in the more disadvantaged schools (Van der Berg: 2006). Van der Berg and Burger (2010:3) highlight the importance of the need for quality educators to ensure quality education and that the remuneration of teachers is also linked to the quality of education they deliver. Van der Berg and Burger (2010:33) states that "teachers at the top end of the earnings distribution are underpaid, whereas teachers at the bottom end are overpaid. This compression of wages could mean that teachers with the most favourable sets of labour market characteristics will leave the teaching profession, whereas those with least favourable endowments will find it attractive to stay." If this is the case the quality of education delivered is under threat in South Africa.

These factors all contribute to the low quality of education and explain why such schools experience low Senior Certificate pass rates and matriculation exemptions. These constraints have implications for students' progress once they enter tertiary institutions. Correcting the issues around the quality of education will reduce human capital discrimination between Whites and Blacks (Chamberlain and Van der Berg 2002: 2) and reduce unemployment amongst Black graduates.

c) Increased access to tertiary institutions

The growing trend in worldwide demand for higher education is evident when official global student numbers are determined. Global enrolment figures for higher education increased by 4.6% for the period 1970 to 2007, which translates into the average number of tertiary students doubling every 15 years (De Villiers and Nieuwoudt 2010:3). This supply-side expansion for tertiary education is apparent in South Africa as well.

Increased access is indicated by the statistics. The number of degrees, diplomas and certificates awarded by public institutions of higher learning increased by 29% between 1992

and 1996, but declined by approximately 5% between 1996 and 1998. By 2004 there were a total of 28 756 graduates from university and technikons; this accounts for a 61.34% increase in graduates between 1995 and 2004 (Paterson and Arends 2009:33). This statistic is a clear measure of the success of widening access to higher education. Nonetheless, according to Pandor (2007:1), the largest growth was in business and management sciences, while the lowest was engineering sciences and technology and health sciences between the period 1995 to 2004.

There has also been an increase in the African graduate unemployment share which is partly explained by a massive increase in the enrolment of African students at tertiary institutions after 1994 (Pauw 2006:21). The racial composition of tertiary students is 60% for African students, 30% White and 10% Coloured and Asian. However these statistics are largely related to the population growth in South Africa which is in proportion to the growth in the racial composition of tertiary students (Branson *et al.* 2009:20). Nonetheless, this high share of African tertiary students translates into graduate unemployment.

On the other hand, the over-supply of graduates caused by this increased access can also cause underemployment of graduates also explained in section 2.2. Stone and Mc Craw (2007:21) stated underemployment has become an unfortunate reality in that graduates are only able to find part- time wok even though they would prefer to work full- time. Stone and Mc Craw (2007:21) also refer to those underemployed as contingent workers who are not only part-time but employed on a temporary, short- term contract or as casual workers. Many qualified graduates in South Africa have become contingent workers instead of being employed in decent, sustainable permanent jobs as would be expected. On the other hand, graduates' qualifications can often also be exploited by employers in that they perform tasks related to their capabilities due to investment in education but are not remunerated accordingly. This underemployment is in contrast with the human capital theory explained in section 2.4.1 in that the return on the investment into education is not guaranteed.

Tertiary education has become more accessible to people including Blacks. Therefore there is an over-supply of graduates into the labour force. However, the demand for graduates is not high enough to absorb all of them. More specifically, the actual growth rate of employment should be higher in order to meet the target growth rate in order to absorb all graduates into the labour market. Also, some graduates labour force entrants studied in the wrong field and

at institutions of poor quality, which explains why the supply exceeds demand and why graduate unemployment occurs.

3.2.3.4 Labour market inflexibility

a) Labour Legislation

Labour legislations are intended to assist in correcting market failure and protect the relevant participants in the labour market, however they have unintended negative consequences which encourages graduate unemployment. The primary criticism of South Africa's labour legislation is that its rigidity constrains the employment of labour. Such rigidity curtails the employment of graduates as employers would rather invest in capital, hire on a temporary basis, or hire more experienced workers who are less of a risk.

Rigid legislations make it difficult for employers to dismiss employees and thus making them reluctant to employ new labour. The South African economy is positioned at the 65th percentile for hiring rigidity and at about the 60th percentile for the difficulty of firing index (Benjamin *et al.* 2009: 4). The strict labour legislation of South Africa discourages employers from hiring graduates, because compliance with this legislation has the potential to lead to increased costs for the business.

Racial inequality in terms of the hiring practices of graduates is impacted by the BEE (Black Economic Empowerment) Act of 2003. This Act's purpose is to facilitate economic empowerment of all black people, including women, workers, youths, people with disabilities and people living in rural areas (Burger and Jafta 2010:7). Benjamin (2005:40) mentions that the Act seeks to leverage the state's economic power to promote and encourage empowerment and transformation within the private sector. BEE is therefore able to correct the injustice of the apartheid regime and thus, facilitate the employment of Black graduates who currently bear the highest share of graduate unemployment.

However, Burger and Jafta (2010:4) claim that the effects of affirmative action policies in reducing the employment or wage gaps have been marginal at best. The policies were much less significant in bringing about changes in labour market outcomes and add to the rigidity of the labour market. Nonetheless, section 4.3.2 will present evidence which will reflect the changes in unemployment rates specifically related to graduates by race where the possible impact of BEE and other labour market policies will be more clearly explained.

The 2008 OECD Indicators of employment protection shows that hiring and firing costs as well as the hours rigidity index (legislation around working hours) of South Africa are below the global average. However, the hiring and firing rigidity measures are markedly above the world average (Benjamin, Bhorat and Cheadle 2009: 4). The ADCORP 2011 report points out that South Africa performs poorest against firing practices (135th) compared to the rest of the world. These firing practices refer to the legislation which stipulates the processes and appropriate reasons employers are allowed to fire employees.

Leibbrandt, Woolard, McEwen and Koep (2010:33) state that the Basic Conditions of Employment Act, the Labour Relations Act and the Employment Equity Act are far too strict for a country with the currently prevailing unemployment conditions. These regulations impose costs onto employers. Costs are involved in complying with wage and benefit standards, legal requirements with regard to hiring and firing practices, the extension of contracts and agreements and the number of trade unions that firms are required to relate with. Therefore, the costs associated with labour legislation discourage employers from employing new graduates and often employers substitute labour with capital adding to the problem of graduate unemployment.

b) Minimum wages

According to Kingdom and Knight (2000:11), labour market institutions such as Industrial Councils (now called Bargaining Councils) and Wage Boards set sectoral minimum wages in many industries in South Africa. These minimum wages and stipulations are applied to all firms in the industry and region, irrespective of size. South Africa's system of sectoral minimum wages may have contributed to the low levels of youth and graduate employment through pushing up the cost of entry-level workers (National Treasury 2011:14). Du Toit (2003:6) mentions that the effect of minimum wages on unemployment is often found to be quite significant.

Graduate unemployment is concentrated amongst the youth, as indicated above in section 3.2. High minimum wages drive a wedge between youth labour costs and their expected productivity, thereby raising unemployment and discouraging some youths and graduates from entering the labour market. The average minimum wage across all sectors is about 62% of the average formal sector wage. This is very high by international standards and far above the average in the OECD (37%), which is already elevated compared to emerging and developing countries (National Treasury 2011:14). Furthermore, it increases the unit cost of

labour which hinders competitiveness. Thus employers are reluctant to employ graduates because the high minimum wage does not guarantee that the graduates will be equally productive.

Furthermore, whereas many countries such as the Netherlands and France differentiate minimum wages by age through the inclusion of sub-minima for youths, this is not the case for South Africa. This has negative implications for the employability of graduates. The minimum wage in South Africa therefore does not account for the lower productivity of younger workers. This exacerbates the implicit gap between entry-level wages and productivity, and hinders the hiring of younger workers, including graduates.

c) Reservation wages

Given the uncertainty about the potential of school leavers, employers consider entry-level wages to be too high relative to the risk of hiring these inexperienced workers (high reservation wage) (National Treasury 2011:4). Du Toit (2003:6) adds to this by stating that as part of the debate on wages it is argued that graduate wages are not flexible downward, as graduates expect that because of their investment in education they should attain a wage which is aligned with their years of education. Von Fintell and Black (2007:13) claim that graduates misinterpret their possible position within the labour market. However, experience and quality of education play major roles in wage determination. Pauw *et al.* (2006) add to this by stating that limited experiential training makes graduates' expectations unrealistic. Graduates expect their qualifications to allow them to start at management level and are thus unhappy to start at entry level. Firms feel that it is necessary for graduates to have a more realistic view of what they can offer and what to expect from their first job.

3.2.3.5 Lack of experience, language proficiency and soft skills

Mannack (2009:2) states that one of the most salient reasons for graduate unemployment is a lack of work experience. Work experience is used as an indication of ability to employers. Employers look for skills and experience; they regard inexperienced jobseekers as a risky investment (National Treasury: 2011:4).When graduates do succeed in finding employment, employers need to provide extensive training before they can be productive which discourages employers from employing graduates without work experience (The World Bank 2009: 46). Due to the economic downturn employers prefer to employ experienced workers as training graduates would result in employers incurring unnecessary costs. The effect of this downturn results in cyclical unemployment amongst graduates. Some companies, especially

small and medium-sized enterprises (SMEs), cannot afford training at all (Mannack 2009:2). Du Toit (2003) points out that layoffs occur more often amongst this cohort due to their inexperience, resulting in high graduate unemployment rates. Von Fintell and Black (2007:14) suggest that graduates should offer to work as apprentices at no cost in order to gain experience and increase their employability.

An important factor impacting the employability of graduates in South Africa is language. The English language may be used by employers to screen the quality of higher education and thus signal a high level of productivity.[7] In addition if a graduate speaks the preferable language of the employer it will reduce transactional costs imposed on employers associated with on- the- job training through language courses. Of Africans who speak English at home have a 15.8% higher chance of employment than those with an official African mother-tongue language (Cornwell and Inder 2008:513). African men with post-secondary education are estimated to earn approximately 97% more if they are also English language proficient (Casale and Posel 2010:22).

Furthermore Afrikaans- or English-speaking Whites remain better off for employment than any other group defined on the basis of population group and language, whereas the worst off are Asians who speak Afrikaans or English at home. In addition, there is virtually no difference in employment prospects for an English-speaking African compared with an English-speaking White (Cornwell and Inder 2008:513). These statistics highlight the importance of the English language in attaining a job. It is evident that Black graduates who speak English have a higher probability of finding employment.

Adding to the causes of graduates' unemployment is their lack of soft skills which often curtails their performance in interviews as well as within their respective jobs. Many graduates were found to struggle with the lack of ''soft skills'' such as time management, communication and creative thinking, or lacking the ability to work independently (Mannack 2009:1). It is assumed that that the knowledge, skills, competencies and values (combined to represent "graduate attributes") developed by higher education may in varying degree be out of sync with the needs and expectations of employers and, at the same time, with the demands of a rapidly changing world of work. There is a need to increase a student's career literacy while still at university.

[7] Refer to Chapter Two, Section 2.4.2 for a more detailed explanation of the screening/ signalling theory.

The employability of graduates is dependent on a multitude of issues from life skills to soft skills, from instilling a work ethic to personal initiative (Griesel and Parker 2009:1). Employers value the conceptual foundation, knowledge and intellectual approach to tasks produced by higher education, which highlights the need to target this lack of soft skills amongst graduates. However, Pauw *et al.* (2006:15) state that some firms have started to use learnership programmes successfully as a way to bridge the soft skills deficit and narrow the gap between the workplace environment and student life.

3.3 GRADUATE UNEMPLOYMENT IN AN INTERNATIONAL CONTEXT

This section investigates graduate unemployment in India, China and within the European countries. Within this context, it is possible to determine whether graduate unemployment is unique to South Africa. Additionally, this section reviews India and China because it directly relates to South Africa in that they are both emerging economies. India and China both form part of the BRICS and are therefore seemingly economically comparable. On the other hand, European countries will also be examined to determine if graduate unemployment is a phenomenon which occurs only in developing countries or if it is a universal problem not determined by the stage of development. Furthermore, the section will look at the extent, nature and causes of graduate unemployment and how they differ internationally.

3.3.1 Graduate unemployment in India

Soon after independence in 1947 the need for qualified and technically skilled manpower was recognised. It was expected that the system of Indian education would be geared to meet the requirements of a developing country. India therefore experienced a structural shift towards the demand for skilled labour. However with the emphasis on increasing the amount of skilled labour unemployment amongst graduates became an increasingly important problem as the economy could not absorb all the graduates entering the labour market.

3.3.1.1 Extent and nature

Unemployment amongst graduates in India has shown an increasing trend and a share of unemployment of 20% (Chakratoborty 2010:1). A much higher percentage of male compared with female graduates are unemployed. The lower percentage of female graduates without employment is a consequence of the fact that the proportion of graduates is much less for females in comparison with their male counterparts. In addition a significant proportion of female graduates do not seek employment after graduation.

3.3.1.2 Causes

Increased access: The total enrolment started picking up in the wake of independence. As a result of the investments made in the successive Five Year Plans for various developmental projects under higher education, there has been a phenomenal growth in new institutions and in enrolment (Indian Institute of Education 2002). Next to the US, India most likely has more students in universities than any other country, although the number of university students per 1000 of the population is amongst the lowest (Ilchman 1969:787). By the end of the 1980s higher education in India had become one of the largest systems in the world, with about 10 million students enrolled in 188 universities and about 14 000 colleges and with 400 000 teachers (Tilak and Varghese 1991: 3). Yet, the number of degree-granting institutions is merely 350. Average enrolment in each institution is around 600 (Agarwal 2006:4645). Enrolment across institutions increased by 15% from 1995 to 2002 (Indian Institute of Education 2002).

The growth of jobs for graduate and technical degree holders was lower than the growth in the graduate labour force numbers (Sharma and Apte 1976: 920). Government is confronted with a situation in which the numbers of graduates seeking unemployment outweigh the potential of the economy to provide jobs for them (Ilchman 1969: 792). The private organised sector in India employs around nine million people (around 2.2 % of the total workforce). This is so small that any expectation of it absorbing the large pool of around 3.5 million graduates coming out of the system is unrealistic. In the face of moves towards right-sizing, the public and the government sector (with 20 million people) cannot absorb many more graduates (Agarwal 2006:4645). And finally, for most jobs in the unorganised sector that employs a bulk of the Indian people, higher education qualifications are not essential. Under these circumstances the problem of graduate unemployment will persist.

Skills mismatch: Chakratoborty (2010:2) mentioned that unemployment among the educated in India is due to a mismatch between the aspirations of graduates and the opportunities available to them, which alludes to structural limitations causing graduate unemployment. In 1971 more than 75% of the total graduate job seekers were arts and science degree holders. Following these were engineering and commerce degree holders. These constituted more than 10% and 8%, respectively, of the total job seekers. The proportion of other degree holders was all below 2%. Thus a larger proportion of engineering degree holders was seeking jobs than doctors or agricultural scientists. Also, there were a larger proportion of arts degree

holders seeking jobs than science and commerce degree holders (Sharma and Apte 1976: 916). These trends largely still prevail due to the mismatch between the field of study which graduates choose and what is demanded by the economy.

In 1966 commerce faculty enrolment was only 9.60 % of the total enrolment. However, this amount has since shown an increasing trend. During 1997-98 this figure increased to 21.9%. It is apparent that there has been a shift away from the arts faculty towards the commerce faculty (Indian Institute of Education 2002). A concern is that fields of science have had persistently low enrolment rates relative to the demand for graduates in this field. Furthermore, the share of engineering and medicine to the total enrolments is now less than what it used to be in 1947-48; this too is inversely related to the demand for graduates. This is a matter of serious concern for policy-makers. In 1997-1998 enrolment in the arts including oriental learning accounted for 40.4%, whilst commerce amounted to 21.9%, whereas medicine and engineering/technology accounted for 3.1% and 4.9% respectively (Indian Institute of Education 2002). Enrolment rates in India are misaligned with the economic needs of the country, thus leading to unemployment among graduates in fields of commerce and arts.

Quality of tertiary education: The proliferation of the Indian education system led to an erosion in the quality of tertiary institutions (Tilak and Varghese 1991: 3). Most institutions in India are very small and many are too small to be viable. A bulk of the enrolment is in the affiliated colleges that have uniform and often out-dated curricula. Higher education courses with an occupational focus form less than one-fifth of the total (Agarwal 2006:4646). The small numbers of higher education institutions that are of high quality are government-funded. Their number continues to be very small, while a large expansion has occurred in sub-standard programmes and non-viable institutions.

Quality issues associated with institutions are indicative of the fact that only 25% of engineering graduate in India are employable (Chakratoborty 2010:2). Moreover, industry claims that only about one-fourth of graduates from the Indian higher education institutions are employable. As a result there are skill shortages despite large graduate unemployment, which can be explained by the skills-mismatch. The overall standards of higher education have continually deteriorated, thereby reducing the value of an academic degree from India (Agarwal 2006:4646).

Wage rigidity: Market inflexibility prevents wage rates from declining to levels where all graduates may be employed at the rate at which graduate numbers increase. With the expansion of education, there has been a devaluation of education too; a decade ago a clerical job could be had with a Matric qualification, but now the same job requires a graduate qualification (Sharma and Apte 1976: 920).

Other causes: Adding to graduate unemployment in India is that it is taking longer on average to secure a job after attaining a degree and the first job is usually temporary, resulting in frictional unemployment. 20.5% of graduates take between three and six months to find employment, while 79.5 % take more than a year (Das 1981: 16). Invisible underemployment may also occur in that graduates qualified for good positions are often employed as clerks or administrative officials (Ilchman 1969:792). Furthermore, Chakratoborty (2010:2) states that political instability in India, lack of entrepreneurship, lack of quality education and quality students creates excessive unemployment.

3.3.2 Graduate unemployment in China

The rapid increase in graduate unemployment in China has predominantly been a consequence of China's efforts to augment levels of post- secondary education. The various causes of graduate unemployment in China stems from the earlier education reforms, particularly the government's decision to expand tertiary enrolment by nearly 50% in 1999 (Litao and Yanjie 2010: 2). Subsequently, four years later, unemployment for the first time became a big problem for graduates

3.3.2.1 Extent and nature

A high level of graduate unemployment exists in China, as many as 22.1% of new graduates are unemployed (Patridge and Keng 2008:2). Approximately 30% of college graduates fail to secure a job upon graduation each year (Litao and Yanjie 2010: 2). In fact, out of the 2.12 million graduates in the higher education sector in 2003, 640,000 had not had any plans for employment at the end of their studies (Nanping 2004:2).

The problem of educated unemployment first appeared in 2003 with the graduation of the 1999 cohort. As many as 750,000 college graduates could not find a job after graduation. The number increased to 1.2 million in 2005, and nearly 2 million in 2009, or 32% of the 6.1 million graduates. The real numbers could even be higher than the official figures (Litao and Yanjie 2010: 2).

3.3.2.2 Causes

Increased access: From 1995 to 2008 the number of Chinese graduates has risen substantially. Chinese graduates increased more than five-fold from 926 000 to 6.07 million per annum aver this period (Liu 2009:1). This significant increase in graduates is a direct cause of the expansion of access to higher education. The number of new intake of college students on average grew 22% annually between 1998 and 2006 (Litao and Yanjie 2010: 2).

In 2002, there were 2,003 higher education institutions in China. By 2005 this had increased by 16% to 2,395. The number of students in higher education has consequently also risen to the extent that undergraduate enrolment of 5,560,900 in 2000 increased to 9,433,395 in 2006 (Patridge and Keng 2008: 4).

The Chinese government set up its national goal to reach 15 per cent enrolment in higher education by 2010. In 1999 the government began to accelerate the pace of higher education growth, and in 2002 it achieved its goal, eight years earlier than originally planned (Bai 2006:1). The increased access to higher education was due to government intervention through the 211 and 985 projects. These projects aimed at expanding student enrolment but according to Liu (2009:1), the Chinese government did not make the necessary labour market adjustments to accommodate this influx of graduates to the market and thus created an oversupply of graduates. In 1995 the Chinese government launched Project 211, which aimed to establish one hundred leading national universities. According to Patridge and Keng (2008: 4), three major components drove the 211 project:

1. Increasing institutional capacity;
2. Developing particular disciplinary areas and
3. Growing the public service system within higher education.

Project 985 was launched to develop world-class universities: Beijing University, Fudan University, Harbin Institute of Technology, Hefei University, Nanjing University, Shanghai Jiao Tong University, Tsinghua University, the University of Science and Technology, Xi'an Jiao Tong University, and Zhejiang University (Patridge and Keng 2008: 5).

Collectively, projects 211 and 985 caused a massive oversupply of graduates within a short period of time at a rate which was too fast for the labour market to absorb. China has the largest higher education sector globally, with 6.6 million college graduates entering the job

market upon graduation and 1 million going on to pursue graduate studies (Litao and Yanjie 2010: 1)

Quality of higher education: The poor quality of certain institutions causes an increase in graduate unemployment from these institutions. Chinese diplomas especially those from institutions which did not receive government intervention during the period of expansion, to the extent of others have a lower quality of education and therefore a lower value in the job market (Liu 2009: 45). Graduates from key universities have greater employment probabilities than their counterparts from ordinary universities based on quality differences (Li, Morgan and Ding 2008:641).

Educational quality suffered in the process for a number of other reasons. Universities lowered admission requirements in competition for fee paying students. High quality faculty members could not possibly grow as rapidly as student enrolment. Moreover, creation of profitable programs was prioritised over the creation of a good teaching and learning environment (Litao and Yanjie 2010: 2) Furthermore, the rapid expansion of the system has made it difficult to sustain quality inputs such as the number of qualified faculty and staff, curriculum development and program upgrading, laboratory facilities, and library books (Bai 2006:8).

Less than 10% of China's labour force is qualified to work for multinational companies, which require higher employment standards. This quality issue presents problems for China when competing globally. From 2003 to 2008 it was estimated that multinationals employed 750 000 graduates, while China supplied 1.2 million suitable candidates suitable candidates out of 30.5 million total graduates. Therefore multinationals are able to employ 60%, however China faces an over- supply of under- qualified graduates in terms of the quality of their education which makes the unemployable (Liu 2009: 45). In the single-minded pursuit of size and revenue, most universities have little motivation to improve the quality and employability of its students. As a result, a large gap has emerged between the educational profile and knowledge structure of college graduates and the actual demand of the industries (Litao and Yanjie 2010: 7)

Skills mismatch: Structural unemployment among graduates may occur because of a mismatch between the sectors which China focuses on and the skills of graduates. The Chinese economy has a large manufacturing sector and relatively small modern services

industry. The majority of the manufacturing sector consists of millions of labour-intensive factories, a thriving construction sector and large energy and capital intensive industries. None of these three major industrial sectors offers large number of jobs suitable for graduates. (Litao and Yanjie 2010: 7)

There is also a mismatch between the field of education demanded and supplied among graduates. The most popular industry sectors among graduates are IT and communications, followed by the commerce, finance and insurance. However according Li *et al* (2008: 690) fields of education such as philosophy, economics, law, history, engineering, agriculture and management, the rates of a confirmed future is over 60%. The field of engineering accounts for the highest certainty at 73.2%. The rates for education and literature amount to the lowest future certainty in terms of confirmed futures at 28.2% and 48.7%, respectively. The fact that the most popular fields in which graduates study in are not aligned to possible employment opportunities alludes to a mismatch in the skills demanded and supplied in China resulting in structural unemployment.

3.3.2.3 Underemployment

A consequence of graduate unemployment in China is underemployment. Many have to lower their expectations to take jobs that high school graduates would qualify. The oversupply of college graduates has also brought down the average wage levels, as many are forced to take low-paying manual jobs. (Litao and Yanjie 2010: 2) The fact that certain graduates attended institutions which are of a lower quality than world- class institutions result in many of them suffering from underemployment when compared to the qualification they achieved (Liu 2009: 45). The SMEs are often more willing to employ fresh college graduates as junior staff or interns. In fact, in 2009, 75% of China's fresh college graduates employed in the labour force were absorbed by the SMEs.

3.3.3 Graduate unemployment in Europe

A comparative study across countries in Europe regarding graduate unemployment shows substantial differences in terms of the transition to employment. However, although the extent of graduate unemployment varies across countries in Europe the primary causes are largely the same. Through the evaluation of graduate unemployment in Europe one can determine to what extent this phenomenon in more developed countries is different from graduate unemployment in developing countries.

3.3.3.1 Extent and nature

Based on the OECD countries between 2000 and 2004 in Table 3.3, Spain experienced the highest share of graduate unemployment for the respective period compared to the other OECD countries. Other countries with high graduate unemployment rates over this period were Italy and France. The trends in higher education unemployment differ between the countries. While it is fluctuating in Japan and France, we see, for example, a steady growth in Germany and a decreasing trend in Italy.

Table 3.3 Trends in unemployment rates by educational attainment across OECD countries (tertiary education, 2000-2004)[8]

	AT	BE	CH	CZ	DE	ES	FI	FR	IT	JP	NL	NO	UK
2000	1.6	2.7	C	2.5	4.2	9.5	4.7	5.1	5.9	3.5	1.9	1.9	2.1
2002	1.9	3.5	2.2	1.8	4.5	7.7	4.5	5.2	5.3	3.8	2.1	2.1	2.4
2004	2.9	3.9	2.8	2.0	5.5	7.3	4.7	6.1	4.8	M	2.8	2.4	2.2

Source: Kouchy, Meng and van der Velden 2007.

Based on a survey commissioned across ten European countries with a sample size of 30 000 graduates, approximately 5% of graduates experienced difficulty in finding employment. In addition, the waiting time for a graduate to enter the job market varies from country to country, but it might take six months or more, a factor that has abiding costs for the national economies (Kostoglou and Paloukis 2007). The average search time for employment across seven of these countries was three to six months while, on the other hand, countries such as Spain, Italy and France took between seven and nine months to find employment, leading to frictional unemployment. In fact the percentage of graduates employed rises sharply within the first six months after graduation and decreases in subsequent years. Even when graduates become employed, it is often on a part-time or on a short-term contract basis and tasks might be that graduates look for another opportunity, causing frictional unemployment (Teichler 2007:2).

For both European and UK graduates it is the older graduates (aged 30 or over) who have the highest probability of being unemployed for longer than six months. Almost 50% of the European graduates who had experienced this level of unemployment were mature relative to 40% of UK graduates (Little and Tang 2008:10). In comparison, for both European graduates overall and UK graduates, those aged 25-29 at graduation were less likely to have experienced periods of unemployment longer than six months.

[8]The abbreviations for countries refer to: Austria (AT), Belgium (BE), Switzerland (CH), Czech Republic (CZ), Germany (DE), Spain (ES), Finland (FI), France (FR), Italy (IT), Japan (JP), Netherlands (NL), Norway (NO) and the United Kingdom (UK)

In terms of gender differentiation of graduate unemployment, in Germany and the United Kingdom male graduates are more likely to be unemployed. This contrasts with the situation in the Mediterranean countries, where female graduates were much more likely to be unemployed than males. Finally, in Belgium, the Netherlands, Austria and Finland no significant gender difference is found (Kouchy *et al.* 2007).

3.3.3.2 Causes

Increased access: Over the last decades the number of graduates entering the labour market has increased significantly (Nunez and Livanos 2009:3). Since the 1970s it is noted that increased access to tertiary education is a substantive cause of graduates being unemployed. The rapid expansion of higher education has produced an unprecedented number of highly skilled workers whose employment prospects have become more uncertain than they used to be a few decades ago. According to Kostoglou and Adamidis (2009: 3), the high level of competitiveness in the labour market and the consequently dire need for specialization accelerated the need for increased access to higher education in Europe. Teichler (2007:2) states that such expansion has resulted in many graduates acquiring a high level of education in vain, which resulted in over-education causing both unemployment and low-level employment. Finding employment has become more difficult than ever and graduate unemployment is rising (Nunez and Livanos 2009:3).

Skills mismatch: Nunez and Livanos (2009:8) discussed the employability of graduates in Europe based on various fields of tertiary education. In a multivariate analysis, social business and law were used as the reference groups. Fields of study in which graduates are most likely to find employment are: physics and chemistry, foreign languages, statistics and mathematics, and computer science. The fields of study in which graduates are least likely to find employment include: health and welfare, education and engineering. However, the analysis shows that health and welfare degrees provide over-the-mean employability. For these graduates the likelihood of being employed is 0.54 times higher than the probability of the reference group.

Lack of soft skills: In Belgium and Sweden, two of the EU countries with the lowest graduate unemployment rates, potential employers consider that although university graduates are hard-working and possess an excellent knowledge of their specialization, they are ill prepared for real-world conditions and show few signs of creativity, adaptability and flexibility. This

view has been also expressed in some other countries, including Germany, Japan, New Zealand, Norway and the United Kingdom (Kostoglou and Paloukis 2007).

Other causes: Teichler (2007:3) further added that graduate unemployment in Europe is due to a diverse range of other factors such as the length of higher education programmes, vocational versus academic provision, institutional reputation, and the extent to which independent learning is encouraged.

3.3.3.3 Underemployment

The fact that employment opportunities matching the skills levels of graduates are not available results in underemployment in Europe. The appropriateness of the level of employment, in terms of the position or profession is often not aligned to the level of educational attainment and credentials. Too many graduates were viewed as over-educated and thus they were underemployed due to both the economy not being able to create jobs at a pace which is able to absorb all graduates into the labour market and to the mismatch of skills. European graduates surveyed see about four years after graduation that there is little or no utilisation of their skills acquired during their studies while employed, and that the work and employment situation is worse than expected. This predominantly occurs in France, where 36% of graduates feel this way, followed by Spain and the United Kingdom, where the figure is 25% (Teichler 2002:211).

3.3.4 International comparative overview

Table 3.4 summarises the causes of unemployment in South Africa, India, China and Europe, which leads to the conclusion that graduate unemployment in South Africa is nothing peculiar, as similar causes apply in other countries.

Table 3.4: Causes of graduate unemployment in South Africa, India, China and Europe

		South Africa	India	China	Europe
Causes of Graduate Unemployment	Skills mismatch	×	×	×	×
	Quality of education	×	×	×	×
	Employment discrimination	×			
	Lack of soft skills	×			×
	Lack of work experience	×			
	High reservation wage	×			
	Wage rigidity	×	×		
	Increased access to tertiary education	×	×	×	×
	Duration (frictional unemployment)	×	×		×
Consequence	Underemployment		×	×	×

The international comparative analysis firstly shows that graduate unemployment in South Africa, India and China is higher than graduate unemployment on average in Europe. However the causes of graduate unemployment are predominantly similar and not specific to the development phase of countries. Nonetheless it is important to note that developing countries all experienced the natural structural shift away from unskilled labour towards skilled labour. This structural shift caused an increase in access to tertiary education but what is common among the developing countries is that the increase in graduates was not matched with an increase in job opportunities, therefore causing graduate unemployment.

Across all countries graduate unemployment is largely augmented by the poor quality of institutions hindering the employment prospects of graduates from these institutions. Another key cause of graduate unemployment is the mismatch between the skills demanded by the various economies and the skills supplied by graduates. The fields of education demanded across the countries investigated are quite similar alluding to the effect of globalisation on the demand for skills to remain competitive.

Interestingly, all countries experience underemployment. Underemployment is a serious consequence of graduate unemployment. The South African case of underemployment will be discussed in chapter four. Graduates do not find jobs which are aligned to their qualifications. Graduates therefore do not receive the expected return on their investment in education as stated by the human capital theory. Conclusively, graduate unemployment and its causes is

not unique to South Africa and nor is it concentrated amongst developing countries consequently graduate unemployment is a global phenomenon.

3.4 CONCLUSION

Graduate unemployment in South Africa has shown a decreasing trend of late but is, however, the fastest growing type of unemployment. Furthermore it is concerning that in South Africa we are not able to employ those individuals which are the most educated and therefore have the highest employment prospects. However to better understand graduate unemployment it was important to investigate the primary causes of graduate unemployment.

South Africa experienced an increase in access to higher education resulting in an increase in graduates entering the labour market. However, employment creation in the economy did not meet this augmentation of graduates, thus causing graduate unemployment. Higher education is a heterogeneous product. This heterogeneity ensures that all individuals exiting the higher education system will have different probabilities of finding employment in the labour market. This difference may often be linked to the quality of certain institutions and subsequently the perception of employers of graduates from these institutions causing statistical discrimination. There is a serious skills mismatch problem which plagues graduates. Graduates therefore are encouraged and advised to study in the fields in greater demand by the labour market. Furthermore, market rigidities also largely attributed to the increasing trend of graduate unemployment.

These factors driving graduate unemployment have resulted in the nature of graduate unemployment being concentrated among the youth, Africans and particularly those within the fields of business, commerce and management and education, training and development.

Graduate unemployment is not unique to South Africa and is clearly a universal phenomenon across both developed and developing countries. It is higher in India, China and South Africa, when compared to European countries; this can be attributed to the differing economic and demographic circumstances. The causes of graduate unemployment in China, India and Europe are largely linked to the expansion of access to tertiary education. This factor coincides with the causes of graduate unemployment in South Africa in that after 1994 Blacks gained increased access to tertiary education, which plays an important role in this race group accounting for the highest share of graduate unemployment. The field of education also has a

substantive impact on the employability of graduates internationally. The issue around wage rigidities distinctively affects graduates access to employment in South Africa and India. Furthermore, as internationally proven, elements such as the institutional reputation and soft skills of graduates are also important determinants of employment. Lastly, underemployment seems to be a common trend amongst the investigated countries, which is further confirmed in Chapter Four with regards to South Africa.

Through assessing the literature on graduate unemployment for the period 1995 and 2005 it is apparent that the acquiring of higher education is a necessary but not a sufficient condition for finding employment in the domestic labour market. Graduate unemployment, however, continues to plague South Africa's socio-economic development and therefore it is critical to determine if any recent changes in the nature and causes of graduate unemployment occurred beyond 2005 in order to effectively address this problem.

CHAPTER FOUR: GRADUATE UNEMPLOYMENT: 1995- 2010

4.1 INTRODUCTION

Through the review of relevant theory and literature, a premise has been derived for a descriptive and analytical overview of graduate unemployment. The review of the literature in chapter three has revealed the problem of graduate unemployment by comparing the OHS 1995 with the latest available LFS. However, this chapter will present a dynamic overview of the nature of graduate unemployment as well as consider other leading factors to account for unemployment amongst graduates. The analysis will in addition to the existing literature determine graduate unemployment by gender and by province as well as the effect of previous work experience of the employment of graduates. This will be done by analysing all 1995–2010 Stats SA labour survey data, that is, the 1995-1999 October Household Surveys (OHS), the 2000-2007 Labour Force Surveys (LFS) and the 2008-2010 Quarterly Labour Force Surveys (QLFS). A key aim of this chapter is to conduct a time-series analysis on graduate unemployment using analytical techniques and thereby update existing data on graduate unemployment so that more accurate inferences on this topic can be made.

The chapter will firstly discuss the data sources. Secondly, the descriptive statistics will be analysed to determine the trends involved in graduate unemployment as well as the demographic and human capital characteristics of graduate unemployment. Thirdly, multivariate probit analyses will determine the characteristics of the graduate labour force that were more likely to find employment. Lastly, an advanced analysis will be done related to topics such as discrimination, jobless growth, employment absorption and underemployment.

4.2 METHODOLOGY

4.2.1 Data

Before proceeding with the analysis, it is worth speaking briefly about the data used in this study. Three main data sources were utilised in this study, namely the October Household Survey (OHS), the Labour Force Survey (LFS) and the Quarterly Labour Force Survey (QLFS). All surveys are nationally representative household surveys conducted by Statistics South Africa (Stats SA). Stats SA has been collecting labour market data since 1993. The OHS, which was conducted annually between 1993 and 1999, as well as the LFS, which was

a biannual survey introduced in 2000 to replace the OHS. The QLFS was introduced to replace the LFS in 2008.

These changes in data collection by Stats SA have implications on conclusive long-term trend analysis. The changeover from OHS to LFS included changes in the sampling frame, variation in the questionnaire design, adjustments in the methodology to determine the labour market status, trends in several variables (e.g., demographics, educational attainment, labour force participation rates, unemployment rates, earnings, etc.), over-sampling of informal sector workers in 2000, over-estimation of the earnings of self-employed in the OHSs, and the continuous development of the questionnaire by Stats SA (Yu 2009: 3).

Two newly derived variables in the QLFS – unemployment status and underemployment status – are also discussed (Yu 2009:21). Furthermore, the broad labour market status derivation methodologies adopted between 1995 and 2007, and from 2008 onwards are not comparable;[9] therefore this chapter will only use the narrow definition of unemployment.

4.2.2 Advanced analysis

The section on descriptive statistics makes use of economic data with the aim of giving empirical content to the problem of graduate unemployment between 2005 and 2010. This time series analysis makes use of a single variable as a function of one or more explanatory variables to assess the extent and nature of graduate unemployment.

The advanced analysis applies mathematical and statistical methods to determine economic relations. Firstly, a multivariate analysis is done to determine the maximum likelihood of particular variables to be employed compared to the reference group. Furthermore an analysis will be done to observe jobless growth, employment absorption and underemployment amongst graduates in South Africa. The Oaxaca- Blinder decomposition is used as an analytical tool which measures explained and unexplained discrimination amongst graduates in the labour market. This analytical tool is further explained in section 4.4.2.

[9] Refer to Yu (2009) for more detailed information on the incomparability of broad and narrow unemployment between 1995 and 2008

4.3 DESCRIPTIVE STATISTICS

This section will focus on single variate analysis with the aim of determining the extent and nature of graduate unemployment in South Africa from a dynamic perspective for the period 1995 to 2010.

4.3.1 The extent of graduate unemployment

Between 1995 and 2010 there was a general increase in the number of graduates who were unemployed in South Africa. However unstable up and down trends are observed when observing the data in greater detail. In Figure 4.1 an increasing trend in unemployment was experienced by graduates for most years between 1995 and 2003a; after that graduate unemployment began to decrease from 2003b. Between 2004 and 2009 graduate unemployment showed an increasing trend. 2009 onwards the number of unemployed graduates began to show marked increases peaking in 2010.

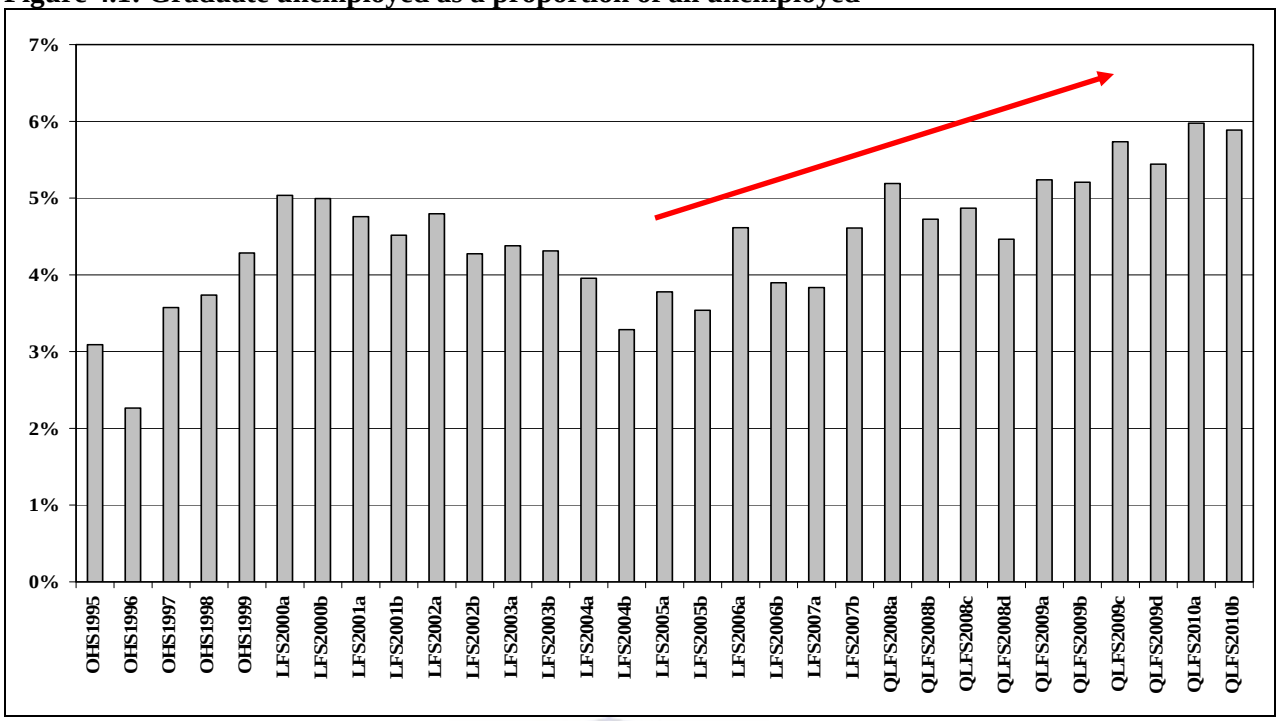
Graduate unemployment as a proportion of all unemployed persons indicate an increasing trend between 1995 and 2010. Figure 4.2 shows that from 2004 the percentage of graduate unemployment consistently increased. This trend is in line with the literature, which states that the rapid increase in access to tertiary education, particularly for Black students, resulted in noticeable increases in graduate unemployment. Section 3.2.3 explains in more detail how the rapid increase in access to tertiary education resulted in the oversupply of graduates, compared to the demand for graduates and thus attributing graduate unemployment. The lagged cyclical effect of the 2008 financial crisis on unemployment had a marked impact. Section 2.3 can be referred to for a more specific explanation on how cyclical effects impacts on unemployment. This cyclical effect is displayed by the peak in graduate unemployment between 2009 and 2010 at approximately 6%.

Table 4.1: Number of graduate unemployed

	Matric + Cert/Dip	Degree	Graduates
OHS1995	50,843	11,459	62,302
OHS1996	33,143	16,537	49,680
OHS1997	68,912	18,436	87,348
OHS1998	98,730	19,165	117,895
OHS1999	100,444	33,458	133,902
LFS2000a	168,809	47,871	216,680
LFS2000b	164,016	42,734	206,750
LFS2001a	153,020	55,584	208,604
LFS2001b	155,494	53,461	208,955
LFS2002a	183,632	49,815	233,447
LFS2002b	158,318	51,151	209,469
LFS2003a	165,875	56,915	222,790
LFS2003b	158,155	32,016	190,171
LFS2004a	127,928	46,075	174,003
LFS2004b	110,383	24,685	135,068
LFS2005a	134,153	27,158	161,311
LFS2005b	127,336	30,509	157,845
LFS2006a	165,365	31,266	196,631
LFS2006b	141,338	29,166	170,504
LFS2007a	131,707	34,107	165,814
LFS2007b	152,322	27,025	179,347
QLFS2008a	168,566	47,269	215,835
QLFS2008b	162,529	30,154	192,683
QLFS2008c	169,044	30,137	199,181
QLFS2008d	145,957	25,729	171,686
QLFS2009a	183,321	34,160	217,481
QLFS2009b	176,831	36,420	213,251
QLFS2009c	199,394	39,135	238,529
QLFS2009d	182,486	42,109	224,595
QLFS2010a	205,302	49,697	254,999
QLFS2010b	204,859	46,488	251,347

Source: Own calculations using OHS/LFS/QLFS data.

Figure 4.1: Graduate unemployed as a proportion of all unemployed



Source: Own calculations using OHS/LFS/QLFS data.
Note: Unemployed with unspecified educational attainment are excluded.

4.3.2 The nature of graduate unemployment

The nature of graduate unemployment reviews the demographic and human capital characteristics of graduates between 1995 and 2010. This section therefore explains which factors determines and impacts the probability of being an unemployed graduate.

4.3.2.1 Demographic characteristics

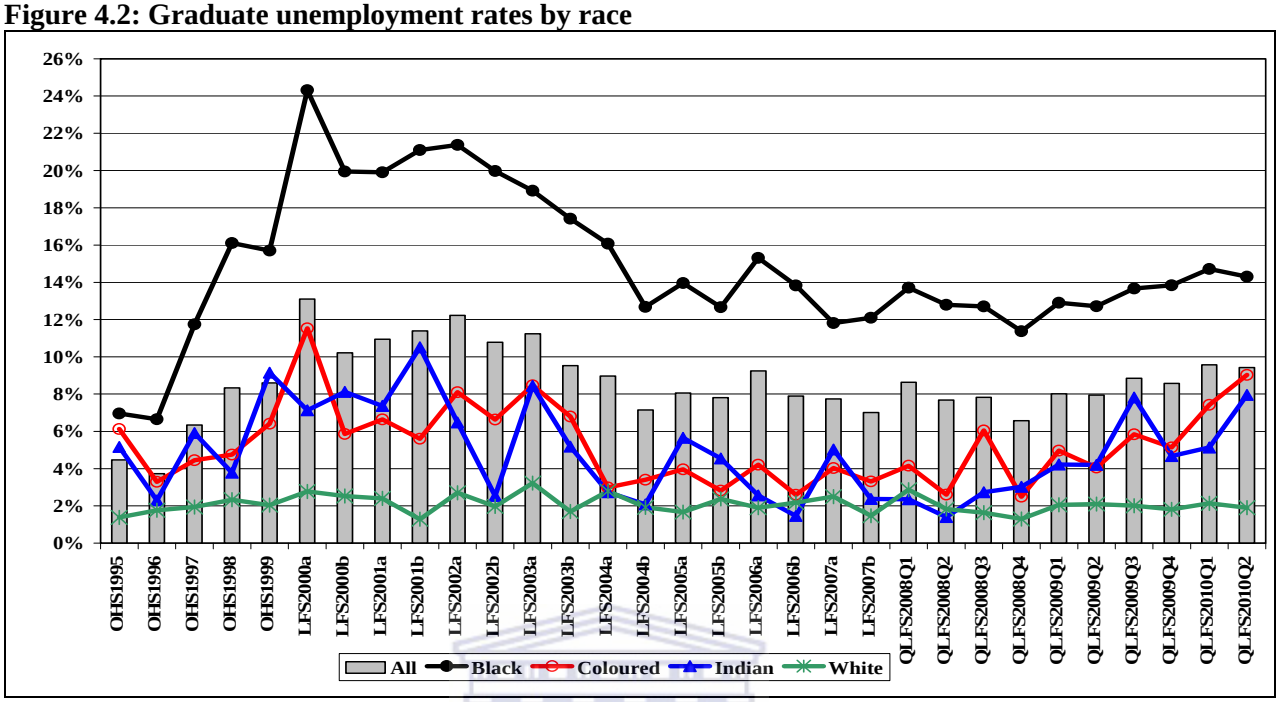
a) Race

If one looks at graduate unemployment by race, Figure 4.2 shows that the highest unemployment rates were experienced by Black graduates. Black graduates show an increasing trend in unemployment rates before peaking in 2000 at approximately 24%. However, these rates have since displayed a declining trend. This decline can be a result of the impact of BEE which encourages the employment of Blacks in South Africa and which is explained further in section 3.2.3.4 under labour market inflexibility.

On the other hand, White graduate unemployment rates account for the lowest rates of graduate unemployment for this period compared to other races. This pattern is evidence of the fact that employment in South Africa was generated for approximately only a quarter of all new African entrants into the labour market, relative to 74.69% of all new White entrants as explained in section 3.2.2. Therefore through extending the period of analysis it can be

concluded that the racial trends have consistently continued, in that graduate unemployment is concentrated amongst Black graduates and lowest amongst White graduates.

Figure 4.2: Graduate unemployment rates by race



Source: Own calculations using OHS/LFS/QLFS data.

From Table 4.2 one will notice that between 1995 and 2010 Black graduates account for the highest percentages of graduate unemployment amongst those with a certificate/diploma and those with degrees.. Of total graduate unemployment, unemployment amongst Blacks with a certificate/diploma increased from 79.0% to 87.0% for 1995 and 2010 respectively. Conversely it decreased for White graduates with the same type of tertiary education from 11.1% to 6.3%. Similar trends were observed with graduates with degrees, where the proportion of Black graduates made up 53.4% of the unemployed. This figure then increased to 73.3% in 2010. On the other hand, the share of unemployment among White graduates' with degrees declined from 16.3% to 8.2%.

Table 4.2: Racial share of unemployed graduates

	Matric + Cert/Dip					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Black	79.0%	82.1%	86.9%	88.1%	89.4%	87.0%
Coloured	6.2%	4.9%	4.1%	3.4%	3.0%	4.5%
Indian	3.7%	4.3%	2.5%	1.4%	1.2%	2.2%
White	11.1%	8.6%	6.4%	7.0%	6.4%	6.3%
Other/Unspecified	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Degree					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Black	53.4%	71.8%	75.9%	66.0%	71.1%	73.4%
Coloured	7.3%	2.9%	3.3%	2.6%	0.7%	5.2%
Indian	6.0%	2.6%	4.9%	6.6%	4.9%	4.2%
White	33.3%	22.7%	15.8%	24.1%	23.4%	17.3%
Other/Unspecified	0.0%	0.0%	0.1%	0.8%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Graduates					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Black	73.1%	80.0%	84.3%	83.5%	86.3%	84.6%
Coloured	6.4%	4.5%	3.9%	3.3%	2.6%	4.6%
Indian	4.3%	4.0%	3.0%	2.5%	1.9%	2.6%
White	16.3%	11.6%	8.6%	10.6%	9.3%	8.2%
Other/Unspecified	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations using OHS/LFS/QLFS data.
Note: Unemployed with unspecified educational attainment are excluded.

b) Graduate unemployment by age

Table 4.3 shows that the youth (people aged 15-24 years and 25-34 years at the time of the survey) present the highest proportion of unemployment for the period 1995 to 2010.[10] This is true for both those with a certificate/diploma and with a degree. The youth are most likely to be unemployed due to their lack of experience and soft skills, their high reservation wages and their inflated expectations. Those between the age of 25 and 34 years with a certificate/diploma make up more than half of unemployed graduates, while those with a degree account for an equally high 43.7% of graduate unemployment. Figure 4.3 more explicitly shows the extent to which graduate unemployment is concentrated amongst the youth. From the youth between 2006 and 2007, 82% of graduates were unemployed, 83% of

[10] Because of such high youth unemployment rates (including graduate unemployment), the government will be implementing the youth wage subsidy from 1 April 2012 to boost youth employment creation, however the wage subsidy is not specifically directed at graduates.

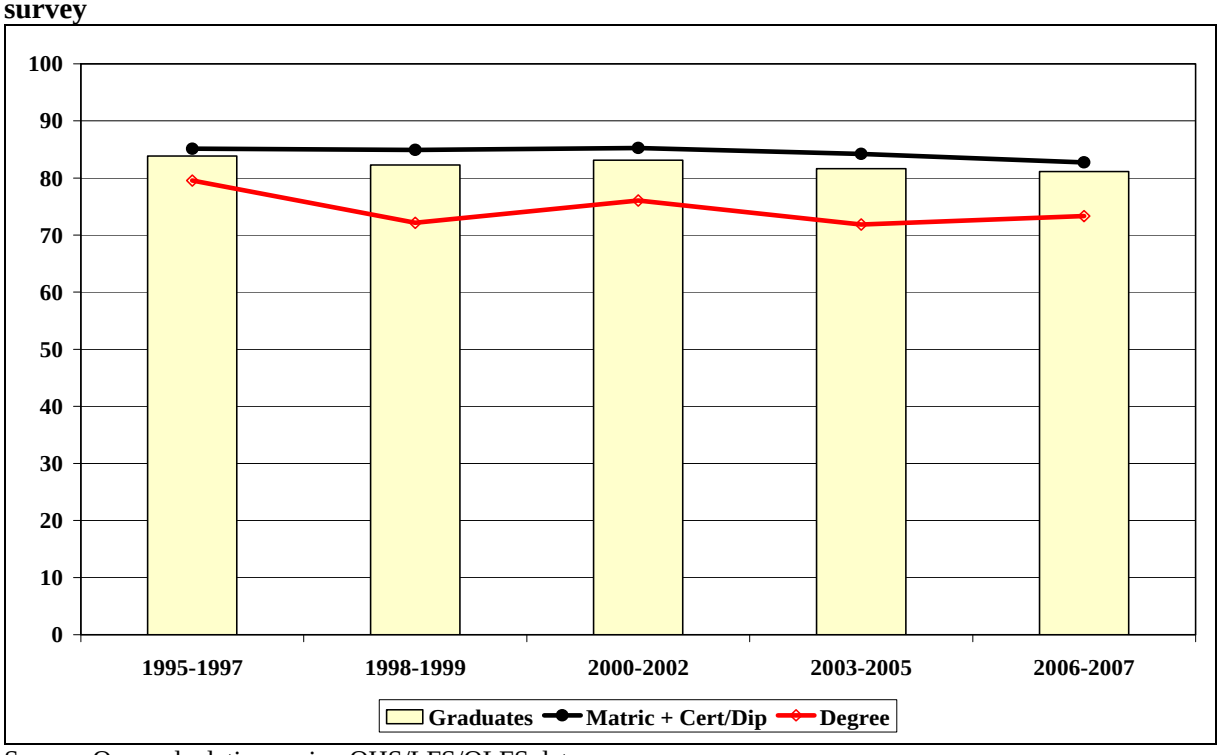
graduates with a certificate/diploma are unemployed, while a lower, 74% of persons with a degree were unemployed

Table 4.3: Age cohort share of unemployed graduates

	Matric + Cert/Dip					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
15-24 years	29.7%	31.1%	30.3%	28.2%	30.6%	28.2%
25-34 years	55.5%	53.9%	55.0%	56.1%	52.2%	51.9%
35-44 years	10.1%	11.1%	10.1%	11.3%	12.2%	14.2%
45-54 years	2.9%	3.4%	4.1%	3.8%	4.4%	4.3%
55-65 years	1.9%	0.6%	0.5%	0.6%	0.6%	1.5%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Degree					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
15-24 years	26.0%	28.4%	21.2%	17.1%	18.3%	25.5%
25-34 years	53.6%	43.8%	54.8%	54.8%	55.0%	43.7%
35-44 years	11.4%	15.4%	15.1%	19.3%	15.3%	19.1%
45-54 years	3.2%	12.5%	6.4%	7.0%	7.5%	7.6%
55-65 years	5.8%	0.0%	2.4%	1.8%	3.9%	4.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Graduates					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
15-24 years	28.8%	30.5%	28.2%	25.9%	28.5%	27.7%
25-34 years	55.0%	51.8%	55.0%	55.8%	52.7%	50.5%
35-44 years	10.4%	12.0%	11.3%	13.0%	12.8%	15.1%
45-54 years	3.0%	5.3%	4.6%	4.5%	4.9%	4.8%
55-65 years	2.8%	0.5%	1.0%	0.9%	1.2%	2.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations using OHS/LFS/QLFS data.

Figure 4.3: Proportion of graduate unemployed who were younger than 35 years at the time of survey



Source: Own calculations using OHS/LFS/QLFS data.

c) Graduate unemployment by gender

The trends below differentiate graduate unemployment between males and females. Between 1995 and 2010 unemployment amongst female graduates increased from 56.1% to 60.5%. In 2008 to 2010 unemployment among graduates with degrees shows an almost even gender split. Those with a certificate/diploma show a greater difference in graduate unemployment, where males make up 37.4% and females 62.6% of total unemployment.

Table 4.4: Gender share of unemployed graduates

	Matric + Cert/Dip					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Male	41.7%	40.2%	39.1%	38.6%	37.0%	37.4%
Female	58.3%	59.8%	60.9%	61.4%	63.0%	62.6%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Degree					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Male	51.0%	48.9%	43.9%	52.2%	50.3%	49.3%
Female	49.0%	50.0%	56.1%	47.8%	49.7%	50.7%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Graduates					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Male	43.9%	42.0%	40.2%	41.5%	39.3%	39.5%
Female	56.1%	57.8%	59.8%	58.5%	60.7%	60.5%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations using OHS/LFS/QLFS data.

d) Graduate unemployment by province

In the assessment of graduate unemployment by province, marked differences are noticed across the provincial structures of South Africa. Gauteng province consistently shows the highest shares of graduate unemployment over the period 1995 to 2005 with figures averaging 30%. Gauteng province is South Africa's leading province in terms of GDP contribution; therefore there is an influx into this province of graduates in pursuit of employment, which consequently leads to a high unemployment rate[11]. Alternatively, provinces such as the Northern Cape and Free State account for the lowest shares of graduate unemployment, which may be due to the fact that in these provinces people dropped out before Matric or do not have the ability or finance available to pursue post-matriculation studies. Therefore, this limits the students gaining access to tertiary institutions and thus these provinces do not have an over-supply of graduates in comparison to the demand for graduates. Furthermore individuals from

[11] It is possible that these migrant graduates still remain unemployable (due to skills mismatch / etc.), even after they migrate to Gauteng, the province with most abundant job opportunities, yet they remain in Gauteng to seek employment opportunities. This eventually pushes up the graduate unemployment rate in Gauteng.

these provinces may have opted to move to other provinces such as Gauteng with the perception that employment opportunities are greater in alternative provinces.

Table 4.5: Provincial share of unemployed graduates

	Graduates					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Western Cape	12.8%	6.9%	5.3%	6.6%	6.6%	9.5%
Eastern Cape	11.5%	13.9%	12.0%	12.0%	10.7%	8.5%
Northern Cape	0.9%	1.3%	1.0%	1.3%	1.6%	1.3%
Free State	4.9%	4.9%	5.4%	6.9%	6.2%	5.5%
KwaZulu-Natal	13.4%	15.4%	19.2%	14.1%	14.1%	13.9%
North West	5.2%	6.4%	7.3%	8.4%	8.4%	8.0%
Gauteng	31.2%	24.2%	28.2%	28.2%	32.6%	30.4%
Mpumalanga	4.4%	8.3%	6.8%	6.1%	6.7%	8.8%
Limpopo	15.8%	18.8%	14.9%	16.2%	13.2%	14.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations using OHS/LFS/QLFS data.

4.3.2.2 Human capital characteristics

a) Educational attainment

Table 4.6 shows that individuals with an incomplete secondary education accumulate the highest share of unemployment increasing from 21.3% in 1995 to 30.7% in 2010. Interestingly, those with a Matric become equally highly unemployed as the years progress, which indicates the increasingly higher demand for education by employers over the years. Therefore the unemployment rate amongst the graduates still remains the lowest, compared with unemployment rates of people from other educational attainment categories.

However, it is clearly illustrated that individuals with a certificate/diploma have significantly lower unemployment rates. As expected, it is evident that graduates with a degree account for the lowest unemployment rates. Graduate unemployment displayed an increasing trend before peaking in 2000 at 16.6%. Thereafter graduate unemployment rates in South Africa have displayed a decreasing trend, reaching 10.9% in 2010. Although graduate unemployment rates have decreased, it remains a matter of concern that, withstanding the structural shift towards skilled employment, graduate unemployment still exists.

Figure 4.4 in addition graphically shows that the level of educational attainment matters. The higher the level, the lower the probability of being unemployed as explained by the human capital theory in Section 2.4.1. The fact that unemployment is higher amongst those with lower levels of education explains the rationale behind graduates decision to invest in higher

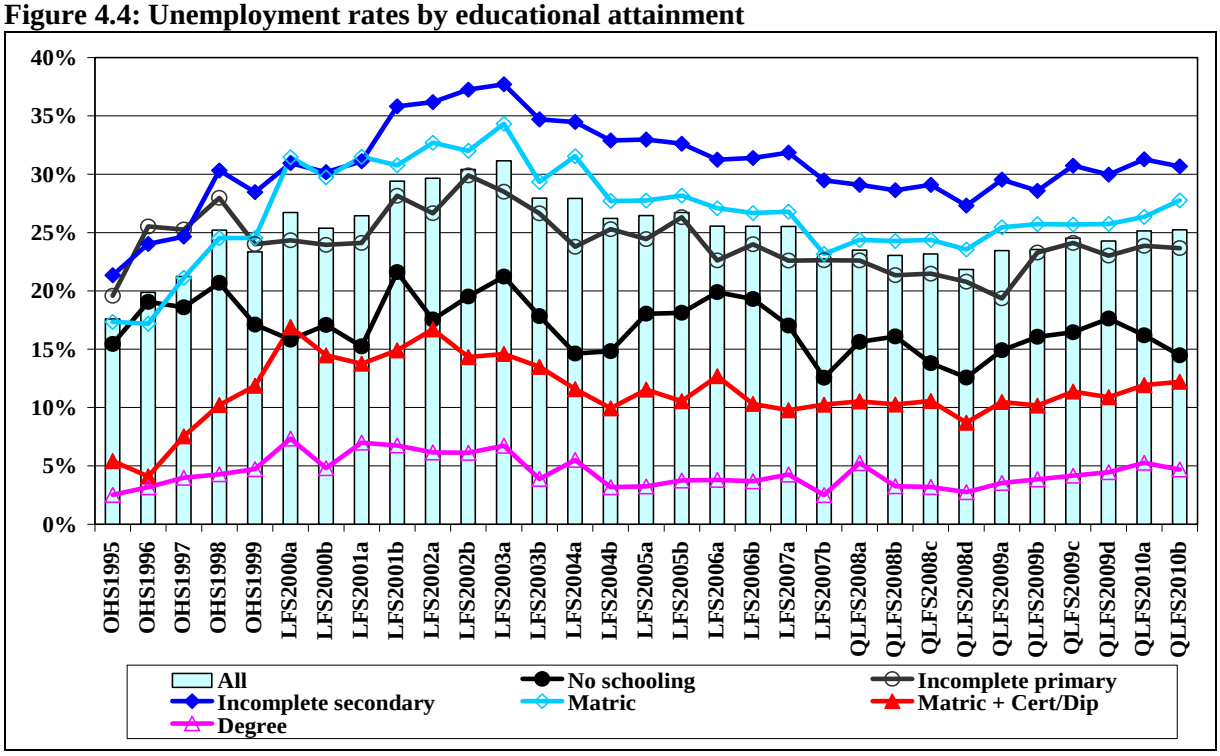
education, however the fact that unemployment amongst graduates still persist in South Africa, highlights the inconsistencies of the human capital theory when considering the reality of graduate unemployment.

Table 4.6: Unemployment rates by educational attainment

	No schooling	Incomplete Primary	Incomplete secondary	Matric	Matric + Cert/Dip	Degree		Graduates
OHS1995	15.5%	19.6%	21.3%	17.3%	5.4%	2.5%		6.6%
OHS1996	19.1%	25.5%	24.0%	17.2%	4.1%	3.2%		5.8%
OHS1997	18.6%	25.3%	24.7%	21.1%	7.5%	4.0%		8.5%
OHS1998	20.7%	28.0%	30.3%	24.5%	10.2%	4.3%		10.8%
OHS1999	17.1%	24.0%	28.5%	24.5%	11.9%	4.7%		11.6%
LFS2000a	15.8%	24.3%	31.0%	31.5%	16.9%	7.3%		16.6%
LFS2000b	17.1%	23.9%	30.2%	29.7%	14.5%	4.8%		12.0%
LFS2001a	15.2%	24.1%	31.1%	31.5%	13.8%	7.0%		13.4%
LFS2001b	21.6%	28.1%	35.8%	30.8%	14.9%	6.8%		14.6%
LFS2002a	17.5%	26.7%	36.2%	32.7%	16.7%	6.2%		14.7%
LFS2002b	19.5%	29.9%	37.3%	32.0%	14.3%	6.1%		13.8%
LFS2003a	21.2%	28.5%	37.7%	34.3%	14.6%	6.7%		13.5%
LFS2003b	17.8%	26.6%	34.7%	29.3%	13.5%	3.9%		12.3%
LFS2004a	14.6%	23.8%	34.5%	31.5%	11.6%	5.5%		11.8%
LFS2004b	14.8%	25.3%	32.9%	27.7%	9.9%	3.2%		10.4%
LFS2005a	18.0%	24.4%	33.0%	27.7%	11.5%	3.2%		11.5%
LFS2005b	18.1%	26.3%	32.6%	28.2%	10.5%	3.8%		9.7%
LFS2006a	19.9%	22.6%	31.3%	27.1%	12.7%	3.8%		12.6%
LFS2006b	19.3%	24.0%	31.4%	26.7%	10.3%	3.7%		10.6%
LFS2007a	17.0%	22.6%	31.9%	26.8%	9.8%	4.3%		10.3%
LFS2007b	12.6%	22.6%	29.5%	23.2%	10.3%	2.5%		9.2%
QLFS2008a	15.6%	22.6%	29.1%	24.4%	10.5%	5.2%		9.6%
QLFS2008b	16.1%	21.3%	28.6%	24.3%	10.3%	3.3%		8.4%
QLFS2008c	13.8%	21.5%	29.1%	24.4%	10.6%	3.2%		8.4%
QLFS2008d	12.6%	20.8%	27.3%	23.6%	8.7%	2.7%		7.5%
QLFS2009a	14.9%	19.3%	29.5%	25.5%	10.5%	3.5%		8.7%
QLFS2009b	16.1%	23.3%	28.6%	25.7%	10.2%	3.8%		8.9%
QLFS2009c	16.4%	24.1%	30.7%	25.7%	11.4%	4.2%		9.8%
QLFS2009d	17.6%	23.0%	30.0%	25.7%	10.9%	4.5%		10.2%
QLFS2010a	16.2%	23.9%	31.3%	26.3%	11.9%	5.3%		11.3%
QLFS2010b	14.5%	23.7%	30.7%	27.8%	12.2%	4.7%		10.9%

Source: Own calculations using OHS/LFS/QLFS data.
Note: Unemployed with unspecified educational attainment are excluded.

Figure 4.4: Unemployment rates by educational attainment

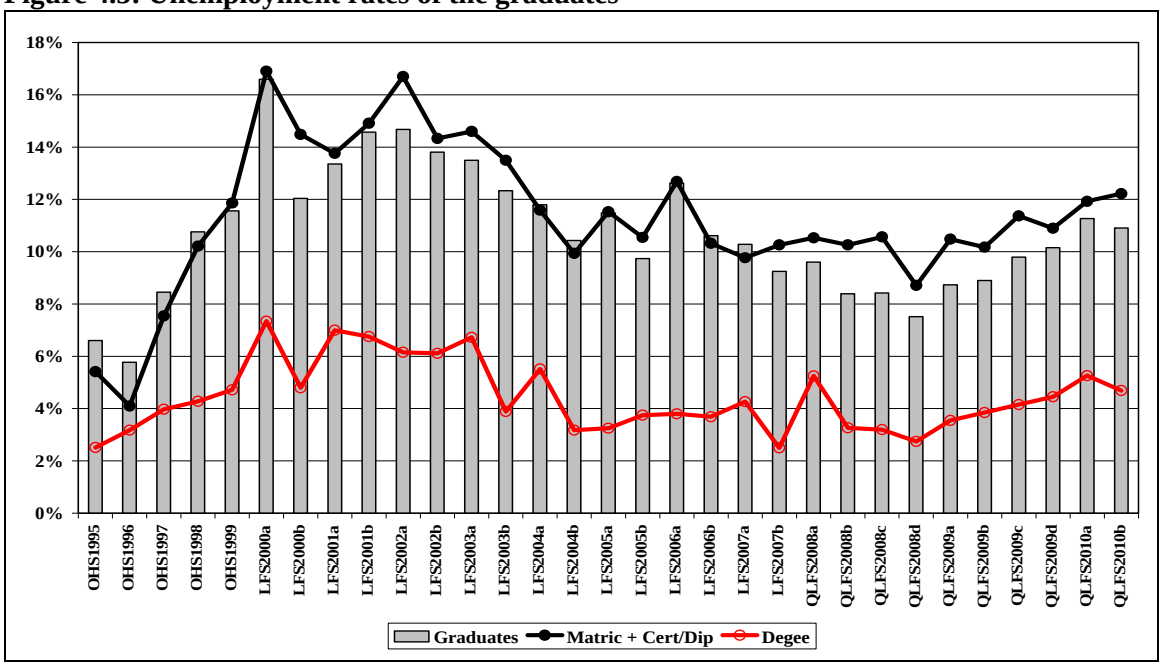


Source: Own calculations using OHS/LFS/QLFS data.
Note: Unemployed with unspecified educational attainment are excluded.

b) Type of tertiary education

Graduate unemployment among those with a certificate/diploma is consistently higher than those with a degree over the period 1995 to 2010 as observed in Figure 4.5. This may be the result of the fact that a growing number of South Africans are opting to study at technikons rather than universities. This leads to increased competition for jobs amongst graduates. This increase in enrolment in technikons is most likely due to students not qualifying to enrol at universities, or to the vocational nature of technikon training. In 2001 graduate unemployment amongst those with a certificate/diploma peaked at 16.7% and declined to 12.2% in 2010, while graduates with a degree peaked at 7.3% in 2000 and declined to 4.2% in 2010. This large difference, as stated above, can also be attributed to the quality issues and negative perceptions of employers of institutions which grant certificates and diplomas therefore causing statistical discrimination.

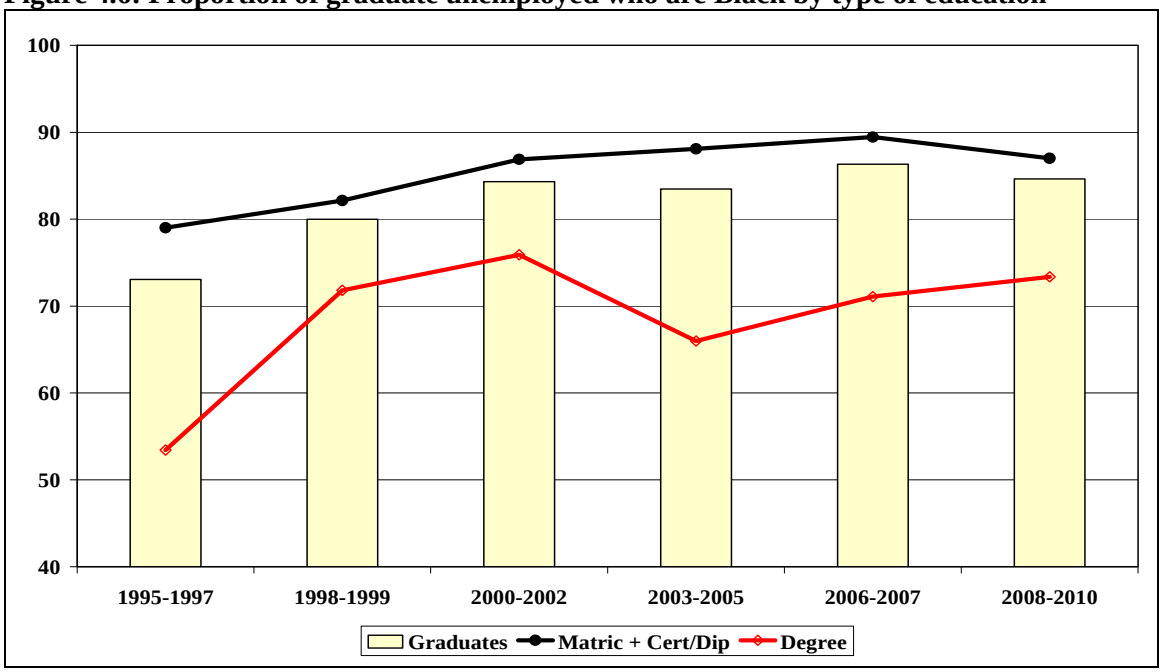
Figure 4.5: Unemployment rates of the graduates



Source: Own calculations using OHS/LFS/QLFS data.
Note: Unemployed with unspecified educational attainment are excluded.

Black graduates with a certificate/diploma contribute to the highest proportion of graduate unemployment, whilst those with a degree are lower, as indicated in Figure 4.6. This can be associated with the poor quality of tertiary institutions which provide certificates and diplomas, as well as employers' institutional perceptions which result in explained discrimination. During the period 2008- 2010 Blacks comprised 85% of the unemployed graduates. For this same period 87% and 73% were graduates with a certificate/ diploma and a degree respectively.

Figure 4.6: Proportion of graduate unemployed who are Black by type of education



Source: Own calculations using OHS/LFS/QLFS data.

c) Field of education[12]

Graduates who studied in the field of business/commerce/management consistently accounted for the highest proportion of graduate unemployment. Interestingly, this proportion is even higher for those with a degree in this field. In the period 2006 to 2007 graduates with a degree in this field accounted for approximately a third of the unemployed graduates (36.8%). A similar trend was observed for those with a diploma/certificate, who accounted for a marginally lower share of 31.4%. However, this high unemployment of graduates in the commerce field can be attributed to the high inflow of students studying in this direction. This empirical finding is consistent with past literature which states that business, commerce and management account for the highest share of graduate unemployment over the period 2000 to 2005 and that commerce students typically make up a very large proportion of tertiary institutions (Pauw *et al.* 2006:19) as explained in Section 3.2.2.2.

Table 4.7 further indicates that fields such as education/training/development/ physical/mathematical/computer/life sciences and manufacturing/engineering/technology also show high proportions of graduate unemployment over the period under investigation. However, graduates with a certificate / diploma in the field of manufacturing / engineering / technology and physical / mathematical / computer / life sciences show the highest levels of unemployment. This is a consequence of the fact that South Africa demands graduates in the fields of engineering, mathematics and science, but graduates with degrees are preferable as a result of institutional perceptions.

[12] The question on field of education was only asked in the LFS and therefore these statistics are only available for the period 2000 to 2007.

Table 4.7: Proportion of graduate unemployed in each field of education category

Matric + Cert/Dip			
	2000-2002	**2003-2005**	**2006-2007**
Communication/Language	3.3%	2.1%	2.0%
Education/Training/Development	25.0%	17.1%	11.0%
Manufacturing/Engineering/Technology	11.5%	13.0%	15.0%
Human & Social Studies	3.4%	4.0%	5.4%
Law/Military Science & Security	1.7%	2.3%	3.9%
Health Sciences & Social Services	3.8%	6.7%	7.1%
Agriculture & Nature Conservation	1.2%	1.3%	1.9%
Culture & Arts	1.5%	1.4%	2.0%
Business/Commerce/Management	28.9%	32.6%	31.4%
Physical/Mathematical/Computer/Life Sciences	12.4%	13.9%	12.6%
Services	2.0%	2.5%	2.8%
Physical Planning & Construction	0.9%	0.7%	0.8%
Don't know	0.2%	0.2%	0.2%
Unspecified	4.3%	2.4%	3.9%
	100.0%	100.0%	100.0%
Degree			
	2000-2002	**2003-2005**	**2006-2007**
Communication/Language	1.7%	4.7%	2.1%
Education/Training/Development	28.7%	24.9%	13.5%
Manufacturing/Engineering/Technology	5.4%	6.9%	9.2%
Human & Social Studies	10.9%	7.9%	11.3%
Law/Military Science & Security	6.1%	9.6%	6.2%
Health Sciences & Social Services	6.5%	4.4%	6.7%
Agriculture & Nature Conservation	1.9%	3.2%	2.8%
Culture & Arts	5.6%	5.2%	2.2%
Business/Commerce/Management	24.7%	22.0%	36.8%
Physical/Mathematical/Computer/Life Sciences	4.7%	7.5%	5.3%
Services	1.0%	0.3%	0.2%
Physical Planning & Construction	0.4%	0.3%	0.0%
Don't know	0.8%	0.5%	0.1%
Unspecified	1.4%	2.6%	3.6%
	100.0%	100.0%	100.0%
Graduates			
	2000-2002	**2003-2005**	**2006-2007**
Communication/Language	2.9%	2.6%	2.0%
Education/Training/Development	25.9%	18.7%	11.5%
Manufacturing/Engineering/Technology	10.1%	11.7%	14.0%
Human & Social Studies	5.2%	4.8%	6.5%
Law/Military Science & Security	2.7%	3.8%	4.3%
Health Sciences & Social Services	4.4%	6.2%	7.1%
Agriculture & Nature Conservation	1.4%	1.7%	2.0%
Culture & Arts	2.4%	2.2%	2.0%
Business/Commerce/Management	27.9%	30.4%	32.4%
Physical/Mathematical/Computer/Life Sciences	10.6%	12.6%	11.3%
Services	1.8%	2.1%	2.3%
Physical Planning & Construction	0.8%	0.6%	0.7%
Don't know	0.4%	0.3%	0.2%
Unspecified	3.6%	2.4%	3.8%
	100.0%	100.0%	100.0%

Source: Own calculations using LFS data.

4.3.2.3 Previous work experience

Over the long term, graduates who have worked before had lower levels of unemployment. The difference between unemployed graduates who have and have not worked before indicates a declining trend for individuals with a certificate/ diploma. Table 4.8 shows that, between 2008 and 2010, 46.2 % of unemployed graduates claimed that they have never worked before This may have to do with the fact that they studied in the wrong field, they graduated from the poor-quality historically Black institutions, they have a too high reservation wage and/or they are too optimistic about their chances of finding employment in the future.

Table 4.8: Previous worked experience of graduate unemployed

	Matric + Cert/Dip					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Worked before	26.2%	30.6%	39.6%	39.8%	43.4%	54.0%
Never worked before	73.8%	69.4%	60.4%	60.2%	56.6%	46.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Degree					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Worked before	41.4%	44.5%	42.8%	40.4%	45.1%	52.7%
Never worked before	58.6%	55.5%	57.2%	59.6%	54.9%	47.3%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Graduates					
	1995-1997	**1998-1999**	**2000-2002**	**2003-2005**	**2006-2007**	**2008-2010**
Worked before	29.6%	33.5%	40.4%	40.0%	43.7%	53.8%
Never worked before	70.4%	66.5%	59.6%	60.1%	56.3%	46.2%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations using OHS/LFS/QLFS data.

4.4 MORE ADVANCED ANALYSIS

The preceding analysis focussed on one variable at a time. This section will present a multivariate analysis. The aim of this section is to simultaneously look at the various factors which determine the likelihood of employment of the labour force. Furthermore, it will draw on particular techniques such as the Oaxaca-Blinder decomposition to identify if discrimination exists. In addition, it will ascertain whether or not jobless growth exists amongst graduates as well as what the graduate employment coefficient and what the employment absorption rates are.

4.4.1 Econometric analysis

This section aims to achieve the likelihood of employment of certain cohorts relative to their respective reference group. The dependent variable of the probit regression is employment (1: Employed; 0: Unemployed). Therefore 1 will indicate the maximum likelihood of the

independent variables being employed relative to their reference group. In terms of the race dummy variable, Black graduates are the reference group. The age group 15-24 years represents the reference group for the age cohort dummy variables. The Eastern Cape is the reference group for the provincial breakdown. Lastly, a dummy was formulated which indicates that the person obtained a degree. The results from the employment probits for 1995 to 2010 are presented in Table 4.9 below.

Table 4.9: Probit regressions on likelihood of labour force with post-Matric qualifications to be employed

	1995-1997	1998-1999	2000-2002	2003-2005	2006-2007	2008-2010
	Marginal effects					
Coloured	0.017***	0.042***	0.052***	0.041***	0.037***	0.038***
Indian	0.013***	0.039***	0.048***	0.033***	0.031***	0.032***
White	0.034***	0.076***	0.093***	0.063***	0.048***	0.055***
Male	-0.005	-0.009	-0.016***	-0.014***	-0.003	-0.010***
25-34 years	0.024***	0.049***	0.054***	0.043***	0.040***	0.043***
35-44 years	0.038***	0.071***	0.097***	0.074***	0.068***	0.072***
45-54 years	0.027***	0.050***	0.073***	0.069***	0.055***	0.066***
55-65 years	0.018***	0.050***	0.063***	0.050***	0.043***	0.051***
Western Cape	-0.010	0.010	0.019**	0.012*	0.000	-0.009
Northern Cape	0.000	0.004	-0.010	-0.004	-0.012	0.000
Free State	0.004	0.019*	0.000	-0.010	-0.016**	-0.003
KwaZulu-Natal	0.008	0.019**	0.012**	0.015***	0.015***	0.020***
North West	0.001	0.017	0.008	0.000	-0.002	-0.021***
Gauteng	-0.005	0.013	0.005	0.006	-0.002	0.004
Mpumalanga	-0.010	0.005	0.002	0.001	0.003	-0.011**
Limpopo	-0.018***	-0.015	-0.014**	-0.032***	-0.027***	-0.031***
Married	0.019***	0.039***	0.069***	0.054***	0.051***	0.041***
Head	0.042***	0.061***	0.111***	0.082***	0.075***	0.063***
Degree	0.005	0.020***	0.020***	0.025***	0.024***	0.026***
No. of observations	9864	5752	20824	22335	14523	43246
Chi	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.1951	0.2317	0.2879	0.2574	0.2592	0.2209

Source: Own calculations using OHS/LFS/QLFS data and Stata software
*** Significant at 1% ** Significant at 5% * Significant at 10%

Looking at the race dummy variables, the non-Black graduates are always more likely to be employed compared with the reference group (Blacks). The marginal fixed effects of the White dummy are the highest in all regressions. In fact, the Whites are between 3.4% and 9.3% more likely to be employed compared with Blacks. Interestingly, the coefficients for all race groups increased particularly after 1997, indicating that after this year the likelihood of other races being employed over Blacks became more significant.

Figure 4.7 below explicitly shows the marginal fixed effect of each dummy variable compared to the reference group. This figure clearly shows that Whites are vastly more likely

than Blacks to find employment, whereas the likelihood of Coloureds and Indians finding employment is comparatively similar.

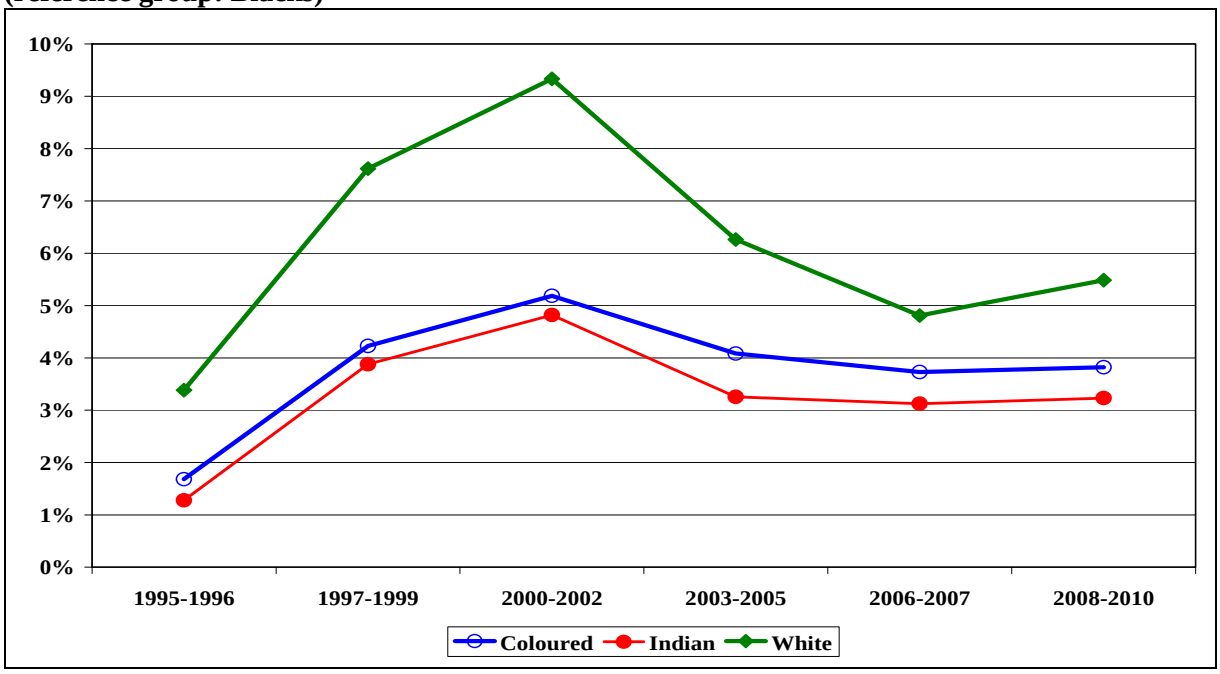
The probit regression suggests that the probability of males being employed is less than that of females. This point, however, contradicts results in the bivariate analysis, which showed that unemployment was greater amongst females than males for the period 1995 to 2010. Nonetheless, this result is not statistically significant in the period 1995 to 1999. The estimations suggest that all age categories are more likely to be employed than the reference group. However, graduates between the ages of 35 and 44 years are the most likely to be employed than youths. This is not surprising, because they might have past work experience. Statistically they are between 3.8% and 9.7% more likely to be employed compared to the reference group.

As would be expected, an individual's location can be a predictor of their (un)employment status. Compared to the Eastern Cape, only individuals from the Gauteng province, Western Cape and Mpumalanga are less likely to be employed. This can be the result of jobs being more competitive in these provinces, as the probability of having a post-Matric qualification is higher specifically the Western Cape and Gauteng than in other provinces.

The probit additionally indicates that individuals who are married are more likely to be employed. For the investigated period they are between 1.9% and 6.9% more likely to be employed. This is often the result of the increased responsibility and pressure which comes with marriage. The results of the estimations indicate that household heads are most likely to be employed than their counterparts. This is an expected result, as household heads have the pressure of providing for others and thus are more prone to being employed.

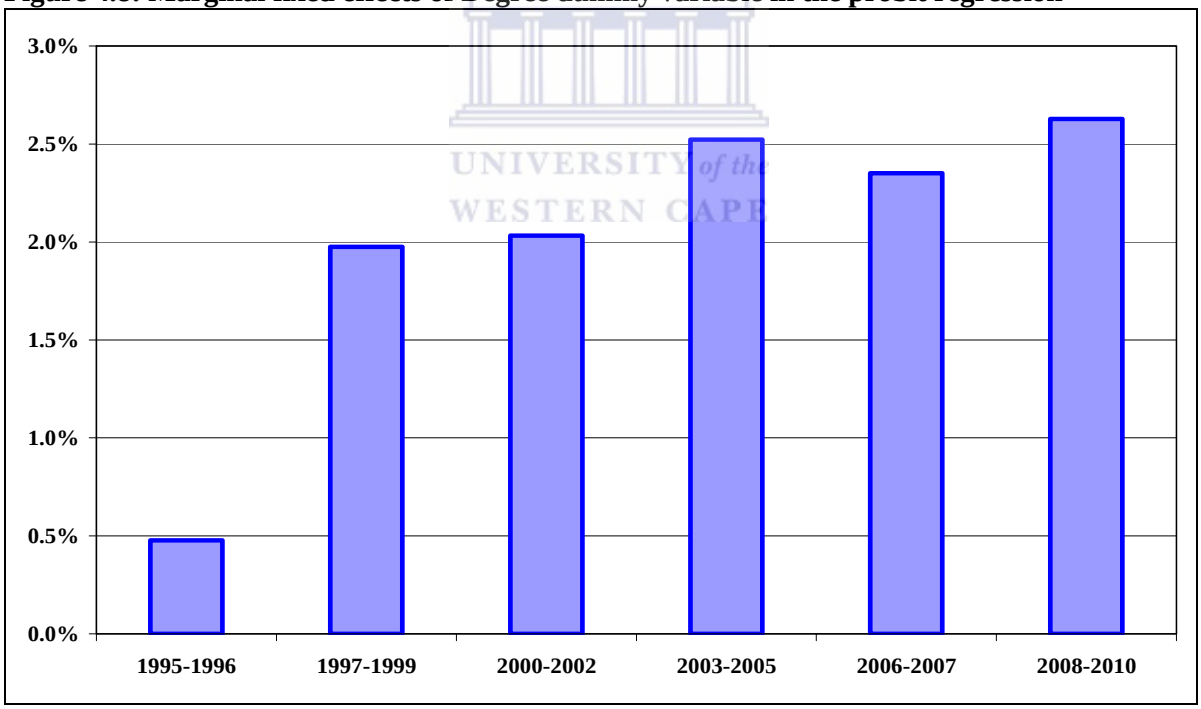
The education coefficients are all positive, indicating that, graduates with degree are more likely to be employed compared to those with only post-Matric certificates or diplomas. This result is not statistically significant in the 1995-1997 regression. In the remaining regressions, the graduates with degree are about 2% to 3% more likely to be employed. Figure 4.8 below summarises the marginal fixed effects of the degree dummy variable 2008 and 2010. The results of the estimation indicate that graduates with a degree have a 2.5% greater probability than certificate/diploma graduates of finding employment.

Figure 4.7: Marginal fixed effects of each race dummy variables in the probit regressions (reference group: Blacks)



Source: Own calculations using OHS/LFS/QLFS data and Stata software

Figure 4.8: Marginal fixed effects of Degree dummy variable in the probit regression



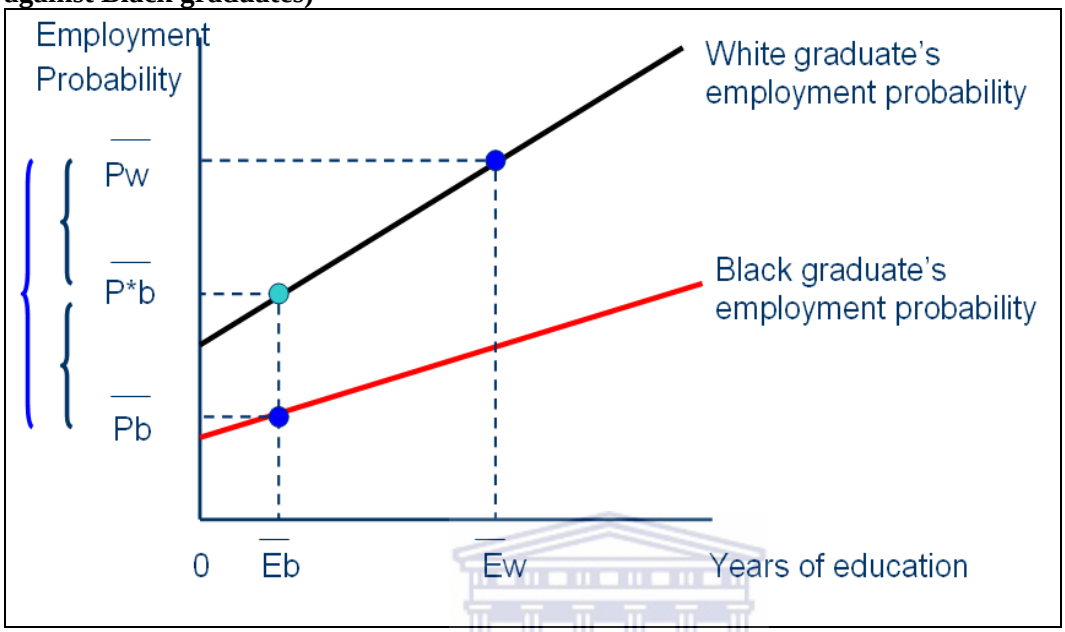
Source: Own calculations using OHS/LFS/QLFS data and Stata software

4.4.2 Oaxaca-Blinder decomposition

The Oaxaca- Blinder decomposition is an analytical tool which measures discrimination in the labour market. It decomposes wage or employment differentials into two components: a portion that arises because two comparison groups have, on average, different qualifications or credentials (e.g., years of schooling and experience in the labour market), when both

groups receive the same treatment (explained component), and a portion that arises because one group is more favourably treated than the other given the same individual characteristics (unexplained component).

Figure: 4.9 Oaxaca-Blinder decomposition (assuming you suspect that employers discriminate against Black graduates)



Source: Filer *et al.* 1996

Assuming the mean years of educational attainment are 13 $(\overline{E_b})$and 15 $(\overline{E_w})$ for Black and White graduates respectively, while the employment likelihood is 50% $(\overline{P_b})$and 70%$(\overline{P_w})$ respectively. That is, the employment likelihood gap between White and Black graduates is 20% (70% - 50%).

Assuming the White graduates have exactly the mean years of educational attainment as the Black graduates (i.e., 13 years, $\overline{E_s}$), they still have a greater employment likelihood (i.e., $\overline{P_b^*}$), for example, 65%. Alternatively, it could be said that the Black graduates with 13 years of education should have 65% instead of 50% employment likelihood. This differential of 15% represents the unexplained component of the employment probability gap and could be attributed to issues such as quality of education and discrimination by the employer.

If the Black graduates with 13 years of educational attainment now really have 65% employment probability, the difference of 5% between White and Black employment probabilities (70% - 65%) indicates the explained component of probability difference, because that White graduates are really more educated on average. This employment probability gap is acceptable, i.e. the explained component.

The above example assumes education is the only factor accounting for employment probability. However, other variables such as province of residence, gender, age, marital status, etc. also have an influence on the employment probability difference between the two groups of graduates. Hence, multivariate regressions on employment likelihood (i.e., probit regressions) should be conducted on each group of graduates, before the Oaxaca-Blinder decomposition is applied for more precise estimates of the explained and unexplained components of the employment probability differential between White and Black graduates.

The Oaxaca-Blinder decomposition investigates what happened to the racial differentials observed for employment over the period 1995 to 2010. We are specifically interested in seeing whether the component that is unexplained by between race differences has decreased.

Table 4.10: Oaxaca-Blinder decomposition of employment likelihood of graduates, Whites vs. Blacks

	Explained	Unexplained	Total gap	Explained	Unexplained	
1995-1997	0.0185	0.0500	0.0685	27.0%	***73.0%***	100.0%
1998-1999	0.0401	0.1006	0.1407	28.5%	***71.5%***	100.0%
2000-2002	0.0758	0.1127	0.1885	40.2%	***59.8%***	100.0%
2003-2005	0.0530	0.0836	0.1366	38.8%	***61.2%***	100.0%
2006-2007	0.0463	0.0655	0.1117	41.4%	***58.6%***	100.0%
2008-2010	0.0486	0.0653	0.1138	42.7%	***57.3%***	100.0%

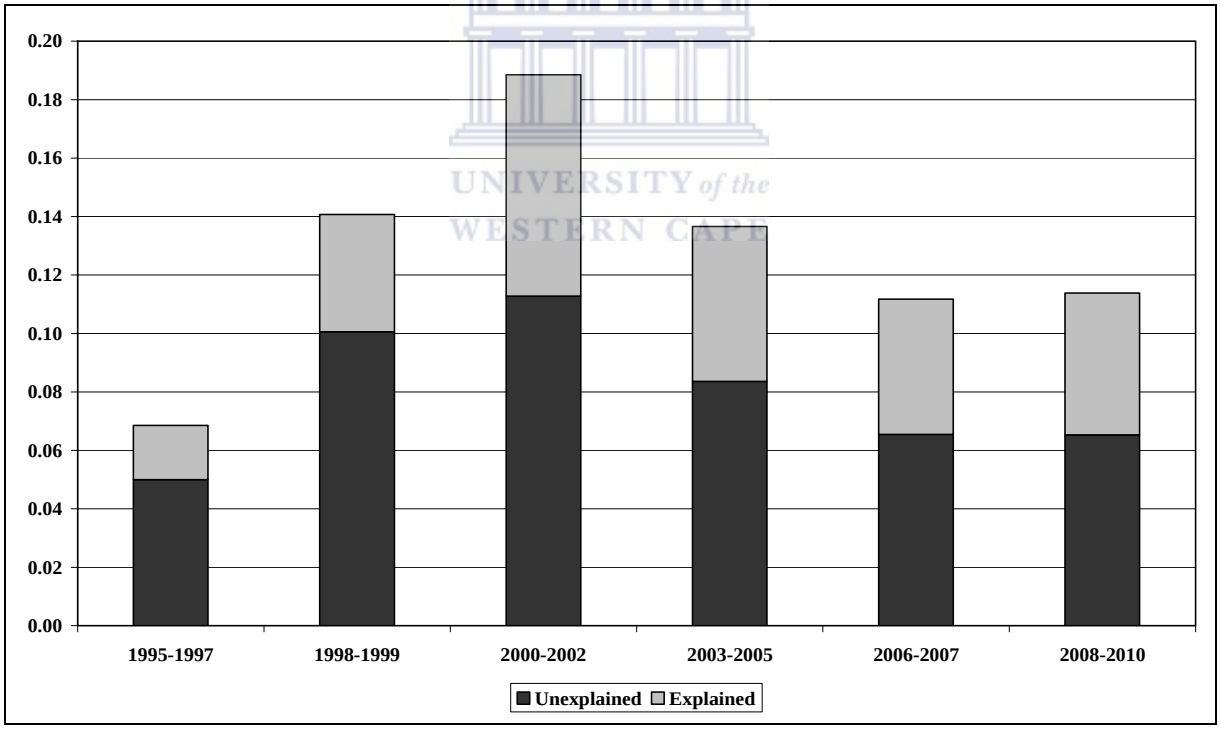
Source: Own calculations using OHS/LFS/QLFS data and Stata software

In Table 4.10 the Oaxaca-Blinder decomposition decomposes the employment probability difference between White and Black graduates into two components: the explained component and the unexplained component. In the period 1995-1997 South Africa experienced the highest level of unexplained discrimination, 73.0%. This high level of discrimination is associated with the historical background of South Africa, which marginalised Blacks from equal opportunities of employment. Although over the years this amount has decreased to 57.3%, it is still extremely high, indicating that employers maintain their taste for discrimination. Therefore Black graduates are less likely to be employed than White graduates and this is largely because of the perceptions of employers.

Figure 4.10 shows that between 1995 and 2000 South Africa was characterised by increasing discrimination against graduates. This pattern then changed towards a declining trend of discrimination. During the period 1995 to 1997 the racial employment gap between Whites and Blacks shows that White participants in the graduate labour market force were

approximately 7% more likely to find work than their Black counterparts. The Oaxaca-Blinder decomposition suggests that most of this difference is attributed to unexplained discrimination. In the period 2000 to 2002 the White graduates were more than 18% more likely to find employment than Black graduates. However, discrimination became increasing linked to the characteristics of Black graduates rather than unexplained discrimination. During the period 2008 to 2010 the likelihood of Whites gaining employment over Blacks declined. Now Whites were approximately 11% more likely to gain employment over their Black counterparts. Nonetheless, this difference was predominantly accounted for by unexplained discrimination. From Figure 4.10 it is clearly evident that between 1995 and 2010 unexplained discrimination was dominant. Therefore, although Black graduates may have had equal levels of productivity as Whites, their likelihood of finding employment was less. Nonetheless, the unexplained decomposition has indicated a rapid decline after the period 1998- 1999, after which it stabilised between 2000 and 2010.

Figure 4.10: Oaxaca-Blinder decomposition of employment likelihood of graduates, Whites vs. Blacks

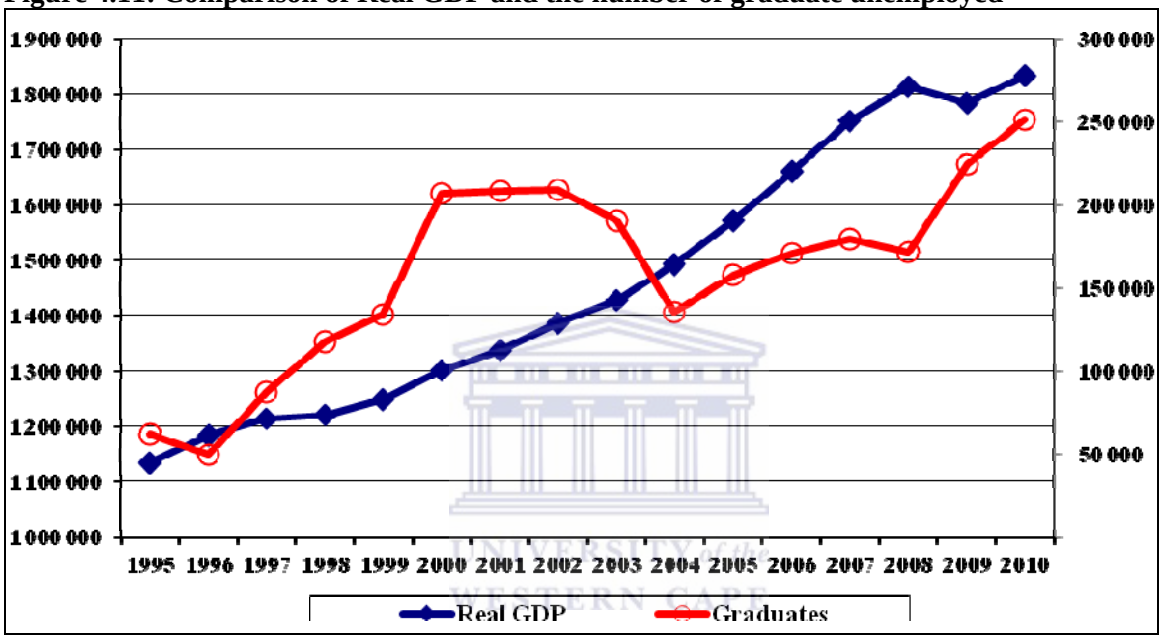


Source: Own calculations using OHS/LFS/QLFS data and Stata software

4.4.3 Jobless growth

The term jobless growth is defined in section 2.2. Figure 4.11 below compares the Real GDP over the period 1995 to 2010 with that of the number of graduates unemployed. This figure indicates whether South Africa experienced jobless growth amongst its graduates in terms of the first definition. This occurs if economic growth takes place, but the number of unemployed increases. Between 1999 and 2004 marginal signs of jobless growth are evident but not significant.

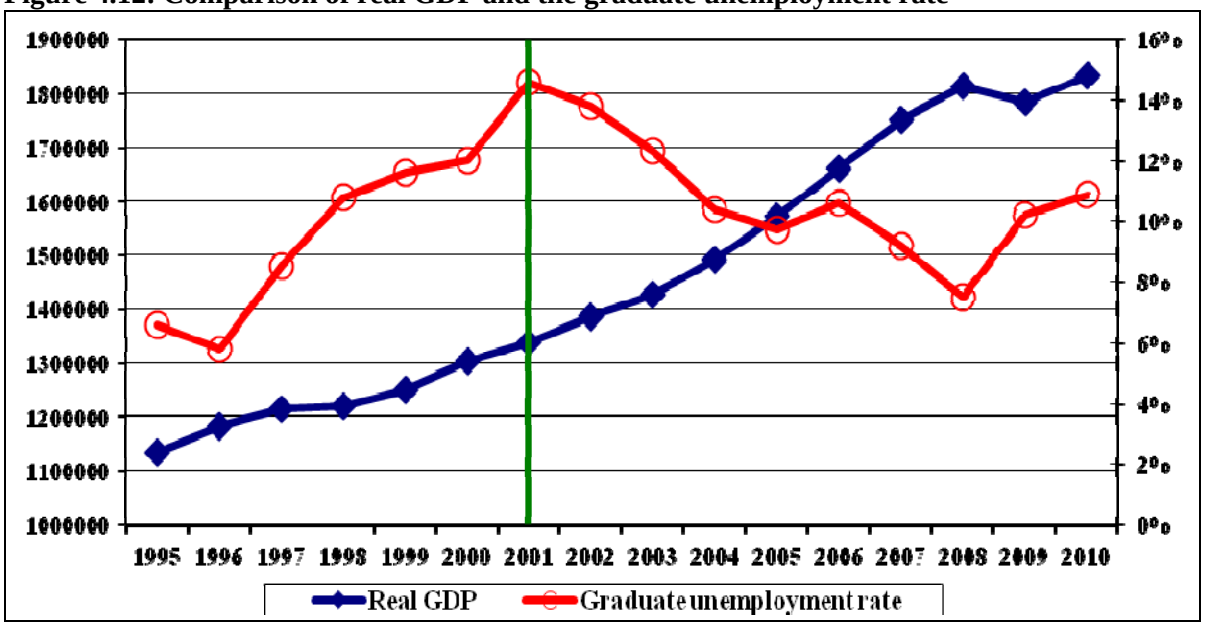
Figure 4.11: Comparison of Real GDP and the number of graduate unemployed



Source: Own calculations using OHS/LFS/QLFS data and Stata software as well as South African Reserve Bank Quarterly Bulletin data.

Regarding the second definition of jobless growth, jobless growth definitely occurred between 1995 and 2001. This is evident from Figure 4.12, which shows a rising graduate unemployment rate coupled with an increasing trend in real GDP. Jobless growth for this period could be attributed to the increased expansion the number of Black graduates entering the labour market. Between 2009 and 2010 jobless growth is again noticeable. This shift can be due to the cyclical impact of the 2008 financial crisis, which constrained employment growth during this period.

Figure 4.12: Comparison of real GDP and the graduate unemployment rate



Source: Own calculations using OHS/LFS/QLFS data and Stata software as well as South African Reserve Bank Quarterly Bulletin data.

4.4.4 Graduate employment coefficient

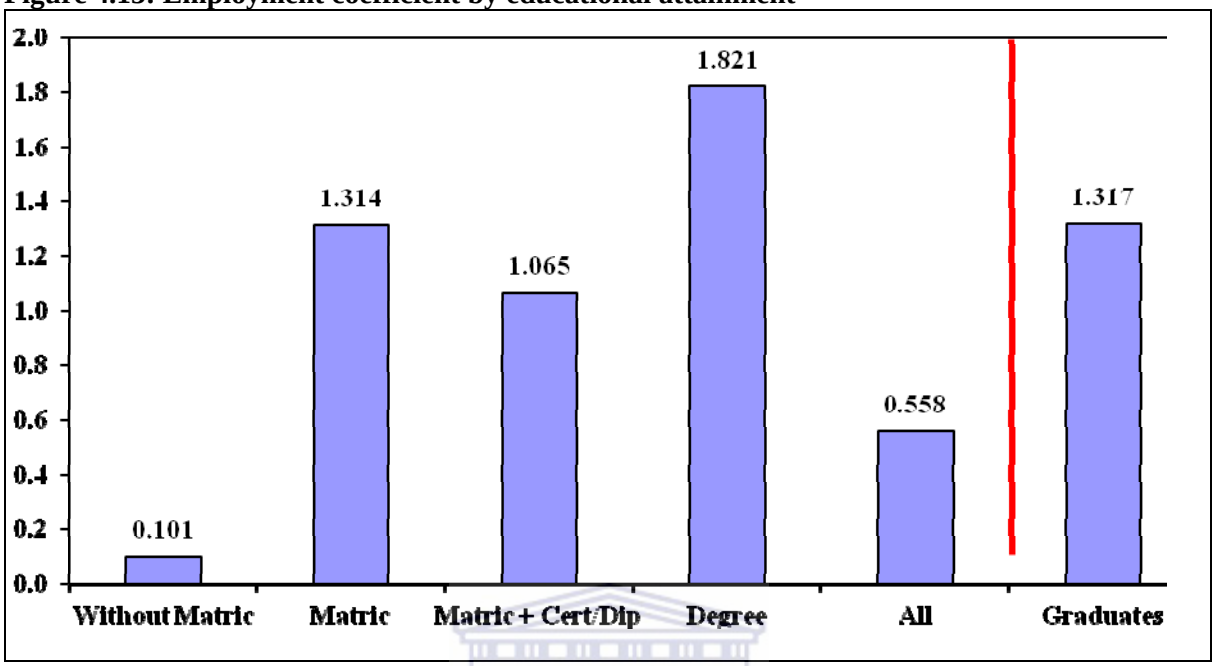
Employment elasticity of economic growth (employment coefficient) indicates the sensitivity of employment to changes in economic growth (Barker 2007:44). It is measured as:

Employment Coefficient = % change in employment / % change in economic growth

Figure 4.13 depicts that employment of all labour force from all educational attainment categories is relatively weakly responsive to economic growth, accounting for an employment coefficient of 0.558. Once differentiation is made between educational attainments, one will notice from column four that the employment of graduates with a degree is the most responsive cohort to economic growth accounting for an employment coefficient of 1.821. Graduates with a certificate and diploma are the second most employed in response to economic growth. However, these coefficients both need to increase in order for all graduates to be absorbed into the labour market. When assessing graduates in their entirety which is highlighted by the horizontal line in the graph, it is clear that individuals with a certificate and diploma decrease the employment coefficient of graduates to 1.317. Although the 1.317 coefficient is quite big compared to other education groups, it still needs to increase further before graduate unemployment would completely be eradicated. Furthermore, the coefficients are 1.065 and 1.821, for those with post-Matric certificates/diplomas and bachelor degrees respectively, and the results once again suggest that the relatively slower employment growth

of graduates from the former group could be influenced by the relatively poor quality of education of the certificate/diploma institutions (especially the historically black institutions).

Figure 4.13: Employment coefficient by educational attainment



Source: Own calculations using OHS/LFS/QLFS data and Stata software as well as South African Reserve Bank Quarterly Bulletin data.

4.4.5 Graduate employment absorption rate

As explained in section 2.2 the Employment Absorption rate is the ratio between the target rate and the actual employment growth. It is expressed as a percentage. The closer the employment absorption rate is to 100, the actual growth rate is to the desired employment performance (Oosthuizen and Bhorat 2004:7). Employment absorption rate (EAR) is calculated as: EAR= AGR (Actual Growth rate) /TGR (Target Growth Rate). Table 4.11 displays the TGRs, AGRs and EARs by educational attainment for the period 1995 to 2010.

The TGRs in order for all new entrants of the labour force from all educational attainment categories to be absorbed into the labour market is highest for Matric and Degree holders accounting for 129.7% and 120.2% respectively.[13] However, as expected when considering both the TGR and the AGR, one will notice that it is the degree holders whose AGR is closest to their TGR, accounting for an EAR of 93.4%. On the other hand, it is also indicated that individuals with a Matric certificate will find it harder to obtain employment as the TGR is

[13] If TGR is 100%, it means all new, net entrants to the labour force found a job. But if TGR is greater than 100%, it means that, in addition to the people mentioned above, even some existing labour force who previously failed to find employment now also successfully become employed.

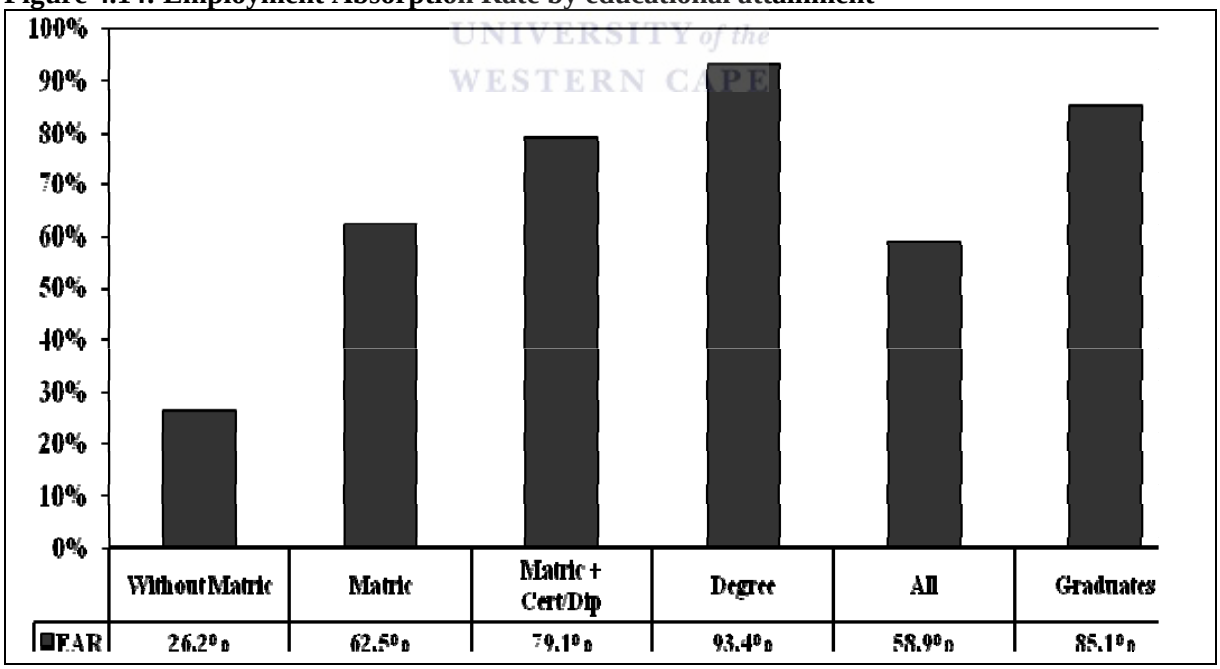
high compared to their respective AGR. Figure 4.14 presents the EARs by educational attainment, which illustrates that degree holders, followed by certificate and diploma holders, have the highest EARs, while those without Matric account for the lowest EARs, as expected. Although graduates represent the group with the highest EAR, it is still below 100%. This explains why there is still graduate unemployment. Figure 4.14 more clearly depicts that the degree holders / graduates are still the most privileged group compared to other groups of educational attainment. This is highlighted by the increasing trend of EARs which is visible as educational attainment increases.

Table 4.11: Target growth rates, actual growth rates, employment absorption rates by educational attainment

	Rates		
	TGR	**AGR**	**EAR**
Without Matric	23.7%	6.2%	26.2%
Matric	129.7%	81.1%	62.5%
Matric + Cert/Dip	83.0%	65.7%	79.1%
Degree	120.2%	112.3%	93.4%
All	58.4%	34.4%	58.9%
Graduates	95.4%	81.2%	85.1%

Source: Own calculations using OHS 1995 and QLFS 2010Q2 data.

Figure 4.14: Employment Absorption Rate by educational attainment



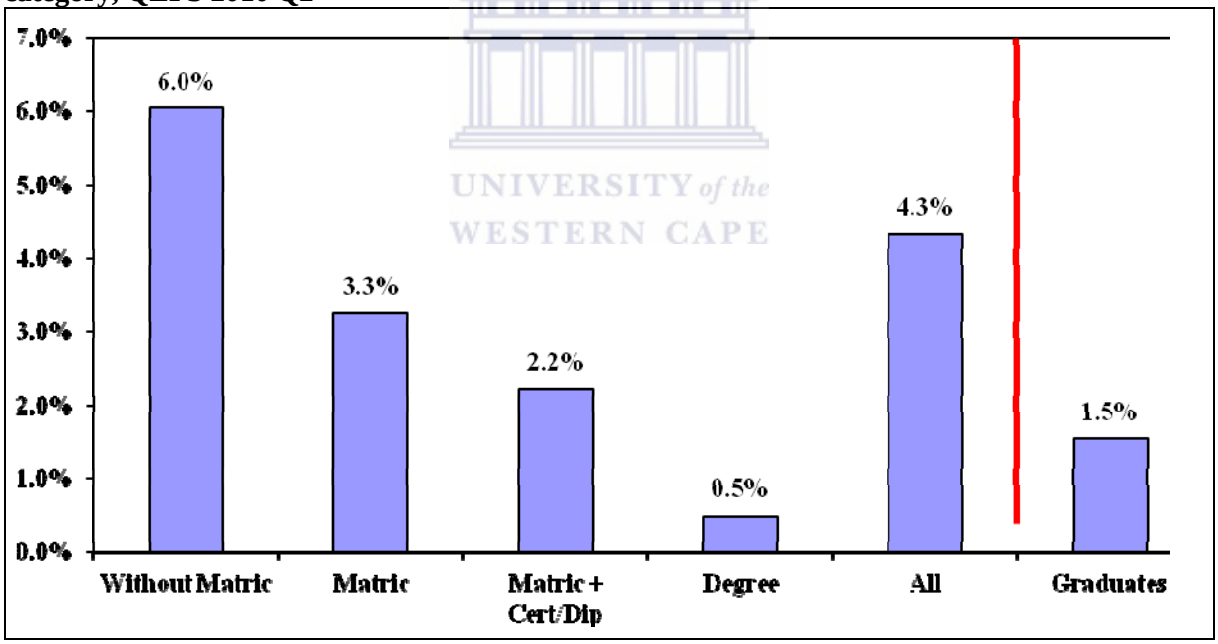
Source: Own calculations using OHS/LFS/QLFS data and Stata software as well as South African Reserve Bank Quarterly Bulletin data

4.4.6 Graduate under-employment

Under-employment is used to indicate inadequate employment in relation to specific standards or alternative forms of employment to which the person's qualifications are suited.

However, Stats SA does not take into account invisible under-employment, so Figure 4.15 below displays only visible under-employment. Of all the employed, regardless of educational attainment, 4.3% are visibly underemployed. Visible under-employment is highest for those without Matric and lowest for individuals with a degree, amounting to 6.0% and 0.5% respectively. On the other hand 2.2% of graduates with a certificate/diploma are underemployed. The horizontal line in the graph highlights the combination of graduates with a certificate/ diploma and graduates with a degree, labelled graduates from other educational attainments. Thus 1.5% of all post- Matric graduates are underemployed. This therefore shows that degree holders have the highest probability of finding a job which is aligned to their educational attainment. The graph clearly indicates that with increased educational attainment the chances of being under-employed declines. More specifically the graduates employed are much less likely to be under-employed, compared with other employed with low educational attainment (i.e., 6.0%).

Figure 4.15: The proportion of employed who are under-employed, by educational attainment category, QLFS 2010 Q2



Source: Own calculations using OHS/LFS/QLFS data and Stata software

4.5 CONCLUSION

The above analysis has provided a dynamic perspective on graduate unemployment between 1995 and 2010. From this further analysis we can conclude that there has recently been a shift in graduate unemployment, which is now showing a decreasing trend in South Africa.

However, rates are still particularly high considering that the most educated individuals should be able to obtain employment in a skills-constrained country such as South Africa.

The graduate unemployment problem is structural in nature, in that there is a mismatch between the skills demanded of, and supplied by, graduates. It is evident that there is an oversupply of graduates in the business/commerce/management field. Another consistent factor is that graduates who have obtained either a diploma or a certificate dominate graduate unemployment.

This chapter has revealed new information by presenting the fact that Gauteng province experiences the highest share of graduate unemployment. Furthermore, there is a relatively even split between graduate unemployment disparities between males and females. Interestingly, the gap between unemployed graduates in terms of work experience shows a declining trend.

Additionally, this chapter has also revealed that during the period investigated unexplained discrimination has decreased, but it nevertheless remains high. Moreover, jobless growth amongst graduates has also occurred, which reflects the impact of tertiary expansion and cyclical change due to the 2008 financial crisis. EARs are also positive for graduates, but decline as educational levels increase. Lastly, a similar trend exists for under-employment in that the more educated the individual, the less likely he or she would be to experience under-employment.

With this overarching view of graduate unemployment one can clearly ascertain the nature of this problem and to what extent graduate employment is linked to economic growth and which factors should be considered in an attempt to further decrease graduate unemployment in South Africa.

CHAPTER FIVE: GENERAL CONCLUSIONS

Graduate unemployment in South Africa has become an increasingly important socio-economic problem. The economy is characterised by graduate unemployment on the one hand and a serious shortage of skills together with a high vacancy rate on the other. Although it is not as serious as the youth employment problem, it deserves special attention because it is ironic that those who have acquired the necessary human capital are jobless. Very little research focusing specifically on graduates has been done in recent years. This study intends to make a contribution in this respect.

Chapter Two presented the relevant theoretical framework. According to the human capital theory as well as the screening hypothesis, graduates should not be unemployed as they have invested in more advanced human capital and their qualification should act as a signal to employers reflecting their employability. However South Africa's experience with graduate unemployment highlights that these theories have not considered labour market rigidities, the changing demand for labour, as well as the impact of globalisation on the type of skills demanded.

Furthermore, the historical context of South Africa in which certain cohorts were marginalised results in continued discrimination. Discrimination of graduates impacts on the employability of Black graduates compared to their racial counterparts. This is predominantly linked to the quality of both secondary and tertiary education of Black graduates which are relatively inferior when compared to other race groups. Some discrimination, such as human capital discrimination relating to education and training, occurs before the market, i.e. even before the individual seeks employment. Discrimination within the market against graduates may also be the result of transactions cost, relating to additional cost of training, etc.

Chapter three summarised the findings from earlier studies related to the extent, nature and causes of graduate unemployment in South Africa. According to the existing literature it was found that graduate unemployment had increased between 1995 and 2005. Graduate unemployment is concentrated among the youth, Africans and particularly those within the fields of business, commerce and management and education, training and development. The unemployment of graduates is also caused by the structural nature of the unemployment problem which emphasises the skills mismatch problem of our country.

Other causes of graduate unemployment are related to the labour market rigidities which constrict the absorption of graduates into the job market. Graduates also have high reservation wages, a lack of soft skills and experience which decreases their employability relative to that of other graduates. Moreover, post 1994 there has been a noticeable increase in access to tertiary education resulting in an increase in rate of graduates participating the labour market.

Graduate unemployment was also investigated in an international context to determine if this phenomenon is unique to South Africa. The problem exists in both developing countries and developed countries and is caused by similar factors globally, excepting for the before-the-market discrimination relating to education, institution and the field of study in South Africa.

Chapter four further investigated the extent, nature and causes of graduate unemployment by analysing data beyond the period which existing literature has. This section analysed graduate unemployment in a dynamic context by reviewing OHS, LFS and QLFS data for the period 1995 to 2010. During this period, there was a general increase in the number of graduates who were unemployed in South Africa, peaking in 2010. With regarding to the graduate unemployment rate, it showed an upward trend between 1995 and 2003, before stabilizing at about 5% between 2004 and 2010.

Graduate unemployed are more likely to be black, female, with post-Matric certificate or diploma qualification, and reside in Gauteng province. Moreover, jobless growth amongst graduates has also occurred which reflects the impact of tertiary expansion and cyclical change due to the 2008 financial crisis. EARs are also positive for graduates but decline as educational levels decrease. Lastly, a similar trend exists for underemployment in that the more educated the less likely the individual would be to experience underemployment.

In researching graduate unemployment one could identify the characteristics of graduates who are most likely to be unemployed. Moreover this study was able to ascertain the extent at which employment creation should be increased in order to absorb all graduates who have entered the labour market. In short, this study has covered salient factors necessary to target graduate unemployment in a way that informed policy and strategic initiatives can be made in South Africa to alleviate graduate unemployment. For instance, the quality of Maths and Science teaching at school level should be improved so as to increase the chance of the students (when they attend tertiary education) to enrol subjects that are under great demand, such as Engineering and Medical Sciences as discussed in the study; something should be

done to improve wage flexibility (e.g., reducing minimum wage) so that it is easier for the graduates (i.e., the 'outsiders') to find employment; there should be stricter examination on the quality of post-Matric education offered by certificate/diploma institutions, especially from the historically black tertiary institutions.

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