



UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF ECONOMICS

The relationship between attaining Matric and labour
market outcomes in South Africa

By
Andiphe Ndlebe
(3222102)

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in the Department of Economics,
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Supervisor: Professor Derek Yu

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DECLARATION

I declare that “*The relationship between attaining Matric and labour market outcomes in South Africa*” 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 as complete references.

Andiphe Ndlebe

Signature:



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ABSTRACT

The South African labour market is characterised by a persistently high level and rate of unemployment and constrained capacity to create jobs. Given these conditions in the labour market, it is of interest to understand the role educational attainment plays in labour market outcomes. While literature on overall educational attainment and labour market outcomes exists in South Africa, focusing on the general relationship between the two variables, few studies explicitly focus on examining Matric in terms of labour market outcomes. Existing literature shows that possessing Matric presents considerably more possibilities of finding employment than lower grades. Given the key role of secondary completion for labour market outcomes, this study therefore investigated whether having Matric is still sufficient to ensure good labour market outcomes. In addition, the study examined what has been happening to the labour market outcomes of matriculants since the advent of democracy. The study distinguished between three educational attainment cohorts, less than Matric, Matric, and post-Matric using cross-sectional labour survey data, specifically the 1995 OHS, the 2003 LFS, as well as 2011 and 2019 third quarter QLFS data.

The study employed descriptive statistics to examine the labour market characteristics of each cohort. The empirical findings revealed that the post-Matric cohort enjoyed higher labour force participation and lower unemployment rates, including higher (mean) earnings. Whereas the Matric cohort showed higher participation, lower unemployment rates and higher (mean) earnings compared to the without Matric cohort. Although the gap between the outcomes of those with matric and those without matric narrowed over time, and in particular to unemployment. The kernel density curves used to illustrate the distribution of income demonstrated that the post-Matric group have always enjoyed higher earnings compared to the other two groups. The multivariate econometric analysis on labour force participation likelihood, unemployment probability and real earnings showed that the South African labour market is biased towards the educated (skilled), both in terms of higher likelihood participation and an earnings advantage. By personal characteristics, a greater likelihood of participation and an earnings premium were found amongst those who were males, with post-Matric education, of all races except for Africans who resided in Gauteng.

Keywords: Matric, labour market outcomes, South Africa.

JEL Codes: J00, J01, I26

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LIST OF ABBREVIATIONS

AGR	Actual growth rate
CAPS	Cape Area Panel Study
DC	District Council
EAR	Employment absorption rate
ECD	Early childhood development
ECSECC	Eastern Cape Socio Economic Consultative Council
GHS	General Household Survey
ILO	International Labour Organization
LED	Local Economic Development
LFP	Labour Force Participation
LFPR	Labour Force Participation Rate
LFS	Labour Force Survey
MFX	Marginal Effects
LNE	Literacy and Numeracy Evaluation
NEET	Not in employment, education, or any form of training
NIDS-CRAM	National Income Dynamics Study – Coronavirus Rapid Mobile Survey
NSC	National Senior Certificate
NYDA	National Youth Development Agency
OECD	Organization for Economic Co-operation and Development
OHS	October Household Survey
PCA	Principal Components Analyses
PSUs	Primary Sampling Units
QLFS	Quarterly Labour Force Survey
Stats SA	Statistics South Africa
TGR	Target growth rate
UNESCO	United Nations Educational, Scientific and Cultural Organization
YES	Youth Employment Services

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CHAPTER ONE: INTRODUCTION

1.1 Background and Problem Statement

The South African labour market is characterised by the persistently high level and rate of unemployment and poor capacity to create jobs (Fedderke, 2012), along with other serious economic problems such as inequality and poverty. Recent unemployment statistics show that the country's unemployment rate increased from 30.1 per cent in the first quarter of 2020 to 32.6 per cent in the first quarter of 2021 (whereas the expanded unemployment rate increased from 39.7 to 43.2 per cent). The 2021 estimates were the highest since Statistics South Africa (Stats SA) began capturing labour market statistics with the Quarterly Labour Force Survey (QLFS) in 2008. Amongst the youth, the unemployment rate for those aged 15-24 years stood at 63.2 per cent in the first quarter of 2021 (Stats SA, 2021).

Moreover, South Africa is also faced with a structural change in the labour market (Gumata and Ndou, 2017). The post-apartheid labour market has been characterised by skills-biased shifts in employment, with the highest returns in employment and wages accruing to skilled individuals. This speaks to the issue of skills mismatch between the types of skills supplied in the labour market and those demanded by firms (Bhorat and Mayet, 2013). The shift away from low-skilled work such as in the agriculture sector and increase in demand for skills to support the financial and other service industries, means highly skilled workers are in great demand but in short supply (Branson and Leibbrandt, 2013). In addition, the formal sector is the biggest employer in South Africa, where skilled labour is most needed (Stats SA, 2019). Structural changes in the economy pose a real risk of increased marginalisation of low-skilled workers in the labour market (African Development Bank Group, 2015), thereby supporting the argument for the importance of skills and education to labour market outcomes in South Africa (Fedderke, 2012).

The attainment of Matric gives one the opportunity to either pursue further education or participate in the labour market in search of employment (Branson, Hofmeyer, Papier and Needham, 2015). The entry into the labour market means that one has to compete for a job in an already job-constrained labour market; among those looking for work, search rates are positively related to

educational attainment, with increased search rates amongst those who are more educated (Dias and Posel, 2007).

Although a plethora of studies have been conducted on educational attainment and labour market outcomes in South Africa, most of them focus on the general relationship between educational attainment and labour market outcomes of the working-age population. There are hardly local studies that explicitly focus on the relationship between Matric attainment and labour market outcomes. The following questions thus arise: with worsening conditions in the economy and labour market of South Africa, is Matric still sufficient to ensure good labour market outcomes? In addition, since the advent of democracy, what has been happening to the labour market outcomes of matriculants?

1.2 Research Objectives

The purpose of the study is to examine the relationship between the attainment of Matric and labour market outcomes in South Africa. The specific research objectives are as follows:

- To examine the profile of matriculants and compare them with those without Matric and with post-Matric qualifications.
- To examine the labour force participation and employment likelihood of the three groups (without Matric, Matric and post-Matric).
- To examine the work characteristics of the three groups (if employed).

1.3 Rationale of Study

Literature on educational attainment and labour market outcomes does exist in South Africa and focuses on the general relationship between the two variables. However, there is not much that has explicitly focused on examining Matric in terms of labour market outcomes. For that reason, this study aims to fill this gap in existing literature. In addition, it is of interest to know if there have been any improvements over time in the labour market outcomes of Matric compared to other education levels, in particular to lower education levels. There is growing interest in understanding if Matric offers better labour market outcomes than secondary school, if there are differences at all in the outcomes of the two groups. Moreover, there are not many recent studies that explore the relationship between education and the labour market in South Africa. Therefore, this study intends

to contribute to existing literature by providing update in this regard. Furthermore, the findings of the study could be useful to policymakers in designing appropriate policies aimed at addressing education, employment and unemployment issues.

1.4 Structure of the Study

The study consists of five chapters. Chapter One provides the introduction and background to the study. Chapter Two presents the literature review: the conceptual framework which looks at key definitions, theoretical framework of theories most relevant to the study and lastly, the review of empirical literature on studies previously done that are related to the topic. Chapter Three presents the methodology and data that were followed in the study. Chapter Four presents and discusses the empirical findings. Finally, Chapter Five concludes the study with various policy suggestions.



CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of three main components: the conceptual framework, theoretical framework and review of past empirical studies. The conceptual framework will look at the key concepts in labour economics. The theoretical framework section will conduct a review of popular labour theories. The empirical framework will examine past studies on the relationship between Matric and labour market outcomes and Matric labour market outcomes as compared with other levels of education.

2.2 Conceptual Framework

2.2.1 Educational Attainment

Educational attainment or highest level of education is defined as the highest grade completed at school or the highest post-school qualification obtained (Stats SA, 2020:85). UNESCO (2021) defines it as the highest level of education completed by an individual. It also means the highest grade completed within the most advanced level attended in the educational system of the country where the education was received (OECD, 2001).

2.2.2 Literacy

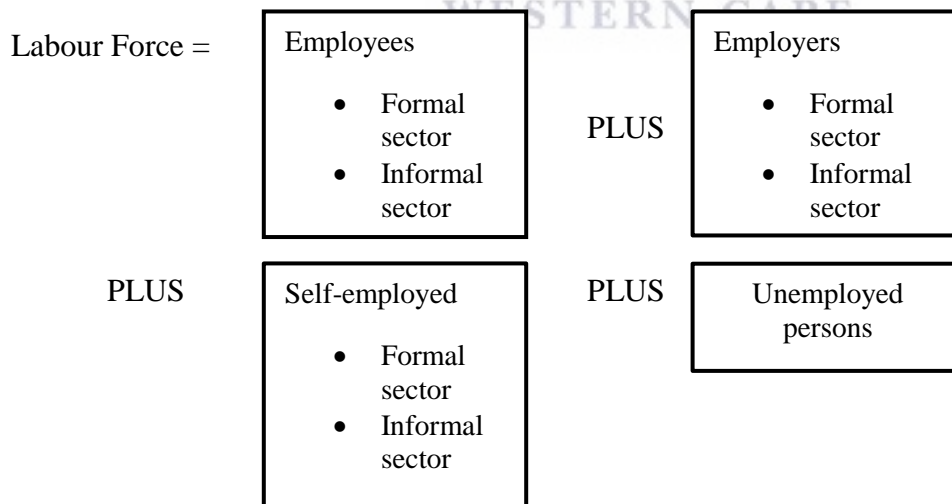
The basic and traditional definition of literacy is the ability to read and write in any language (Stats SA, 2010:87). Literacy also refers to other skills and abilities related to listening, speaking, viewing and performing (Munger, 2016). Moreover, contemporary definitions of literacy also consider social practices such as those associated with culture and power which are interwoven among all literacy practices, including teaching, learning and using literacy (Munger, 2016). Furthermore, according to UNESCO (2021), literacy is understood as a means of identification, understanding, interpretation, creation and communication in an increasingly digital, text-mediated, information-rich and fast-changing world. Viewed according to education levels, literacy is an education level representing the completion of at least seven years of formal schooling, that is, completion of Grade 7 (Schindler, 2005 as cited in Yu and Roos, 2018:239).

2.2.3 Labour force

The labour force (LF) or the economically active population (EAP) presents persons of working-age (15-65 years) who meet the requirements to be included among the employed or unemployed (OECD, 2020). The terms LF and EAP are used synonymously. The EAP is defined as the total number of working-age population who provide their labour services in the production of goods and services, regardless of being employed. Moreover, the EAP includes the formally and informally employed workers, self-employed people, employers and unemployed who are looking for work (Yu and Roos, 2018).

Moreover, the International Labour Organization (ILO) makes a distinction of the EAP, categorising between those who are usually active and the currently active population (ILO as cited in Yu and Roos, 2018). The currently active population includes all people of working age who had work or were unemployed for a short period of time (one week or one day). Usually, active population defines all people above a specified age whose main activity status was employed or unemployed, according to the number of weeks or days during a longer reference period (ILO, 2011).

Figure 1: Illustration of the total labour force



Source: Adapted from Yu and Roos (2018:12).

2.2.4 Labour Force Participation Rate

Labour force participation rate (LFPR) is the percentage of working-age population that provide their labour services in the production of goods and services, whether employed or unemployed (Stats SA, 2020; Yu and Roos, 2018). That is, it represents the proportion of the working-age population that is economically active.

$$LFPR = \frac{\text{Actual Economically Active Population}}{\text{total population of working age}} \times 100$$

2.2.5 Employed

The employed are persons of working-age population who have worked for at least one hour in the past week (Stats SA, 2020). They worked to earn a wage, salary or for profit or family gain, in cash or in kind, or are self-employed. Employed also include people who had a job or running a business but were temporarily absent from work (Yu and Roos, 2018). Also recognised as part of the employed are part-time, casual and informal workers, who are also now captured by the household surveys published by Stats SA after amendments were made to the definition from the 1995 October Household Survey (OHS) to the 2008 QLFS (Feder and Yu, 2019).

2.2.6 Underemployment

People in underemployment are employed individuals who had willingness and were available to work additional hours. The total number of hours they actually worked during a reference period was fewer than 35 hours per week. The underemployed also falls in the under-utilised labour category which consists of people who are unemployed and discouraged people (Stats SA, 2020).

2.2.7 Unemployment

A person is said to be unemployed if he/she is without work, is currently available for work, and is looking for work (Yu and Roos, 2018). Stats SA defines unemployment in two ways in order to describe the form of unemployment, the narrow (official) definition of unemployment and the expanded definition of unemployment.

Unemployed people, according to the narrow definition are distinguished as individuals who:

- Were not employed in the reference week; and

- Took active steps to look for work or attempted to start a business in the four weeks before the interview; and
- Showed availability for work; or
- Had not actively searched for work in the past four weeks but had a job or business to start with a future definite date and was available.

The unemployed according to the expanded definition are all people of working-age who were not in employment in the reference week; and were available for work but did not take active steps to look for work, either because they are discouraged from looking for work or were not in search of employment for other reasons (Stats SA, 2020).

The four categories of unemployment are: frictional, seasonal, cyclical and structural unemployment. Frictional unemployment develops as a result of labour market delays and voluntary employment transfers within an economy. Since some workers leave their current jobs in search of new ones and others enter the labour market for the first time, this type of unemployment is of short duration, and such duration can be even shorter by making labour market information readily and easily available, as well as improving placement services so that the employers and jobseekers find each other easily.

Seasonal unemployment occurs as a result of normal and anticipated changes in economic activity during the course of a year. For example, in the agricultural sector, workers are required only for a certain time in a year (during harvest of certain seasonal produce). Cyclical unemployment (or demand-deficient unemployment) arises during recessions when economic activity is down; where aggregate demand is low and so is the demand for labour. During a recession, few or no jobs are created for new entrants and even those who have work may be retrenched. Lastly, structural unemployment is the inability of an economy to create jobs due to structural imbalances. There are various reasons for structural unemployment, such as rapid growth in the labour force, the use of capital-intensive technology, skills-mismatch and many more (Yu and Roos, 2018). In South Africa, structural unemployment is most serious.

2.2.8 Unemployment rate

The unemployment rate is the number of unemployed people as a proportion of the total labour force (Yu and Roos, 2018). In equation terms:

$$\text{Unemployment rate} = \frac{\text{number of unemployed person}}{\text{total labour force}} \times 100$$

2.2.9 Other concepts

The target growth rate (TGR) examines the speed at which employment would have to increase for all new entrants to the labour market to find employment, observed over a specified time (e.g., between time t and $t + 1$) (Oosthuizen, 2006:17). In equation terms:

$$TGR_k = \left(\frac{EAP_{k,t+1} - EAP_{k,t}}{L_{k,t}} \right) \times 100$$

Where EAP_k denotes the economically active population of group k , defined by any given covariate, and L_k is the number of the employed within group k . Growth of employment at the target rate would lead to a decline in group k 's unemployment rate.

The actual growth rate (AGR) is the percentage change of employment over a specified time:

$$AGR_k = \left(\frac{L_{t+1} - L_t}{L_t} \right) \times 100$$

Next, the employment absorption rate (EAR) describes the ratio between actual employment growth and the target rate, expressed as a percentage:

$$EAR_k = \left(\frac{\frac{L_{t,t+1} - L_{k,t}}{L_{k,t}}}{\frac{EAP_{k,t+1} - EAP_{k,t}}{L_{k,t}}} \right) \times 100 = \left(\frac{L_{k,t+1} - L_{k,t}}{EAP_{k,t+1} - EAP_{k,t}} \right) \times 100 = \left(\frac{AGR_k}{TGR_k} \right) \times 100$$

The rate represents the amount of the total net increase in the labour force that receives employment. The higher this rate, the closer the actual relative rate to the target rate. Moreover, an EAR of 100% shows that the increase in the labour force is fully accounted for by an increase in employment. It is possible that EAR exceeds 100%; it means employment growth is greater

than labour force growth in absolute term, i.e., where employment is growing and unemployment falling in numerical terms (Oosthuizen, 2006:18).

2.3 Theoretical Framework

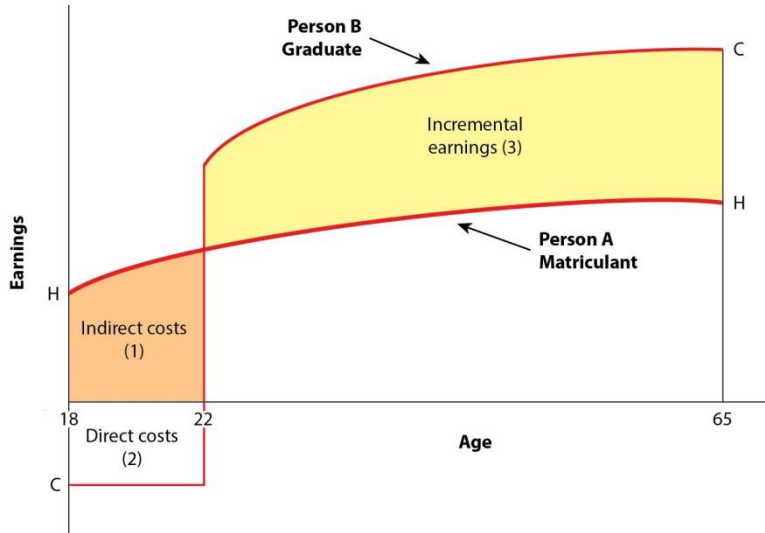
2.3.1 Human capital theory

In modern economic literature, it was Schultz (1961) who first used the term 'human capital' by classifying expenditures on human capital as investments rather than consumption. Becker (1962) made the first application of the theory and developed a model of individual investment in human capital. In his view, investing in human capital meant 'all activities that influence future real income through the embedding of resources in people' (Becker, 1962:70). Human capital investments are expenditures on education, training, health, information, and labour mobility (Weisbrod, 1961) and can be accumulated through formal schooling, where an individual devotes their entire time to learning (Fleischhauer, 2007). People invest in their human capital to increase their future earnings, as people with higher educational qualifications earn higher salaries. Higher education qualifications lead to higher earnings because skills development improves a person's human capital stock and their productive capacity increases. The person with higher education becomes more valuable to the employer and their earnings increase. Accordingly, there is progression from investing in education and training, to higher productivity and increased earnings. In addition to higher remuneration, there are other benefits to education, such as subjective satisfaction and status which are immediate benefits (Yu and Roos, 2018).

Nevertheless, there is also a cost to accumulating education as much as there are benefits. This cost becomes the determinant in the decision of whether to pursue higher levels of education or not (Yu, and Roos, 2018). The cost is explained in three ways: direct costs, indirect costs and psychic losses. Direct cost includes the fees paid towards the education (tuition), whereas indirect costs or foregone earnings happen as a result of the choice to pursue post-Matric studies instead of taking part in employment and earning a wage or salary. There are also psychic costs because studying is difficult and tiresome (Ehrenberg and Smith, 2012 as cited in Yu and Ross, 2018). Therefore, considering these costs and benefits, an individual then makes the decision to decide whether to pursue further education or not, depending on whether the investment in education

yields a positive or negative monetary return in present value terms (Yu and Roos, 2018). The potential earnings stream is illustrated in Figure 2 below.

Figure 2: Potential earnings stream of a matriculant compared with a graduate



Source: Adapted from Yu and Roos (2018: 234).

Figure 2 illustrates the rate of return of investment in education (as measured by earnings) of two individuals with different levels of education. Firstly, direct and indirect costs of education are compared with increased earnings of an individual over their working lifetime. The objective is to determine whether the rate of return on investment in education is likely to be greater for the individual with a higher education level than for the one with a lower level of education.

As shown in Figure 2, person A is a matriculant who starts working right after completing school and does not pursue further studies, their earnings profile is represented by line *HH*. Also depicted in the graph is person B's path, a graduate who pursues further education after completing Matric, and his earnings profile is shown by the line *CC* which is also higher than person A's. Despite greater direct and indirect costs incurred by person B during additional years of study, higher incremental earnings will be gained. The gap between line *CC* and *HH* widens over time because a graduate has a greater chance of getting work promotion or being part of skilled workers, which would lead them to earn a higher income (Yu and Ross, 2018). The human capital theory can therefore be seen as providing enough explanation for differences in earnings differentials. This

theory may show that the productivity of workers is described by the earnings they receive as well as the sectors in which they are employed (Kerr and Teal, 2012:2).

However, there are criticisms to this theory. Firstly, and in relation to this study, the theory does not consider the earnings stream of individuals without Matric (it is why this study will also examine this group). Moreover, it is also argued that the theory fails to measure the amount of training, education and productivity of an individual, as schooling years and qualifications received are not sufficient indication of quality of education.

Furthermore, there are factors other than education which influence the earnings of an individual; ability is one of those factors, as different education qualifications may be a good indication of already existing differences in ability. Individuals with the necessary ability attain higher education qualifications and it is therefore ability but not education which leads to higher earnings. If this is the case, then increased spending on education will not necessarily lead to increased productivity and earnings (Yu and Roos, 2018). Moreover, the theories to be discussed next aim at addressing the shortfalls of the human capital theory.

2.3.2 Screening theory

This theory provides an alternative to the explanation of the relationship between education and earnings. Primarily, in the process of hiring, employers do not have all the information about the person (candidate) they want to hire, such as his/her ability and potential productivity. Therefore, they consider the education (level) the candidate has as a signal of their productivity. Degrees and diplomas are considered to indicate employee production potential (Connelly, Certo, Ireland and Reutzel, 2011). A person with higher education qualification is considered as someone who has the ability to perform high-level jobs and will thus earn higher wages (Brown and Sessions, 2004). Thus, the theory considers the role played by education in sufficiently communicating necessary information to employers (Spence, 2002).

2.3.3 Signaling theory

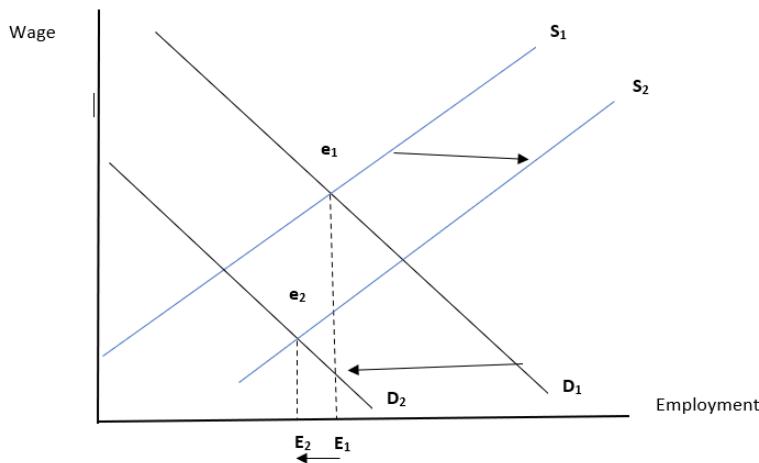
This theory maintains that education acts as a signal of a candidate's ability, as recruiters do not have all the information they need about the quality of candidates. Through attaining education,

the candidates signal their quality and thus minimise information asymmetries. This is assumed as a reliable signal because candidates with lower quality would not be able to withstand higher education difficulties. Per se, the signaling theory is in contrast with the human capital theory in that, it eliminates the emphasis the role of education is assumed to have in increasing productivity. Instead, the theory focuses on education as a means to communicate otherwise unobservable characteristics of the job candidate (Connelly, Certo, Ireland and Reutzel, 2011).

2.3.4 Labour supply and demand framework

A simple labour supply and demand framework is used to illustrate what happens to employment by educational attainment. First, Figure 3 illustrates the labour supply and demand of people without Matric. The initial equilibrium is at point e_1 , where labour demand curve D_1 intersects labour supply curve S_1 , and employment is at level E_1 .

Figure 3: Labour supply and demand for people without Matric



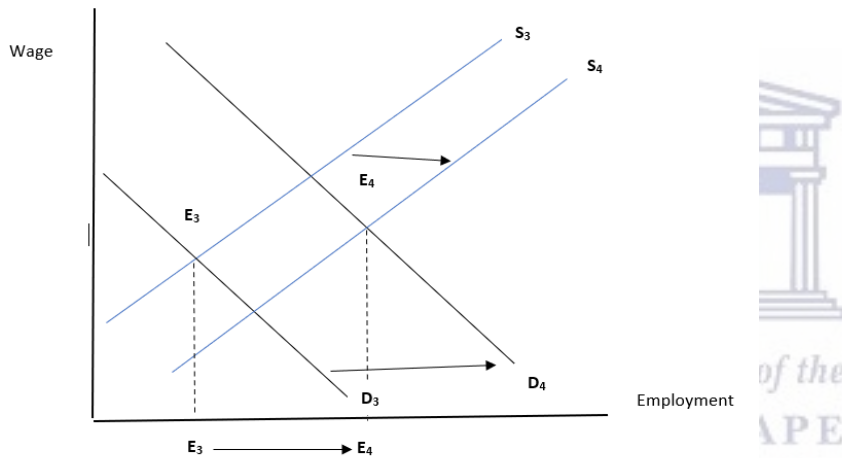
Source: Author's own illustration.

Due to structural change of the economy, it is possible that the demand for people without Matric declines over time. Hence, labour demand decreases from D_1 to D_2 . On the other hand, there is still an increase in the labour supply of jobseekers without Matric as shown by the rightward shift from

S_1 to S_2 in the figure. The intersection of D_2 and S_2 results in the new equilibrium e_2 . At this point, employment drops from E_1 to E_2 .¹

Figure 4 presents the labour demand and supply of people with at least Matric. The initial equilibrium is at point e_3 where D_3 and S_3 intersect; employment level is at E_3 . Due to structural change of the economy and increase demand for highly skilled and educated workers, labour demand increases rapidly from D_3 to D_4 . Although labour supply also increases from S_3 to S_4 , the extent of labour supply increase is relatively smaller than that of labour demand. At the new equilibrium point e_4 , employment increases to E_4 .

Figure 4: Labour supply and demand for people with at least Matric



Source: Author's own illustration.

2.4 Review of past empirical studies

2.4.1 Review of past local studies

Numerous studies on educational attainment and labour market outcomes exist in the South African literature. Some focus on labour market trends, the changes in labour force participation, employment and unemployment (Oosthuizen, 2005; Festus, Kasongo, Moses and Yu, 2015), while others focus on youth labour market outcomes (Mlatsheni and Rospabe, 2002; Lam, Leibbrandt and Mlatsheni, 2008). Others examine the relationship between educational attainment and labour

¹ In the forthcoming empirical analysis in Chapter Four, we will investigate whether employment level of people without Matric really decreased in South Africa since the advent of democracy.

market outcomes (Branson, Garlick, Lam and Leibbrandt, 2012; Branson, Ardington, Lam and Leibbrandt, 2013). Only one study focuses explicitly on Matric level of education and its labour market outcomes (Branson and Leibbrandt, 2013). Most of these studies found that Matric level of education has positive returns, higher labour force participation, increasing employment and earnings relative to lower education levels.

First, Oosthuizen (2006) investigated the trends within the South African labour market in the post-apartheid era between 1995 and 2004 using the 1995 October Household Survey (OHS) and 2004 Labour Force Survey (LFS) data. The study conducted multivariate analyses by running the probit and Heckprobit regressions on labour force participation and employment likelihoods, respectively. In terms of the labour force participation, the results show that individuals with higher levels of education were significantly more likely to participate in the labour force than those with lower levels. The Heckprobit regression results reveal that the lower an individual's education level, the lower the employment likelihood, with education levels lower than Matric yielding lower employment likelihoods in both surveys. In contrast, those with tertiary education were significantly more likely to be guaranteed employment with increases in this likelihood between 1995 and 2004. Concerning unemployment, the study found that there was an increase in the unemployment rate across all education levels during the period. The unemployment rate of those with Matric increased substantially from 27 per cent in 1995 to 39 per cent in 2004, and for those with tertiary education, from 6.6 to 10.4 per cent.

Festus, Kasongo, Moses and Yu (2015) updated the Oosthuizen study almost a decade later. The authors investigated changes in the South African labour market from 1995 to 2013 using the 1995 OHS, 2004 LFS and 2013 Quarterly Labour Force Survey (QLFS) data. The findings of the study were relatively similar to those of Oosthuizen. In terms of the labour force participation likelihood, as educational attainment increased, there was a significantly greater likelihood of entering the labour force. An example was, for those with degree qualifications, whose labour force participation likelihood was statistically insignificant in both the 1995 OHS and the 2004b LFS but became statistically significant only in 2013Q4 QLFS – indicating that an individual with a degree had a significantly better chance of entering the labour market as opposed to an individual with only post-Matric certificates/diplomas. The Heckprobit regression results showed that both Matric and tertiary education attainment were associated with a statistically significantly greater

likelihood of finding employment. Moreover, individuals with a degree were significantly more likely to be employed in 2004 and 2013. Comparing the unemployment rates by educational attainment in 1995 and 2013, individuals with Matric and incomplete secondary education recorded the highest unemployment rates ranging between 26 and 30 per cent, while individuals with post-Matric qualifications had the lowest percentages, with degree holders reporting a six percent rate and certificate/diploma holders a 14 percent rate.

Mosomi and Wittenberg (2020) revisited the labour market in South Africa, studying its trends from 2000 to 2017. A large part of the material presented in the study consisted of previous works by the authors (Wittenberg, 2014 and 2017). The paper identified both advantages and disadvantages within the labour market. The advantages were that the labour force became more educated since 2000, the share of individuals with primary education or lower fell and the share of individuals with completed secondary and tertiary education increased during the period. The disadvantages were that, low employment rate and increasing labour force participation resulted in high unemployment and especially among the youth, shown by 36.5% of youth between ages 15-29 years who were not in employment, education, or any form of training (NEET). In addition, continued demand for skilled labour and a small proportion of educated labour force led to high wages at the top of the wage distribution and worsening inequality.

Mosomi and Wittenberg (2020) also paid particular attention to the issue of growing youth unemployment, upon considering that youth comprise a large proportion of Matric holders. In 2018, over half (59%) of 25–34-year-olds in South Africa had attained an upper secondary education as the highest level achieved (OECD, 2019). As a result, past empirical studies on the labour market trends of the youth will be reviewed below. One of earlier studies was conducted by Mlatsheni and Rospabe (2002) who evaluated youth unemployment, focusing on youth aged 15-30 years and using the 1999 OHS data. The study separated the labour force between the wage employed and self-employed. Findings from a multinomial logit regression model showed that individuals with primary education had an insignificant likelihood of employment and individuals possessing secondary education also did not have an increased probability of finding employment than those with primary education. In contrast, those with post-secondary education had a greater

employment probability. On the other hand, years of schooling had no significant effect on the likelihood of self-employment.

Furthermore, using the Oaxaca method of analysis to investigate the likelihood of unemployment, Mlatsheni and Rospabe (2002) found that a higher likelihood of unemployment was found amongst African youth with less than secondary education. Deficiencies in education attainment and skills accounted for the high unemployment among these youth because they either exited the schooling system early or suffered from skills recognition among employers.

Another study on youth labour market outcomes was conducted by Lam, Leibbrandt and Mlatsheni (2013) who studied the experiences of young people in South Africa who left school before finishing Matric to go seek work in the labour market. Using the Cape Area Panel Study (CAPS) and the 2001 Census data, the authors found that it was challenging for young people to transition from school to work, as shown by lower proportions of youth across all races who worked, particularly African youth. The study also ran probit regressions to investigate the likelihood of finding employment for the youth with Matric. The results revealed that completing Matric led to a higher probability of finding employment than lower grades. Moreover, the regressions included scores of the literacy and numeracy evaluation (LNE) which was administered as part of CAPS. The results suggested that an individual possessing Matric and a good test score enjoyed a significantly higher likelihood of finding employment. This implied that ability played a major role in finding employment, an indication that employers utilised both schooling and ability as signals on who to employ.

Moreover, other studies investigated changes in educational attainment and labour market outcomes in South Africa. Branson, Garlick, Lam and Leibbrandt (2012) focused on education returns in terms of employment and earnings. The authors analysed the 1997-1999 OHS and 2000-2007 LFS data and found that the returns to Matric and post-secondary education, both in terms of earnings and employment, were large and had risen substantially between 1997 and 2007. In contrast, the returns to levels of education below Matric remained constant.

Branson, Ardington, Lam and Leibbrandt (2013) added a different dimension to the study reviewed above by investigating changes in education, employment and earnings over time in South Africa using birth cohorts of people born between 1944 and 1985 from a series of seventeen (17) successive national household surveys from 1994 to 2010 (OHS 1994-1999, LFS 2000-2007 and GHS 2008-2010). The main reason for the use of the lens through birth cohorts was to disentangle generational and life-cycle components for individuals with similar levels of education and thus reveal the returns to education. The empirical findings indicated that younger cohorts of Matric were faced with worsening labour market conditions than older cohorts of Matric, although this may have changed for cohorts born after 1980. The returns of attaining Matric both in terms of earnings and employment probability declined for cohorts between 1950 and 1975, with particular sharp declines for those born after 1960. In contrast, for tertiary educational attainment, both earnings and employment probability increased for cohorts born since the 1960s. In addition, these returns are higher than ever for today's youth among those with tertiary education.

Consequently, Branson and Leibbrandt (2013) built on the above reviewed study, with an explicit focus on individuals with Matric. The authors investigated whether the attainment of Matric had become worthless as a result of increasing levels of youth unemployment and poor performance of learners. The study found that indeed Matric still had value in the labour market. Although the Matric absolute return both in terms of earnings and employment probability had fallen, its relative return did not. Compared to lower levels of education (i.e., Grade 10 and Grade 11), Matric earnings premium had remained positive and relatively stable across generations. Similarly, the employment probability of people with tertiary education had remained constant. Moreover, given the Matric premiums, tertiary premiums were found to be positive and substantial. The average individual with tertiary education earned two or three times more than an individual with Matric. In addition, an individual with tertiary education enjoyed a 20 percentage points greater probability of finding employment, compared with an individual possessing Matric, however depending on their age.

Some of the studies reviewed above revealed inequalities in both the attainment of education and labour market outcomes, in particular racial inequalities (Mlatsheni and Rospabé, 2002). For this reason, this section also reviews the incidence of education inequalities, with an interest in the

quality of Matric and labour market outcomes. The study by Van der Berg et al. (2011) reported on South Africa's low-quality education and how it acts as a poverty trap. Examining the impact of education on the likelihood of finding employment, using the 2007 LFS data, the likelihood of employment was shown to have increased dramatically for those with Matric and higher. Similarly, wages also increased as years of educational attainment increased. The significant employment likelihood and higher wages for matriculants were attributed to the perceived quality of Matric by employers, because Matric is a qualification attained after one undergoes an externally assessed and monitored exam (unlike Grade 11 where examinations are conducted internally at schools). As a result, employers discriminate and favour Matric over Grade 11, as an indication that employers do not perceive an education below Matric as a sign of quality and productiveness of potential employees.

Furthermore, Van der Berg et al. (2011) utilised the 2007 Community Survey to understand the impact of education quality on employment. The survey provided information on three categories of Matric (with a specific focus on the black population), namely attempted and failed, passed, as well as passed with exemption. The results showed that individuals who failed Matric suffered a higher unemployment rate than those who passed but did not get exemption, and those who passed with exemption enjoyed a lower rate of unemployment. The performance of Matric also had an impact on wages earned. Those who passed Matric with exemption earned almost twice as much as those who had failed Matric and almost a third more than those who passed but without exemption.

A further inquiry into the quality of education and labour market was made by Moses (2011). The paper aimed at providing evidence for the potential existence of earnings inequality in South Africa between racial groups. The difference in the quality of education between races translated to differing returns to the same levels of educational attainment. The labour market offered better employment and earnings prospects for white workers compared to black workers. In terms of methodology, the paper made a review of both South African and international empirical literature which considers the role of education quality in improving labour market prospects. Education quality was considered from both an input and output perspective. The paper concluded that

education output quality, particularly the ability of a school system to impart cognitive skills, is a crucial determinant of labour market success.

Lastly, from the side of local studies, the study by Van der Berg and Van Broekhuizen (2012) was aimed at dismissing the widely held view that graduate unemployment has been increasing. As a starting point, the authors wanted to overcome the deficiencies of previous studies done on the same topic, which failed in clearly defining what a graduate is and thus capturing an inaccurate picture of graduate unemployment. The authors redefined graduates to only include individuals with bachelor's degrees or equivalents and higher educational qualifications (Honours, Master's and Doctorate degrees) as opposed to just all post-secondary qualifications as done in other studies. Using the OHS 1995 and LFS 2011 data, the characteristics of the labour force were observed. The key findings were that both the LFPR and employment rate rose strongly for individuals possessing Matric or higher, and peaked amongst advanced degrees. People with Grade 11 and below were associated with increasing unemployment likelihood. Those with Matric and above showed strong declining rates of unemployment, and graduates (with 15 years of education) experienced considerably less unemployment than non-graduates with post-Matric education.

2.4.1 Review of past international studies

International studies on labour market outcomes of education such as Ionescu (2012) did not yield differing results to local studies in terms of the relationship between education and the labour market. This study used data from 32 European countries (United States and Japan included) to investigate the relationships between the access to education (defined in terms of participation and investments) and the labour market outcomes. It utilized several Principal Components Analyses (PCA) to form an explanatory comparative analysis of the performance of analyzed countries in relation to these two dimensions. The findings showed that the higher levels of education were associated with better chances of getting a job and keeping the status of employment in time of economic crisis. Although it was noted that a higher participation in education did not necessarily translate to a higher chance of employment since entry into the labour market was for some individuals an alternative to pursuing further education.

Furia, Castagna, Matooscio and Scamuffa (2010) studied the relationship between education and labour market for 27 member states of the European Union (EU-27)² in the context of globalization, particularly since the 2008 financial crisis and changing state of the labour market, which places higher demand for skilled labour force. A multidimensional scaling approach was used to test hypotheses and five clusters of countries with different educational attainment levels were identified. The results showed that countries with higher educational attainment levels provided higher employment opportunities and better labour market conditions, while countries with poor educational attainment outcomes did not. Countries such as Finland, the Netherlands and Czech Republic were identified as having good standards of education, with successful education and labour policies that could be adopted by others.

Among the many contributions to research on returns to investment on education, one such study was conducted by Patrions and Psacharopoulos (2010). In this edition they investigated the returns to investment (education subsidies) in education for developing countries. The study utilized the Mincer (1974) earnings function (for private returns to education) and the full discounting method (for social returns), analyzing over 1000 rate of return estimates in over 100 countries. The results showed that, for developing countries, primary education exhibited the highest returns, followed by secondary and higher education. This showed the inverse relationship between the rate of return and level of education. For the full discounting method, the social rates of return were higher in low-income countries than the global averages, and so was the level of subsidization in higher education. This was so because social returns are universally lower than private returns because of public subsidization of education. These results were based on the grounds that education is scarcer in low-income countries while a large proportion of the population in upper middle-income countries has at least attained primary education. Furthermore, private sector returns were higher than public sector returns.

Eight years later, Patrions and Psacharopoulos (2018) updated their work previous work and study arrived at similar results. They reviewed trends and patterns based on a database of 1, 120 estimates

² From 1 February 2020, the 27 European Union countries after the UK left the EU. From 2016 until 31 January 2020, the 27 European Union countries involved in Brexit negotiations with the UK; in other words, the EU except for the United Kingdom. From: https://european-union.europa.eu/principles-countries-history/country-profiles_en

in 139 countries and using the Mincerian earnings function and the full-discounting method that includes social returns. The review showed that the global average private rate of return to an additional year of schooling had stabilized over decades and was about nine per cent a year. They attributed the steady decline over time of the rate of return to the incidence of the “race between education and technology” - with the price of education tending not to decline when supply of education increases. Thus, showing that the demand for skills is more than the supply of skills. Moreover, private returns to education were also higher in low-income countries relative to high-income countries (although by one percentage point). By gender, higher for women than males (about two percentage points), thus showing the importance of investing in education for women and girls. Private sector returns were higher than for those working in the public sector, thus supporting the argument for the productive value of education. Furthermore, social returns to education to decreased by the level of economic development and education. These returns were higher in lower-income countries relative to higher-income countries. For example, the mean years of education of the labour force in Sub-Saharan Africa was 5.1, while this was 10.2 in advanced economies.

2.5 Conclusion

Chapter Two began by defining various key labour market concepts and reviewing the core theories relating to this research study. It then went on to review past empirical literature related to this research study, both local and international studies. The reviewed local empirical studies infer that those with higher levels of education perform far better in the labour market, shown by higher labour force participation rates, enjoying increasing employment likelihood, and increasing earnings, specifically tertiary education and complete secondary. The studies had a focus on general educational attainment. There are hardly any local studies that explicitly compare the labour market outcomes of those without Matric, Matric only and post-Matric qualifications. In addition, it was hard to find more updated empirical studies on work activities and even earnings by educational attainment. Work activities were described by skills level, the unskilled, semi-skilled and high-skilled. While the review of international studies showed similar results to local studies, indicating that the higher levels of education offered higher chances of finding employment. On the earnings front, higher private rates of return accrued to higher education levels, in both developed and developing countries. For low-income countries it was primary

education that exhibited higher returns. Moreover, hardly any recent and new research is being done or updated on educational attainment and labour market outcomes. Therefore, there is a need to fill this research gap, hence the aim of this study.



CHAPTER 3: METHODOLOGY AND DATA

3.1 Introduction

This chapter discusses the data and methodology to be utilised in deriving the findings of the study and achieving the research objectives. The chapter is organised as follows: Section 3.2 examines the methodology used in the study, whilst Section 3.3 explores the data used for analysis. Section 3.4 explains limitations of the study before Section 3.5 concludes the chapter.

3.2 Methodology

3.2.1 Identification of three groups

The three groups of individuals will be compared, namely:

- Group [A]: Individuals without Matric (no education up to Grade 11);
- Group [B]: Those with Matric only (Grade 12; the attainment of the South African National Senior Certificate (NSC));
- Group [C]: Those with post-Matric qualifications, including higher certificates, Diplomas, Bachelor's degree; Honours, Master's and Doctorate degree.

3.2.2 Descriptive statistics

The quantitative analysis will utilise the prescribed data to examine the characteristics of the labour force, employed and unemployed by educational attainment (i.e., the abovementioned three groups). The characteristics of the labour force needs to be understood in order for labour market policy aimed at addressing the problem of unemployment in South Africa to be effective. Further, it becomes difficult to realise shared growth if individuals are systematically excluded from employment because of certain traits, such as discrimination or, for instance, a lack of abilities, (Oosthuizen, 2004).

The focus of the descriptive statistics will be on:

- (a) Demographic characteristics: Age, gender and race.
- (b) Educational characteristics: Level of educational attainment.
- (c) Geographical characteristics: Province and area type.
- (d) Work characteristics (if employed): Occupation, industry, formal/informal sector.

- (e) Unemployment characteristics (if unemployed): Previous work experience, time since last worked (if worked before) and duration of being unemployed.

Furthermore, the study will also include descriptive analysis on hourly wage and monthly earnings in 2021 December prices by the three educational attainment categories, by showing the mean and median wage and earnings. The study also derives kernel density curves on log monthly earnings in 2021 December prices by educational attainment. The analysis will exclude ‘outliers’ (those earning more than R83 333 per month or R1 million per annum) from the earnings analysis, as these huge earnings values can affect the robustness of the empirical findings.

3.2.3 Econometric analysis

Descriptive statistics analysis is of importance and useful; however, it is limited in that it only considers one or two variables when describing employment, unemployment or the labour force; for that reason, regressions analysis is necessary. The purpose of this section is to investigate the role played by other factors in influencing the employability of an individual. To achieve that, three estimations will be conducted; first, the estimation of labour force participation probit, followed by Heckprobit on unemployment (conditional on participation) and the earnings estimation (conditional on employment).

The labour force participation considers the fact that labour force sampling is not a random sample, since people who are part of the labour force have gone through a selection process, whereby they choose to enter the labour force while others choose to stay out of it (e.g., the discouraged work-seekers). As a result, the estimation will be distorted by the sample selection bias (Heckman, 1979). To correct the bias, the Heckprobit on employment (conditional on participation) is thus estimated (Festus et al., 2015).

Thus, the participation equation is a discrete choice model, where the probability to participate p_i is different for each individual and depends on the individual and household characteristics.

The labour force participation equation is given by:

$$LFP_i = x_i\beta + \mu_i \quad (1)$$

Where LFP_i represents labour force participation status, which is binary in nature and takes on two values; namely, indication for participation in the labour force or no participation in the labour force, which will be denoted one (labour force) and zero (inactive), respectively. The independent variables (x_i) are certain person- and household-level explanatory variables that would affect an individual's likelihood of entering the labour market to seek work. μ_i is the error term (Edwige and Herve, 2004).

The explanatory variables of the probit regression include the following:

- Age category dummy variables (Reference group: 15-24 years)
- Gender dummy variables (Reference category: female)
- Race dummy variable (Reference group: African)
- Province dummy variables (Reference group: Western Cape)
- Years of education spline variables
- Marital status dummy variable (Reference group: unmarried/divorced/widowed)
- Number of children, 0-14 years in the household
- Number of male adult members, 15-59 years in the household
- Number of female adult members, 15-69 years in the household
- Number of elderly, aged at least 60 years in the household

The labour force participation probit regression allows the estimation of the inverse Mills ratio (λ), which in turn is included in the employment probit, making it conditional on labour force participation (Oosthuizen, 2005). The two-step Heckman technique is required if the inverse Mills ratio variable is statistically significant in the probit, indicating that the labour force does indeed differ from those who choose not to participate in the labour force (Festus, Kasongo, Moses and Yu, 2015).

The unemployment (conditional on labour force participation) equation is given by:

$$U_i = z_i\gamma + v_i \quad (2)$$

The dependent variable U_i will take the value of zero or one, where one represents those who are unemployed and zero stands for the employed. Also, all person-level explanatory variables included in the participation probit will be included as explanatory variables in the employment Heckprobit, but an additional explanatory variable will be added, lambda.

Now that estimation is done for employment probit conditional on participation, then the estimates from the employment probit are used to derive a new estimated Mills ratio, reflecting selection into earnings. The inclusion of this second lambda in the earnings equation makes the earning equation conditional on participation and selection into employment (Bhorat and Hodge, 1999).

Therefore, the monthly earnings (conditional on employment) equation is given by:

$$\ln(\text{earnings}) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 \dots + \varepsilon_i \quad (3)$$

Where $\ln(\text{earnings})$ (the dependent variable) is the log of earnings (in 2021 December prices) for individual i ; and x represents the independent variables, the personal characteristics (gender, race, age, education, etc.), and work characteristics (occupation, industry, formal/informal sector, union membership, etc.), as well as the 'new' lambda derived from the Heckprobit unemployment probit.

Furthermore, Table 1 below demonstrates the derivation of education years spline variables to be utilised by the study. Three groups of individuals classified according to their highest attained education level were identified above, namely, individuals without Matric, those with Matric and those with post-Matric. Accordingly, studies that examine the labour market outcomes of education usually make use of the dummy variable approach; where all levels of education below Matric would be assigned the numerical value one and for Matric education and above, the numerical variable zero would be assigned. Nevertheless, this approach has limitations since different levels of education are not the same. For example, an individual with Grade 9 is different to someone who possesses Grade 11 and therefore, they cannot be assigned the same value. Someone with Grade 11 is clearly two years more educated than someone with Grade 9.

Table 1: Derivation of education years spline variables

Highest completed qualification	Years of education	Education spline variables		
		Without Matric	Matric	Post-Matric
No schooling	0	0	0	0
Grade 1	1	1	0	0
Grade 2	2	2	0	0
Grade 3	3	3	0	0
Grade 4	4	4	0	0
Grade 5	5	5	0	0
Grade 6	6	6	0	0
Grade 7	7	7	0	0
Grade 8	8	8	0	0
Grade 9	9	9	0	0
Grade 10	10	10	0	0
Grade 11	11	11	0	0
Grade 12	12	11	1	0
Grade 12 + Certificate/Diploma	13	11	1	1
Degree	15	11	1	3
Honours / Postgraduate Diploma	16	11	1	4
Master's	17	11	1	5

Source: Author's own illustration.

For that reason, this study will rather use the education spline variables by grouping the levels of education or highest qualifications completed according to the three categories. Starting with the without Matric spline variable, this variable allows all levels of education to be assigned a point, accumulating as years of education increase. This is except for the no-schooling level of education, which is assigned the value zero, because individuals with no schooling have not attained any of the qualifications.

Furthermore, for the Matric spline variable, qualifications below Matric will be assigned zero and Matric and beyond will be assigned one because individuals who possess these qualifications have

attained Matric. Next, for the post-Matric spline variable, different points are allocated for each different qualification as shown, the number of points is allocated according to the number of years it takes to finish a qualification. For example, the post-Matric spline variable has a value of one for those with post-Matric certificate or diploma (as it typically takes one year of studies to complete the certificate or diploma) and three for those with bachelor's degrees (if we assume 3-year duration to complete the undergraduate studies).

In conclusion, the aim of the analysis through the aid of these descriptive statistics and econometric regressions is to establish whether the labour market outcomes, especially employment probability as well as the type of work activities (if employed) enjoyed by those with post-Matric qualifications have become greater over time, compared with those with Matric only. Here, the key question is whether higher levels of education guarantee better labour market outcomes than lower levels of education. If so, this is likely to reflect the explanations discussed in section two by theories such as the human capital theory.

3.3 Data

The study will use cross-sectional labour survey data, specifically the 1995 OHS, the 2003 LFS, as well as 2011 and 2019 third quarter QLFS data released by Stats SA. These are currently all the publicly available national household surveys that contain individual level earnings information in addition to individual and household characteristics.

The OHS was conducted annually between 1993 and 1999 and the LFS was a biannual survey introduced in 2000 to replace the OHS until 2008 (Yu, 2017). In March 2005, Stats SA made the decision to revise the LFS on recommendation from consultants including the International Monetary Fund (IMF) personnel. The process was finally concluded in 2008 when Stats SA came up with a decision that the LFS would take place on a quarterly basis i.e., the QLFS was introduced to replace the LFS (Yu, 2009).

All the above-mentioned surveys have a representative sample of all provinces and strata (District Councils (DCs) within provinces. Although for the LFS, Stats SA had used a Master Sample of 3000 Primary sampling Units (PSUs) from the population census as the sampling frame (Yu,

2009). While the QLFS sample covers the non-institutional population of South Africa with one exception. The only institutional subpopulation included in the QLFS sample is individuals in workers' hostels and the counting of people in private dwellings within institutions.

The 1995 OHS captured a range of developmental and poverty indicators, such as unemployment rates (official and expanded), access to education and non-income welfare questions such as dwelling type, water source and refuse removal frequency access. The 2003 LFS had a different focus to the 1995 OHS which it replaced, focusing on the dynamics of the labour market, examining the extent of employment in both the formal and informal sectors of the country, and the extent of unemployment (Stats SA, 2002). The questions on non-income welfare, not included in the 2003 LFS, were now asked in the General Household Survey (GHS) which was introduced in 2002.

The QLFS made extensions to the 2003 LFS questions, as it captured new information such as underemployment, type of work contracts, job satisfaction and adopted a new methodology to distinguish formal/informal workers. On work contracts, the QLFS interrogates whether they are written or verbal as well as duration of contract. Moreover, it collects data on the labour market activities of individuals aged 15 years or older who live in South Africa, such as occupation, industry, work hours, formal/informal sector status and underemployment (Stats SA, 2021). However, as compared to the LFS, the QLFS does not have questions on agricultural activities and uncompensated activities in the past 12 months. These include questions such as the growing of crops, or animals for sale and household use, and the reasons for growing farm produce or keeping of stock by households.

3.4 Limitations

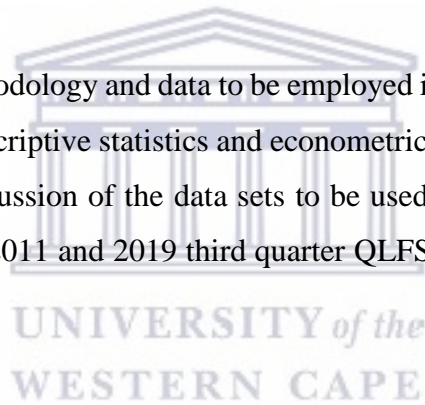
The study will not utilise labour data from the year 2020 in its empirical analysis, although QLFS 2020-2021 data were available at the time of writing, since the labour market outcomes of the 2020 data are quite different than other years due to COVID-19-driven lockdown. To investigate what happened to the South African labour market since 2020, a separate study of its own needs to be conducted. In fact, to investigate labour market outcomes since the start of the COVID-19

pandemic, the National Income Dynamics Study – Coronavirus Rapid Mobile Survey (NIDS-CRAM) is most likely a more suitable data source.

Furthermore, it is impossible to analyse every single OHS/LFS/QLFS from 1995 to 2019 in detail, thus this research will only focus on four waves of data (1995 OHS, 2003 LFS, 2011 QLFS and 2019 QLFS) – with an 8-year gap between these data sources. Lastly, the OHS 1995-1999 wage data is relatively inferior in quality, and not entirely comparable with the LFS and QLFS wage data. Therefore, the forthcoming empirical findings relating to earnings and wages need to be interpreted with some caution. Yu (2007 and 2009) further unpacks the earnings data comparability issues across the three labour surveys (OHSs, LFSs and QLFSs), but it will not be discussed further since it falls beyond the scope of this study.

3.5 Conclusion

Chapter Four discussed the methodology and data to be employed in this study. Firstly, the chapter presented a discussion of the descriptive statistics and econometric analysis to be employed by the study. It was followed by a discussion of the data sets to be used in the study, namely the 1995 OHS, the 2003 LFS, as well as 2011 and 2019 third quarter QLFS data. Lastly, the limitations of the study were explained.



CHAPTER FOUR: EMPIRICAL FINDINGS

4.1 Introduction

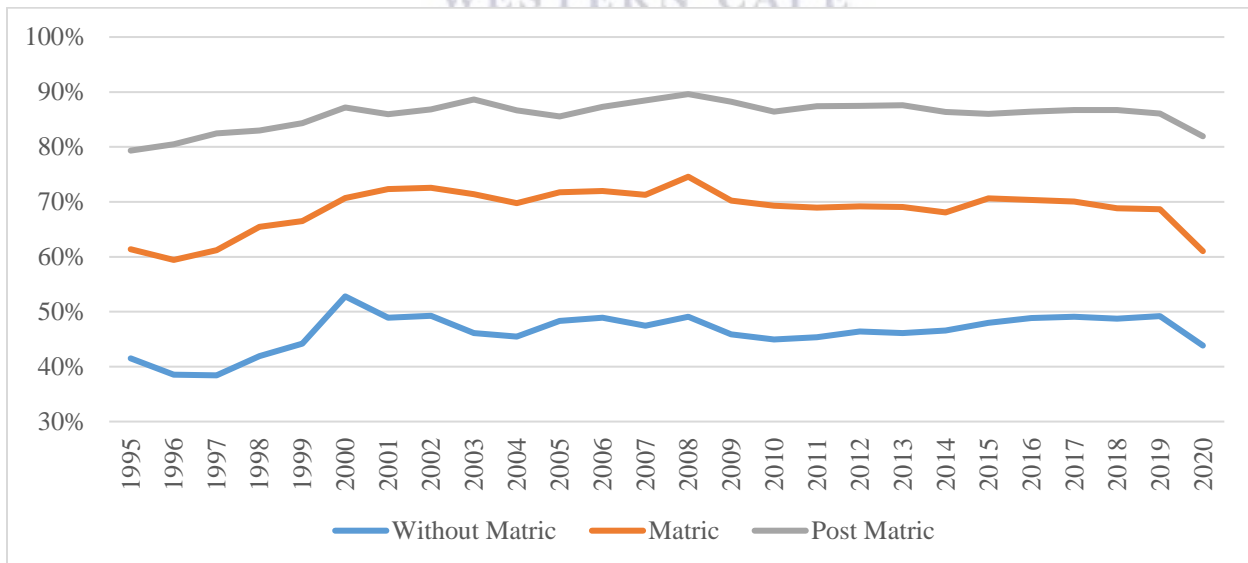
Chapter Four presents the empirical findings by using the earlier mentioned four waves of labour survey data to examine the relationship between educational attainment and labour market outcomes. Section 4.2 presents the descriptive statistics of the variables of interest, Section 4.3 discusses the results of the econometric analysis, before Section 4.4 concludes the chapter. As explained clearly in Chapter Three, the focus is on three groups: Group [A]: Without Matric; Group [B]: With Matric; Group [C]: With post-Matric qualifications.

4.2 Descriptive statistics

4.2.1 General labour market trends, 1995-2020

Figure 5 illustrates the labour force participation rate (LFPR) in terms of educational attainment between 1995 and 2020. The most-educated group [C] enjoyed the highest LFPR amongst the three groups, with the LFPR ranging between 79% and 90%. The Group [B] LFPR ranged between 59% and 75%, while the group [A] LFPR was as low as 38% and as high as 53%. Overall, the LFPR trends remained similar for all three groups, as the rates increased from 1995 until 2000.

Figure 5: Labour force participation rates by educational attainment (%), 1995-2020

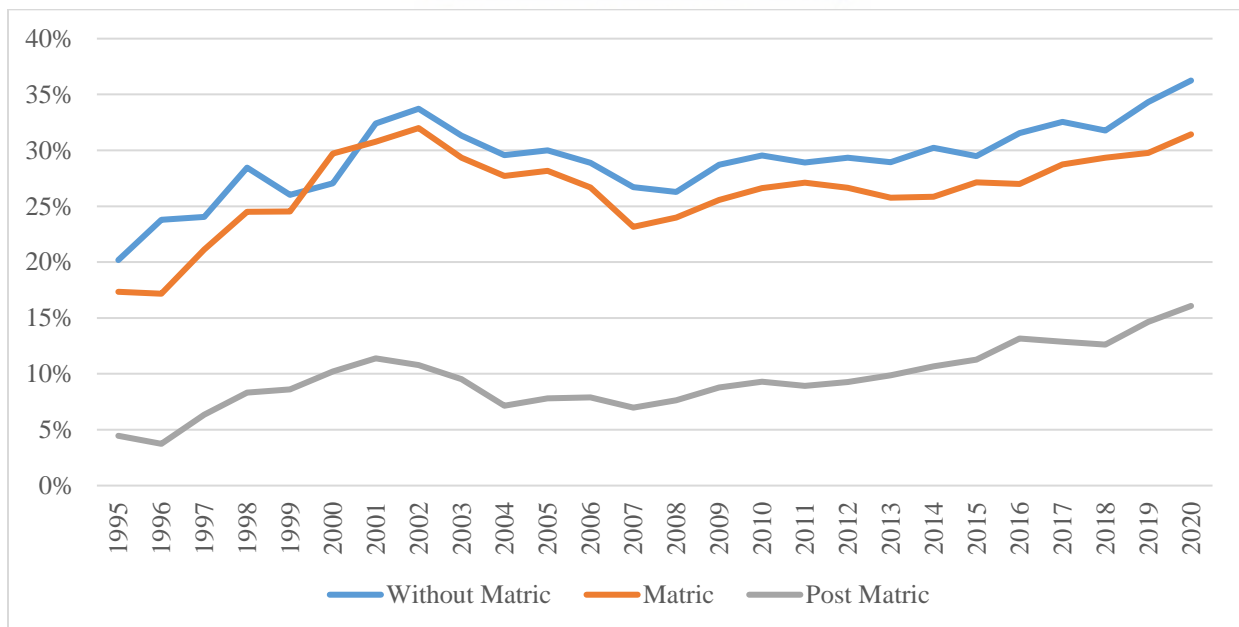


Source: Own calculations using the OHS1995-1999, LFS2000-2007 and QLFS2008-2020 data.

Furthermore, both Group [B] and [C] recorded a peak in LFPR in 2008, Group [B] peaked at 75% and Group [C] at 90%, while Group [A] peaked at 53% in the year 2000. From 2009 to 2020, all three group's rates fluctuated, and significantly declined in 2020 due to the effects of the COVID-19 pandemic and lockdowns on the movement of labour. Overall, the trends clearly depict that higher educational attainment was associated with greater LFPR, as seen with Group [C]'s higher LFPR and lower LFPR for Group [A].

The disparities amongst the three groups are also shown clearly in Figure 6 below. The most educated Group [C] experienced the lowest unemployment rates as compared to the other two groups. In addition, the unemployment rate for this group ranged between 4% and 16% during the 1995-2020 period and was about 20 percentage points lower than the other two groups. Group [B]'s curves is placed very close to [A]'s throughout the review period, with Group [B]'s rate ranging from 17%-32% over the period, while Group [A]'s was around 20%-36%. The biggest difference between [B]'s and [A]'s unemployment rate was only about seven percentage points. In fact, in 2000, Group [B]'s unemployment rate (of 30%) was higher than [A]'s.

Figure 6: Unemployment rates by education attainment (%), 1995-2020



Source: Own calculations using the OHS1995-1999, LFS2000-2007 and QLFS2008-2020 data.

Nevertheless, the unemployment rate trends remained similar for the three groups, with lower rates observed in 1995, before they increased in 1996 to peak around the early 2000s. Between 2002 and 2007 the unemployment rates decreased and rose again in 2008 which can be attributed to the 2008 global economic crisis. From 2009 to 2020, the rates fluctuated and were unsurprisingly the highest in 2020 due to COVID-19. Overall, the unemployment trend shows that lower educational attainment experienced higher unemployment rates, whereas higher educational attainment experienced lower. Also notable, between 1995 and 2019, the unemployment rate increased for all groups, increasing by 12 percentage points for [C], 14 percentage points for [B] and 16 percentage points for [A].

4.2.2 Labour force

The demographic and geographical characteristics of the labour force in each educational attainment cohort are presented in Table 2 below. Males have always represented a greater gender share of the labour force than females, except for years 2011 and 2019 in Group [C] where the female share was slightly higher than the male share. Furthermore, Africans were dominant in Group [A] and Group [B] (but not as dominant as in Group [A]). While for Group [C] despite still being dominant, the African share was lower than for Group [A] and Group [B]. This result is not surprising as the White share was relatively greater in Group [C].

When considering age, it is not unexpected that it was 25-34-year-olds who were likely to be a part of the labour force in all three groups, given that at this age, young people are more likely to be available and capable of entering the labour force. This age group was more prevalent in Group [B] and Group [C] between 1995 and 2003, although between 2011 and 2019, this age group's share declined, and it was the 35-44-year-olds who began to show dominance. Geographically, Gauteng accounted for higher labour force shares, followed by KwaZulu-Natal and the Western Cape; these are the main centers of economic activity in South Africa. By area type, the expected urban share of labour force was much more prevalent across all groups, however more prevalent in Group [B] and [C] (about 80%).

Table 2: Profile of labour force in each educational attainment cohort (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
Gender												
Male	59.1	56.4	56.8	57.1	57.4	55.2	55.1	54.2	55.5	50.5	49.2	48.3
Female	40.9	43.6	43.2	42.9	42.6	44.8	44.9	45.8	44.6	49.5	50.8	51.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Race												
African	77.6	83.1	83.9	86.4	50.0	60.5	69.1	75.4	47.2	46.9	56.2	65.2
Coloured	14.2	11.6	11.8	10.8	8.4	10.1	10.7	9.9	6.0	5.8	7.4	6.7
Indian	2.3	1.8	1.3	1.1	6.6	6.0	4.3	4.0	4.5	4.8	5.2	4.4
White	6.0	3.5	3.1	1.8	34.9	23.5	15.9	10.7	42.4	42.4	31.2	23.7
Unspecified	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Birth Cohort												
15-24 years	13.8	16.7	13.4	10.3	23.8	23.5	19.1	16.1	9.1	7.3	5.2	5.9
25-34 years	32.1	30.4	31.2	31.5	42.1	45.4	39.5	34.9	42.2	40.8	34.1	30.9
35-44 years	29.8	25.8	27.8	28.4	21.5	19.3	25.6	28.8	29.7	28.8	31.6	30.8
45-54 years	17.2	19.1	20.1	20.5	9.5	8.3	11.6	15.6	13.6	17.0	20.2	22.8
55-64 years	7.1	8.0	7.6	9.3	3.2	3.5	4.2	4.6	5.4	6.1	8.9	9.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Province												
Western Cape	14.1	12.4	14.2	13.9	12.3	13.1	15.5	13.4	14.5	15.0	13.6	13.8
Eastern Cape	11.1	13.2	9.8	11.9	8.6	8.2	8.7	7.7	11.2	8.3	8.0	7.3
Northern Cape	2.7	2.2	2.4	2.4	1.5	1.6	1.7	1.7	1.4	1.4	1.8	1.6
Free State	8.6	7.7	6.4	6.3	5.0	6.5	5.5	4.5	6.1	6.3	4.8	4.1
KwaZulu-Natal	18.0	19.5	15.9	15.5	22.0	21.2	16.8	17.4	16.5	15.5	14.2	13.4
North West	8.7	8.3	5.9	6.3	6.8	6.8	5.9	6.0	5.3	5.6	4.7	4.5
Gauteng	23.6	21.5	29.1	26.0	34.6	31.7	34.7	35.5	33.0	34.4	41.1	39.6
Mpumalanga	6.8	7.4	8.0	8.7	4.9	6.2	7.4	8.0	3.5	5.0	5.5	7.4
Limpopo	6.4	8.1	8.4	9.1	4.2	4.8	4.8	5.7	8.4	8.4	6.3	8.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Area type												
Urban	57.5	58.6	72.5	68.3	81.9	80.5	83.5	80.5	82.4	83.6	87.5	83.9
Rural	42.5	41.4	27.5	31.7	18.2	19.5	16.6	19.5	17.6	16.4	12.5	16.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Education												
None	12.1	8.7	4.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incomplete primary	25.5	23.9	15.9	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incomplete secondary	62.4	67.4	79.3	84.8	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
Matric	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.
Matric + Cert./Dip.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.3	58.7	62.3	50.3
Degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7	41.3	37.7	49.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean (years)	6.8	7.2	8.3	8.8	12.0	12.0	12.0	12.0	13.6	14.0	14.0	14.2

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and QLFS 2019 data.

4.2.3 Employed

Table 3 shows the characteristics of the employed in each educational cohort for the years 1995-2020. Similar to the labour force profile, once again, males represented a greater gender share of employment, except for 2011 and 2019 in Group [C] where the female share was slightly higher. The African employment share was higher in Group [A] and Group [B] (not as large as in group [A]), although for Group [C] despite still being higher, the African share was lower than in groups [A] and [B]. Again, the White share was relatively greater in group [C] and the share (41.6%) surpassed the African share (42.8%) for this group in 2003.

People aged 25-34 years represented the highest share of employed in groups [B] and [C] (also in [C] but not higher than 35-44-year-olds share), showing that educated youth are able to find jobs but this drives inequality between the educated and uneducated youth (shown in high unemployment levels among this group). While the 35-44 years cohort's share was rather most dominant in group [A]. Geographically, Gauteng, KwaZulu-Natal and the Western Cape had the highest share of employment for all three groups.

Furthermore, in 2019, the share of employment in these provinces constituted more than half of Group [A]'s total employment (56%), and more than 65% share of Group [B] and [C]'s respective total employment. In addition, urban areas have always accounted for a higher share of employment across all three groups and in particular to Groups [B] and [C].

Table 3: Profile of employed in each educational attainment cohort (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
Gender												
Male	62.5	59.2	58.9	58.6	60.2	58.9	57.2	56.0	55.8	51.4	49.7	49.0
Female	37.5	40.8	41.1	41.4	39.9	41.1	42.8	44.0	44.2	48.6	50.3	51.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Race												
African	75.9	80.6	82.9	84.7	43.5	50.0	62.7	70.4	45.9	42.8	53.9	61.1
Coloured	14.8	12.9	11.9	11.9	8.6	11.7	11.5	10.7	5.9	5.9	7.5	7.2
Indian	2.5	1.9	1.4	1.4	7.1	7.1	5.3	4.8	4.4	5.0	5.4	4.7
White	6.9	4.6	3.8	2.0	40.8	31.3	20.5	14.1	43.8	46.1	33.2	26.9
Unspecified	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age Cohort												
15-24 years	10.3	10.0	9.0	5.9	18.8	15.4	12.6	9.8	8.2	5.6	3.6	3.8
25-34 years	30.3	27.8	27.9	27.3	42.1	45.7	38.5	32.9	41.5	39.0	32.5	27.9
35-44 years	31.9	28.6	29.5	30.5	24.3	23.5	29.1	32.4	30.8	30.6	33.0	32.6
45-54 years	19.2	23.2	23.7	24.1	10.8	10.9	14.4	18.8	14.1	18.3	21.5	25.1
55-64 years	8.3	10.5	9.9	12.3	4.6	4.3	5.5	6.1	5.4	6.5	9.5	10.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Province												
Western Cape	14.7	13.7	13.9	15.1	13.4	15.3	16.1	15.1	14.3	16.0	14.1	15.4
Eastern Cape	10.0	12.6	9.5	10.6	7.9	8.0	8.6	7.1	11.4	8.2	8.2	7.1
Northern Cape	2.7	2.3	2.3	2.4	1.5	1.7	1.7	1.7	1.5	1.4	1.7	1.7
Free State	9.3	7.9	6.5	5.7	5.3	6.2	5.4	4.1	6.2	6.2	4.8	4.3
KwaZulu-Natal	17.3	18.5	18.2	17.1	21.0	20.0	17.8	17.9	16.5	15.6	14.4	12.9
North West	8.9	8.8	5.7	6.6	6.6	6.0	5.3	5.7	5.4	5.2	4.9	4.2
Gauteng	23.7	20.5	26.3	23.8	36.0	32.4	34.0	34.8	33.1	35.2	40.7	39.4
Mpumalanga	7.1	7.6	8.1	8.0	4.8	6.3	6.4	7.3	3.6	5.1	5.3	6.8
Limpopo	6.2	8.1	9.7	10.8	6.7	4.2	4.9	6.3	8.2	7.2	6.0	8.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Area type												
Urban	56.7	56.2	70.7	67.0	84.4	83.4	86.0	82.5	82.6	85.1	88.4	85.6
Rural	43.4	43.8	29.3	33.0	15.6	16.7	14.0	17.5	17.4	14.9	11.6	14.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Education												
None	12.9	10.4	5.6	4.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0
Incomplete primary	25.7	25.6	17.7	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incomplete secondary	61.5	64.1	76.8	82.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Matric	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0
Matric + Cert./Dip.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.6	56.1	60.3	47.6
Degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.4	43.9	39.7	52.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean (years)	6.7	7.0	8.1	8.6	12.0	12.0	12.0	12.0	13.7	14.0	14.1	14.3

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and QLFS 2019 data.

4.2.4 Work activities of the employed

Turning to the work activities of the employed within the three groups (see Table 4 below). As expected, in terms of skills, greater shares of the unskilled were within the least educated Group [A], while greater shares of the semi-skilled were in Group [B] and the skilled in the most educated Group [C]. Per se, unskilled occupations such as elementary and domestic work held greater shares in Group [A]. Semi-skilled occupations such as clerks, services and sales, and craft had greater shares in Group [B]. For the most educated Group [C], a relatively greater share of the employed was involved in the high skilled occupations (technicians, professionals).

At industry level, Group [A] predominately featured in agriculture (in 1995) as well as wholesale and retail trade (2003 and 2019). For Group [B], it was the community, personal and social services (CPS) industry between 1995 and 2003, until the wholesale and retail services took over from 2011 to 2019. Further, the CPS industry was also dominant within Group [C]; however, its share declined from 56.1% in 1995 to 45.2% in 2019. This gap was filled by the finance industry, which had a share increase of 10 percentage points, from 11.7% in 1995 to 22.6% in 2019. Moreover, the formal sector has always been dominant among all three groups, and more dominant in Group [C], with a share exceeding 90%.

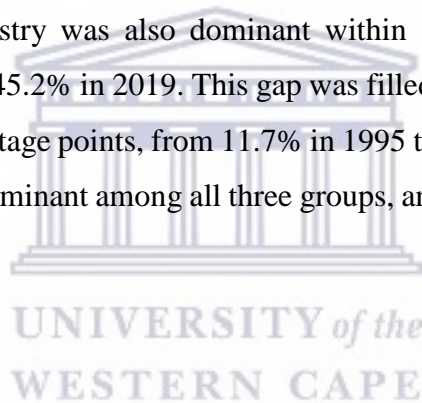


Table 4: Work activities of employed in each educational attainment cohort (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
Occupation												
Managers	3.0	2.4	2.9	2.9	8.5	10.8	10.3	9.9	10.5	18.6	19.5	19.5
Professionals	0.1	0.4	0.7	0.1	0.6	2.0	4.0	1.3	23.1	25.3	20.9	25.1
Technicians	2.6	3.3	3.8	2.0	16.8	12.6	10.9	7.5	40.5	31.0	28.2	23.5
Clerks	6.8	4.6	4.4	3.4	28	21.6	18.9	18.5	10.1	10.3	14.2	12.5
Services and sales	10.8	10.4	14.3	16.4	16.9	18.3	20.2	23.2	5.4	6.6	7.8	8.7
Skilled Agri.	0.9	4.3	0.6	0.6	1.7	1.2	0.4	0.2	1.7	1.3	0.3	0.3
Craft	13.4	15.9	16.9	14.8	11.8	11.4	10.1	11.8	4.8	3.6	4.7	5.0
Operators	15.2	13.4	10.3	10.5	7.7	7.9	9.2	9.1	2.3	1.5	2.2	2.1
Elementary	36.2	32.8	34.0	38.0	7.2	11.7	13.7	15.2	1.4	1.7	2.2	3.1
Domestic workers	11.2	12.4	12.2	11.3	0.9	2.6	2.3	3.4	0.1	0.2	0.2	1.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Skills level												
Unskilled	47.4	45.2	46.2	49.4	8.1	14.2	16.0	18.6	1.5	1.8	2.3	3.2
Semi-skilled	47.0	48.8	46.4	45.6	66.1	60.4	58.8	62.8	24.4	23.2	29.1	28.6
Skilled	5.6	6.0	7.4	5.0	25.8	25.4	25.2	18.7	74.1	75.0	68.5	68.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Industry												
Agriculture	19.3	16.1	7.9	9.7	3.1	3.5	1.7	2.2	2.3	3.0	0.9	1.2
Mining	5.6	6.2	2.4	2.5	4.1	3.6	2.7	3.2	1.8	2.0	2.0	1.7
Manufacturing	16.3	13.4	13.5	10.2	16.7	16.2	14.8	13.1	9.7	10.3	9.2	8.1
Utilities	0.7	0.6	0.4	0.4	1.3	0.9	0.6	0.8	1.1	1.4	0.9	1.8
Construction	5.7	8.1	11.4	11.2	3.1	3.5	5.8	6.8	3.2	1.7	3.2	3.8
Wholesale/Retail	17.9	21.7	23.8	22	22.9	15.3	27.9	25.8	9.8	9.8	11.1	10.3
Transport	5	4.1	5.3	5.7	5.9	6.6	7.1	7.1	4.2	3.8	4.5	4.9
Finance	2.9	4.7	8.3	10.5	12.3	15.3	16.5	17.1	11.7	17.9	21	22.6
CSP services	13.5	10	11.9	13.5	29.5	20.4	19.9	19.9	56.1	49.8	47	45.2
Private household	13	15.1	15.1	14.3	1.1	2.9	2.8	3.9	0.2	0.3	0.3	0.2
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sector												
Primary	25.0	22.3	10.3	12.2	7.2	7.1	4.4	5.4	4.1	5.0	2.9	2.9
Secondary	22.7	22.1	25.3	21.8	21.1	20.6	21.2	20.7	14	13.4	13.3	13.7
Tertiary	52.3	55.6	64.4	66.0	71.7	60.5	74.2	73.8	82.0	81.6	84.0	83.3
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Formal/Informal												
Informal (Excl. Agriculture)	6.2	23.2	22.9	26.1	4.3	10.2	12.1	15.2	4.2	4.3	4.6	6.5
Formal (Excl. Agriculture)	0.8	47.9	54.0	50.0	3.7	83.5	83.4	78.6	6.6	92.3	94.3	92.1
Subsistence Agri.	0.4	5.1	1.1	1.6	0.2	1	0.2	0.3	0.1	0.2	0.1	0.2
Commercial Agri.	0.1	10.8	6.9	8.1	1.2	2.4	1.5	1.9	1.4	2.8	0.8	1.1
Private households	11.2	12.4	15.1	14.3	0.9	2.6	2.8	3.9	0.1	0.2	0.3	0.2
Don't know	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0
Unspecified	81.3	0.2	0.0	0.0	89.7	0.1	0.0	0.0	87.7	0.1	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculation based on the OHS1995-1999, LFS2000-2007, QLFS2008-2020

4.2.5 Unemployed

Table 5 illustrates the profile of the unemployed by educational attainment between 1995 and 2019. In all groups, females, Africans and individuals between the ages of 25-34 years have the highest unemployment shares. For Group [A] however, the male share was slightly higher than the female share between 2003 and 2019. Africans have always had greater unemployment shares, mainly in Group [A] and Group [B] and increased for both groups between 1995 and 2019.

For results by province, Gauteng has the highest share of unemployed across all three groups and in particular to Group [B] and [C]. The same for KwaZulu-Natal and particularly, for Group [A] for the period between 1995 and 2003, although not higher than Gauteng. Also, with higher unemployment shares for Group [A] were the Western Cape and Eastern Cape (although not higher than KZN), from 2011 and 2019 for the Western Cape and between 1995, and 2003 for the Eastern Cape. Limpopo showed higher unemployment shares for Group [C], at 20.0% in 2003. Further, urban areas have always had the highest share on the unemployed as compared to rural areas, although the rural unemployment share increased between 2011 (21.6%) and 2019 (26.0%) for Group [C].

The other aspect of unemployment investigated is the length of time that unemployed individuals have been without work. Table 6 presents the share of the unemployed who have worked before and those who have never worked, as well as the duration of seeking work. It is noticeable that a substantial proportion of the unemployed among the three groups has never had a job, generally. This is particularly true of Group [B] with larger shares between 1995 and 2003.

Furthermore, greater proportions of the unemployed among all the groups have been without work for relatively longer periods of time (more than three years). In particular, this was prevalent for the less educated groups, being [A] and [B], implying that chronic long-term unemployment is associated with low educational attainment.

Table 5: Profile of unemployed in each educational attainment cohort (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
Gender												
Male	45.7	50.4	51.7	54.3	44.2	46.3	49.4	49.9	47.7	41.6	43.4	44.1
Female	54.2	49.6	48.3	45.7	55.8	53.7	50.6	50.1	52.4	58.4	56.5	55.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Race												
African	84.5	88.5	86.3	89.6	81.2	85.8	86.3	87.3	73.5	85.7	79.9	88.6
Coloured	11.8	8.9	11.6	8.6	7.5	6.1	8.5	7.9	8.2	4.1	6.3	3.3
Indian	1.3	1.4	0.9	0.5	4.3	3.2	1.7	2.0	5.2	2.6	2.8	2.6
White	2.5	1.2	1.3	1.4	6.9	4.8	3.6	2.8	13.1	7.5	11.0	5.4
Unspecified	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age Cohort												
15-24 years	27.5	31.4	24.0	18.8	47.5	43.1	36.7	31.0	28.4	23.8	21.4	17.9
25-34 years	39.4	36.2	39.3	40.0	41.9	44.9	42.0	39.5	57.5	57.2	51.3	48.4
35-44 years	21.5	19.6	23.6	24.4	7.8	9.1	16.3	20.3	4.9	12.0	17.4	22.2
45-54 years	9.1	10.1	11.0	13.6	2.3	2.3	4.2	8.1	4.0	5.0	7.1	9.5
55-64 years	2.5	2.7	2.1	3.6	0.4	0.6	0.8	1.2	5.3	2.0	2.8	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Province												
Western Cape	11.5	9.7	14.8	11.4	7.1	7.9	10.4	9.4	19.2	6.1	9.0	4.6
Eastern Cape	15.6	14.5	10.6	14.4	11.8	8.7	9.1	9.0	8.5	10.0	6.0	8.7
Northern Cape	3.1	2.1	2.8	2.4	1.7	1.5	1.9	1.8	0.3	2.0	5.6	0.7
Free State	5.6	7.3	6.0	7.3	3.8	7.1	5.7	5.4	5.6	6.6	4.8	3.0
KwaZulu-Natal	20.8	21.5	10.6	12.3	27.0	24.1	14.0	16.2	17.0	14.6	11.9	16.0
North West	7.9	21.5	6.2	5.9	7.9	8.5	7.5	6.9	2.4	8.9	3.5	5.9
Gauteng	23.0	23.6	36.0	30.3	28.0	29.8	36.6	37.3	32.0	27.2	45.8	40.4
Mpumalanga	5.8	6.0	7.9	10.0	5.6	6.0	10.2	9.8	2.7	4.6	7.8	10.5
Limpopo	6.9	8.1	5.3	6.0	6.9	6.4	4.5	4.3	12.4	20.0	8.8	10.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Area type												
Urban	61.1	63.8	77.0	70.9	69.9	73.6	76.6	75.7	78.3	69.6	78.4	73.9
Rural	38.9	36.2	23.0	29.1	30.1	26.3	23.4	24.3	21.7	30.4	21.6	26.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Education												
None	9.3	4.9	3.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incomplete primary	24.7	20.4	11.4	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incomplete secondary	66.0	74.7	85.4	88.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Matric	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0
Matric + Cert./Dip.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.6	83.2	82.6	66.4
Degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	16.8	17.4	33.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mean (years)	7.2	7.8	8.8	9.1	12.0	12.0	12.0	12.0	13.4	13.4	13.4	13.8

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and QLFS 2019 data.

Table 6: Other characteristics of unemployed in each educational attainment cohort (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
Ever worked												
Yes	41.0	44.0	61.3	67.7	23.5	29.5	46.6	54.5	30.4	39.4	60.2	58.8
No	59.0	56.0	38.7	32.4	76.5	70.4	53.4	45.5	69.6	60.6	39.9	41.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Duration of seeking work												
1-6 months	16.0	24.2	9.5	18.8	17.3	25.1	14.7	15.2	20.3	20.2	21.6	18.9
7-12 months	17.0	12.3	6.5	9.6	22.3	11.8	17.7	13.0	24.6	11.4	18.3	13.8
1-3 years	29.8	24.8	21.0	18.4	37.9	29.8	28.1	23.7	30.5	32.1	30.4	26.4
3+ years	37.2	38.6	32.6	52.2	22.5	33.3	39.2	47.6	24.5	36.3	29.2	40.3
Don't know	0.0	0.0	0.2	0.7	0.0	0.0	0.2	0.5	0.0	0.0	0.5	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own calculation based on the OHS1995-1999, LFS2000-2007, QLFS2008-2020

4.2.6 Unemployment rates

Table 7 presents the unemployment rates by demographic and geographic characteristics in each educational attainment cohort between 1995 and 2019. In all three groups, unemployment rates increased consistently throughout the period under review. It is most noticeable that Group [A] experienced the highest unemployment rates, while Group [C] enjoyed the lowest. Group [A]'s unemployment rate increased by 14.1 percentage points between 1995 (20.2%) and 2019 (34.3%), while Group [C] had the lowest increase of 10.1 percentage points.

Females have always had higher unemployment rates than males across all groups. Consistent with the profile of the unemployed, Africans have always faced higher unemployment rates and Whites lower rates, although the White's rate increased continuously across all groups. By age, 15-24-year-olds experienced the highest unemployment rates, while ages between 45-64-year-olds enjoyed the lowest rates. When looking at provinces, all other provinces except the Western Cape had higher unemployment rates in Group [A] and Group [B]; and Group [C] saw the lowest unemployment rates across all provinces, and even lower rates in the Western Cape. Unemployment rates were the highest in urban areas for Group [A], while the highest in rural areas for both Group [B] and Group [C].

Table 7: Unemployment rates by personal characteristics in each educational attainment (%)

	[A]: Without Matric				[B]: Matric only				[C]: Post-Matric			
	1995	2003	2011	2019	1995	2003	2011	2019	1995	2003	2011	2019
All												
All	20.2	31.3	28.9	34.3	17.3	29.3	27.1	29.8	4.5	9.5	8.9	14.6
Gender												
Male	15.6	28.0	26.3	32.6	13.3	24.6	24.3	27.4	3.8	7.9	7.9	13.4
Female	26.8	35.6	32.3	36.6	22.7	35.2	30.5	32.6	5.2	11.2	9.9	15.8
Race												
African	22.0	33.4	29.7	35.6	28.1	41.7	33.9	34.5	7.0	17.4	12.7	19.9
Coloured	16.8	24.0	28.3	27.3	15.5	17.9	21.5	23.8	6.1	6.8	7.5	7.3
Indian	11.4	24.2	19.8	16.6	11.4	15.8	10.4	15.1	5.2	5.2	4.8	8.6
White	8.3	10.6	12.3	26.7	3.4	5.9	6.1	7.7	1.4	1.7	3.2	3.3
Age Cohort												
15-24 years	40.3	58.8	52.1	62.6	34.6	53.7	52.1	57.2	14.0	31.0	36.7	44.5
25-34 years	24.8	37.2	36.4	43.2	17.3	29.0	28.9	33.7	6.7	13.4	13.4	22.9
35-44 years	14.6	23.9	24.5	29.5	6.3	13.9	17.3	21.0	0.7	4.0	4.9	10.6
45-54 years	10.7	16.5	15.9	22.8	4.3	8.0	9.8	15.5	1.3	2.8	3.1	7.0
55-64 years	7.0	10.5	7.9	13.1	2.4	5.3	4.9	7.8	4.3	3.1	2.8	3.0
Province												
Western Cape	16.4	24.5	30.2	28.3	10.0	17.7	19.4	20.9	5.9	3.9	5.9	4.9
Eastern Cape	28.4	34.6	31.4	41.6	24.0	31.2	28.3	34.8	3.4	11.4	6.7	17.5
Northern Cape	22.5	28.4	31.0	34.8	19.3	26.3	30.0	31.1	1.0	13.4	12.5	6.7
Free State	13.3	29.6	27.1	39.9	13.2	32.2	28.2	35.5	4.0	10.1	8.9	10.5
KwaZulu-Natal	23.3	34.6	19.3	27.3	21.3	33.4	22.7	27.6	4.6	9.0	7.5	17.5
North West	18.2	27.3	30.6	31.9	20.2	36.8	34.7	34.1	2.0	15.2	6.6	19.5
Gauteng	19.7	34.4	35.7	40.0	14.0	27.7	28.6	31.3	4.3	7.5	9.9	14.9
Mpumalanga	17.0	26.5	28.4	39.6	19.7	28.4	37.4	36.3	3.4	8.7	12.5	21.0
Limpopo	21.8	31.2	18.2	22.7	28.3	38.5	25.5	22.5	6.5	22.7	12.5	17.6
Area type												
Urban	21.4	34.1	30.7	35.1	14.8	26.8	24.89	28.0	4.2	7.9	8.0	12.9
Rural	18.5	27.4	24.2	31.6	28.8	39.7	38.3	37.1	5.5	17.7	15.4	23.7

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and QLFS 2019 data.

The unemployment rates in each detailed educational attainment category are shown in Table 8 below. The results show that the unemployment rates increased for each detailed education cohort between 1995 and 2019. In addition, incomplete secondary recorded the highest increase of 14.7 percentage points among all the categories. Moreover, Group [A] has always had the highest unemployment rates, while Group [C] has always had the lowest, and in particular, the degree qualification. It is also worth noting that, while all other education level's unemployment rates fluctuated over the period, the unemployment rates for the no-education category increased consistently throughout period.

Table 8: Unemployment rates in each detailed educational attainment category (%)

		1995	2003	2011	2019	Difference: 1995-2019 (percentage points)
[A]: Without Matric	None	15.5	17.8	18.8	19.6	4.1
	Incomplete primary	20.0	26.6	20.8	26.8	6.8
	Incomplete secondary	21.3	34.7	31.1	36.0	14.7
[B]: Matric	Matric	17.3	29.3	27.1	29.8	12.5
[C]: Post-Matric	Matric + Cert./Dip.	5.4	13.5	11.8	19.3	13.9
	Degree	2.5	3.9	4.1	9.9	7.4

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and QLFS 2019 data.

Furthermore, by 2019, the general pattern is still what one expected (i.e., having post-Matric qualification is associated with lower unemployment rate). Secondly, the difference column shows that unemployment rate increased between 1995 and 2019 in all detailed educational attainment categories. This is not surprising because of various possible reasons, including rapid increases of labour force but not enough employment to absorb the new labour force participants; including slow growth in South Africa's economic output, which also slowed down in the later years of the 2010s decade. The 'difference' column alarmingly shows that the increase of unemployment rate of 'Matric + Certificate/Diploma' (13.9 percentage points) category is actually quite high, and actually close to the 'difference' of incomplete secondary (14.7). These results suggest that there is a narrowing in the gap between the outcomes of those with Matric and those without matric. This means that those with matric are becoming to be just st as likely as those without matric in terms of struggling to find employment. Thus, raising questions about how employers perceive the quality of Matric (Van der Berg et al., 2011) and maybe suggesting that the quality of education is indeed a problem as discussed in Moses (2011). Or else, the results could be pointing to the issue of rising unemployment in South Africa (Fedderke, 2012). These results thus point to the need for serious and urgent interventions towards unemployment. Additionally, even the most educated category (degrees) suffers a 7.4 percentage point increase of unemployment rate. In fact, it is worrying that in 2019, one out of 10 university graduates were unemployed.

4.2.7 Other findings

Table 9 provides the target growth rates (TGR), actual growth rates (AGR) and employment absorption rates (EAR) (%) in each educational attainment category, for selected periods. For the period between 1995 and 2019, none of the groups' actual employment increased more than their targeted rates, all three groups did not reach their targeted rates. The employment absorption rate was the highest in Group [C] (80.2%), meaning eight out of 10 jobseekers in the labour market were able to find employment successfully, but this rate was only 64.1% in Group [B] and even lower at 35.7% in group [A]. The reason for the low absorption rate was that the actual growth rate was lower to absorb the huge number of entrants to the labour market.

Table 9: Target growth rates, actual growth rates and employment absorption rates (%) in each educational attainment category, selected periods

	[A]: Without Matric			[B]: Matric only			[C]: Post-Matric		
	TGR	AGR	EAR	TGR	AGR	EAR	TGR	AGR	EAR
1995-2003	32.1	8.1	25.2	85.7	46.1	53.7	45.0	35.4	78.7
2003-2011	5.9	7.7	130.3	45.4	36.3	79.9	60.4	55.7	92.2
2011-2019	17.8	4.0	22.7	47.9	30.0	62.6	37.5	25.7	68.6
1995-2019	59.1	21.1	35.7	247.5	158.8	64.1	205.9	165.1	80.2

Source: Own calculation based on the OHS1995-1999, LFS2000-2007, QLFS2008-2020

The 1995–2003 period presented lower absorption rates for all groups, although slightly higher for Group [C]. This might be attributed to high unemployment levels, as the economy was transitioning from apartheid to reconstruction. The 2003 to 2011 period was the best for all three groups, as the EAR was at its highest in all three groups, compared with 1995-2003. This positive trend in the EAR soon slowed down, as the period 2011-2019 registered even lower absorption rates and much lower for Group [A]. The boom period post-apartheid had come to an end, signaling an economic downturn.

4.2.8 Remuneration

Table 10 provides estimates on mean and median hourly wage in 2021 December prices. Both the mean and median hourly wage for the three groups decreased between 1995 and 2019, with the highest decrease in mean hourly wage, 41.2% faced by Group [B], followed by Group [C] (14.5%) and Group [A] (13.3%). This decrease can be attributed to the stagnant growth that characterised

the South African economy between 2015-2019, where the economy grew at 1 per cent and less per year during this period. However, the earnings data comparability issue (as discussed in the limitations section of Chapter Three) should always be kept in mind as well.

In addition, Table 10 shows that Group [C] fared well, having always enjoyed much higher mean and median hourly wage compared to Group [A] and Group [B]. In turn, Group [B] had a higher mean and median hourly wage compared to Group [A]. Group [C] earned a (mean) hourly wage 119.0% higher than Group [B] in 2019 and a wage 225.5% higher than Group [A] in the same year, whereas [B]'s mean earnings were 48.6% higher than [A]'s in the same period.

Table 10: Mean and median hourly wage in 2021 December prices by educational attainment, selected years (Rands)

	1995	2003	2011	2019
Mean				
[A]: Without Matric	37.5	21.7	30.6	32.5
[B]: Matric only	82.1	53.8	56.6	48.3
[C]: Post-Matric	123.8	106.5	122.8	105.8
Median				
[A]: Without Matric	24.6	13.3	16.9	18.4
[B]: Matric only	62.8	39.0	34.2	25.5
[C]: Post-Matric	100.4	87.9	104.0	70.2

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and 2019 data.

Table 11: Mean and median monthly earnings in 2021 December prices by educational attainment, selected years (Rands)

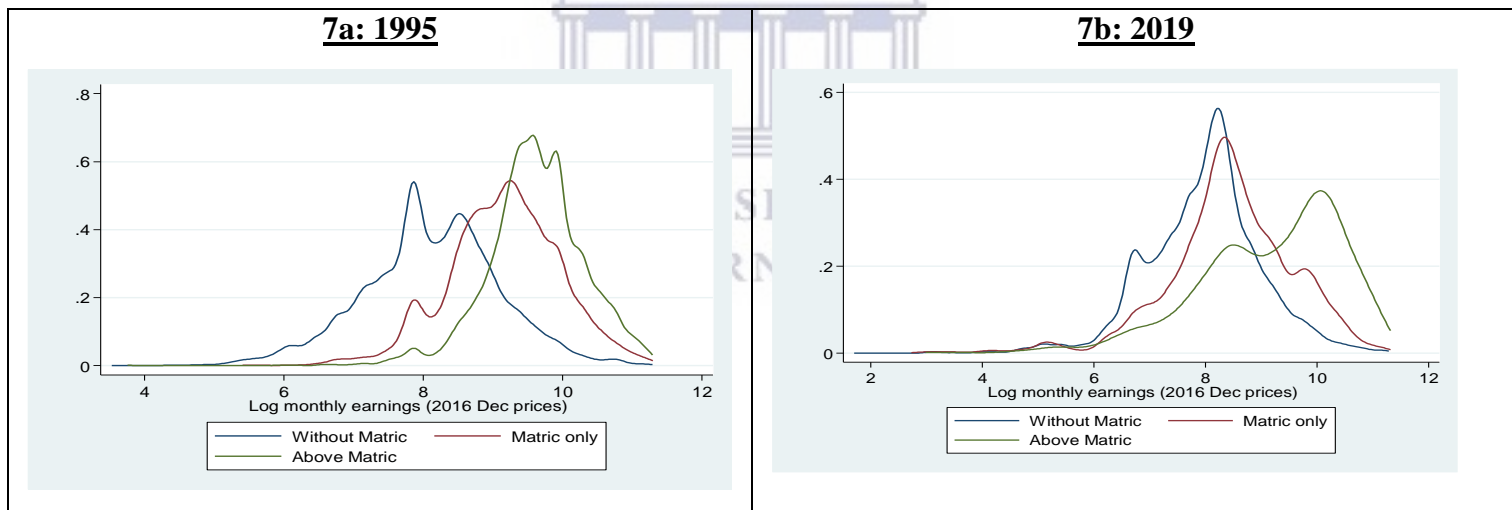
	1995	2003	2011	2019
Mean				
[A]: Without Matric	5 558	3 906	4 977	4 960
[B]: Matric only	12 510	9 897	10 231	8 424
[C]: Post-Matric	18 574	18 807	21 396	17 966

Median				
[A]: Without Matric	3 803	2 496	3 147	3 294
[B]: Matric only	9 546	7 546	6 626	4 758
[C]: Post-Matric	14 716	15 306	18 221	12 628

Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and 2019 data.

The disparities in earnings across the three groups are also shown in their monthly real earnings estimates (as shown in Table 11). Similar to the hourly wage, Group [C] enjoyed the highest mean and median monthly earnings, followed by Group [B] and finally Group [A]. As expected, all three groups experienced a decline in both mean and median real earnings between 1995 and 2019, but again the 1995 results need to be interpreted with great caution.

Figure 7: Kernel density curves on log monthly earnings in 2021 December prices by educational attainment, 1995 and 2019



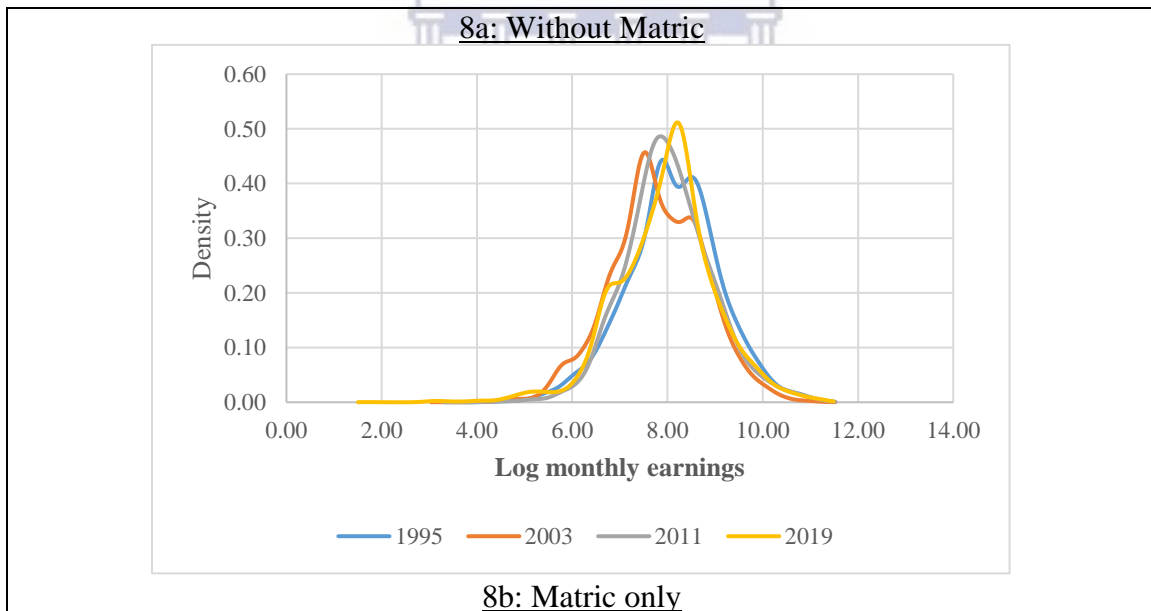
Source: Own calculations using the OHS 1995 and 2019 data.

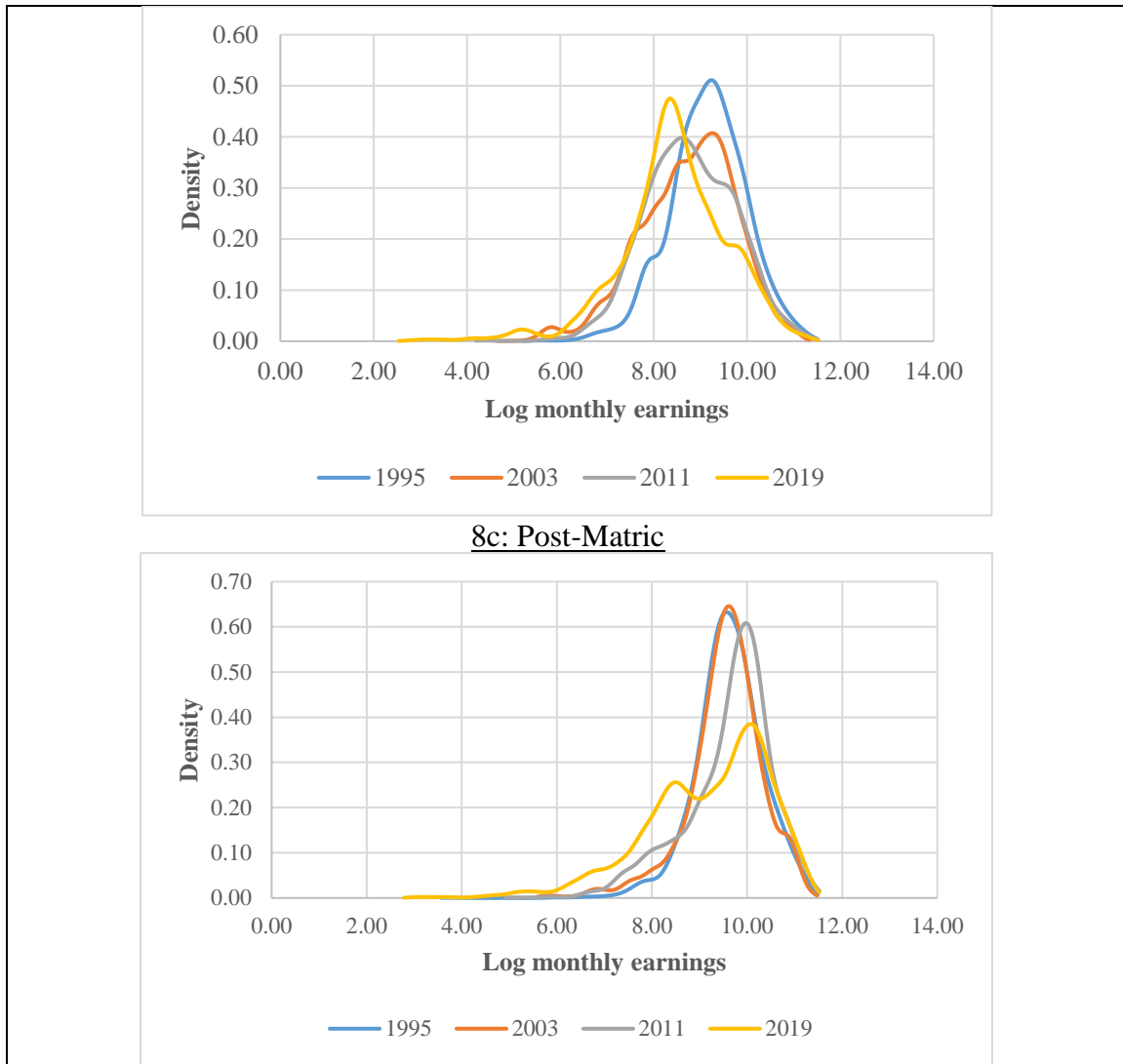
Figure 7 above illustrates the distribution of log monthly earnings in 1995 and 2019 using 2021 December prices by educational attainment. In Figure 7(a), the Group [C] curve is to the right of both groups [B] and [A] which means that post-Matric holders enjoyed higher earnings as compared to those with lower education levels. As expected, Group [B]'s earnings distribution is also to the right of Group [A]. While Group [B]'s earnings were still higher than [A]'s for 2019 as

seen in Figure 7(b), the gap is slim, showing that by 2019, there was not much difference between Group [B] and [A]’s earnings.

Figure 8 below depicts the kernel density curves on log monthly earnings by educational attainment across selected years in 2021 December prices, Firstly, Group [A]’s earnings did not increase much over the years, with this group’s curves centered around one place. While Group [B]’s earnings declined between 1995 and 2019, shifting to the left of the curve in 2019. Similar to [A], Group [C]’s earnings are positioned around the same place. Furthermore, a shift of the curve to the right occurred in 2011, an indication of an increase in earnings. However, in 2019, the graph shifted down and changed in shape. The unusual shape of the 2019 kernel density curve can be attributed to South Africa’s economy stagnating severely during this period.

Figure 8: Kernel density curves on log monthly earnings in 2021 December prices in selected years, by educational attainment





Source: Own calculations using the OHS 1995, LFS 2003, QLFS 2011 and 2019 data.

4.3 Econometric findings

4.3.1 Labour force participation likelihood

Regressions are necessary to evaluate the findings of the descriptive statistics and to see whether the same conclusions still apply when applying them to the full labour force, especially for education. Table 12 shows the results of the labour force participation (on the full working-age population) probit regressions for the four years under observation. The approximation of the change in the dependent variable for a 1-unit change in the independent variable is provided by the marginal fixed effects (MFXs), which measure the instantaneous rate of change of a variable (Yu et al., 2015). For the purpose of this analysis, the MFX's indicate the percentage change in

labour force participation likelihood for a particular variable. The reference group for these regressions were African females residing in the Eastern Cape, unmarried, divorced or widowed and aged between 15 and 24 years old.

Table 12: Probit regressions on labour force participation likelihood of working-age population, selected years

	Marginal effects			
	1995	2003	2011	2019
Gender: Male	0.2299***	0.1600***	0.1703***	0.1564***
Race: Coloured	0.1120***	0.0206	0.0085	0.0083
Race: Indian	-0.0017	-0.1403***	-0.1462***	-0.1266***
Race: White	-0.0021**	-0.1549***	-0.1126***	-0.0998***
Province: Western Cape	0.1494***	0.0974***	0.1286***	0.0650***
Province: Northern Cape	0.0851***	0.0402***	0.0614***	0.0091
Province: Free State	0.1117***	0.0506***	0.0745***	0.0453***
Province: KwaZulu-Natal	0.0754***	0.0578***	0.0218	-0.0439***
Province: North West	0.0704***	0.0088	0.0047	-0.0479***
Province: Gauteng	0.1592***	0.0761***	0.1218***	0.0633***
Province: Mpumalanga	0.0522***	0.0561***	0.12178***	0.0939***
Province: Limpopo	-0.0764***	-0.0576***	0.0054	-0.0633***
Area type: Urban	0.0368***	0.0758***	0.1419***	0.0837***
Age: 25-34 years	0.2299***	0.2109***	0.3998***	0.3986***
Age: 35-44 years	0.2952***	0.3457***	0.4151***	0.4258***
Age: 45-54 years	0.1910***	0.3804***	0.3726***	0.3750***
Age: 55-65 years	-0.2428***	0.1507***	0.1876***	0.1972***
Education spline: Without Matric	-0.0010	0.0060***	0.0151***	0.0148***
Education spline: Matric only	0.1802***	0.2324***	0.1742***	0.1364***
Education spline: Post-Matric	0.0506***	0.0780**	0.0700***	0.0622***
Married	0.0941***	0.1274***	0.0537***	0.0508***
Number of children in household	-0.0175***	-0.0354***	-0.0239***	-0.0151***
Number of elderly in household	-0.0846***	-0.0882***	-0.0935***	-0.0870***
Number of observations	79362	62544	52338	42540
Observed probability	0.4810	0.5478	0.5561	0.5950
Predicted probability at x-bar	0.4676	0.5640	0.5728	0.6194
Chi-squared statistic	16635.62	8400.37	10351.22	9250.22
Prob > Chi-squared	0.0000	0.0000	0.0000	0.0000
Pseudo R-squared	0.2447	0.1926	0.2631	0.2518

*** Significant at 1%

** Significant at 5%

* Significant at 10%

N/A: not applicable (perfect collinearity)

The findings from the probit regression results are as follows: gender is still a key determining factor of participation in employment, as males were significantly more likely to enter the labour force as compared to females, across all the years. However, this effect decreased, from 23.0% in 1995 to 15.6% in 2019. By race, Coloureds were significantly more likely to enter the labour force as compared to Africans only in 1995. Thereafter, the marginal effects became insignificant and kept decreasing, from 11.2% in 1995 to 0.8% in 2019. By contrast, both Whites and Indian's labour force participation likelihoods were negative and significant across all years (except in 1995 for Indians where the MFX value was statistically insignificant), when compared to Blacks. This negative trend continued throughout the period dropping from -0.2% in 1995 to -12.7% and -10.0% in 2019 for Whites and Indians, respectively. These results suggest that race remains a considerable factor in determining one's labour force participation likelihood. The rapid increase in Black and Coloured labour force could be attributed to the introduction of measures such Affirmative Action and Employment Equity Act since 1994, to address racial and gender discrimination in the labour market, which encouraged or created opportunities for the previously disadvantaged or discriminated groups to enter the labour market (Msomi and Wittenberg, 2020).

When considering provinces, individuals residing in the Western Cape, Free State, Gauteng and Mpumalanga, were significantly more likely to participate in the labour force than those from Eastern Cape, across all the years. In terms of years, for the period between 1995 and 2019, the likelihoods for these provinces decreased, except for Mpumalanga, which started with a participation likelihood of 5.2% in 1995 to 9.4% in 2019.

KwaZulu-Natal, Northern Cape and North West's participation likelihoods were positive and significant in some periods. In 2019, KwaZulu-Natal and North West's participation likelihoods were negative and significant. Lastly, compared to Eastern Cape residents, Limpopo residents are less likely to enter the labour force in all the years. Consequently, the differences in provinces and particularly the roles they play in labour force participation of their residents is shown by the data. In particular, provinces with concentrated economic activity demonstrated favourable high labour force participation likelihoods, largely as a result of the numerous work opportunities present there. Furthermore, the urban areas showed a significantly greater likelihood of entering the labour force than rural areas, across all the years. When examining the endpoints (1995-2019), this trend

increased from 3.7% in 1995 to 8.4% in 2019. Thus, residing in an urban area has a considerable impact in labour force participation likelihood, also due to the increased employment opportunities available in the type of areas (Festus, Kasongo, Moses and Yu, 2015; Oosthuizen, 2006).

It is not surprising that all age cohorts had a greater participation likelihood than the reference age group of 15-24-year-olds, across all the years. By the age of 24, people are ready to enter the labour market, also having finished higher education studies by that time. In addition, all age cohorts' participation likelihood increased between 1995 and 2019. It is worth noting that individuals of 55-65 years old had the largest increase in participation likelihood among the groups, increasing by 44 percentage points, from -24.3% in 1995 to 19.7% in 2019.

In terms of education, generally speaking, the likelihood of entering the labour force increases as educational attainment increases. This, however, is an exception for the without Matric education spline in 1995, this variable is characterised by an unusual negative MFX value. The Matric spline variable has positive MFXs for all four periods, meaning those with Matric were significantly more likely to be jobseekers in the labour market compared with those without Matric, after controlling for differences in other characteristics. As expected, the post-Matric spline also had statistically significant and positive MFX values across all the years. These results indicate that, after controlling for differences in other characteristics, post-Matric qualifications were associated with significantly greater labour force participation likelihood.

The married female person showed a significantly greater likelihood of participating in the labour force than an unmarried, divorced or widowed person. The trend for this effect increased significantly between 1995 and 2003, from 9.4% to 12.7%, before decreasing to 5.4% in 2011 and continued to decrease to 5.1% in 2019. Marriage and starting a family require additional financial resources and thus necessitates seeking employment. Considering the number of children in the household variable, the participation likelihood for this variable was significant and negative, across all the years under study. Its trend showed an increase in 2003, before decreasing in 2011 and further decreasing in 2019. Thus, it can be said that there is a correlation between the labour force participation of married women and the participation of a household with children. As the number of children increases, married women are more likely to remain at home and take on the

role of primary caretakers. The presence of more elderly members in the household showed a significant and negative likelihood of entering the labour force across all the years. The trend for this effect increased between 2003 and 2011, before decreasing in 2019. This may be due to the income from social grants replacing revenue from the labour market. As a result, those who live in families with elderly family members are less likely to work because there is less of a financial incentive to do so (Festus et.al, 2015; Oosthuizen, 2006).

4.3.2 Unemployment likelihood

Table 13 shows the results of the Heckprobit regressions on the likelihood of unemployment of the labour force (conditional on participation), for the four periods. The same reference groups are utilized, namely African females residing in the Eastern Cape, unmarried, divorced or widowed and aged between 15 and 24 years old.

The Heckprobit regression results show that, males were significantly more likely to be unemployed than females in 1995, 2003 and again in 2019. This effect decreased between 2003 and 2011 before increasing in 2019 (but still less than in 1995). This contrasts with the results obtained in the first probit regression, where it was shown that males had a higher chance of participating in the labour force than females. The reason for this trend, however, is somewhat reasonable because recent efforts to promote gender equity have made it more appealing for women to join the workforce.

With reference to race, all the groups had the expected negative MFX values and were significant. For all three groups, the MFXs decreased between 1995 and 2019. Despite the above findings, these groups are still significantly more likely to be employed than Blacks. In addition, it can be inferred that, despite all the policies and legislation (e.g., Affirmative Action) put in place to address inequalities in the labour market, labour force trends still show persistent disparities between Blacks and other races (Festus, Kasongo, Moses and Yu, 2015).

Table 13: Heckprobit regressions on unemployment likelihood of labour force (conditional on participation), selected years

	Marginal effects			
	1995	2003	2011	2019
Gender: Male	0.0658***	0.0385***	0.0146	0.0474***
Race: Coloured	-0.0263***	-0.1068***	-0.0574***	-0.0739***
Race: Indian	-0.0837***	-0.1693***	-0.1227***	-0.1680***
Race: White	-0.1326***	-0.2517***	-0.1857***	-0.2145***
Province: Western Cape	0.0217**	0.0055	0.0635***	-0.0395***
Province: Northern Cape	0.0419***	0.0505***	0.0496***	-0.0119
Province: Free State	-0.0279***	0.0213	0.0140	0.0294
Province: KwaZulu-Natal	0.0062	0.0149	-0.0832***	-0.1095***
Province: North West	-0.0198**	-0.0069	0.0204	-0.5310***
Province: Gauteng	0.0275***	0.0368***	0.1023***	0.0502***
Province: Mpumalanga	-0.0246***	-0.0167	0.0555***	0.0472***
Province: Limpopo	-0.0524***	-0.0305**	-0.0895***	-0.1536***
Area type: Urban	0.0735***	0.1189***	0.0409***	0.0332***
Age: 25-34 years	0.2433***	0.4415***	0.0484**	0.1480***
Age: 35-44 years	0.3075***	0.6185***	-0.0391	0.0544
Age: 45-54 years	0.3274***	0.6756***	-0.1073***	-0.0278
Age: 55-65 years	0.0902***	0.6252***	-0.1997***	-0.2265***
Education spline: Without Matric	0.0013	0.0079***	0.0104***	0.0160***
Education spline: Matric only	0.0581***	0.0877***	0.0076	-0.0089
Education spline: Post-Matric	-0.0547***	-0.0606***	-0.0583***	-0.0288***
Lambda	0.4090***	0.4607***	0.2956***	0.4496***
Number of observations	37062	33564	26879	24780
Observed probability	0.1766	0.2801	0.2503	0.2924
Predicted probability at x-bar	0.1309	0.2299	0.2076	0.2597
Chi-squared statistic	3656.45	3029.83	2068.32	2586.38
Prob > Chi-squared	0.0000	0.0000	0.0000	0.0000
Pseudo R-squared	0.1685	0.1724	0.1400	0.1310

*** Significant at 1%

** Significant at 5%

* Significant at 10%

N/A: not applicable (perfect collinearity)

In terms of provinces, the results were mostly mixed. Limpopo showed negative and significant MFJs across all four periods, meaning that residents of this province were less likely than the Eastern Cape residents to be unemployed. These results are not too surprising because they may show that the government's initiatives to assist and promote the less developed provinces have been successful. On the other hand, the provinces of the Western Cape, Northern Cape, Free State, KwaZulu-Natal North-West and Mpumalanga, had significant and negative MFJ values in some

periods. In particular, North-West residents were significantly less likely to experience unemployment than Eastern Cape in three periods, 1995, 2003 and 2019. While Gauteng had significant and positive MFX values across all four periods. These are interesting outcomes as it is expected that individuals based in Gauteng would have much lower prospects of being unemployed, relative to any other province as it is the centre for economic activity in South Africa. These findings are plausible since these provinces are saturated with educated jobseekers, making it harder to find work, unlike in the listed provinces where population density is relatively low, thus job competition may be lower among those with post-secondary education. In particular, Gauteng is deemed to be a lucrative area that attracts skilled labour and presents a relatively higher standard of living which then necessitates higher wages. Therefore, given this perception, people quite possibly leave Mpumalanga and Limpopo to seek better opportunities in Gauteng (Leibbrandt, Woolard, McEwen and Koep, 2017). In addition, residents in urban areas were significantly more likely to be unemployed than residents in rural areas, and this can be the case for Gauteng which is relatively more urban.

When examining the age cohorts, 25-34-year-olds were significantly more likely to be unemployed than 15-24-year-olds across all four periods. Although this effect decreased in 2011, before increasing again in 2019, indicating an increase in unemployment for this group. This potentially highlights the incidence of youth unemployment (Bhorat et al, 2012) and one that has always been persistently high (Yu, 2013). Furthermore, between 1995 and 2003 all other age groups were significantly more likely to be unemployed than 15-24-year-olds. Only between 2011 and 2019 were 55-65-year-olds significantly less likely to be unemployed than those between 15 and 24. This may possibly be attributed to an experience premium. For instance, the younger generation may possibly be locked out of opportunities due to a lack of experience, whilst the older generation have had years of work training, thus making them more marketable.

In terms of education, individuals with an educational attainment below Matric were more likely to be unemployed, but the result was insignificant statistically. This effect increased between 1995 (0.13%) and 2019 (1.6%), showing the consistent increase in the groups' probability of not finding employment. Similarly, individuals possessing Matric were significantly more likely to be unemployed between 1995 and 2019 (although with negative MFX value in this year). Post-Matric

education spline was statistically significant and had the expected negative MFX values for all the years under review. This demonstrates that having a post-matric education made a person less likely to be unemployed, demonstrating the long-standing need for workers with higher levels of education. This suggests that a person must pursue education beyond Matric level in order to survive in the labour market. Therefore, as one might anticipate, the relative level of education increases an individual's likelihood of employment, particularly for levels above Matric.

4.3.3 Earnings estimation

Table 14 shows the results of the Heckman regressions on log monthly earnings in 2021 December prices (conditional on participation and employment). As with the employment equation, the Mill's ratio is significant and positive in all years. There was thus a sample selection bias, which was corrected for. The sample of earners is not a random selection of people drawn from the pool of participants. The significance of lambda once again justifies the selection procedure utilised here.

When considering individual characteristics, it is observed that males earned significantly more than their female counterparts, in particular, males earned more than 25 per cent as compared to females between 1995 and 2003 after controlling for differences in other characteristics. Although, this trend is decreasing between 2003 and 2019, reaching a low 4.9% in 2019. Female earnings prospects may have improved over the years for various reasons, including feminisation of the labour market post the 1994 transition into democracy and increase in educational attainment levels among females. Nonetheless, gender still plays a role when earnings are considered.

Table 14: Heckman regressions on log monthly earnings in 2021 December prices (conditional on participation and employment), selected years

	Coefficient			
	1995	2003	2011	2019
Gender: Male	0.2650***	0.2415***	0.2246***	0.0490**
Race: Coloured	0.1052***	0.1796***	0.1231***	-0.0622
Race: Indian	0.2122***	0.3033***	0.1921***	-0.0417
Race: White	0.4534***	0.5654***	0.3554***	-0.0001
Province: Western Cape	0.0294	0.2967***	0.1301***	0.3539***
Province: Northern Cape	-0.1006***	0.1295***	-0.0117	0.2126***
Province: Free State	-0.0306***	-0.0433**	-0.0799***	0.1072**
Province: KwaZulu-Natal	0.1399***	0.2353***	-0.0252	-0.0109
Province: North West	0.0306	0.1736***	0.1366***	0.2701***
Province: Gauteng	0.2116***	0.4115***	0.1994***	0.3471***
Province: Mpumalanga	0.1199***	0.1642***	0.0824***	0.2702***
Province: Limpopo	0.2559***	0.1241***	-0.1066***	0.1677***
Area type: Urban	0.1738***	0.2165***	0.1340***	0.0984***
Age: 25-34 years	0.0355**	0.0610	-0.0368	-0.0184
Age: 35-44 years	-0.01158	0.0755**	-0.0702	-0.1442
Age: 45-54 years	-0.1309***	0.0177	-0.0716	-0.2071**
Age: 55-65 years	-0.3571***	-0.0979**	-0.1590**	-0.2484**
Education spline: Without Matric	0.0456***	0.0395***	0.0306***	0.0290***
Education spline: Matric only	0.1792***	0.2189***	0.2632***	0.0248
Education spline: Post-Matric	0.0680***	0.0962***	0.0837***	0.0311
Occupation: Manager	0.4989***	0.5814***	0.5540***	0.8885***
Occupation: Professional	0.2926***	0.2737***	0.4706***	0.8649***
Occupation: Technicians	0.2920***	0.2007***	0.0817***	0.1045**
Occupation: Service Workers	-0.1018***	-0.2258***	-0.3049***	-0.1499***
Occupation: Skilled Agriculture & Fishery	0.3359***	-0.0628	-0.6824***	-0.1221
Occupation: Trade	-0.0428**	-0.0869***	-0.1653***	-0.0140
Occupation: Operator	-0.1350***	-0.1363***	-0.3248***	-0.2265***

Occupation: Elementary	-0.2801***	-0.3559***	-0.4374***	-0.3931***
Occupation: Domestic workers	-0.5751***	-0.2090***	-0.2474***	-0.3713***
Industry: Agriculture	-0.4786***	-0.2917***	-0.2266***	0.0071
Industry: Mining	0.0274	0.2247***	0.2694***	0.3338***
Industry: Utility	0.1409***	0.2774***	0.1079	0.1567
Industry: Construction	-0.1199***	-0.0541**	-0.0858***	0.0490
Industry: Wholesale	-0.1279***	-0.1955***	-0.1136***	0.0412
Industry: Transport	0.0776***	0.0698***	-0.0051	0.0498
Industry: Finance	0.0111	0.0592***	-0.0496**	0.0583
Industry: Community, social and personal services	-0.1735***	-0.0688***	-0.0867***	-0.0516
Industry: Private Household	-0.5697***	-0.0958**	-0.2121***	0.1413
Public sector	0.2403***	0.3547***	0.1439***	-0.0065
Formal sector	0.7267***	0.5993***	0.2755***	0.2879***
Trade union member	0.1722***	0.3003***	0.2442***	0.2558***
Self-employed	0.1215***	0.0543***	N/A	N/A
Usual weekly work hours	0.0044***	0.0057***	0.0064***	0.0110***
Lambda	0.1645***	0.1849***	0.3079***	0.4843***
Constant	7.3991***	6.3085***	6.9871***	6.4944***
Number of observations	29 822	21 649	16 980	11 756
Chi-squared statistic	1426.58	1136.46	466.67	116.49
Prob > Chi-squared	0.0000	0.0000	0.0000	0.0000
R-squared	0.6837	0.6983	0.5423	0.2996
Adjusted R-squared	0.6832	0.6977	0.5411	0.2970

*** Significant at 1%

** Significant at 5%

* Significant at 10%

N/A: not applicable (perfect collinearity)

With regard to race, two different results can be discussed; firstly, the period between 1995 and 2011, all three racial groups earned more than Africans. Whites' earnings ranged between 35.5% to 56.5% more than the Africans, respectively. While the Indian population group's earnings ranged between 19.2% and 30.3% higher than Africans. Coloureds earned between 10.4% and 18.0% higher than Africans respectively. The second observation is that, in 2019, all three racial groups' coefficients were negative and insignificant, with Whites earning less than 0.01%. Similar to employment, race still is a key determining factor when it comes to earnings too.

When looking at the relationship between earnings and provinces, Northern Cape, Free State, KwaZulu-Natal and Limpopo are just as likely as the Eastern Cape in terms of earnings offering and in particular Free State, except for 2019 when it offered more earnings compared to Eastern Cape. All other province's earnings were higher as compared to the reference province, in particular Gauteng, with earnings ranging between 17.8% and 41.2% more than the Eastern Cape's between 1995 and 2019. Even though Gauteng's earnings have decreased over the years, the province still presents higher earnings premiums compared to the Eastern Cape. Also notable is that the Western Cape's earnings premium increased from 2.9% in 1995 to 35.4% in 2019 (even higher than Gauteng).

The urban dummy was positive and significant across all the years under review. This suggests that urban areas still present more earnings opportunities than rural areas. Moreover, with regard to age, only 55-65-year-olds significantly earned more than the 15-24-year-olds, throughout the review period, albeit with negative MFX values. The cohort, 45-54-year-olds significantly earned more than the reference group only in 1995 and again in 2019. While for 35-44-year-olds this trend was observed only in 2003 and only in 1995 for 25-34-year-olds.

All education spline variables were statistically significant and positive except for Matric and Post-Matric splines in 2019 only. The results suggest that individuals with at least primary education earned more than those with no education at all. Individuals without Matric earned between 3.1% and 4.6% more than those with no education between 1995 and 2003, while those with Matric earned between 17.9% and 26.3% higher than individuals with Grade 11. Individuals with post-Matric people have a clear advantage in real earnings, even after controlling for differences in

other characteristics. These individuals earned between 6.8% and 9.6% more compared to those with Matric between 1995 and 2019.

Skilled occupations clearly have an earnings advantage over low or unskilled occupations. Substantial earnings premium accrued towards the highly skilled. In particular, highly skilled occupations, namely managers, professors and technicians were statistically significant with positive MFX values for all the years under review. In addition, managers and professors likely earned between 29.3% and 88.9% more than all other occupations between 1995 and 2019. While low-skilled occupations were statistically significant but with negative MFX values. By industry, results show that between 1995 and 2003 all industries were statistically significant, although some had negative MFX values. In 2019 change occurred, with almost all industries becoming statistically insignificant but with positive MFX values except for mining. Thus, indicating lower or decreasing earnings in industries. Notably, the highest decreases were in agriculture (54.9%).

Higher earnings premiums accrued to the public sector than the private sector. Although by 2019 the difference is not significant. Furthermore, being employed in the formal sector has higher earnings premiums compared to being employed in the informal sector. While this remained consistent across all the years, the trend however decreased over the years. This could be because of rapid increase in labour force, including increases in competition for formal jobs coupled with a lack of job opportunities. Also, being a member of a trade union presented more earnings opportunities than being a non-member. The union-wage effect is shown here to range from 17.2% and 30.0% and increased from 1995 (17.2%) and 2019 (25.6%). Therefore, it is clear that union membership is associated with significantly higher earnings for African workers. The log of hours worked is significant for all the survey years. The coefficients suggest that an increase in the percentage of hours worked increased earnings by between 4.3% and 1.1% and over the review period. This is quite important as it indicates that an important determinant of earnings is the hours that the employed are working.

4.4 Conclusion

This chapter presented the analysis of the empirical findings using the data and methods which are described in Chapter Three. Firstly, descriptive statistics were employed to evaluate the impact of

educational attainment on labour market outcomes, specifically labour force participation, employment, unemployment and remuneration. Secondly, multivariate regressions were run on labour force participation, unemployment and earnings. The findings highlight the following: those with post-Matric had a greater likelihood of participation, employment and (mean) earnings as compared to those with Matric and those without Matric.



CHAPTER FIVE: CONCLUSION

5.1 Introduction

The primary research objective of the study was to examine the relationship between educational attainment and labour market outcomes in South Africa, by clearly distinguishing three educational attainment cohorts: Without Matric (group [A]), Matric (group [B]) and Post-Matric (group [C]). General descriptive statistics and econometric analyses were derived in this study. This chapter therefore presents a summary of research findings generated in previous chapters with Section 5.2 providing a review of the main findings while Section 5.3 concludes with policy recommendations to the relevant authorities.

5.2 Review of key findings

The study utilised descriptive statistics to understand the labour market characteristics of each educational attainment cohort. The empirical findings showed that higher labour force participation incidence, low unemployment rates, higher earnings are skewed towards the most educated group [C]. Group [B] showed higher participation and lower unemployment compared to Group [A]. Although the difference between the unemployment rates of those with Matric and those without Matric was only marginal. To note, the biggest difference between [B]'s and [A]'s unemployment rates was only about seven percentage points during the 1995-2019 period. The results infer that even if possessing Matric, one is just as likely to be unemployed with less than Matric education. The hourly wages and monthly earnings were also looked at. Despite the data comparability issues across the different surveys, the results showed clearly that earnings have always been the highest amongst the most educated Group [C].

A multivariate analysis of labour force participation, and unemployment was also employed. The participation probit showed similar results to the descriptive statistics. Higher participation likelihood was observed for males, 25-34-year-olds, Coloureds in Gauteng. All levels of education showed greater likelihood of participation. Findings from the unemployment probit showed somewhat contrasting results to the descriptive statistics, higher unemployment likelihood was found among the following group: males, 25-34-year-olds, and all racial groups, in Limpopo and the Eastern Cape. By education, the unskilled were more likely to be unemployed (in particular

Group [B]). With regard to the earnings estimation, an earnings premium was found among males, of all races except Africans. However, by 2019, all racial groups had lower earnings potential compared to Africans (but marginal for Whites). Geographically, the provinces of Western Cape, Gauteng, Mpumalanga and North West showed a higher earnings premium. By considering age, only 55-65-year-olds had a higher earnings likelihood (significant but negative). In particular, individuals with post-Matric possessed a clear advantage in real earnings, even after controlling for differences in other characteristics.

5.3 Policy recommendations

The findings of the study were not different from existing literature, even when it dates to more than five years ago. Higher levels of education fare better in the labour market while lower levels face worse conditions. There are clear differences in participation, employment and earnings, skewed towards the highly skilled and minority races. In the pool of the unskilled are Africans, youths and females. As such, policy interventions should therefore be directed towards these groups to a much greater extent, as they may benefit from these government interventions and efforts. The study proposes five policy recommendations.

5.3.1 Increase educational attainment and quality of education

Since the advent of democracy, South African education policies have somehow improved access to education (especially for previously disadvantaged groups) and the average human capital of new labour market entrants. However, not to the extent of increasing the supply of high-skilled workers demanded by the labour market (Msomi and Witzenberg, 2020). Therefore, further increasing educational attainment to higher levels is proposed as a policy option.

There are various impediments to attaining higher education in South Africa. Among others, the poor performance of learners at school level (Van der Berg, 2007; Spaull, 2013), which prevents them from finishing school and enrolling for higher education studies. Consequently, focus should be put on improving the quality of education (Moses, 2011). Furthermore, another challenge to increasing educational attainment are the difficulties in accessing higher education due to various reasons, including, among others, lack of funding (Mngomezulu, Dhunpath and Munro, 2017). It is students from poor and low-income households that struggle with funding (Stats SA, 2019).

Lack of funding is also a key contributor to students dropping out, even for those who benefit from government financial support (Moeketsi, Breier and Viss, 2010).

According to the Washington Student Achievement Council (2019), government financial aids should be expanded and there should be sufficient provision of funding for higher education. While the South African government make means to fund higher education, it is often cited that this funding is not sufficient to cover all essential expenses. Therefore, making higher education affordable is essential to ensure access, consequently improving labour market outcomes.

5.3.2 Facilitating youth employment (support for job-seeking initiatives)

Another finding of this study was the low participation and high unemployment levels among the youth aged 25-34-years-old. Apart from lower educational attainment, youth struggle to find employment due to various factors, including lack of information about where to find jobs and the high costs involved in looking for work. A report by Youth Capital indicated that it costs young people around R900 a month to look for work; these costs are mainly data, transport and printing (Youth Capital, 2020). Also, it is not because of the absence of youth employment accelerators and initiatives such as the SA Youth supported by the Presidency, YES – Youth Employment Services, National Youth Development Agency (NYDA) and Harambee Youth Employment Accelerator. It is because they are not accessible to all, particularly poor young people in rural and township areas.

Also, not much is known about the effectiveness of these services in assisting young people to find employment. SAYOUTH.MOBI is an online platform of the South African government to assist the youth to access learning and job opportunities for free. To benefit from them, one would first need to be aware of their existence. Secondly, youth would need to have a device to access it; however, not everyone has access to these resources.

Therefore, the government needs to have an effective plan of action to ensure that these services are accessible to every young person, wherever they may be. This will require effective dissemination of information, through channels such as local libraries, television or social media advertising and even at schools. To tackle the issue of transport costs, Bhorat (2012) suggests that

a transport subsidy for unemployed youth should be provided by government, to encourage work-seeking, and bring the youth closer to areas of high job-density.

5.3.3 Local economic development as a strategy for rural provinces development

South Africa's stagnant economic growth is a key contributor to the lack of jobs and unemployment in the economy. Theory recognises that the strategy of local economic development (LED) can contribute to the growth of local economies and creation of jobs (Nel, 1999). Its effectiveness lies in its focus on the utilisation of local resources and labour (Cawe, 2021). This strategy is very much applicable to rural provinces, characterised by low economic activity and high unemployment.

As determined by this study, the labour market in rural provinces fails to increase participation, provide employment and higher earnings for rural labour market participants, in particular the youth. For example, the province of the Eastern Cape which was used as a reference variable has the highest rate of unemployment in the country. LED is a part of the Eastern Cape government's strategy to grow the economy (ECSECC, 2022). However, the economic outcomes of this province remain the same. Also, there are no studies conducted to assess the success of the LED strategy in the province, an indication of a major research gap.

5.3.4 Encourage and support digital entrepreneurship and self-employment among the youth

Through social media influencing and digital marketing, the internet and social media have given rise to self-employment (Sawy and Bogenhold, 2021). Social media influencing is not only a lifestyle, but companies are seeing brand influencer collaborations as more effective in growing their customer base and influencers are remunerated for it (Szczurski, 2020). In South Africa, the usage of the internet is growing too. In 2018, more than 54% of the South African population had access to the internet, with 23 million active social media accounts and growing (Madzunya, Viljoen and Cilliers, 2021). However, there is a lack of research done on the economic impact of social media entrepreneurship. There is a need for the government to study, measure, and support this industry.

Research from other countries reveal that virtual entrepreneurship and employment is a real phenomenon. Nayan, Shafie, Chulan, Zakaria and Nayan (2021) studied the impact of virtual entrepreneurship in Malaysia. The findings of the study showed that social media influencing was expanding the sources of employment for Malaysian youth, with the rise of “internet jobs” such as cyber-security analyst, online retail consigners, content creators on internet platforms such as Instagram, Twitter and Facebook. Given high unemployment, these jobs are an addition to traditional jobs and sources of income. Thus, the South African government should create an enabling environment to drive this new innovative method of employment creation such as improving infrastructure and revisiting regulation on data costs.

5.3.5 Tackle low wages and earnings

The results of this study revealed that, despite levels of educational achievement, wages and earnings have decreased over time. Likewise, demonstrating income disparities based on educational attainment, race and gender, with greater vulnerability detected among the low educated. It is not enough to have a job; the job should be of quality and pay better. Studies have shown the negative impact of low wage employment, by keeping workers trapped in poverty (Feder and Yu, 2019).

Possible policy options to tackle low wage employment could include increasing the current minimum wage from what it currently is. Existing economic literature provides evidence that the impact of sectoral minimum wages has been positive and for almost every sector included (Bhorat, Lilinsein, and Stanwix, 2020). The government could also expand its base of financial support to businesses in order to encourage higher wages (as cited in Feder and Yu, 2019:92). Furthermore, labour unionism could be encouraged among low-skilled workers. This study showed that being a member of a trade union presented more earning opportunities than for non-members. In addition, the union-wage effect increased between 1995 (17.21%) and 2019 (25.58%). These results were statistically significant for African workers, who are largely vulnerable in the labour market.

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APPENDIX

Table 15: Labour market aggregates of working-age population without Matric, 1995-2020

	(1 000s)				Rate (%)	
	Employed	Unemployed	Inactive	Working-age population	LFPR	Unemployment rate
1995	5 991 666	1 515 138	10 576 061	18 082 865	41.51	20.18
1996	5 453 409	1 701 039	11 423 524	18 577 972	38.51	23.78
1997	5 660 018	1 791 198	11 255 878	19 369 470	38.41	24.04
1998	5 804 543	2 309 657	11 255 878	19 370 078	41.89	28.46
1999	6 279 514	2 209 792	10 723 104	19 212 410	44.19	26.03
2000	7 880 422	2 921 439	9 626 896	20 428 757	52.79	27.05
2001	6 745 856	3 235 691	10 419 953	20 401 500	48.92	32.42
2002	6 685 554	3 400 926	10 403 064	20 489 544	49.23	33.72
2003	6 475 760	2 952 018	11 011 969	20 439 747	46.12	31.31
2004	6 605 937	2 773 189	11 259 792	20 638 918	45.44	29.57
2005	6 981 012	2 993 053	10 661 030	20 635 095	48.34	30.01
2006	7 171 709	2 914 128	10 544 550	20 630 387	48.89	28.89
2007	7 226 102	2 633 146	10 917 376	20 776 624	47.45	26.71
2008	7 685 667	2 741 627	10 823 303	21 250 597	49.07	26.29
2009	6 915 582	2 783 731	11 435 901	21 135 214	45.89	28.70
2010	6 812 245	2 856 578	11 852 790	21 523 613	44.93	29.54
2011	6 975 942	2 835 664	11 831 533	21 643 139	45.33	28.90
2012	7 196 533	2 987 871	11 753 961	21 938 365	46.42	29.34
2013	7 141 682	2 909 384	11 755 286	21 806 352	46.09	28.95
2014	7 121 736	3 087 347	11 724 364	21 933 447	46.55	30.24
2015	7 526 730	3 145 514	11 576 623	22 248 867	47.97	29.47
2016	7 597 662	3 503 619	11 615 551	22 716 832	48.87	31.56
2017	7 380 501	3 562 923	11 353 428	22 296 582	49.08	32.56
2018	7 491 098	3 489 536	11 548 512	22 529 146	48.74	31.78
2019	7 256 664	3 793 420	11 402 430	22 452 514	49.22	34.33
2020	6 143 916	3 493 514	12 343 874	21 981 304	43.84	36.25

Table 16: Labour market aggregates of working-age population with Matric only, 1995-2020

	(1 000s)				Rate (%)	
	Employed	Unemployed	Inactive	Working-age population	LFPR	Unemployment rate
1995	2 093 433	439 099	1 593 613	4 126 145	61.38	17.34
1996	2 142 430	444 174	1 766 102	4 352 706	59.43	17.17
1997	2 112 796	566 063	1 699 087	4 377 946	61.19	21.13
1998	2 240 552	727 577	1 566 190	4 534 319	65.46	24.51
1999	2 405 924	728 260	1 604 536	4 792 720	66.52	24.54
2000	2 391 383	1 011 706	1 403 732	4 806 821	70.67	29.73
2001	2 658 154	1 181 699	1 470 523	5 310 376	72.31	30.77
2002	2 742 493	1 290 422	1 523 719	5 556 634	72.58	32.00
2003	3 057 559	1 269 681	1 734 710	6 061 373	71.38	29.33
2004	3 138 018	1 202 681	1 880 606	6 221 305	69.77	27.71
2005	3 348 071	1 313 350	1 834 158	6 495 579	71.76	28.17
2006	3 547 530	1 290 682	1 885 818	6 724 030	71.95	26.68
2007	3 580 202	1 079 340	1 878 993	6 538 535	71.26	23.16
2008	4 167 431	1 315 044	1 869 736	7 352 211	74.57	23.99
2009	4 076 651	1 399 279	2 323 769	7 799 699	70.21	25.55
2010	4 133 289	1 499 910	2 496 885	8 130 084	69.29	26.63
2011	4 167 383	1 549 358	2 577 171	8 293 912	68.93	27.10
2012	4 421 453	1 605 666	2 686 306	8 713 425	69.17	26.64
2013	4 606 837	1 598 259	2 777 239	8 982 335	69.08	25.76
2014	4 776 072	1 665 409	3 018 824	9 460 350	68.09	25.85
2015	4 944 460	1 840 900	2 818 210	9 603 570	70.65	27.13
2016	5 053 550	1 869 838	2 916 452	9 839 840	70.36	27.01
2017	5 191 662	2 094 600	3 114 712	10 400 974	70.05	28.75
2018	5 250 915	2 179 375	3 361 663	10 791 953	68.85	29.33
2019	5 417 182	2 297 327	3 519 652	11 234 161	68.67	29.78
2020	5 185 327	2 376 605	4 834 432	12 395 869	61.00	31.42

Table 17: Labour market aggregates of working-age population with post-Matric, 1995-2020

	(1 000s)				Rate (%)	
	Employed	Unemployed	Inactive	Working-age population	LFPR	Unemployment rate
1995	1 333 458	62 302	363 712	1 759 472	79.33	4.46
1996	1 280 070	49 680	322 129	1 651 879	80.50	3.74
1997	1 290 220	87 348	293 007	1 670 575	82.46	6.34
1998	1 297 025	117 895	289 588	1 704 508	83.01	8.33
1999	1 422 486	133 902	289 268	1 845 656	84.33	8.60
2000	1 815 877	206 750	297 038	1 319 665	87.16	10.22
2001	1 625 699	208 955	299 752	2 134 406	85.96	11.39
2002	1 731 720	209 469	294 770	2 235 959	86.82	10.79
2003	1 805 819	190 171	256 621	2 252 611	88.61	9.53
2004	1 753 337	135 068	290 768	2 179 173	86.66	7.15
2005	1 863 374	157 845	341 955	2 363 174	85.53	7.81
2006	1 989 582	170 504	314 776	2 474 862	87.28	7.89
2007	2 387 014	179 347	334 819	2 901 180	88.46	6.99
2008	2 535 718	209 625	318 363	3 063 706	89.61	7.64
2009	2 665 297	256 926	390 558	3 312 781	88.21	8.79
2010	2 528 463	259 340	438 127	2 225 930	86.42	9.30
2011	2 811 935	275 306	445 230	3 532 471	87.40	8.92
2012	2 836 813	289 394	447 465	3 573 672	87.48	9.26
2013	3 180 020	348 639	501 439	4 030 098	87.56	9.88
2014	3 071 415	366 821	543 203	3 981 439	86.36	10.67
2015	3 208 516	408 163	588 545	4 205 224	86.00	11.29
2016	3 077 279	466 665	557 963	4 101 907	86.40	13.17
2017	3 471 176	513 040	513 040	4 596 214	86.68	12.88
2018	3 492 694	503 727	611 223	4 607 644	86.73	12.60
2019	3 534 397	606 571	670 827	4 811 795	86.06	14.65
2020	3 301 314	632 479	866 914	4 800 607	81.94	16.08