



UNIVERSITY OF THE WESTERN CAPE

DEPARTMENT OF ECONOMICS

THE EFFECT OF AFFIRMATIVE ACTION ON THE REDUCTION  
OF EMPLOYMENT DISCRIMINATION



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A mini-thesis submitted in partial fulfilment of the requirement for the degree of Master of  
Economics in the Department of Economics,  
University of the Western Cape.

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## DECLARATION

I declare that “*The effect of Affirmative Action on the reduction of employment discrimination*” is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

**Fadwah Fredericks**

Signature:



Date:

29 June 2016



## ABSTRACT

South African labour relations are associated with a history of extensive discrimination and segregation, subject to various types of discrimination during the apartheid era, including employment discrimination. This study explores the effect of Affirmative Action on the reduction (if any) of employment discrimination since the advent of democracy. It investigates whether the extent of employment discrimination by race and gender has decreased, 20 years since the economic transition. The first part of the study gives an overview of the South African labour legislations, both discriminative legislations and statutes aimed at redressing the imbalances of the past. The empirical part of the paper employs a sample that represents the labour force (excluding informal sector workers, agricultural workers, domestic workers and self-employed) aged between 15 and 65 years. The methodology in this study firstly estimates probit models describing the labour force participation, employment and occupational attainment, followed by the Oaxaca-Blinder decomposition, using data from OHS 1997-1999, LFS 2000-2007, QLFS 2008-2014 and NIDS 2008-2012. The OHS/LFS/QLFS decomposition results show that the unexplained component of the White-Black employment probability gap does not reveal any strong downward trend overtime. Also, results on the occupational attainment gap indicate that there was an increasing occupational attainment probability gap between Whites and Blacks which was partially driven by an increase in the unexplained component. This implies that Affirmative Action was not successful in reducing racial discrimination in the South African labour market. Additionally, the unexplained component is most dominant in the male-female employment gap decomposition. This suggests employment discrimination against females is very serious. However, the male-female highly-skilled employment likelihood shows no clear trend over time. These results suggest that when it comes to employment discrimination against females, this may have taken place more seriously when it comes to the unskilled or semi-skilled occupations.

**KEYWORDS:** Affirmative Action, labour market discrimination, employment discrimination, Oaxaca-Blinder Decomposition, South Africa

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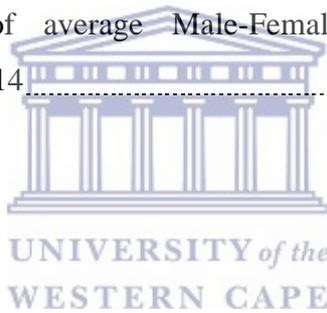
EEC	Employment Equity Commission
EPWP	Expanded Public Works Programme
IMF	International Monetary Fund
LF	Labour force
LFPR	Labour force participation rate
LFS	Labour Force Survey
NDP	National Development Plan
NIDS	National Income Dynamics Study
OHS	October Household Survey
OLS	Ordinary Least Squares
QLFS	Quarterly Labour Force Survey
SETAs	Sectoral Education and Training Authorities
Stats SA	Statistics South Africa



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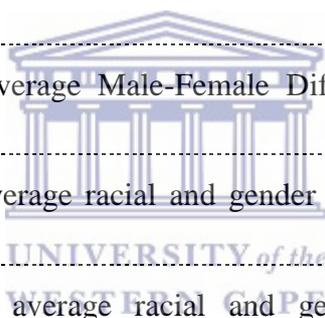
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## CHAPTER ONE: INTRODUCTION

### 1.1 Introduction

Discrimination in the labour market has gained a significant amount of interest in economic research worldwide. Such research is generally conducted to determine if various policies enacted by the states are successful in reducing discrimination in the labour market. The alleviation of labour market discrimination is highly important in meeting the country's macroeconomic objectives, such as reducing unemployment, achieving a more equitable distribution of income and boosting investment into the country. Studies pertaining to labour market discrimination in many countries mostly focus on wage discrimination by race and gender. This type of discrimination occurs when employees belonging to a certain group are paid less compared to employees belonging to other groups for doing the exact same work (Cain 1984a: 2; Borjas 2010:374).

A substantial amount of evidence has emerged from other countries to support the view that wage discrimination by both gender and race is still significant in the labour market (Richard 2007; Kandil 2009). A substantial amount of evidence also exists for the South African case. Various studies, using South African data, found a significant amount of labour market discrimination present (Chamberlain & Van der Berg 2002; Hinks 2002; Grun 2004; Burger & Jafta 2010; Burger and Van der Berg 2011), in particular wage discrimination against the previously disadvantaged groups (females and blacks). Nonetheless, very little work has been done on the extent of employment discrimination in the labour market. In particular, there are hardly local studies looking at the impact of quality of education differences in explaining labour market discrimination.

### 1.2 Historical Background

The South African labour market was subject to various types of discrimination during the apartheid era, including employment discrimination. During this era, various legislations such as the Ordinance 17 of 1907, the Group Areas Act 41 of 1950 and the Industrial Conciliation Act 28 of 1956 were enacted to deny Africans access to highly-paid employment, highly-skilled occupations, and prevent them from finding employment in the urban areas (Venter, Levy, Conradie & Holtzhausen 2009: 39). To correct for these imbalances of the past, new legislations have been enacted since 1994, such as the Labour Relations Act 66 of 1995

(LRA), the Basic Conditions of Employment Act 75 of 1997 (BCEA) and the Employment Equity Act 55 of 1998 (EEA). The EEA was specifically implemented to address employment discrimination within the labour market. This act introduced the concept of Affirmative Action (Venter, Levy, Conradie & Holtzhausen 2009:52), the aim of which is to achieve a diverse workforce that is broadly representative of the population in all occupational categories and levels by appointing suitably qualified people from all designated groups (Employment Equity Act 55 of 1998; Bhorat, Lundall & Rospabe 2002: 43). If Affirmative Action is successful, employment discrimination against the previously disadvantaged groups should be reduced after its implementation. Whether this is the case since the advent of democracy in South Africa is the subject of analysis in this study.

### **1.3 Statement of the problem**

This study aims to assess the effect of Affirmative Action on the reduction (if any) of employment discrimination since the advent of democracy. In determining whether Affirmative Action has been successful, it is important to consider the differences of employment probabilities within the labour market with regard to race and gender. When controlling for the characteristics of workers that can explain the differences in employment probabilities, one controls for education, age, marital status and province, amongst others. To control for education, Grun (2004) as well as Burger and Jafta (2010) used a proxy representing years of schooling completed. However, this proxy provides an imperfect approximation of the effective level of education. The estimate may not be perfect because years of schooling neglect the quality of education in explaining the differences of employment probabilities (Chamberlain & Van der Berg 2002:1). For instance, 10 years of educational attainment at a former black school might not be of the same quality of 10 years of education attained at a former white school (with better resources and teaching quality). In other words, both the years of schooling and quality of education play an important role because employers consider both factors when making the hiring decision (Van der Berg and Louw 2004:5-9). Therefore, previous studies may have over-estimated the extent of employment discrimination against disadvantaged groups within the labour market by not controlling for differences in quality of education (Burger and Jafta 2006:12; Borjas 2010: 386).

Existing studies that have looked at the extent of employment discrimination by using the years of education variable as it is, conducted the analysis only from 1995 to 2005/2006. In

other words, there are hardly any studies that examined what happened during the second decade post-apartheid. Hence, this study aims to extend the existing studies by examining the extent of employment discrimination by race and gender in 1995-2014.

#### **1.4 Objectives of the study**

The main objectives of the study are as follows:

- To investigate if the extent of employment discrimination by race and gender has decreased, 20 years since the economic transition;
- To re-examine employment discrimination by race and gender, after taking the quality of education into consideration, if possible.

#### **1.5 Research methodology and outline of the study**

This study is organised into five chapters. Chapter One introduces the study by providing insight into the background of labour market discrimination. The chapter also includes the statement of the problem and the objectives of the study. Chapter Two focuses on the conceptual, analytical and legislative framework by discussing South Africa's historical background regarding discriminative legislations, various theories of discrimination as well as results of the past empirical studies. Chapter Three discusses the methodology and data, while Chapter Four presents the descriptive statistics as well as the results pertaining to the econometric analysis. Chapter Five concludes the study.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 Introduction

This chapter provides a discussion on the past discriminative acts as well as the present non-discriminative acts. This is followed by a discussion on the relevant concepts relating to the labour market, such as the labour force, employment and unemployment. Next, various theories on labour market discrimination are discussed, such as employment discrimination, occupational discrimination, and wage discrimination. The chapter ends with a review of literature on discrimination within the labour market.

### 2.2 Legislative framework

The South African labour market was subject to various types of labour market discrimination during the apartheid era, including employment discrimination. During this era, various acts such as the Ordinance 17 of 1907, the Group Areas Act 41 of 1950 and the Industrial Conciliation Act 28 of 1956 were enacted to deny Blacks (Africans) access to highly-paid employment, highly-skilled occupations and employment in urban areas (Venter, Levy, Conradie & Holtzhausen 2009:39). To correct for these imbalances of the past, new laws were enacted since 1994, including the Labour Relations Act 66 of 1995 (LRA), the Basic Conditions of Employment Act 75 of 1997 (BCEA) and the Employment Equity Act 55 of 1998 (EEA). This section of the chapter provides a discussion on the discriminative acts (during the apartheid period) as well as the non-discriminative acts (towards the end of apartheid and since the advent of democracy) in the South African economy.

#### 2.2.1 Discriminative Acts

During the apartheid era, various acts were enforced with the aim of segregating the labour market on the basis of population group. To begin with, the Mines and Works Act 12 of 1911 aimed to deny the Black workers from accessing skilled work in the mining sector. They were denied access by making it a requirement that certificates of competency must first be submitted before anyone could gain access to the job. However, the certificate was not issued to Black miners; the result was that a wide range of skilled jobs were out of reach to Black miners (Venter, Levy, Conradie & Holtzhausen 2009:40). In an effort to reduce disruption to the industry, the Industrial Coalition Act 11 of 1924 was enacted. This act formally excluded Black employees from collective bargaining. The act also laid the basis for a racially

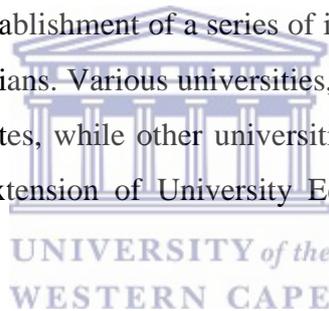
discriminative labour market. This was done by officially excluding Black employees from the formal definition of an employee, thereby ensuring that Black employees had no recourse to free employment practices or any employment rights (Venter, Levy, Conradie & Holtzhausen 2009:42).

Another act that further segregated the labour market on the basis of race was the Wage Act 27 of 1925. Its aim was to provide minimum wages for white workers that fell outside of the industrial council system (Bhorat, Van der Westhuizen & Goga 2009: 4). In the case of a dispute by any Black worker, various acts were passed to ensure that any dispute would not result in any disruption to the industry. The Native Labour Settlement of Disputes Act 48 of 1953 was enacted to segregate trade unions on the basis of race. This act also made it illegal for Blacks to strike in all circumstances (Native Labour Settlement of Disputes Act 48 of 1953: search result). The Industrial Conciliation Amendment Act 28 of 1956 further entrenched as the Native Labour Settlement of Disputes Act 48 of 1953. This act prohibited further formation of mixed unions. It also imposed a restriction on existent mixed unions. These mixed unions were to have racially separate branches, and all white executive committees. The act also prohibited all workers from strike action in essential industries and denied unions the opportunity of being politically affiliated, and gave legal backing for the reservation of skilled jobs for white workers (Industrial Conciliation Amendment Act 28 of 1956: search result).

Apart from legislation that aimed at segregating the labour market, there were also acts separating the areas of residence and the educational system by population group. For instance, the Natives Land Act 27 of 1913 restricted the allocation of land to Blacks. Only 7.3% of the land was allocated to Blacks as land ownership was restricted to 'scheduled areas'. The Black population could not own or rent land outside of these scheduled areas. They were also not allowed to purchase land from non-Blacks. They were however allowed to work in designated White areas as low-paid agriculture and mine workers (Natives Land Act 27 of 1913: search result). The Native Urban Areas Act 21 of 1923 further enforced the segregation of living areas by giving local urban authorities the power to regulate the presence of Black residents in urban areas. The authorities established separate resident locations for Blacks. The Black population were denied further access to freehold property rights on the grounds of them not being permanent urban residents. They were only allowed to live in these areas for as long as their services were demanded by the White population (Native Urban Areas Act 21 of 1923: search result). The act that ultimately changed the social geography of

South Africa was the Group Areas Act 41 of 1950. This act was aimed at separating the residents on the basis of race which eventually resulted in mass removals throughout the country (Louw 2010: 3-4, 34).

The main legislations enacted to ensure the separation of the educational system was the Bantu Education Act 1953 and the Extension of University Education Act 45 of 1959. The Bantu Education Act 1953 was aimed at further separating the already segregated educational system of the country. Blacks were already not given access to highly-skilled occupations in the country because these occupations were reserved for Whites. The act therefore ensured that education for these occupations was deemed unnecessary. This act also provided for mother-tongue instruction at primary level. This was done to cement ethnic awareness in the youth of the Black population (The Bantu Education Act 1953: search result). On the other hand, the Extension of University Education Act 45 of 1959 prohibited the registration of non-Whites at open universities without the written consent of the Minister of Internal Affairs. It also allowed for the establishment of a series of institutions for Blacks and separate institutions for Coloureds and Indians. Various universities, such as Stellenbosch and Rhodes, restricted their admission to Whites, while other universities, Fort Hare and Witwatersrand, were mixed-race institutions (Extension of University Education Act 45 of 1959: search result).



### 2.2.2 Non-discriminative Acts

To correct for the injustice of the past, new laws were enacted. The first act that laid the foundation for non-discriminative acts was the Industrial Conciliation Amendment Act 94 of 1979. This act widened the formal definition of an employee to include Black workers. It also legalised Black trade unions for all Black workers other than contract workers. This resulted in rapid growth of Black trade unions in the 1980s. This act also abolished job reservation for Whites. Blacks were then allowed to enter fields of employment which they were not given access to previously (Industrial Conciliation Amendment Act 94 of 1979: search result).

After the election of the newly democratic government in 1994, there was a rapid improvement in the legislative framework of the labour market. The key legislation responsible for the drastic change in the labour market is the Labour Relations Act 66 of 1995, the Basic Conditions of Employment Act 75 of 1997, the Employment Equity Act 55 of 1998, the Skills Development Act 1998, and the Skills Development Levies Act 1999.

Firstly, the Labour Relations Act 66 of 1995 was designed to promote sectoral collective bargaining, to simplify dispute resolution procedures and to codify dismissal procedures. It also entrenched the constitutional right to strike and enhanced organisation rights for trade unions. Bargaining councils and the Commission for Conciliation, Mediation and Arbitration (CCMA) are established under this act. These institutions involve bilateral negotiations between trade unions and employers and their organisations. This act also protects employees against unfair dismissals (Bhorat, Lundall & Rospabe 2002: 43).

The primary aim of the Basic Conditions of Employment Act 75 of 1997 is to cover the conditions of employment for employees in the labour market, thereby giving effect to and regulating the right to fair labour practices. This is done “by establishing and enforcing basic conditions of employment and by regulating the variation of basic conditions of employment” (Basic Conditions of Employment Act 75 of 1997: 6). The act seeks to improve the working conditions of vulnerable employees by addressing hours of work, overtime pay, contracts of employment, annual and sick leave, and termination of employment. It also extends labour standards to many sectors that had not been covered in the past, such as domestic workers and farm workers (Bhorat, Lundall & Rospabe 2002: 43; Finnemore 2009: 187).

Along with bargaining councils established under the LRA, the BCEA makes provision for the formation of sectoral determinations that enforces basic conditions of employment for workers in a specific area or sector. A sectoral determination is formed through a process of consultation and research between workers and employers in a specific sector. The Department of Labour officials and the Minister of Labour are also involved in the process. The act was amended in 2002, with eleven areas of economic activity having sectoral determinations in place<sup>1</sup>, as the employees in these areas are unskilled, under paid and vulnerable (Bhorat, Van der Westhuizen & Goga 2009: 17-18).

The next act was the Employment Equity Act 55 of 1998. Section 2(b) states that the purpose of the act is to bring about equity in the workplace by:

*“(i) promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination; (ii) implementing affirmative action measures to redress the disadvantages in employment experienced by designated groups, in order to ensure their equitable representation in all*

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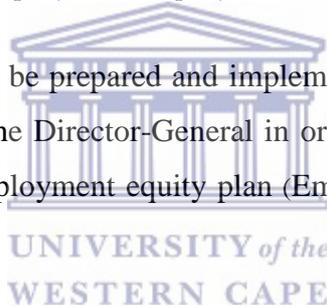
<sup>1</sup> The sectors are: forestry, agriculture, contract cleaning, children in the performance of advertising, artistic and cultural activities, taxi operators, civil engineering, learnerships, private security, domestic workers, wholesale and retail, and hospitality.

*occupational categories and levels in the workplace” (Employment Equity Act 55 of 1998: 5).*

The main aims of this act are to eliminate unfair discrimination in employment and to ensure the implementation of remedial measures. These remedial measures should compensate for the rejection of opportunities in the past to previously disadvantaged South Africans. The first formalisation of Affirmative Action was within the Employment Equity Act (Burger & Jafta 2010:3-5). Affirmative Action requires that remedial measures be taken by designated employers. These employers employ: 50 or more workers, fewer than 50 workers but has a total annual turnover that is equal to or above a specified amount, or are bound by a collective agreement to act as a designated employer (Employment Equity Act 55 of 1998: 3).

*“Affirmative action measures are designed to ensure that suitably qualified people from designated groups have equal employment opportunities and are equitably represented in all occupational categories and levels in the workforce of a designated employer” (Employment Equity Act 55 of 1998: 9).*

An employment equity plan must be prepared and implemented by the designated employer. This plan must be submitted to the Director-General in order to determine if there has been progress in implementing the employment equity plan (Employment Equity Act 55 of 1998: search result)



Last but not least, the Skills Development Act 1998 and the Skills Development Levies Act 1999 aim to strengthen the link between employment opportunities and workplace education and training. The Skills Development Act seeks to create a workplace of a high quality and implement an education and training system that is cost effective, while the Skills Development Levies Act aims to promote increased investment in the skills development of employees by providing training incentives to firms (Bhorat, Lundall & Rospabe 2002: 43). The latter act makes it compulsory for all companies earning above a certain threshold to pay an amount equivalent to 1% of their payroll. The 1% is collected by a national collection agency and the Sectoral Education and Training Authorities (SETAs). The levy is split between the National Skills Fund (which receives 20%) and the SETAs, which holds onto the remaining 80% to fund accredited training (Finnemore 2009: 189).

It is clear from the discussion above that a proportion of the South African population was heavily disadvantaged in the past, namely non-Whites and females. The newly elected government of the economy tried to correct these disparities by enacting new legislation.

Whether these new laws have been successful in reducing employment discrimination is the subject of analysis within this study.

## **2.3 Conceptual and Theoretical Framework**

The next section of the chapter looks at different concepts relating to the labour market. These concepts include the labour force (LF), the labour force participation rate (LFPR), employment, unemployment and the unemployment rate.

### 2.3.1 Concepts relating to the labour market

Ehrenberg and Smith (2012: 27) refer to the LF as consisting of individuals over the age of 15 years who are currently employed, who are actively looking for employment, or awaiting recall from dismissal. In contrast, Mohr and Fourie (2004:342) define the LF as comprising of everyone who is able and willing to work. The LF includes both unemployed and employed (who could be formal sector workers, informal sector workers, employers or self-employed). The LFPR is derived by dividing the LF by the working-age population or the population aged between 15-65 years (Ehrenberg & Smith 2012: 28).

The employed population are those individuals who are aged between 15 and 65 years, have worked for a minimum duration of one hour in the past seven days, or had employment but was absent from employment during a particular reference week (Stats SA 2014). Mohr and Fourie (2004:562) as well as Ehrenberg and Smith (2012: 27-28) define the unemployed population as those people without employment, currently available for employment and looking for employment.

Statistics South Africa (Stats SA) distinguishes between the narrow (strict) and broad (expanded) definitions of unemployment (Stats SA 2010: 153). The narrow definition refers to individuals who are without work for seven days prior to the interview, are available for employment within a week of the interview and have taken active steps to seek employment within the past four weeks. The distinguishing feature of the narrow definition is the last criterion. In most cases taking active steps to seek employment require, amongst others, transportation cost which is not always available to people seeking employment. This would prevent individuals from taking active steps to seek work even if they are desperately in need of a job. Individuals who do not take active steps are referred to as discouraged work-seekers. The broad definition of unemployment includes the discouraged work-seekers. This definition

was developed because the true unemployment position will be underestimated if the unemployed are expected to actively seek employment. Despite this issue, Stats SA do not regard discouraged work-seekers as part of the LF under the narrow definition. The discouraged work-seekers are therefore regarded as “not economically active” (Barker 2008: 174-175). The unemployment rate is found by dividing the number of unemployed by the LF (Mohr and Fourie 2004:562).

Stats SA conducted the October Household Survey (OHS), the Labour Force Survey (LFS), and currently the Quarterly Labour Force Survey (QLFS) to capture labour market data. The QLFS was introduced in 2008 to replace the LFS. This was done after consultants from the International Monetary Fund (IMF) gave a report to Stats SA concerning the documents, procedures and processes of the LFS. The LFS was then re-engineered which eventually lead to the decision that the survey would take place on a quarterly basis (Yu 2009: 2). With the re-engineering of the LFS came changes to the survey questionnaire, sampling and weighting as well as changes to data capturing and processing. Stats SA undertook methodological changes with the introduction of the QLFS, specifically relating to the capturing of the labour market status. Because of these changes, the broad labour market status derivation methodologies in 1995-2007 and 2008 onwards are incomparable<sup>2</sup> (Yu 2009:2). Table 2.1 below summarises the derivation of LFPR and unemployment rates under the narrow and broad definitions respectively.

**Table 2.1: Derivation of narrow and broad labour force participation rates and unemployment rates**

Labour market status (1) Employed; (2) Unemployed; (3) Discouraged work-seeker; (4) Inactive
Narrow labour force participation rate = $\frac{(1)+(2)}{(1)+(2)+(3)+(4)}$
Broad labour force participation rate = $\frac{(1)+(2)+(3)}{(1)+(2)+(3)+(4)}$
Narrow unemployment rate = $\frac{(2)}{(1)+(2)}$
Broad unemployment rate = $\frac{(2)+(3)}{(1)+(2)+(3)}$

<sup>2</sup> This falls beyond the scope of this study, but for a detailed explanation on the incomparability of the broad methodologies before and after the introduction of the QLFS, refer to Yu (2009).

### 2.3.2 Discrimination: definitions and theories

Discrimination can occur before or after an individual enters the labour market. There are various types of pre-labour-market as well as within-labour-market discrimination. Pre-labour-market discrimination includes human capital discrimination. This is discrimination with respect to education and training. Employers discriminate on the basis of impaired access to education and training and inferior quality of education and training (Lovasz & Telegdy 2010: 50). Within-labour-market-discrimination occurs after the individual has entered the labour market. It includes employer discrimination; wage discrimination; occupational discrimination; statistical discrimination; and employment discrimination (Borjas 2010: 365 & 368). The different types of within labour market discrimination are discussed below.

#### 2.3.2.1 Employer discrimination

Discrimination in the labour market against certain groups of workers could occur in various ways. Employer discrimination occurs when, for instance, employers prefer Whites to non-Whites of equal qualification or ability. This practice forces non-Whites to accept reduced wages or less attractive employment in order to obtain a stable income (Moore 1983:496). Employers who practice employer discrimination would often offer Whites a higher wage to hire them, even if employing them would lead to a greater cost to the firm than employing non-White workers (Borjas 2010: 370). In contrast, non-discriminatory employers will be at a competitive advantage because they would be hiring non-White workers at a lower cost, thereby increasing potential profits.

If labour markets are perfectly competitive, the discriminating employer would eventually either end discriminatory practices or close the business. This is because the increased cost that the firm would be facing in order to employ White workers would result in lower profits. To increase profits the firm would have to charge higher prices. However, this would not be possible to sustain in a perfectly competitive market (Cain 1984b:13; Borjas 2010:371-372). Becker (1992:40) states that whether non-discriminating employers will eventually compete away discriminating employers depends on the distribution of tastes for discrimination amongst probable employers, and on the nature of the production function of the firm.

Finally, note that employer discrimination discussed above refers to racial employer discrimination. It is also possible to have gender employer discrimination. In this case employers prefer employing a particular gender to another.

### 2.3.2.2 Wage discrimination

Employer discrimination could result in wage discrimination. This is so because employers who are guilty of discriminatory practices will only employ non-White workers if their wages are lower than that of White workers, even if their productivity may be equal (Lovasz & Telegdy 2010:51). Wage discrimination occurs when employees belonging to a certain group are paid less compared to employees belonging to other groups for doing the exact same work (Cain 1984a: 2; Borjas 2010:374). Wall (2000: search result) stated that wage discrimination “occurs when men and woman are not paid equal wages for substantially equal work”. This is referred to as wage discrimination by gender. It is also possible to have racial wage discrimination, in which case different race groups are paid a different wage for doing substantially equal work.

### 2.3.2.3 Occupational discrimination

Employer discrimination could also result in occupational discrimination. This is because employers who discriminate on the basis of race or gender might not want employees of a particular race or gender to be in certain occupations (Lovasz & Telegdy 2010:51). Occupational discrimination occurs when two groups of workers are both capable of doing a particular job and they both possess the necessary qualifications, but only one of these groups is given access to skilled occupations. Hence the other group is under-represented within these skilled occupations (Borjas 2010: 368-376; Lovasz & Telegdy 2010:49). Females, for example, are over-represented in sales and services, clerk and elementary occupations (Stats SA 2014: 31).

### 2.3.2.4 Statistical discrimination

Statistical discrimination involves the perception employers get from information received about certain groups of employees (Lovasz & Telegdy 2010:53). This perception could be based on productivity. Employers could believe that certain groups of employees are more productive than other groups based on a particular statistical report.

Employers use statistical generalisation as it is a less costly way to determine the productivity and work related characteristics of employees, and because information gathered from the interview or resume are not sufficient to determine the worker’s productivity. Usually employers would interview potential employees and allow them to work for a probation period if the interview is successful. This is extra cost to the employer which could potentially be avoided should the employer use statistical generalisation instead (Borjas 2010: 378-382).

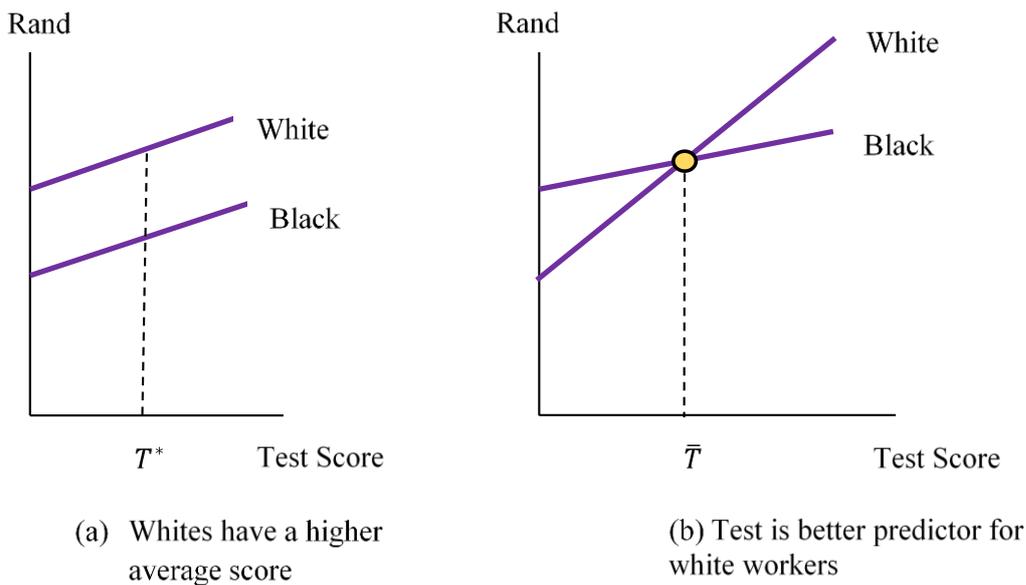
Assuming that there are two applicants, one from the White and the other from the Black population groups; the wage function of these individuals are given as:

$$w = \alpha T + (1 - \alpha)\bar{T}$$

Where  $w$  stands for the wage of an applicant;  $T$  represents a test score that is calculated based on the applicant's resume, the interview or any other screening procedures, while  $\bar{T}$  is the average test score of a particular racial group the applicant belongs to. The parameter  $\alpha$  measures the correlation between productivity and the applicant's test score ( $T$ ), for instance, if the test score is perfectly correlated with productivity it implies that the test score equals the value of marginal product of labour ( $VMP_L$ ) and hence the wage rate. In other words, it determines how much of each applicant's wage depends on his/her own test score and how much depends on the average test score of the applicant's racial group. For example, if the parameter equals one the applicant's wage depends entirely on his/her own test score, and if it equals zero the applicant's wage depends entirely on the average group test score. This implies that "the higher the predictive power of the test, the higher the value of  $\alpha$ " (Borjas 2010: 383-384).

Figure 2.1 demonstrates the two ways in which statistical discrimination impacts the wages of Blacks and Whites. In Figure 2.1(a) it is assumed that the average test score Whites obtain on the screening test,  $\bar{T}_W$ , is higher than the average test score of Blacks,  $\bar{T}_B$ . It is also assumed that the correlation between productivity and test scores ( $\alpha$ ) are equal for both groups. According to the wage function, this implies that the Black line is below the White line and both lines have the same slope. It also implies that if both applicants get the same test score,  $T^*$ , the White applicant receives a higher wage because it is assumed that the White population group is more productive than the Black population group. In Figure 2.1 (b) it is assumed that the average test score ( $\bar{T}$ ) of both Blacks and Whites are equal, and the correlation between productivity and the test score ( $\alpha$ ) is no longer equal for both groups. It is also assumed that the test score is a bad predictor of the true productivity of a Black applicant, implying that  $\alpha_W$  will be bigger than  $\alpha_B$ . The wage function shows that the line representing the relationship between the wage and the test score of the Black applicant is relatively flat. This is because the wage for the Black applicant is mostly determined by the group average test score and not based on the individual qualifications of the applicant, whereas, the wage of the White applicant is mostly determined by the individual qualifications of the applicant (Borjas 2010: 384-385).

**Figure 2.1: The impact of statistical discrimination on wages**



Source: Borjas 2010: 384

In terms of a hypothetical example, assume that there are two applicants for a salesperson post at Woolworths, Wendy (White) and Brooke (Black). Both applicants are required by the employer to partake in a test to get an idea of their individual abilities. Wendy gets 900 points and Brooke gets 1 200 points. Based on past records, it is found that the average test score for Whites is 1 300 and for Blacks is 650. As mentioned before, the wage function is given as:  $w = \alpha T + (1 - \alpha)\bar{T}$ , where  $T$  and  $\bar{T}$  represents the individual test score of each applicant and the average test score of the racial group respectively.

If  $\alpha = 1$ , then  $w = \alpha T$ , that is, statistical discrimination is completely absent because the applicants wage depends entirely on her test score. Wendy's wage would be R900 ( $1 \times 900$ ) while Brooke's wage would be R1 200 ( $1 \times 1\,200$ ). In contrast, if  $\alpha = 0$ , then  $w = \alpha \bar{T}$ , that is, statistical discrimination is most serious because the applicants wage depends entirely on the group average. Wendy's wage would be R1 300 ( $1 \times 1\,300$ ) while Brooke's wage would be R650 ( $1 \times 650$ ), despite the fact that Brooke performed better in the test (1 200 points) compared to Wendy (900 points).

Assuming  $\alpha = 0.4$  (i.e. between 0 and 1),  $w = 0.4T + 0.6\bar{T}$ . In this case, statistical discrimination is present to some extent (but not as serious as the case when  $\alpha = 1$ ), as the applicants wage depends on both her test score and the group average. Wendy's wage would

be equal to R1 140 ( $0.4 \times 900 + 0.6 \times 1300$ ), while Brooke's wage would be R870 ( $0.4 \times 1200 + 0.6 \times 650$ ).

### 2.3.2.5 Employment Discrimination

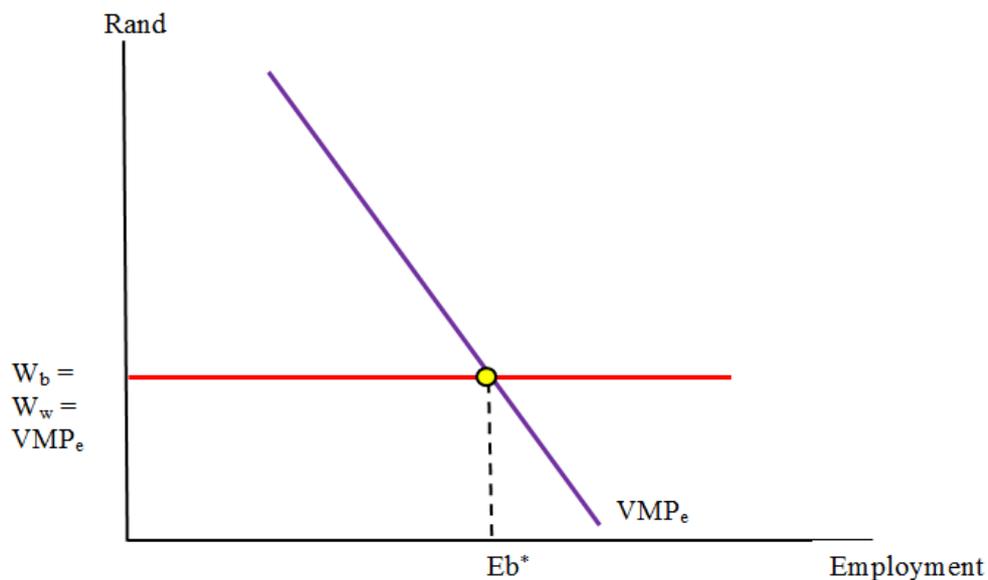
Employment discrimination refers to a situation in which some groups of labour market participants have a higher probability of being unemployed, and this takes place even if they possess exactly the same characteristics as other groups. By way of illustration, consider a competitive firm that is deciding how many employees to hire. Assume there are two different race types of labourers in the market, black and white labourers. Further it is assumed that the black and white workers are perfect substitutes in production.

The production function is given as:  $q = f(Ew + Eb)$ , where the firm's output is denoted by  $q$ . The number of White workers employed and the number of Black workers employed is denoted as  $Ew$  and  $Eb$  respectively. Suppose that the firm's output only depends on the total number of workers hired with no attribution to race. This implies that the firm will get the same output if it employed 100 Black workers and 0 White workers or if it employed 100 White workers and 0 Black workers. It is further assumed that the Black and White population are equally productive. Hence, any difference that arises in the economic status of the two groups must arise from discriminatory behaviour (Borjas 2010: 369-370).

In order to make the analysis clear, the hiring decision of a firm that does not discriminate is analysed before introducing the discriminating employer. The non-discriminating employer faces two constant input prices,  $Ww$  and  $Wb$  for White and Black employees respectively. This employer will hire whichever group is cheaper considering that both groups have the same value of marginal product. This implies that if the market determined wage for Black workers are lower than that of White workers, the firm will only employ Black workers. This non-discriminatory firm will employ Black workers up until the point where the Black wage equals the value of their marginal product (Borjas 2010: 369-370), that is,  $Wb = VMPE$ , where  $VMPE$  stands for the value of marginal product of labour.

Figure 2.2 demonstrates this profit-maximising condition. This figure shows that if the market wage equals that of the White wage and Black wage, the employer would be indifferent between hiring Blacks and Whites. At the end,  $Eb^*$  workers are hired, including both Black and White employees.

**Figure 2.2: The non-discriminatory firm's employment choice**



Source: Borjas 2010: 370

The difference between a non-discriminating employer and a discriminating employer is that the former employer considers the Black wage to be  $Wb$  as opposed to the latter employer who considers the Black wage to be  $Wb(1 + d)$ , where  $d$  is the discrimination coefficient. This implies that the discriminating employer compares  $Ww$  and  $Wb(1 + d)$  and not  $Ww$  and  $Wb$  when making a hiring decision.

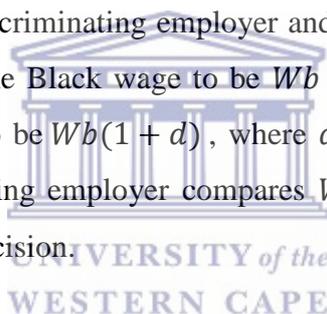
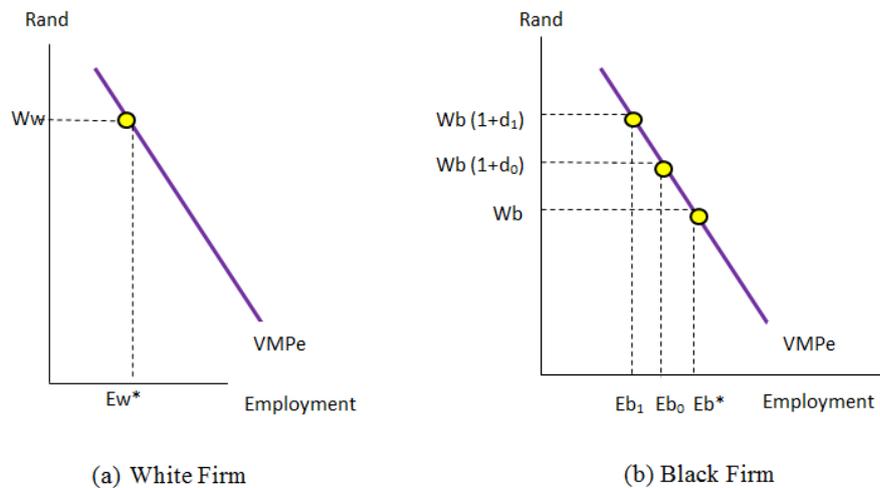


Figure 2.3 provides an illustration of two types of firms. The first graph in this figure pertains to a White firm, those that hire an all-White workforce. Employers who are very discriminatory, with a large discrimination coefficient will hire no Black workers and only White workers. Figure 2.3(a) shows that the White firm will employ labourers up to a point where the remuneration of White workers equal the value of marginal product, or  $Ww = VMP_e$ . Within these White firms, employers hire relatively fewer White workers because of the assumption that White labour is more expensive than Black labour.

In contrast, Figure 2.3(b) illustrates the case of a Black firm, a firm with a small discrimination coefficient. These firms will hire only Black workers. The graph shows that even Black firms tend to hire too little workers, if we compare points  $Eb_1$  and  $Eb_0$  to  $Eb^*$ . This all-Black firm hires Black labourers up to a point where the utility adjusted price of a Black labourer equals the value of marginal product, or  $Wb(1 + d_0) = VMP_e$  (Borjas 2010: 369-371).

**Figure 2.3: The discriminatory firm's employment choice**



Source: Borjas 2010: 371

### 2.3.2.6 Oaxaca-Blinder decomposition

The decomposition technique developed by Oaxaca (1973) and Blinder (1973) is the most widely used method to examine discrimination within the labour market (Ospino, Vasquez & Narvaez 2009: 240; Burger & Jafta 2010: 16). This method separates the average employment probability or wage gap into two categories. The first category, the explained component, represents the differences that are explained by the model, such as differences in qualifications. The second category shows the differences not explained by the model. This difference is the unexplained component, which is what remains after controlling for the differences explained by the model. The unexplained component could be attributed to discrimination in the labour market or differences in characteristics of individuals that are unobserved, such as talent; ability or the quality of education. After excluding all of the unobserved characteristics of individuals, a more precise estimate of the size of the unexplained component will be found (Ospino, Vasquez & Narvaez 2009: 240).

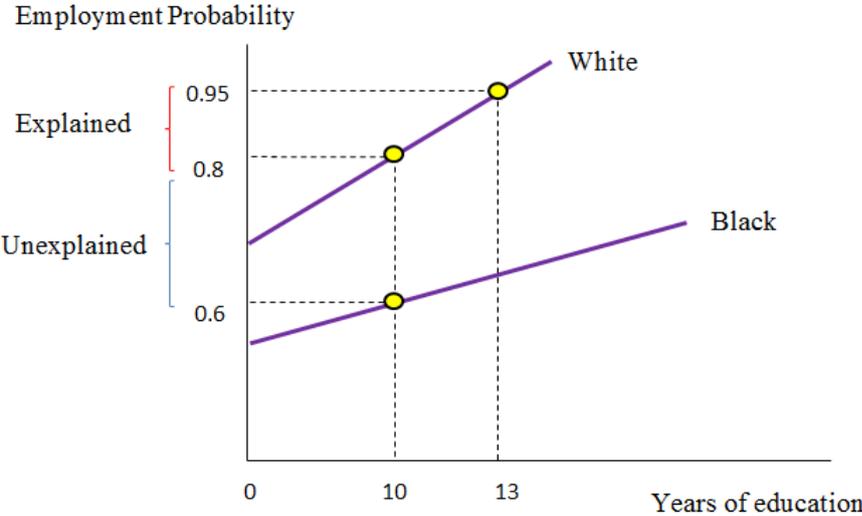
Figure 2.4 presents a simple bivariate model<sup>3</sup> of the Oaxaca-Blinder decomposition based on the employment probability gap by race, assuming that there are only two race groups. The average employment probability is displayed along the vertical axis and the average nominal years of schooling along the horizontal axis. Given the simple employment likelihood probit equations of whites and blacks:

$$\begin{aligned} \text{Whites:} \quad & \text{Prob(Employed)} = 0.3 + 0.05 \times \bar{S}w \\ \text{Blacks:} \quad & \text{Prob(Employed)} = 0.2 + 0.04 \times \bar{S}b \end{aligned}$$

<sup>3</sup> The multivariate model would be discussed in detail in the forthcoming methodology chapter.

Where  $\bar{S}_w$  stands for the mean white years of schooling and  $\bar{S}_b$  represents the mean black years of schooling.

**Figure 2.4: The employment probability gap by race**



Source: Adapted from Borjas 2010: 287

In this example, it is assumed that the mean years of education of Blacks and Whites are 10 and 13 respectively. It can be seen from Figure 2.3 that a White individual with 13 years of schooling has a 95% ( $0.3 + 0.05 \times 13$ ) chance of finding employment, while a Black individual with 10 years of schooling has a 60% ( $0.2 + 0.04 \times 10$ ) chance of finding employment. However, a White individual with 10 years of education has an 80% ( $0.3 + 0.05 \times 10$ ) chance of finding employment.

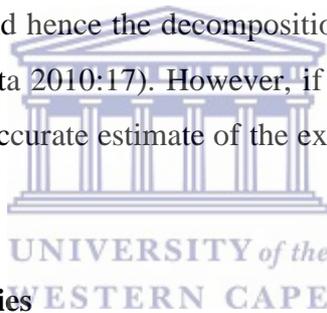
If years of education equals zero for both race groups, Whites’ employment likelihood is 30%, but the Blacks’ employment likelihood is only 20%. In addition, the slope parameters of the two probit regressions suggest that if educational attainment increases by one year for both race groups, the employment likelihood for Whites will increase by 5 percentage points but only 4 percentage points for Blacks. Hence, these two preliminary findings already suggest the possible presence of employment discrimination against Blacks.

The unexplained component is equal to the difference between the employment probability of a White individual with 10 years of education and the employment probability of a Black individual with exactly the same years of education. This difference is 20% ( $0.8-0.6$ ), which could be due to discrimination. The explained component is found by assuming that a Black individual with 10 years of education now has the same employment probability function as a

White individual with 13 years of education. This is assuming that a Black individual has an 80% ( $0.3 + 0.05 \times 10$ ) chance of finding employment with 10 years of education. The explained component is then found by taking the difference between the employment probability of a Black individual with 10 years of schooling and that of a White individual with 13 years of schooling. This difference is 0.15 ( $0.95 - 0.80$ ), which is acceptable as the Whites are indeed more educated on average (by 3 years).

Finally, the employment probability gap between the two groups at their respective mean years of education is equal to is 0.35 ( $0.95 - 0.60$ ), with the unexplained component accounting for 57.14% ( $0.20 / 0.35$ ) of this gap.

One of the major criticisms of this method is that the characteristics of employees that are not observable, such as the quality of education and motivation, are very important but cannot be easily controlled for. If these characteristics are correlated to the variables that are observable, the estimates would be biased, and hence the decomposition results could be invalid (Burger & Jafta 2006: 13; Burger and Jafta 2010:17). However, if these unobservable characteristics are better controlled for, a more accurate estimate of the extent of employment discrimination would be obtained.



## **2.4 Review of past local studies**

This section provides an overview of the results of past South African studies that examined the extent of labour market discrimination in the country. The focus is on employment discrimination and wage discrimination by gender and population group.

### 2.4.1 Employment discrimination

The majority of South African studies examined the extent of wage discrimination since the economic transition. The studies conducted by Burger and Jafta (2006 & 2010) were the rare ones that investigated employment discrimination. Their 2006 study used the Oaxaca-Blinder decomposition method to determine the explained and the unexplained component of the employment probability gap by race, using the 1995-1999 OHS and 2000-2004 LFS data. They found that the White-Black employment probability gap increased significantly between 1995 and 2000. This gap then stabilised between 2000 and 2004. The authors also found no clear evidence of a strong downward trend of the unexplained component. Burger and Jafta (2006) also used the same method to derive the differential in the average probability of the

LF attaining a skilled occupation by race, and found an increasing occupational attainment gap between Whites and Blacks. This gap was driven in part by an increase in the unexplained component. The authors concluded that Affirmative Action has not been particularly successful in reducing the employment as well as the occupational attainment probability gaps by race.

The second study by Burger and Jafta (2010) extended their 2006 study by examining the extent of employment and wage discrimination by race and gender in 1995-2006. The authors used the Oaxaca-Blinder decomposition and restricted their study to White and Black workers with incomplete secondary education and more. As far as their findings on employment discrimination are concerned, the employment probability gap between White and Black males increased between 1997 and 2003, 0.32 to 0.38, and then declined to 0.28 in 2006. The unexplained component remained fairly constant at 0.04 between 1997 and 2003 and then dropped to 0.01 in 2006. This decline could be attributed to the implementation of Affirmative Action policies in 2003, however, the reduction in the employment probability gap caused by improving the skills of Blacks had a stronger influence. The difference in employment probabilities between Black and White women is higher than that for men. Also, the unexplained component in the case of woman is much larger than in the case of men.

In the case of gender discrimination in each race, it was found that for Blacks, men were approximately 15 percent more likely to find employment than women, and about half of this difference can be explained. However, Burger and Jafta (2010) found that the unexplained component of the employment probability gap by gender increased between 2000 and 2006 for both Blacks and Whites. They concluded that Affirmative Action might not be a success to rapidly reduce employment discrimination by race and gender. It was also found that Affirmative Action was not nearly as significant in bridging the gap between groups as improved educational quality (Burger and Jafta 2010).

## 2.4.2 Wage discrimination

### 2.4.2.1 Wage discrimination by gender

Winter (1999) analysed wage discrimination by gender in 1994, with the use of the Oaxaca-Blinder decomposition method and the OHS 1994 data. The author found that women earned 87% of men's wages on average. After disaggregating the data by race, it was found that the White population had a very large gender mean wage gap and the Blacks had an insignificant gender mean wage gap. The biggest component of the gender mean wage gap for Whites was

attributed to discrimination. This result was contrary to evidence from studies conducted in various other countries. Hinks (2002) however, found a similar result.

Hinks (2002) as well as Grun (2004) conducted a study that aimed at estimating the mean wage differential by gender in South Africa. Hinks (2002) was one of the first local studies to look at the gender mean wage differential as opposed to the racial wage differential that others were focused on. This author used the Oaxaca-Blinder decomposition method in order to differentiate between gender productive gaps and gender discrimination. Thereafter comparisons were made with international studies due to the lack of South African studies. The data used was from the 1995 OHS. The results of the study showed that the gender mean wage differentials were largest in the White and Indian population groups. This was the case even though White and Indian females were paid more than their Black and Coloured counterparts on average. It was also found that males were more productive than females in the White population. In the Black and Coloured population groups, females on average were more productive than males and in the Indian population group females were just as productive as males.

Grun (2004) took into account the fact that labour force participants may have different probabilities of finding employment. Grun (2004) examined the extent of wage discrimination by gender for Blacks and Whites and only included full-time formal sector workers. The author estimated selectivity corrected wage regressions which provide the possibility to decompose mean wage gaps into characteristic and discrimination components. It also provided an option to decompose into direct and indirect effects that are encountered at the selection into employment stage. This study used the data from OHS 1994, 1995 and 1999, and included nominal years of education in its regression on log earnings, which was found by using the years of schooling completed. The results revealed that wage discrimination by gender was significant in the second half of the 1990s. It was also found that White women were more affected by direct wage discrimination while Black women mostly suffer from discrimination at the hiring phase. Another study by Grun (2009) focused on wage discrimination by gender for Africans only. The data source for this study was OHS 1995, OHS 1997, OHS 1999, LFS 2001 and LFS 2003. Grun (2009) used the Oaxaca-Blinder decomposition, but the focus was on decomposition of the mean wage gaps into age, cohort and year effects. The author found that the mean wage gaps are bigger for Black females moving into the older age cohorts.

Ntuli (2007) explored gender mean real wage gaps for Black formal sector workers over the 1995-2004 period. This study differed from Hinks (2002) in that it took distributional implications of standardising the size of the wage gaps across the complete wage distribution into consideration. The data used was from the 1995 and 1999 OHS as well as the 2004b LFS. The methodology used was quintile regression techniques to control for different characteristics at various points of the wage distribution. Additionally, the Machado Mata decomposition method was used to estimate the unexplained component. The author found that the absolute sizes of the counterfactual wage gaps decreased with movement along the wage distribution from bottom to top, implying a sticky wage floor. Also, it was found that the counterfactual wage gap did not decline over the 1994-2004 period.

Shepherd (2008) followed the approach by Hinks (2002), Ntuli (2007) and Grun (2004, 2009) by only including formal sector workers, but her study, along with the Oaxaca-Blinder decomposition, also applied the Juhn-Murphy decomposition<sup>4</sup>. The data source for this study was the OHS 1996-1999 and the LFS 2000-2006. Shepherd (2008) focused on wage discrimination by gender for each race group. She found that for the Black population group, men on average have higher returns to their productive characteristics than women, for all years considered. The unexplained component of the gender mean real wage gap was persistently high and showed no clear downward trend. The explained component of the wage gap was negative, this implied that Black women have more endowments of productive characteristics than men but do not fully benefit from it through earnings. The Juhn-Murphy decomposition was used to account for the fact that the Oaxaca-Blinder decomposition only allows for the assessment of gender discrimination at an average level and does not account for changes in the wage distribution. The author found that for Blacks the ratio of the unexplained component as a percentage of the total wage gap decreased with an upward movement in the wage distribution. This implied that there is a sticky wage floor. Women in unskilled occupations within unskilled industries tend to be most affected by discrimination in the formal sector labour market. This is in line with the Ntuli (2007) findings.

Muller (2009) conducted a study on gender wage differentials but differed from previous researchers by also considering evidence of gender wage gaps amongst part-time and full-time employees. The Oaxaca-Blinder decomposition methodology was used together with data from the 1995 and 1999 OHS as well as the 2001b and 2006b LFS. The results show

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<sup>4</sup> The Juhn-Murphy-Pierce decomposition is beyond the scope of this study. For a detailed discussion on this method, refer to Burger and Jafta (2006).

that a gender mean real wage gap was present for both part-time and full-time employees even after accounting for characteristic differences between males and females. Also, contrary to what Ntuli (2007) found, the total gender mean real wage gap for both part-time and full-time employees have declined over the period. Additionally, it was found that the decline in the gender mean real wage gap was most evident for the part-time employees, implying that discrimination in this group has decreased.

Bhorat and Goga (2012) estimated the gender mean real wage gap for Blacks by using separate earnings functions for each gender and each year before using the Oaxaca-Blinder decomposition. The authors used the 2001b, 2005b and 2007b LFSs and found that there was no significant decline in the conditional wage gap for the Black racial group over the 2001-2007 period. They did however find that the explained component of the gender mean real wage gap has decreased with no significant increase in the unexplained component. This implies that discrimination against Black woman has not increased, however, a significant amount of discrimination is still present (71 per cent of the gender mean real wage still remains unexplained).

#### 2.4.2.2 Wage discrimination by race

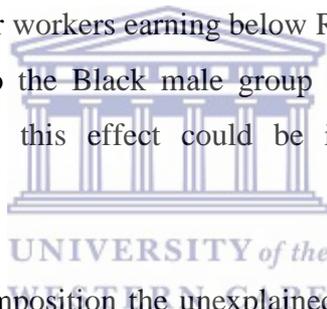
Both Burger and Jafta (2006) and Burger and Jafta (2010) examined wage discrimination post-1994. Burger and Jafta (2006) used the Oaxaca-Blinder decomposition, the Brown-Moon-Zoolth decomposition and the Juhn-Murphy-Pierce decomposition to determine wage differences by race. The Oaxaca-Blinder decomposition results indicated that the White-Black mean log real wage gap showed no clear downward trend. The unexplained component of this gap increased between 1995 and 2000, and then stabilised between 2001 and 2004. The Brown-Moon-Zoolth decomposition showed that the largest part of the wage gap between the White and Black population is due to differences in wages within rather than between occupations. When using the Juhn-Murphy-Pierce decomposition, Burger and Jafta (2006) found a slight contraction of the White-Black mean wage gap at the top three percentiles. The authors concluded that Affirmative Action only benefited the highest earning 5% of the Black wage earners.

Burger and Jafta (2010) investigated the extent of wage discrimination by both race and gender. The empirical results indicated that the racial mean log real wage gap for both genders increased between 1997 and 2000, after which it remained relatively stable. The explained component of the wage gap increased between 1997 and 2000 and then declined.

However, the unexplained component showed a continued increase. This result is significant considering the implementation of Affirmative Action policies in 2003. The authors also conducted a thorough decomposition to look at the role of each productive characteristic separately. The results showed that Whites get rewarded more for an additional year of education. This implies that employers perceive Whites to have received better quality of education than Blacks. In terms of gender discrimination, the authors found a very small total gender wage gap for the Black population. The explained component is in favour of females and the unexplained component is in favour of males.

#### 2.4.2.3 Wage discrimination by trade union membership

Armstrong and Steenkamp (2008) investigated the estimated union wage premium, which is the additional wages unionised workers received for having trade union membership. The authors used this estimated union wage premium to determine the union-nonunion mean wage gap. The data used in this study was OHS 1995-1999 and the LFS 2000-2005. The study only included Black male formal sector workers earning below R200 000 a month at 2000 constant prices. The study was limited to the Black male group because the union effect is more pronounced for this group and this effect could be isolated from racial and gender discrimination.

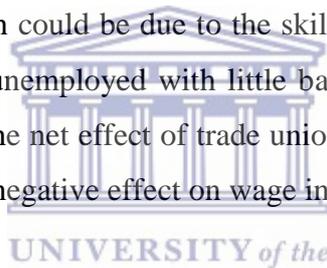


Within the Oaxaca-Blinder decomposition the unexplained component was attributed to the pure union effect and the non-union group was used as the reference category. The results from the Oaxaca-Blinder decomposition showed that the average union-nonunion wage gap decreased significantly in the year 1997, after which it increased steadily until 2002. The average union-nonunion wage gap then stayed stable until 2005. The unexplained component of the union-nonunion wage gap was at its highest in 2002. This implies that the wage gap between the union and non-union employees was driven by factors other than the differences in the characteristics of employees. After 2002, the unexplained component decreased but this did not change the average increasing trend in this component since 1995.

Armstrong and Steenkamp (2008) decomposed the wage gaps for 1995, 2002 and 2005 in order to identify the main drivers of the wage gap. In 1995 the unexplained component was the largest in the union-nonunion wage gap. This implies that the pure union effect was the main determinant of the union-nonunion wage gap. It further implies that “in 1995 the premium earned by unionised workers relative to their nonunionised counterparts was largely driven by union attachment and not worker attributes” (Armstrong and Steenkamp 2008:32).

This result holds for 2002. However, in 2005 this result was less prominent. In 2005 human capital had a bigger role in the union-nonunion wage gap than it did in 1995. This showed that the advantage unionised workers had over their nonunionised counterparts was increasingly grounded on the characteristics of workers and not only on union negotiation for added benefits to its members.

Ntuli and Kwenda (2014) examined the effect of trade union membership on wage differentials. These authors aimed to determine if the distortionary effect of the union wage premium was growing over time. The methodology used in this study was the endogenous switching regression model together with the two sector model, and the authors used the data from LFS 2001, 2004 and 2007 as well as QLFS 2010 Quarter 3. They restricted the analysis to Black men aged 15 to 64 years at the time of these surveys. It was found that the union mean log real wage premium for Black men declined over the 2001 to 2010 period. This result contradicted the upward trend found during the 1990s. This finding suggested that the power of unions weakened, which could be due to the skills-biasedness of the labour market leaving many of their members unemployed with little bargaining power. Another outcome found by these authors was that the net effect of trade unions increased wage inequality. This suggests that trade unions have a negative effect on wage inequality amongst Black men.



#### 2.4.2.4 Wage discrimination and taking quality of education into consideration

Chamberlain and Van der Berg (2002) were one of the first local studies to incorporate quality of education in modelling earnings in South Africa. The data used for this study was from the Living Standards and Development Survey 1993 and OHS 1995. Chamberlain and Van der Berg (2002) state that even though education is an important factor in determining earnings, the measure commonly used to capture education provides an inaccurate approximation of the effective level of education. This is because the quality of education received by various labour market participants is different. This study accounts for the quality of education differential by including quality of education in modelling of earnings. The aim of their study was to investigate whether accounting for quality of education in analysing earnings differentials would lead to a decrease in the mean real wage gap by race ascribed to labour market discrimination. It was found that the component of the mean wage gap by race ascribed to labour market discrimination showed a systematic decrease with increased adjustments for the quality of education. A significant finding is that nearly half of the previous labour market discrimination component can be attributed to the differences in quality of education. Without adjustments for quality of education the component of the mean

wage gap attributed to labour market discrimination was 42.23 per cent. However, after adjusting for differences in quality of education across race groups, this contribution of the unexplained component dropped to 23.63 per cent. However, it should be noted that the fraction of racial wage differences attributed to labour market discrimination remains high (23.63 per cent).

Burger and Van der Berg (2011) was a follow-up study of Chamberlain and Van der Berg (2002) by incorporating the quality of education within the regression on log earnings. Burger and Van der Berg (2011), however, used a simulation model that uses 2003 matriculation examination results and educational attainment levels to generate estimates of education quality. Initially they used the conventional Oaxaca-Blinder approach. A simple Mincerian earnings function was used in which log wage earnings were regressed on education and potential experience. The data used was from the September 2007 LFS. After constructing a school quality measure, the Oaxaca-Blinder decomposition was re-estimated allowing for different levels of educational quality. Burger and Van der Berg (2011) compared the conventional model with the augmented model and found that approximately half of the unexplained component of the wage gap can be explained by differences in school quality. This finding was in line with the finding of Chamberlain and Van der Berg (2002).

The Burger and Jafta (2006, 2010) studies discussed above did not incorporate any explanatory variables reflecting the quality of education in their probit regression on employment likelihood. These studies used instead the nominal years of education. Also, most of the studies discussed above only looked at wage discrimination and not employment discrimination. This is a clear gap in the literature, which this study is aiming to fill.

## **2.5 Conclusion**

This chapter discussed the different discriminative acts that existed in the South African economy. These acts segregated the labour market, the residential areas, and the education institutions on the basis of race. The first act enacted to address the imbalances of the past was the Industrial Conciliation Amendment Act 94 of 1979. This act was followed by various laws that aimed to further remedy the labour market. These laws include the LRA, EEA and the BCEA.

The chapter moved on to look at various labour market concepts, such as the labour force, employment and unemployment. This was followed by a discussion on the different theories of discrimination. The focus of this study is on employment discrimination, which stands for discrimination against some groups of labour market participants. These groups are associated with a lower probability of being employed as compared to the other groups, even though they possess similar characteristics.

The empirical literature review was the last section covered. The majority of the studies discussed did not account for the quality of education differences in their probit regressions on employment likelihood. Even though quality of education was overlooked in most of these studies, the quality of an individual's education should play a significant role in determining labour market entrance. It is therefore clear that when conducting a study to determine the extent of employment discrimination within the labour market, both the quantity as well as the quality of education should be significant factors to be incorporated.



## CHAPTER THREE: METHODOLOGY AND DATA

### 3.1 Introduction

This chapter describes the methodology and data used in the study. Section two discusses the Oaxaca-Blinder decomposition. As stated previously, this decomposition was developed by Blinder (1973) and Oaxaca (1973) to estimate the extent of discrimination in the labour market. The next section looks at the data used in the study. The data used is the OHS 1997-1999, the LFS 2000-2007, QLFS 2008-2014 and NIDS 2008-2012. Section four of the chapter discusses the proposed empirical model. The next section looks at the modelling of quality of education. Variables from the NIDS 2012 dataset would be used to reflect quality of education. The final section concludes the chapter.

### 3.2 Methodology: Oaxaca-Blinder decomposition

The Oaxaca-Blinder decomposition technique allows researchers to divide the mean wage gap into a component attributed to differences in productive characteristics between groups and a component attributed to possible discrimination. As a starting point to better describe the Oaxaca-Blinder decomposition, a wage earnings function is estimated. It is important to note that the log of wages is frequently specified as being dependent on a set of distinct characteristics. The wage earnings function is given as:

$$\ln W = X\beta + \varepsilon \quad (1)$$

Where  $W$  represents the average wage,  $X$  stands for the average productive characteristics and  $\beta$  is the vector of coefficients demonstrating the markets valuation of the productive characteristics  $X$ , such as years of education, province, age and marital status. The difference between Whites and Blacks in their average log of wages can be stated as:

$$\ln \bar{W}_w - \ln \bar{W}_b = \bar{X}_w \beta_w - \bar{X}_b \beta_b \quad (2)$$

Where  $w$  and  $b$  stands for the White and Black population groups respectively. This equation can be rewritten as:

$$\ln \bar{W}_w - \ln \bar{W}_b = (\bar{X}_w - \bar{X}_b) \beta^* + \bar{X}_w (\beta_w - \beta^*) + \bar{X}_b (\beta^* - \beta_b) \quad (3)$$

Where  $\beta^*$  represents the vector of coefficients that would remain when no discrimination is present. The mean wage gap can now be split into three different categories. The first

category is the wage differential that comes from the difference in the average productive characteristics between the White and Black population,  $(\bar{X}_w - \bar{X}_b)\beta^*$ . The second category is the difference between what White employees are being paid and what they would earn in a labour market without discrimination,  $\bar{X}_w(\beta_w - \beta^*)$ . The last category represents the difference between what Black employees would earn in a labour market without discrimination and what they are actually being paid,  $\bar{X}_b(\beta^* - \beta_b)$ . The last two categories are combined and referred to as the unexplained component of the wage gap, it reflects the White advantage and the Black disadvantage (Burger & Jafta 2006: 9-11; Shepherd 2008: 12-13).

If it is assumed that  $\beta^* = \beta_w$ , that is, the vector of coefficients in the non-discriminating scenario is equivalent to the White wage structure. Then the equation above becomes:

$$\ln \bar{W}_w - \ln \bar{W}_b = (\bar{X}_w - \bar{X}_b)\beta^* + \bar{X}_b(\beta_w - \beta_b) \quad (4)$$

Burger and Jafta (2006: 11) extended the Oaxaca-Blinder decomposition to binary econometric models, as they were also interested in employment and occupational discrimination. They followed Gomulka and Stern (1990: 174-175) by expressing equation (3) as:

$$\bar{L}_w - \bar{L}_b = [\bar{L}(X_w\beta^*) - \bar{L}(X_b\beta^*)] + [\bar{L}(X_w\beta_w) - \bar{L}(X_w\beta^*)] + [\bar{L}(X_b\beta^*) - \bar{L}(X_b\beta_b)] \quad (5)$$

Where  $L_i$  is a probit function. This function determines the probability of some labour market outcome. The average of the values of the function is indicated by  $\bar{L}_i$  and given as:

$$\frac{1}{n} \sum_{i=1}^n L(X_i\beta)$$

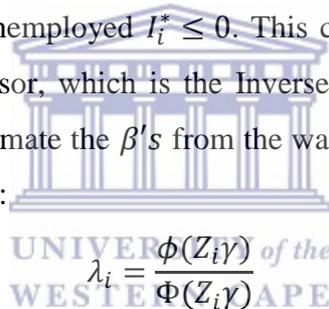
Burger and Jafta (2006: 11-12) note two complications in empirically estimating equations (3) and (5). The first difficulty is the data restrictions and the immeasurability of certain productive characteristics, for example school quality and ability. This implies that empirical studies reluctantly omit some of the explanatory variables. If these explanatory variables are omitted it could result in an over-estimation of labour market discrimination. The unexplained component of the wage gap is often referred to as the “upper limit to discrimination” (Burger and Jafta 2006: 11; Shepherd 2008: 13-14). It is also possible for the unexplained component to be downwardly biased if one were to consider pre-labour market discrimination. In this case, part of the explained component of the wage gap could be due to pre-labour market discrimination, such as the human capital investment decision (Burger and Jafta 2006: 11). It

should be noted that within this study the unexplained component is restricted to discrimination that took place after the person entered the job market.

The second complication in empirically estimating the equations mentioned above is selection bias. This is a serious problem because inconsistent estimates of the regression coefficients could result from regular single equation techniques. There are however procedures that can be used to remedy this problem. In the case of the wage gap, the Heckman procedure can be used and in the case of the employment gap and occupation selection, the Heckprobit procedure can be used. Both the Heckman and Heckprobit procedures begin by estimating a model of selection into the relevant sample. The **explanation** is done for the Heckman procedure, which is very similar to the Heckprobit procedure. The two step model selection equation is given as:

$$I_i^* = Z_i\gamma + u_i$$

Where  $I_i^*$  stands for the employment status of the individual. If the individual is employed  $I_i^* > 0$  and if the individual is unemployed  $I_i^* \leq 0$ . This can be modelled by using a probit specification. An artificial regressor, which is the Inverse Mills ratio, may be added to the wage equation to consistently estimate the  $\beta$ 's from the wage regression specified previously. The artificial regressor is given as:



$$\lambda_i = \frac{\phi(Z_i\gamma)}{\Phi(Z_i\gamma)}$$

Where  $\phi(\cdot)$  stands for the normal probability density function and  $\Phi(\cdot)$  represents the normal cumulative distribution function. By estimating:

$$\ln W_i = X_i\beta + \eta\lambda_i + \varepsilon_i$$

The researcher would be able to evaluate the parameters consistently. The next step is to subtract the Inverse Mills ratio from each side of the equation. This is done to allow the racial gap in wages offered to be decomposed into different components. As stated previously, the Heckprobit works in a similar way, it allows consistent valuation of dichotomous outcomes (Burger & Jafta 2006: 12-13). Burger and Jafta (2006: 18) did not take the issue of sample selection bias into consideration in their empirical study, because including selection equations resulted in very unstable racial gaps in wages<sup>5</sup>. Hence, for the same reason this study would also not consider the issue of sample selection bias.

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<sup>5</sup> This is also the approach adopted by Hinks (2002) and Shepherd (2008).

### 3.3 Data

Data on the South African labour market is obtained from Stats SA and Southern African Labour and Development Research Unit (SALDRU). The data used in this study is the 1997-1999 October Household Surveys (OHSs), 2000-2007 Labour Force Surveys (LFSs), 2008-2014 Quarterly Labour Force Surveys (QLFSs), as well as the 2008, 2010 and 2012 National Income Dynamics Study (NIDS). These surveys contain data from a large number of households across all the provinces in South Africa. The total sample of the data used includes individuals between the age of 15 and 65 years, it only includes formal sector employees (as well as unemployed), thereby excluding informal sector workers, subsistence agriculturalists, self-employed individuals and domestic workers. The OHS 1995-1996 datasets could not be used because in these two surveys, the employees were not asked to declare whether they worked in the formal sector or informal sector (Essop and Yu 2008:7-8).

The three waves used from NIDS include questions on home language as well as the respondents' perceived English reading and writing proficiency. It should be noted that the answers to the latter questions are based on the self-perception of respondents as opposed to a language test. These variables are included because it is assumed that English language proficiency has an impact on the South African labour market. English language proficiency refers to the ability of an individual to read, write, hear and speak English (Chiswick 2008:2). It is referred to as a form of human capital, which is the improvement of skills through education and training. Hence, English language proficiency enhances the stock of human capital an individual possesses (Barker 2007: 206). It can also be associated with transaction costs, which refers to the transfer, translation, production, evaluation and location of information (Chan 2008:12-13). Looking at it from the perspective of a job seeker, transaction costs related to the process of job searching are reduced with improved English language proficiency. Hence, the chances of being part of the South African labour market is increased for the job seeker reading, writing and speaking English, the official medium of communication (Casale & Posel 2010:3).

As stated previously, it is assumed that English language proficiency has an impact on the South African labour market. Two recent local studies that looked at the connection between language proficiency and labour market outcomes are Cornwell and Inder (2008) and Casale and Posel (2010). Cornwell and Inder (2008) used the OHS 1996 and 1998 data and found a positive relationship between language proficiency and labour market outcomes. In contrast,

Casale and Posel (2010) used the NIDS 2008 data and restricted their study to Black males. They found that Black men who are proficient in the English language have a higher earnings potential. Based on the results in these studies it is clear that English language proficiency has a positive significant impact on the employment market outcome of work seekers.

The NIDS 2008-2012 datasets also include information on the quality of education. The three key variables used to determine quality of education are: school quintile, zero-fee schools and the former department of the schools. By including these variables as additional explanatory variables for the probit model, the Oaxaca-Blinder decomposition results could estimate the extent of employment discrimination more precisely.

Table 3.1 reveals the sample size of the working-age population by race and gender for NIDS 2008-2012. The table shows that the sample size for these datasets is very small in all three surveys (compared to the OHSs/LFSs/QLFSs – with a sample size of between 40 000 and 50 000 in general), specifically in the case of Whites. Because of this, the econometric results using the NIDS data need to be interpreted with great caution. In particular, the forthcoming Coloured-Whites decomposition results need to be interpreted extremely cautiously, as both the Coloured and White sample sizes are very small, as indicated in the table.

High attrition rates are most common in longitudinal studies. Attrition occurs when individuals or households refuse to be interviewed, they cannot be contacted or respondents have died between waves (Brown, Daniels, de Villiers, Leibbrandt, & Woolard 2012:23). The high rate of attrition amongst the White population in NIDS Waves 2 and 3 was caused by respondents refusing to be reinterviewed (Brown et al 2012:25). The respondents reinterviewed in Waves 2 and 3 were not a random sample of those interviewed in Wave 1. This resulted in the use of panel weights to correct for attrition bias.

A probit model was used to estimate the probability of being successfully re-interviewed in Waves 2 and 3, given the baseline characteristics of the respondents. The panel weights are the inverse of the likelihood of being in the sample. “This probability is the product of the probability of being interviewed in Wave 1, times the probability of being successfully reinterviewed, conditional on appearing in Wave 1. The panel weights are therefore a product of two weights: the weight corresponding to appearing in Wave 1 and an attrition weight, i.e. the inverse of the conditional probability of being re-interviewed” (Brown et al 2012:39-40).

**Table 3.1: Sample size of the working-age population by race and gender, NIDS 2008-2012**

	<b>2008</b>			
	<b>Unweighted</b>		<b>Weighted</b>	
<b>Black</b>	10 922	78.01%	19 849 925	78.03%
<b>Coloured</b>	2 012	14.37%	2 204 743	8.67%
<b>Indian</b>	242	1.73%	705 477	2.77%
<b>White</b>	824	5.89%	2 679 525	10.53%
	14 000	100.00%	25 439 670	100.00%
<b>Male</b>	5 894	42.10%	11 530 646	45.33%
<b>Female</b>	8 106	57.90%	13 909 024	54.67%
	14 000	100.00%	25 439 670	100.00%
	<b>2010</b>			
	<b>Unweighted</b>		<b>Weighted</b>	
<b>Black</b>	11 906	82.36%	20 656 752	78.19%
<b>Coloured</b>	1 961	13.57%	2 405 458	9.11%
<b>Indian</b>	169	1.17%	721 318	2.73%
<b>White</b>	419	2.90%	2 633 164	9.97%
	14 456	100.00%	26 418 193	100.00%
<b>Male</b>	6 371	44.07%	12 538 074	47.46%
<b>Female</b>	8 085	55.93%	13 880 119	52.54%
	14 456	100.00%	26 418 193	100.00%
	<b>2012</b>			
	<b>Unweighted</b>		<b>Weighted</b>	
<b>Black</b>	13 518	81.40%	22 614 405	78.68%
<b>Coloured</b>	2 453	14.77%	2 683 780	9.34%
<b>Indian</b>	193	1.16%	805 564	2.80%
<b>White</b>	441	2.66%	2 637 708	9.18%
	16 606	100.00%	28 743 774	100.00%
<b>Male</b>	7 418	44.67%	14 106 115	49.08%
<b>Female</b>	9 188	55.33%	14 637 659	50.92%
	16 606	100.00%	28 743 774	100.00%

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

### **3.4 Proposed empirical model**

The study consists of three labour market models describing the labour force participation, employment and occupational attainment. It is possible to model the participation and employment decision using Ordinary Least Squares (OLS) regressions. This would however not be an optimal method because the participation and employment decisions are binary responses. Dichotomous variables cannot be modelled efficiently when using the OLS regression for several reasons. These reasons include: the homoscedastic error term

assumption is violated, the range of the value of the dependent variable is not limited to [0, 1], and the non-linear relationship between the variables is better dealt with using a probit/logit model (Chamberlain and Van der Berg 2002: 12). This study uses the probit method to avoid the problems mentioned above. Labour force participation probits, employment likelihood probits and probits on highly-skilled occupation employment of the employed are estimated for the Blacks, Coloureds and Whites, as well as males and females.

In the labour force participation probit model, various variables reflecting the personal characteristics of the respondents (gender, age in years, age in years squared, marital status, headship status, educational attainment) and household characteristics (province of residence, number of children in the household, number of elderly in the households, number of adult males in the household, number of adult females in the household) are included. The same personal characteristics variables are included in the employment likelihood probit model as well as the highly-skilled occupation employment likelihood model of the employed.

In the empirical part of the study the narrow definition of unemployment is used. This is done for reasons discussed previously in Section 2.3.1. As stated previously informal sector workers are omitted from the empirical analysis, as well as domestic workers and economically inactive individuals. This is because the study aims to determine the effect of Affirmative Action policies on the labour market after the transition, and these policies do not have a large impact on domestic workers and informal sector workers.

### **3.5 Modelling quality**

Students can receive different levels of effective schooling even if their years of schooling are the same. One probable reason for the differences in effective schooling is the dissimilarity in the quality of education received by various students. A method used by Chamberlain and Van der Berg (2002) to account for variances in quality of education in the Mincerian framework adjusted actual years of schooling completed to find the effective years of schooling. This function is given by:  $S^* = S^*(S, q)$ , where  $S^*$  stands for effective years of schooling,  $S$  represents years of schooling and  $q$  is a proxy for the quality of education.  $S^*$  is a function of  $S$  and  $q$ . The assumption is that the higher the effective years of schooling the greater the probability of finding employment.

Chamberlain and Van der Berg (2002) used the 1993 Project for Statistics on Living Standards and Development (PSLSD) data to predict the quality-adjusted test scores in OHS 1995. However, this outdated data source is not suitable to be used to determine changes in quality of education for the 1997-2014 period (there is already a big 4-year gap between PSLSD 1993 and OHS 1997). The numeracy test scores in the NIDS 2008 data set could be a potential data source (e.g. to predict the quality-adjusted test scores in the labour surveys taking place around 2008), but unfortunately only about 20% of the adults participated in the numeracy test in the NIDS. This would result in inaccurate results due to a small sample size. Therefore, the only other alternative is to use the school quintile, school fee status and the former department of the school variables in the NIDS 2008-2012 datasets to re-estimate the extent of labour market discrimination in 2008-2012, after taking quality of education differences (if any) into consideration.

### **3.6 Conclusion**

This chapter discussed the methodology and data to be used in this study. The Oaxaca-Blinder decomposition is the most widely used method to examine discrimination within the labour market. This method separates the average wage gap into two categories. The first category represents the differences that are explained by the model, such as differences in qualifications. The second category shows the differences not explained by the model, the unexplained component. This decomposition is firstly explained in terms of the wage gap and then further extended to decompose the employment gap and occupation selection.

The data used in the study include OHS 1995-1999, LFS 2000-2007, QLFS 2008-2014 and NIDS 2008-2012. These surveys contain data from a large number of households across all the provinces in South Africa. The study consists of three labour market models describing the labour force participation, employment and occupational attainment. Household variables are found in the labour force participation probit together with variables that are also included in the employment and occupation attainment probit. The modelling of quality was the last section covered in the chapter.

## CHAPTER FOUR: EMPIRICAL FINDINGS

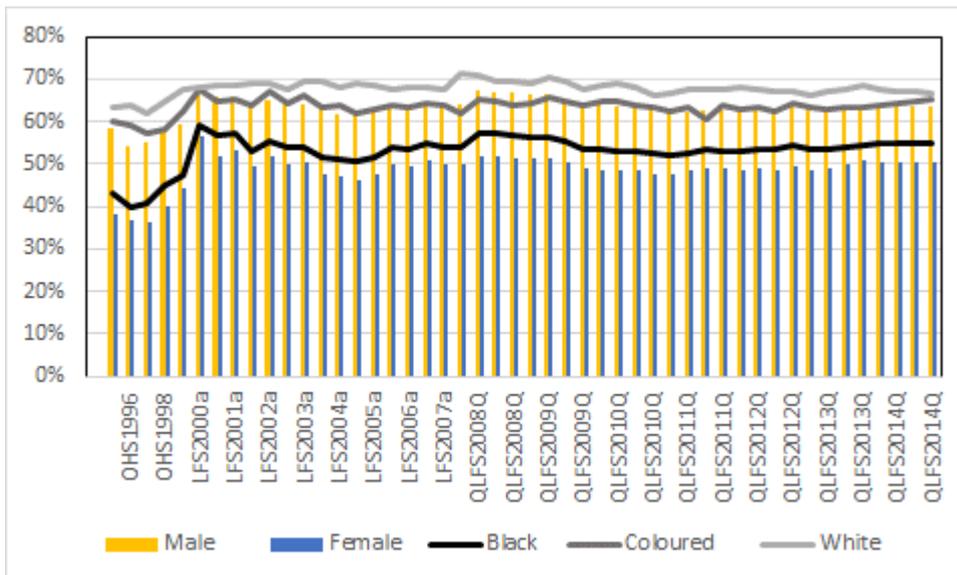
### 4.1 Introduction

The empirical analysis covers the period 1997 to 2014, unless specified otherwise. Initially participation and employment likelihood by race and gender over the years is interpreted in the descriptive analysis. Thereafter, multivariate econometric analysis and Oaxaca-Blinder decomposition are conducted in order to determine if employment discrimination by race and gender has been reduced since the transition.

### 4.2 Descriptive analysis

Figure 4.1 and Table A.1 present the labour force participation rates by race and gender from 1995 to 2014. The LFPR increased rapidly in the OHSs for all groups considered, after which a general downward trend was observed between 2000 and 2004, for all groups except Whites. An upward trend was observed between 2005 and 2008, with the LFPR peaking at 57.1 per cent for Blacks and 51.8 per cent for females in QLFS 2008Q2. The LFPR was fairly steady between QLFS 2008Q3 and QLFS 2014Q4. Also, the Whites and Blacks had the highest and lowest LFPR respectively, during the period under study. Finally, it can be seen that males were more likely to participate in the labour market than females.

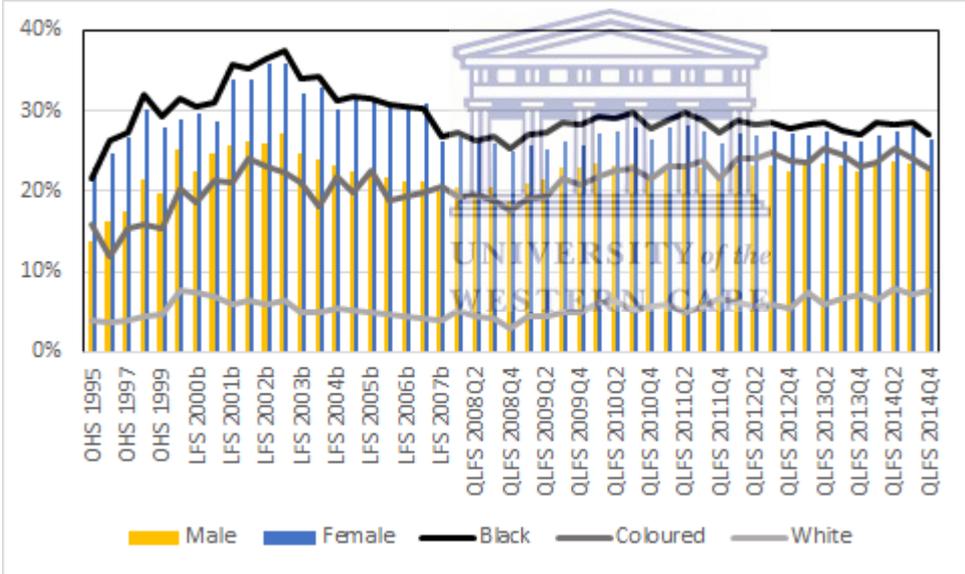
**Figure 4.1: LFPR by race and gender, 1995-2014**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data.

The sharp increase in the LFPR during the OHSs may have contributed significantly towards the upward trend of the unemployment rate for the same period, because the extent of job creation probably was not rapid enough to absorb the net labour force entrants during the 1990s. The unemployment rates by race and gender are represented in Figure 4.2 and Table A.2. In general, an upward trend was observed between 1996 and 2003, before a downward trend took place between LFS 2003 and QLFS 2008Q4. In 2008 the unemployment rate reached a low of 18.7 per cent, 24.9 per cent and 25.4 per cent for the male, female and Black population groups respectively. A gradual upward trend was observed between QLFS 2008Q4 and QLFS 2014Q2, before the unemployment rate declined to 27.1 per cent for Blacks and 26.5 per cent for females in QLFS 2014Q4. The figure also shows that the unemployment rate has always been higher for females compared to males. Finally, the White unemployment rate has always been much lower when compared to Blacks and Coloureds.

**Figure 4.2: Unemployment rate by race and gender, 1995-2014**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data.

The demographic composition of the employed by race and gender in selected surveys is captured in Table 4.1.<sup>6</sup> Looking at the three race groups, it can be seen that the proportion of male employees have declined for all groups, with such reduction being the greatest for the Blacks, as the male share declined from 70.2 per cent in 1997 to 59.4 per cent in 2014. It can also be seen that the male share is significantly higher for Blacks compared to the other two race groups. Regarding the provincial share of employed in each race group, it is interesting that the Gauteng share was most dominant for Blacks and Whites, but the Western Cape share

<sup>6</sup> As mentioned earlier, from this point onwards, only non-agricultural formal sector employees are included for the analysis.

was the highest for Coloureds. Furthermore, for all three race groups, the mean years of educational attainment showed an upward trend over the years, but the whites were significantly more educated than the Coloureds and Blacks (by about 3 years). Finally, the White employed were associated with having fewer children present in the household.

**Table 4.1: Characteristics of employed, selected surveys**

	Black	Coloured	White	Male	Female
<b>OHS 1997</b>					
Male	0.7017	0.6025*	0.5776 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.6229	0.5034 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.1323	0.1660 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0432	0.0504 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.2016	0.2803 <sup>^</sup>
Married	0.6070	0.5542*	0.7310 <sup>#</sup>	0.6913	0.5124 <sup>^</sup>
Head	0.5957	0.4116*	0.5271 <sup>#</sup>	0.7119	0.2260 <sup>^</sup>
Western Cape	0.0456	0.6829*	0.1729 <sup>#</sup>	0.1571	0.1826 <sup>^</sup>
Eastern Cape	0.0847	0.0956*	0.0696 <sup>#</sup>	0.0740	0.0904 <sup>^</sup>
Northern Cape	0.0114	0.0760*	0.0228 <sup>#</sup>	0.0242	0.0203 <sup>^</sup>
Free State	0.0955	0.0162*	0.0704 <sup>#</sup>	0.0792	0.0642 <sup>^</sup>
Kwazulu-Natal	0.1735	0.0312*	0.1314 <sup>#</sup>	0.1630	0.1837 <sup>^</sup>
North West	0.1157	0.0052*	0.0411 <sup>#</sup>	0.0875	0.0602 <sup>^</sup>
Gauteng	0.3052	0.0873*	0.4103 <sup>#</sup>	0.2906	0.2931 <sup>^</sup>
Mpumalanga	0.0794	0.0053*	0.0561 <sup>#</sup>	0.0688	0.0439 <sup>^</sup>
Limpopo	0.0890	0.0003*	0.0255 <sup>#</sup>	0.0556	0.0615 <sup>^</sup>
Education years	8.7198	8.9690 <sup>*</sup>	12.2144 <sup>#</sup>	9.1965	10.5783 <sup>^</sup>
Number of children in the household	1.7886	1.6822 <sup>*</sup>	0.9452 <sup>#</sup>	1.5128	1.6239 <sup>^</sup>
Number of elderly in the household	0.2296	0.2514 <sup>*</sup>	0.1661 <sup>#</sup>	0.1983	0.2651 <sup>^</sup>
Number of male 15-59 years in the household	1.5785	1.6239 <sup>*</sup>	1.2439 <sup>#</sup>	1.6901	1.1721 <sup>^</sup>
Number of female 15-59 years in the household	1.5233	1.7169 <sup>*</sup>	1.2974 <sup>#</sup>	1.2990	1.9166 <sup>^</sup>
<b>LFS 2003b</b>					
Male	0.6764	0.5687 <sup>*</sup>	0.5353 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.6492	0.5254 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.1292	0.1658 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0455	0.0502 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.1761	0.2586 <sup>^</sup>
Married	0.5582	0.6201*	0.7223 <sup>#</sup>	0.6547	0.5238 <sup>^</sup>
Head	0.6932	0.4695*	0.5188 <sup>#</sup>	0.7920	0.3149 <sup>^</sup>
Western Cape	0.0486	0.6916*	0.1745 <sup>#</sup>	0.1535	0.1848 <sup>^</sup>
Eastern Cape	0.0881	0.0988*	0.0727 <sup>#</sup>	0.0764	0.0947 <sup>^</sup>
Northern Cape	0.0109	0.0723*	0.0183 <sup>#</sup>	0.0231	0.0169 <sup>^</sup>
Free State	0.0925	0.0143*	0.0827 <sup>#</sup>	0.0827	0.0626 <sup>^</sup>
Kwazulu-Natal	0.1988	0.0292*	0.1014 <sup>#</sup>	0.1742	0.1805 <sup>^</sup>
North West	0.1060	0.0055*	0.0411 <sup>#</sup>	0.0864	0.0514 <sup>^</sup>
Gauteng	0.2816	0.0847*	0.4402 <sup>#</sup>	0.2819	0.2912 <sup>^</sup>
Mpumalanga	0.0850	0.0032*	0.0493 <sup>#</sup>	0.0688	0.0523 <sup>^</sup>
Limpopo	0.0885	0.0004*	0.0198 <sup>#</sup>	0.0531	0.0656 <sup>^</sup>
Education years	9.3217	9.5093 <sup>*</sup>	12.5777 <sup>#</sup>	9.6492	10.9560 <sup>^</sup>
Number of children in the household	1.1906	1.5468 <sup>*</sup>	0.7715 <sup>#</sup>	1.0368	1.3231 <sup>^</sup>
Number of elderly in the household	0.1258	0.1944*	0.1320 <sup>#</sup>	0.1232	0.1714 <sup>^</sup>
Number of male 15-59 years in the household	1.3019	1.4748 <sup>*</sup>	1.1056 <sup>#</sup>	1.4644	0.9974 <sup>^</sup>
Number of female 15-59 years in the household	1.1074	1.5279 <sup>*</sup>	1.1757 <sup>#</sup>	0.9217	1.6557 <sup>^</sup>

**Table 4.1: Continued**

	Black	Coloured	White	Male	Female
<b>QLFS 2008Q4</b>					
Male	0.6427	0.5620*	0.5177#	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.7139	0.6212^
Coloured	0.0000	1.0000	0.0000	0.1142	0.1392^
Indian	0.0000	0.0000	0.0000	0.0344	0.0392^
White	0.0000	0.0000	1.0000	0.1375	0.2004^
Married	0.4718	0.5748*	0.7255#	0.5645	0.4820^
Head	0.6074	0.4427*	0.5187#	0.7253	0.3156^
Western Cape	0.0641	0.6778*	0.1510#	0.1467	0.1610^
Eastern Cape	0.0830	0.0852*	0.0742#	0.0751	0.0882^
Northern Cape	0.0142	0.0797*	0.0191#	0.0233	0.0221^
Free State	0.0634	0.0114*	0.0585#	0.0559	0.0508^
Kwazulu-Natal	0.1952	0.0186*	0.0735#	0.1690	0.1742^
North West	0.0836	0.0061*	0.0362#	0.0699	0.0535^
Gauteng	0.3424	0.1130*	0.5087#	0.3398	0.3332^
Mpumalanga	0.0817	0.0047*	0.0515#	0.0675	0.0608^
Limpopo	0.0724	0.0034*	0.0274#	0.0527	0.0563^
Education years	10.0338	10.3288*	12.7918#	10.1402	11.2903^
Number of children in the household	1.2004	1.3528*	0.7006#	1.0205	1.2972^
Number of elderly in the household	0.1408	0.1861*	0.2218#	0.1447	0.1933^
Number of male 15-59 years in the household	1.3474	1.5062*	1.0983#	1.5585	0.9730^
Number of female 15-59 years in the household	1.1762	1.4988*	1.1377#	0.9293	1.6778^
<b>QLFS 2014Q4</b>					
Male	0.5942	0.5552*	0.5415#	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.7205	0.6886^
Coloured	0.0000	1.0000	0.0000	0.1135	0.1272^
Indian	0.0000	0.0000	0.0000	0.0369	0.0313^
White	0.0000	0.0000	1.0000	0.1290	0.1529^
Married	0.4634	0.5770*	0.7387#	0.5668	0.4636^
Head	0.5537	0.3994*	0.4926#	0.6790	0.3069^
Western Cape	0.0593	0.6832*	0.2178#	0.1441	0.1692^
Eastern Cape	0.0829	0.1127*	0.0634#	0.0764	0.0884^
Northern Cape	0.0187	0.0543*	0.0177#	0.0229	0.0211^
Free State	0.0588	0.0155*	0.0395#	0.0512	0.0458^
Kwazulu-Natal	0.1825	0.0272*	0.0712#	0.1589	0.1634^
North West	0.0827	0.0080*	0.0409#	0.0704	0.0592^
Gauteng	0.3388	0.0931*	0.4729#	0.3364	0.3198^
Mpumalanga	0.0841	0.0057*	0.0583#	0.0718	0.0640^
Limpopo	0.0923	0.0002*	0.0184#	0.0679	0.0691^
Education years	10.8270	10.7712*	12.8182#	10.8596	11.5754^
Number of children in the household	1.1319	1.2259*	0.6737#	0.9356	1.2597^
Number of elderly in the household	0.1604	0.2443*	0.2657#	0.1700	0.2162^
Number of male 15-59 years in the household	1.3457	1.4898*	1.1249#	1.5703	1.0003^
Number of female 15-59 years in the household	1.2649	1.5403*	1.1344#	0.9658	1.7284^

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\* The Coloured mean is statistically different from the Black mean at  $\alpha = 5\%$

# The White mean is statistically different from the Black mean at  $\alpha = 5\%$

^ The female mean is statistically different from the male mean at  $\alpha = 5\%$

When examining the characteristics of employed by gender, first of all, the Black share was significantly lower but the White share was significantly higher for the females. Nonetheless, it can be seen that the Black share increased steadily over the years for both gender groups. Next, the proportion of female workers reporting to be household head was much lower (about 30%) when compared to male workers (about 70%). Also, for both groups, the proportion of workers residing in Gauteng was most dominant in all surveys under study. Last

but not least, the workers have been more educated throughout the years in both gender groups, but the females were significantly more educated.

The demographic composition of highly-skilled employed individuals by race and gender in selected surveys is presented in Table 4.2. The male share has always been significantly higher in the case of Whites. Also, for Blacks and Whites, most of them worked in Gauteng, but for Coloureds, a higher proportion of them worked in Western Cape. In addition, the workers from all three race groups have been more educated on average over the years, but the Whites' mean years of educational attainment were significantly higher.

**Table 4.2: Characteristics of highly-skilled employed, selected surveys**

	Black	Coloured	White	Male	Female
<b>OHS 1997</b>					
Male	0.5178	0.5148	0.5866 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.4076	0.4673 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.0966	0.1121 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0660	0.0475 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.4298	0.3731 <sup>^</sup>
Married	0.5969	0.6407 <sup>*</sup>	0.7700 <sup>#</sup>	0.7692	0.5666 <sup>^</sup>
Head	0.5359	0.4596 <sup>*</sup>	0.5862 <sup>#</sup>	0.7849	0.2479 <sup>^</sup>
Western Cape	0.0349	0.6346 <sup>*</sup>	0.1973 <sup>#</sup>	0.1654	0.1586 <sup>^</sup>
Eastern Cape	0.1147	0.1120 <sup>*</sup>	0.0660 <sup>#</sup>	0.0708	0.1130 <sup>^</sup>
Northern Cape	0.0091	0.0524 <sup>*</sup>	0.0188 <sup>#</sup>	0.0162	0.0185 <sup>^</sup>
Free State	0.0852	0.0260 <sup>*</sup>	0.0569 <sup>#</sup>	0.0676	0.0569 <sup>^</sup>
Kwazulu-Natal	0.1608	0.0236 <sup>*</sup>	0.1357 <sup>#</sup>	0.1551	0.1848 <sup>^</sup>
North West	0.0949	0.0048 <sup>*</sup>	0.0297 <sup>#</sup>	0.0570	0.0504 <sup>^</sup>
Gauteng	0.2851	0.1427 <sup>*</sup>	0.4209 <sup>#</sup>	0.3402	0.2970 <sup>^</sup>
Mpumalanga	0.0635	0.0039 <sup>*</sup>	0.0473 <sup>#</sup>	0.0559	0.0376 <sup>^</sup>
Limpopo	0.1517	0.0000 <sup>*</sup>	0.0274 <sup>#</sup>	0.0719	0.0832 <sup>^</sup>
Education years	11.8139	11.2927 <sup>*</sup>	12.7493 <sup>#</sup>	12.0557	12.2889 <sup>^</sup>
Number of children in the household	1.8409	1.4909 <sup>*</sup>	0.9033 <sup>#</sup>	1.3201	1.4612 <sup>^</sup>
Number of elderly in the household	0.2506	0.2246 <sup>*</sup>	0.1670 <sup>#</sup>	0.1775	0.2594 <sup>^</sup>
Number of male 15-59 years in the household	1.3932	1.3775 <sup>*</sup>	1.1874 <sup>#</sup>	1.5131	1.0747 <sup>^</sup>
Number of female 15-59 years in the household	1.6319	1.6470 <sup>*</sup>	1.2512 <sup>#</sup>	1.2525	1.7659 <sup>^</sup>
<b>LFS 2003b</b>					
Male	0.4661	0.5158 <sup>*</sup>	0.5721 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.3727	0.4735 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.0877	0.0913 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0818	0.0555 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.4578	0.3797 <sup>^</sup>
Married	0.5733	0.7396 <sup>*</sup>	0.7530 <sup>#</sup>	0.7286	0.6113 <sup>^</sup>
Head	0.6255	0.5514 <sup>*</sup>	0.5700 <sup>#</sup>	0.8303	0.3246 <sup>^</sup>
Western Cape	0.0185	0.5744 <sup>*</sup>	0.1883 <sup>#</sup>	0.1459	0.1344 <sup>^</sup>
Eastern Cape	0.1222	0.1026 <sup>*</sup>	0.0636 <sup>#</sup>	0.0687	0.1124 <sup>^</sup>
Northern Cape	0.0084	0.0577 <sup>*</sup>	0.0112 <sup>#</sup>	0.0139	0.0130 <sup>^</sup>
Free State	0.0683	0.0186 <sup>*</sup>	0.0755 <sup>#</sup>	0.0624	0.0631 <sup>^</sup>
Kwazulu-Natal	0.2050	0.0500 <sup>*</sup>	0.1059 <sup>#</sup>	0.1674	0.1773 <sup>^</sup>
North West	0.0854	0.0143 <sup>*</sup>	0.0306 <sup>#</sup>	0.0474	0.0530 <sup>^</sup>
Gauteng	0.3026	0.1768 <sup>*</sup>	0.4714 <sup>#</sup>	0.3910	0.3414 <sup>^</sup>
Mpumalanga	0.0637	0.0049 <sup>*</sup>	0.0412 <sup>#</sup>	0.0521	0.0384 <sup>^</sup>
Limpopo	0.1260	0.0008 <sup>*</sup>	0.0124 <sup>#</sup>	0.0512	0.0669 <sup>^</sup>
Education years	12.8419	12.2682 <sup>*</sup>	13.3206 <sup>#</sup>	12.9211	13.0688 <sup>^</sup>
Number of children in the household	1.3266	1.3686 <sup>*</sup>	0.7336 <sup>#</sup>	0.9372	1.1832 <sup>^</sup>
Number of elderly in the household	0.1374	0.2050 <sup>*</sup>	0.1076 <sup>#</sup>	0.1166	0.1505 <sup>^</sup>
Number of male 15-59 years in the household	1.2015	1.2249 <sup>*</sup>	1.0597 <sup>#</sup>	1.3725	0.9083 <sup>^</sup>
Number of female 15-59 years in the household	1.2890	1.3130 <sup>*</sup>	1.1170 <sup>#</sup>	0.9910	1.4694 <sup>^</sup>

**Table 4.2: Continued**

	<b>Black</b>	<b>Coloured</b>	<b>White</b>	<b>Male</b>	<b>Female</b>
<b>QLFS 2008Q4</b>					
Male	0.4892	0.5217 <sup>*</sup>	0.5374 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.4465	0.5002 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.1122	0.1103 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0668	0.0437 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.3744	0.3457 <sup>^</sup>
Married	0.5295	0.6508 <sup>*</sup>	0.7528 <sup>#</sup>	0.6854	0.5762 <sup>^</sup>
Head	0.6023	0.4825 <sup>*</sup>	0.5520 <sup>#</sup>	0.8023	0.3126 <sup>^</sup>
Western Cape	0.0483	0.6429 <sup>*</sup>	0.1661 <sup>#</sup>	0.1617	0.1470 <sup>^</sup>
Eastern Cape	0.1005	0.0848 <sup>*</sup>	0.0587 <sup>#</sup>	0.0726	0.0915 <sup>^</sup>
Northern Cape	0.0102	0.0506 <sup>*</sup>	0.0162 <sup>#</sup>	0.0158	0.0176 <sup>^</sup>
Free State	0.0585	0.0110 <sup>*</sup>	0.0438 <sup>#</sup>	0.0447	0.0447
Kwazulu-Natal	0.1810	0.0236 <sup>*</sup>	0.0793 <sup>#</sup>	0.1455	0.1539 <sup>^</sup>
North West	0.0704	0.0056 <sup>*</sup>	0.0297 <sup>#</sup>	0.0444	0.0450
Gauteng	0.3577	0.1682 <sup>*</sup>	0.5541 <sup>#</sup>	0.4187	0.3902 <sup>^</sup>
Mpumalanga	0.0822	0.0067 <sup>*</sup>	0.0403 <sup>#</sup>	0.0479	0.0621 <sup>^</sup>
Limpopo	0.0911	0.0067 <sup>*</sup>	0.0118 <sup>#</sup>	0.0487	0.0479 <sup>^</sup>
Education years	12.7412	12.3424 <sup>*</sup>	13.3370 <sup>#</sup>	12.8099	13.0397 <sup>^</sup>
Number of children in the household	1.1634	1.1836 <sup>*</sup>	0.7264 <sup>#</sup>	0.9108	1.0746 <sup>^</sup>
Number of elderly in the household	0.1418	0.1803 <sup>*</sup>	0.2049 <sup>#</sup>	0.1596	0.1910 <sup>^</sup>
Number of male 15-59 years in the household	1.1619	1.3091 <sup>*</sup>	1.0679 <sup>#</sup>	1.4155	0.8790 <sup>^</sup>
Number of female 15-59 years in the household	1.2684	1.3739 <sup>*</sup>	1.0915 <sup>#</sup>	0.9297	1.5329 <sup>^</sup>
<b>QLFS 2014Q4</b>					
Male	0.4741	0.4963 <sup>*</sup>	0.5497 <sup>#</sup>	1.0000	0.0000
Black	1.0000	0.0000	0.0000	0.4796	0.5542 <sup>^</sup>
Coloured	0.0000	1.0000	0.0000	0.0968	0.1023 <sup>^</sup>
Indian	0.0000	0.0000	0.0000	0.0802	0.0504 <sup>^</sup>
White	0.0000	0.0000	1.0000	0.3434	0.2930 <sup>^</sup>
Married	0.5604	0.6737 <sup>*</sup>	0.7701 <sup>#</sup>	0.7115	0.5871 <sup>^</sup>
Head	0.5676	0.4742 <sup>*</sup>	0.5351 <sup>#</sup>	0.7725	0.3053 <sup>^</sup>
Western Cape	0.0515	0.6518 <sup>*</sup>	0.2405 <sup>#</sup>	0.1668	0.1740 <sup>^</sup>
Eastern Cape	0.1060	0.0946 <sup>*</sup>	0.0528 <sup>#</sup>	0.0744	0.0902 <sup>^</sup>
Northern Cape	0.0132	0.0469 <sup>*</sup>	0.0097 <sup>#</sup>	0.0153	0.0140 <sup>^</sup>
Free State	0.0536	0.0154 <sup>*</sup>	0.0316 <sup>#</sup>	0.0377	0.0411 <sup>^</sup>
Kwazulu-Natal	0.1544	0.0397 <sup>*</sup>	0.0820 <sup>#</sup>	0.1308	0.1385 <sup>^</sup>
North West	0.0556	0.0094 <sup>*</sup>	0.0300 <sup>#</sup>	0.0373	0.0434 <sup>^</sup>
Gauteng	0.3969	0.1367 <sup>*</sup>	0.5014 <sup>#</sup>	0.4343	0.3915 <sup>^</sup>
Mpumalanga	0.0766	0.0047 <sup>*</sup>	0.0388 <sup>#</sup>	0.0558	0.0499 <sup>^</sup>
Limpopo	0.0923	0.0008 <sup>*</sup>	0.0132 <sup>#</sup>	0.0475	0.0573 <sup>^</sup>
Education years	13.4170	12.7831 <sup>*</sup>	13.6051 <sup>#</sup>	13.3367	13.5228 <sup>^</sup>
Number of children in the household	1.1164	0.9686 <sup>*</sup>	0.6623 <sup>#</sup>	0.9298	0.9352 <sup>^</sup>
Number of elderly in the household	0.1333	0.2501 <sup>*</sup>	0.2485 <sup>#</sup>	0.1728	0.2099 <sup>^</sup>
Number of male 15-59 years in the household	1.2123	1.3019 <sup>*</sup>	1.0693 <sup>#</sup>	1.4228	0.9262 <sup>^</sup>
Number of female 15-59 years in the household	1.3065	1.4643 <sup>*</sup>	1.0934 <sup>#</sup>	1.0177	1.4941 <sup>^</sup>

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\* The Coloured mean is statistically different from the Black mean at  $\alpha = 5\%$

# The White mean is statistically different from the Black mean at  $\alpha = 5\%$

^ The female mean is statistically different from the male mean at  $\alpha = 5\%$

Finally, looking at the demographic characteristics of highly-skilled workers by gender, it is encouraging that the Black share increased between 1997 and 2014 for both genders, but the Black share has always been significantly higher for females. Also, the majority of workers resided in Gauteng and Western Cape for both genders. Finally, the highly-skilled workers have been more educated on average over the years, but the female workers have always been significantly more educated on average.

### 4.3 Multivariate analysis

The study consists of three labour market models describing the labour force participation, employment and highly-skilled occupational attainment likelihood. While not the main focus of this study, the probit regressions on participation likelihood are shown in Table A.4 and A.5 of the Appendix. The probit on employment likelihood as well as the probit on highly-skilled employment likelihood are what follow next in this section. The empirical analysis of this study does not take sample selection bias into consideration, because including selection equations could result in very unstable results (refer to Chapter 3). Also, sampling weights were used in all empirical analysis included in this study. This section also includes the Oaxaca-Blinder decompositions for the employment probits and highly-skilled employment probits for all surveys from OHS1997 to QLFS2014Q4.

#### 4.3.1 The employment probability gap

Table 4.3 displays the results of the probit regressions on employment likelihood by race for the four selected surveys under study. The reference group for these regressions is females residing in Eastern Cape with no formal education. First of all, it is observed that males are significantly more likely to be employed than females for both the Black and Coloured racial groups. However, a declining trend on the marginal effect is observed between 1997 and 2014 (from 15.4 percentage points to 5.3 percentage points for Blacks and from 3.5 percentage points to 3.1 percentage points for Coloureds). In terms of education, in general, as educational attainment increases there is a significant increase in employment likelihood for the Black and Coloured population groups. With regard to the province of residence, Black residence residing in the Western Cape, Northern Cape, Free State, KwaZulu-Natal, Northwest, Gauteng and Mpumalanga provinces are significantly more likely to be employed than those residing in the Eastern Cape Province in OHS 1997. This trend continues until QLFS 2014Q4 with the exception of the Free State Province. Finally, the table shows that for all race groups and all survey periods considered, being married and the head of household significantly increases the likelihood of being employed. Also, the number of children in a household significantly decreases the likelihood of being employed.

**Table 4.3: Probit regressions on employment likelihood of labour force by race, selected surveys**

	Marginal effects											
	OHS 1997			LFS 2003b			QLFS 2008Q4			QLFS 2014Q4		
	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White
Male	0.1543***	0.0349***	0.0019	0.0920***	0.0240	-0.0098	0.1173***	0.0119	-0.0010	0.0533***	0.0309	-0.0040
Age	0.0283***	0.0171***	0.0029	0.0360***	0.0287***	0.0074***	0.0260***	0.0175***	0.0011	0.0158***	0.0217***	0.0043
Age squared	-0.0003***	-0.0002***	-0.0000	-0.0003***	-0.0003***	-0.0001***	-0.0002***	-0.0002***	0.0000	-0.0001**	-0.0002***	-0.0000
Primary	-0.0027	-0.0052	-0.0129*	0.0006	0.0025	0.0438	-0.0034	-0.0198**	N/A <sup>1</sup>	-0.0118**	-0.0124	-0.0157
Secondary	0.0253***	0.0150***	0.0101*	0.0088**	0.0025	0.0058	0.0119***	0.0097	0.0142**	0.0193***	0.0094	0.0227**
Matric	0.0593***	0.0450**	0.0148	0.1176***	0.1212***	0.0296*	0.0831***	0.0786***	-0.0022	0.0894***	0.1478***	0.0403
Matric + Cert/Dip	0.1963***	0.0955*	0.0210	0.1072**	0.0314	0.0200	0.1351***	0.1132**	0.0191	0.0625*	0.0523	0.0836***
Degree	0.0321	-0.0089	-0.0025	0.1324***	0.0236	0.0157	0.0646***	0.0533	0.0018	0.0875***	0.0450	-0.0139
Western Cape	0.1523***	0.1446***	-0.0376	0.0775**	0.1483**	-0.0014	0.1066***	0.1081***	-0.0035	0.0070	0.0476	-0.0121
Northern Cape	0.1254***	0.0083	-0.0398	0.0942***	0.0009	0.0237**	0.0744***	0.0502**	0.0078	0.0547**	-0.0280	0.0377**
Free State	0.1269***	0.0695**	-0.0948	0.0801***	-0.0437	0.0161	0.0342*	0.0696*	-0.0018	-0.0310	-0.0461	-0.0094
KwaZulu-Natal	0.1122***	-0.0304	-0.0541	0.0886***	-0.0201	-0.0138	0.1161***	0.0290	0.0001	0.1374***	0.0452	0.0270
Northwest	0.1418***	0.0158	-0.0951	0.0932***	0.1871***	0.0234**	0.0205	-0.0578	0.0159*	0.0800	0.0112	0.0152
Gauteng	0.0870***	-0.0274	-0.0435	0.0323*	-0.0025	0.0243**	0.0290*	0.0352	0.0203*	0.0100	-0.0320	-0.0298
Mpumalanga	0.0866***	0.0171	-0.0845	0.1271***	0.1302***	0.0007	0.0305	0.1125**	0.0224***	0.0509***	0.1046	0.0233
Limpopo	0.0136	N/A <sup>2</sup>	-0.1535	-0.0065	N/A <sup>2</sup>	0.0111	-0.0506	N/A <sup>2</sup>	0.0203***	0.1503***	N/A <sup>2</sup>	N/A <sup>2</sup>
Head	0.2359***	0.0798***	0.0349***	0.3301***	0.1376***	0.0505***	0.1886***	0.0843***	0.0194***	0.1698***	0.0554***	0.0491***
Married	0.1230***	0.0643***	0.0125	0.1623***	0.1443***	0.0131	0.0818***	0.0828***	0.0318***	0.1060***	0.1050***	0.0430**
Children	-0.0074***	-0.0079**	-0.0029	-0.0264***	-0.0178***	-0.0009	-0.0170***	-0.0048	-0.0040	-0.0207***	-0.0125***	-0.0130**
Sample size	17 640	4 776	3 076	17 829	3 981	3 008	17 446	3 226	2 434	15 787	3 315	1 900
Chi-squared	3093.95	356.94	98.62	3325.21	459.64	132.47	2207.72	292.68	86.39	1675.01	315.18	127.72
Pseudo R <sup>2</sup>	0.1956	0.1308	0.1027	0.2446	0.1786	0.1270	0.1651	0.1330	0.1339	0.1458	0.1342	0.2145

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\*\*\* Significant at 1%      \*\* Significant at 5%      \* Significant at 10%

<sup>1</sup> Primary dummy is omitted because of perfect collinearity.

<sup>2</sup> Limpopo dummy is omitted because of perfect collinearity.

The results of the probit regressions on employment likelihood by gender for selected surveys are captured in Table 4.4. Blacks residing in the Eastern Cape Province with no formal education are the reference group for these regressions. The table shows that Coloured, Indian and White males are significantly more likely to be employed than Black males. This trend increased significantly between 1997 and 2003, after which it declined between 2004 and 2014, implying that more Black males are being employed. The same trend is observed for females. Looking at education it is observed that an increase in education is generally associated with an increase in the likelihood of employment for both males and females, with the exception of the primary education variable. For all survey periods considered, the data shows that males residing in the Western Cape, Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng and Mpumalanga provinces are more likely to be employed than males residing in the Eastern Cape province. With regards to marital status and household headship, it is observed that being married and the head of household significantly increases the likelihood of being employed for both males and females. Lastly, the number of children in a household has a negative effect on employment likelihood for both genders.

**Table 4.4: Probit regressions on employment likelihood of labour force by gender, selected surveys**

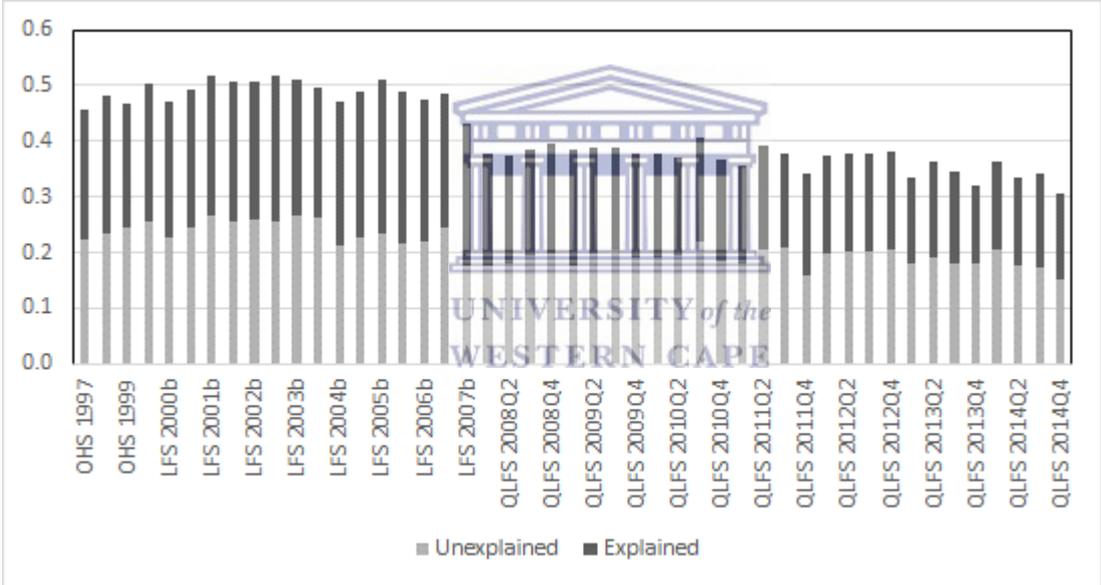
	Marginal effects							
	OHS 1997		LFS 2003b		QLFS 2008Q4		QLFS 2014Q4	
	Male	Female	Male	Female	Male	Female	Male	Female
Coloured	0.0681***	0.2372***	0.1586***	0.3055***	0.0557***	0.1645***	0.1022***	0.1273***
Indian	0.0947***	0.2403***	0.1460***	0.2682***	0.0750***	0.1566***	0.0631**	0.1089***
White	0.1422***	0.3145***	0.2245***	0.3851***	0.1567***	0.2672***	0.1418***	0.2024***
Age	0.0131***	0.0237***	0.0264***	0.0265***	0.0174***	0.0209***	0.0115***	0.0185***
Age squared	-0.0002***	-0.0001***	-0.0003***	-0.0001**	-0.0002***	-0.0001*	-0.0001**	-0.0001
Primary	-0.0040*	0.0023	-0.0016	-0.0007	-0.0099**	0.0047	-0.0113*	-0.0148**
Secondary	0.0063***	0.0387***	-0.0024	0.0228***	0.0057*	0.0178***	0.0138***	0.0251***
Matric	0.0494***	0.0585***	0.0957***	0.1366***	0.0548**	0.1041***	0.0587***	0.1427***
Matric + Cert/Dip	0.0599**	0.2395***	0.0355	0.1422***	0.1097***	0.1133***	0.0767**	.0800**
Degree	0.0268	-0.0351	0.0694**	0.1084***	0.0061	0.0780***	0.0439*	0.0631***
Western Cape	0.1181***	0.1216***	0.0906***	0.1271***	0.0693***	0.0915***	0.0252	0.0282
Northern Cape	0.0675***	-0.0163	0.0624***	-0.0553	0.0731***	0.0116	0.0362	0.0124
Free State	0.0697***	0.0763***	0.0734***	0.0489*	0.0283	0.0240	0.0128	-0.0876***
KwaZulu-Natal	0.0525***	0.0830***	0.0551***	0.0887***	0.0675***	0.1215***	0.1292***	0.0959***
Northwest	0.0797***	0.0810***	0.0834***	0.0630**	0.0327*	-0.0170	0.0859***	0.0431*
Gauteng	0.0473***	0.0390**	0.0295*	0.0531**	0.0327**	0.0204	0.0297	-0.0314
Mpumalanga	0.0658***	-0.0071	0.1019***	0.1062***	0.0300*	0.0390*	0.0621***	0.0322
Limpopo	0.0015	0.0069	0.0088	0.0338	-0.0219	-0.0462*	0.1471***	0.1075***
Head	0.1690***	0.1160***	0.3045***	0.2048***	0.1770***	0.1064***	0.1688***	0.0903***
Married	0.1196***	0.0322	0.1703***	0.0854***	0.0919***	0.0424***	0.1312***	0.0571***
Children	-0.0041**	-0.0142***	-0.0191***	-0.0270***	-0.0106***	-0.0190***	-0.0214***	-0.0166***
Sample size	15 373	11 101	14 502	11 148	13 039	10 862	11 345	10 242
Chi-squared	1930.86	1797.25	2434.25	1881.75	1400.36	1513.69	1273.30	1224.95
Pseudo R <sup>2</sup>	0.2282	0.2399	0.2767	0.2934	0.1786	0.2277	0.1707	0.1813

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\*\*\* Significant at 1%    \*\* Significant at 5%    \* Significant at 10%

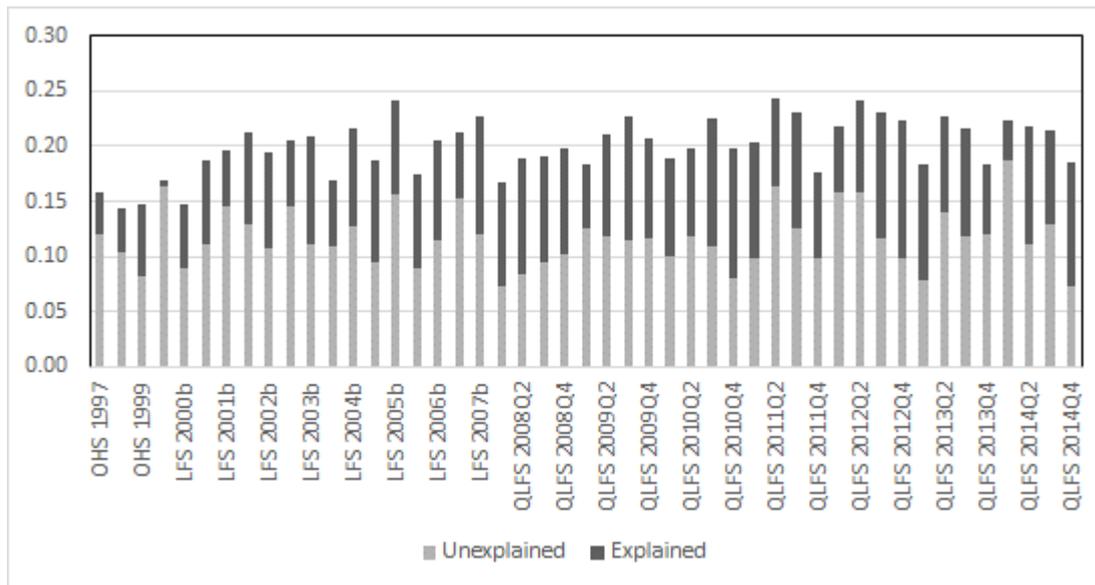
Figures 4.3, 4.4 and 4.5 show the average employment probability gaps between Whites and Blacks, Whites and Coloureds, as well as males and females. In Figure 4.3, the White-Black employment gap increased between 1997 and 2003 from 0.46 to 0.52, before slowing declining to 0.37 in 2008. This gap stabilised between 2009 and 2010, after which it hovered around 0.35. The Oaxaca-Blinder decomposition results show that the unexplained component of the employment probability gap does not reveal any strong downward trend overtime. It is rather the decline in the explained component that contributed to the decline in the White-Black employment gap. The fact that the unexplained component shows no clear downward trend could imply that Affirmative Action may not be highly successful in reducing discrimination within the South African labour market, thereby confirming the findings of Burger and Jafta (2006 and 2010).

**Figure 4.3: Decomposition of average White-Black employment probability gap**



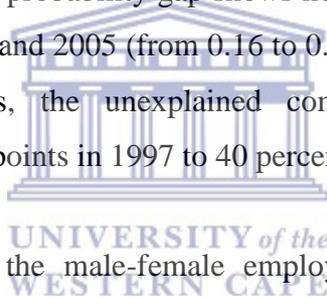
Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

**Figure 4.4: Decomposition of average White-Coloured employment probability gap**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

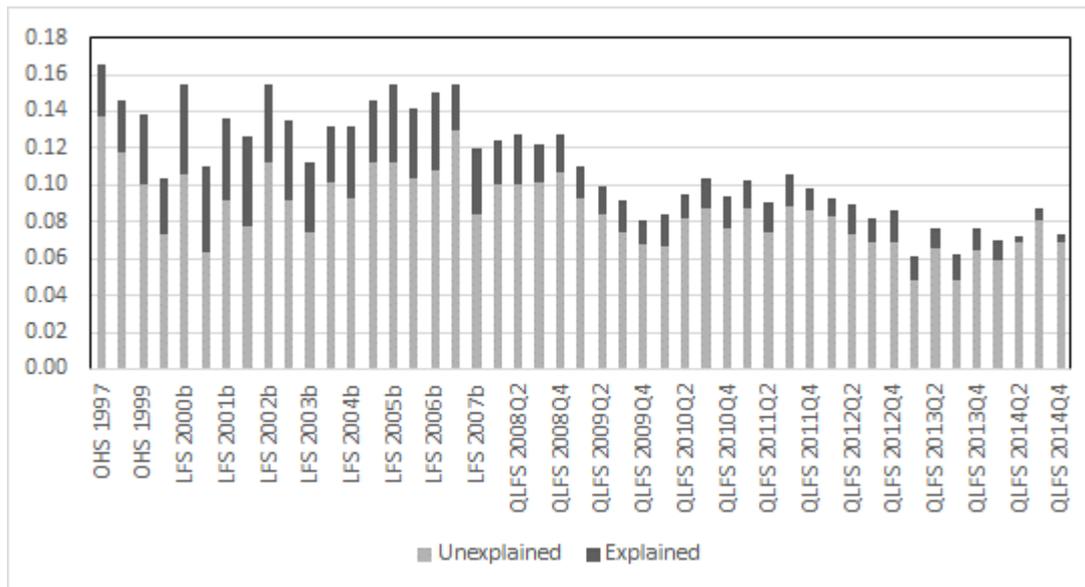
The White-Coloured employment probability gap shows no clear trend overtime (Figure 4.4). This gap increased between 1997 and 2005 (from 0.16 to 0.24), after which it declined to 0.19 in QLFS 2014Q4. Nonetheless, the unexplained component of this gap decreased considerably from 75 percentage points in 1997 to 40 percentage points in QLFS 2014Q4.



Finally, looking at Figure 4.5, the male-female employment gap declined significantly between 1997 and 2000 from 0.17 to 0.10, before increasing to 0.15 in 2007. The gap then gradually declined to 0.07 in QLFS 2014Q4. The unexplained component is most dominant in the male-female employment gap. This implies employment discrimination against females is very serious. Note that the unexplained component is much greater when compared with the findings by Burger and Jafta (2010), but keep in mind that the latter study excluded labour force participants with less than incomplete secondary education.<sup>7</sup> Lastly, this gender employment probability gap (hovering around the 0.07-0.17 range) is relatively smaller when compared to the racial gaps (refer to Figures 4.3 and 4.4).

<sup>7</sup> Upon analysing the labour data, it is found that the proportion of labour force with less than incomplete secondary education was as low as 9% in QLFS 2015 but as high as 25% in OHS 1995.

**Figure 4.5: Decomposition of average male-female employment probability gap**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

Figure A.1 in the Appendix reports the results on the average White-Black employment gap decomposition for males and females respectively, as well as the average male-female employment gap decomposition for Blacks and Whites respectively. Figure A.1(a) shows the average White-Black employment gap decomposition for males, and reveals that in the year 1997 the employment gap was 0.37. The decomposition results suggests that most of the average White-Black employment gap decomposition for males (62 per cent) can be explained by characteristic differences between White and Black males, compared to 38 per cent left unexplained. This gap increased to 0.45 in 2001, before declining considerably to 0.27 in 2014. The unexplained component of the employment gap remained more or less constant throughout the period. It is rather the decline in the explained component that contributed significantly to the reduction in the average White-Black employment probability for males. This reduction in the explained component could be due to the increased acquisition of skills by Black males, which confirms the Burger & Jafta (2010: 19) finding.

In contrast, the White-Black employment gap for females is somewhat higher than that of males, as shown in Figure A.1(b). This gap remained fairly stable between 1997 and 2007, hovering around 0.55, before declining to 0.35 in 2014. The unexplained component of this gap followed a similar trend by remaining fairly stable between 1997 and 2007 at around 0.30, before declining to 0.16 in 2014. However, due to the decline in the explained component as well, the unexplained component still contributes about 50 per cent of the White-Black employment gap decomposition for females.

Figures A.1(c) and A.1(d) present the gender employment gap decompositions for Blacks and Whites respectively. The gender employment gaps are much smaller than the race employment gaps, implying that gender as a source of discrimination is not as important as race. However, the unexplained component in the male-female employment gap decomposition for Blacks (Figure A.1(c)) is most dominant, implying that employment discrimination against females is serious in the Black population. On a positive note, the unexplained component of the employment gap has been declining overtime implying a reduction in discrimination between Black males and females. For Whites, the male-female employment gap decomposition is all but negligible (Figure A.1 (d)), so this clearly implies that discrimination against females is much less serious to Whites compared to Blacks.

#### 4.3.2 Occupational attainment differential

The probit regressions on the likelihood of formal sector employees involved in highly-skilled occupations by race in selected surveys are presented in Table 4.5. Firstly, in OHS 1997 and QLFS 2014Q4 males are significantly less likely to be employed in highly-skilled occupations than females for all race groups considered, after controlling for other characteristics. As expected, the likelihood of employment in highly-skilled occupations increases as educational attainment increases, with the exception of the primary variable in OHS 1997 for Whites, QLFS 2008Q4 for Blacks and QLFS 2014Q4 for Coloureds and Whites.



**Table 4.5: Probit regressions on likelihood of employed involved in highly-skilled occupations by race, selected surveys**

	Marginal effects											
	1997			2003b			2008Q4			2014Q4		
	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White
Male	-0.0996***	-0.0805***	-0.0692**	-0.0536***	-0.0172	0.0664*	-0.0403***	0.0058	0.0535*	-0.0200**	-0.0143	-0.0132
Age	0.0107***	0.0198***	0.0150**	0.0146***	0.0133***	0.0168*	0.0040	0.0152**	0.0177**	-0.0021	0.0077	-0.0029
Age squared	-0.0001**	-0.0002***	-0.0001	-0.0001***	-0.0001*	-0.0002*	0.0000	-0.0001	-0.0002**	0.0001**	-0.0000	0.0000
Primary	0.0105***	0.0021	-0.0678*	0.0071	0.0291*	N/A <sup>1</sup>	-0.0072	0.0596	N/A <sup>1</sup>	0.0057	-0.0139	-0.1597**
Secondary	0.0360***	0.0423***	0.0444	0.0431***	0.0383***	0.1926***	0.0369***	0.0684***	0.1157**	0.0466***	0.0745***	0.0960*
Matric	0.1383***	0.1106***	0.1342***	0.0441***	0.0658***	-0.0309	0.0951***	0.1116***	0.0193	0.0635***	0.0881***	0.0320
Matric + Cert/Dip	0.3588***	0.0536	-0.0008	0.1778***	-0.0602**	0.1645**	0.1459***	0.1519**	0.0040	0.1152***	0.1375	0.0040
Degree	0.0261*	0.1945***	0.1842***	0.0795***	0.2251***	0.1751***	0.1098***	0.1073***	0.1565***	0.1011***	0.0717*	0.2596***
Western Cape	-0.0381**	-0.0068	0.0489	-0.0568**	-0.0502**	0.0452	-0.0190	-0.0107	0.0750	-0.0224	0.0383	0.0643
Northern Cape	-0.0250	-0.0743***	-0.0809	0.0302	-0.0252	-0.1159*	-0.0328*	-0.0576*	-0.0579	-0.0240	0.0095	-0.2283***
Free State	-0.0211	0.0417	-0.1362**	-0.0003	0.0252	-0.0074	-0.0301*	0.0406	-0.0839	-0.0346***	-0.0290	-0.1094
KwaZulu-Natal	-0.0366***	-0.0891***	0.0352	-0.0055	-0.0113	0.0502	-0.0157	-0.0012	0.0596	-0.0169	0.0268	0.1385**
Northwest	-0.0206	0.0029	-0.0984	-0.0209	0.0488	-0.0512	-0.0252	0.1354	-0.0414	-0.0421***	0.0376	-0.0790
Gauteng	-0.0460***	-0.0006	-0.0003	-0.0219*	0.0111	0.0699	-0.0261*	-0.0160	0.0821*	-0.0149	0.0304	0.0579
Mpumalanga	-0.0416***	-0.0878*	-0.0513	-0.0277**	-0.0080	-0.0196	-0.0162	0.0932	-0.0109	-0.0186	-0.0552	-0.1254
Limpopo	0.0213	N/A <sup>2</sup>	-0.0091	-0.0170	-0.0791***	-0.1578***	-0.0315**	0.2307	-0.2702***	-0.0301**	N/A <sup>2</sup>	-0.1948*
Head	0.0151	0.0392*	0.1164***	-0.0036	0.0179	0.0468	-0.0030	0.0023	0.0085	0.0033	0.0366*	0.0754*
Married	0.0187**	0.0284	0.0207	0.0060	0.0311**	0.0460	0.0160*	0.0056	0.0587**	0.0142	0.0287	0.0838**
Children	0.0059**	-0.0035	-0.0081	-0.0009	-0.0041	-0.0331**	0.0015	-0.0096	0.0068	0.0086**	-0.0122	-0.0043
Sample size	11 243	3 946	2 932	9 949	2 988	2 790	11 425	2 521	2 333	10 101	2 415	1 792
Chi-squared	2439.93	563.37	340.26	1611.34	418.25	350.71	2036.89	462.28	223.02	1431.93	336.30	288.09
Pseudo R <sup>2</sup>	0.3192	0.2439	0.1228	0.4215	0.3300	0.1933	0.3259	0.2619	0.1309	0.3491	0.2653	0.2218

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

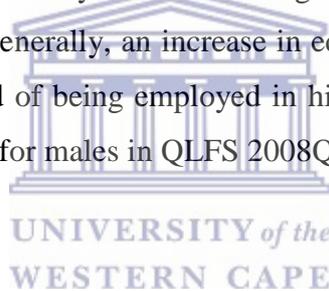
\*\*\* Significant at 1%      \*\* Significant at 5%      \* Significant at 10%

<sup>1</sup> Primary dummy is omitted because of perfect collinearity.

<sup>2</sup> Limpopo dummy is omitted because of perfect collinearity.

With regard to the province of residence, the Blacks residing in the Western Cape, Northern Cape, Free State, KwaZulu-Natal, Northwest, Gauteng and Mpumalanga provinces are significantly less likely to be employed in highly-skilled occupations than those residing in the Eastern Cape Province in OHS 1997, QLFS 2008Q4 and QLFS 2014Q4. Furthermore, married individuals are more likely to be employed in highly-skilled occupations, across all survey periods and race groups. Also, Black household heads are less likely to be employed in highly-skilled occupations for LFS 2003b and QLFS 2008Q4. Lastly, the likelihood of employment in highly-skilled occupations increases with an increase in the number of children in Black households for OHS 1997, QLFS 2008Q4 and QLFS 2014Q4.

Table 4.6 shows the results of the probit regressions on the likelihood of employed involved in highly-skilled occupations by gender, for selected surveys. It can be seen that Coloured, Indian and White males are significantly more likely to be employed in these occupations than Black males, for the selected surveys under study. With regard to females, Whites and Coloureds are significantly more likely to work in highly-skilled occupations than Black females, for all survey periods. Generally, an increase in educational attainment is associated with an increase in the likelihood of being employed in highly-skilled occupations, with the exception of the primary variable for males in QLFS 2008Q4 and QLFS 2014Q4.



**Table 4.6: Probit regressions on likelihood of employed involved in highly-skilled occupations by gender, selected surveys**

	Marginal effects							
	1997		2003b		2008Q4		2014Q4	
	Male	Female	Male	Female	Male	Female	Male	Female
Coloured	0.0495***	0.0069	0.0794***	0.0299	0.0964***	0.0712**	0.0645***	0.0514*
Indian	0.1248***	-0.0343	0.1766***	0.0473	0.2023***	0.0140	0.2015***	0.1483***
White	0.1153***	0.0181	0.1773***	0.0552**	0.2360***	0.1314***	0.2424***	0.1804***
Age	0.0155***	0.0116**	0.0124***	0.0224***	0.0049	0.0185***	0.0013	-0.0021
Age squared	-0.0001***	-0.0001	-0.0001***	-0.0002***	-0.0000	-0.0001**	0.0000	0.0001
Primary	0.0085**	0.0080	0.0088	0.0023	-0.0156**	0.0222	-0.0167*	0.0339**
Secondary	0.0372***	0.0855***	0.0482***	0.1017***	0.0419***	0.0763***	0.0604***	0.0562***
Matric	0.1608***	0.1111***	0.0683***	0.0330	0.1142***	0.1124***	0.0643***	0.1167***
Matric + Cert/Dip	0.1345***	0.2618***	0.0928**	0.3256***	0.1623***	0.1307***	0.1220***	0.1298***
Degree	0.0820***	0.1031***	0.1101***	0.1328***	0.0981***	0.1597***	0.1080***	0.1757***
Western Cape	0.0213	-0.0625*	-0.0237	-0.0922***	-0.0133	-0.0493*	-0.0071	0.0173
Northern Cape	-0.0487**	-0.0967***	-0.0145	-0.0827*	-0.0731***	-0.0682**	-0.0368	-0.0587*
Free State	0.0010	-0.1343***	-0.0028	-0.0293	-0.0487**	-0.0639**	-0.0487***	-0.0405
KwaZulu-Natal	-0.0065	-0.0500	-0.0126	-0.0173	-0.0384*	-0.0032	-0.0189	0.0100
Northwest	0.0062	-0.1118***	-0.0245	-0.0348	-0.0215	-0.0749***	-0.0563***	-0.0224
Gauteng	0.0112	-0.1197***	0.0149	-0.0380	-0.0147	-0.0406	-0.0081	0.0076
Mpumalanga	-0.0062	-0.1002***	-0.0055	-0.1055***	-0.0472**	0.0350	-0.0425**	-0.0078
Limpopo	0.0606**	0.0166	0.0093	-0.0670	-0.0406*	-0.0714**	-0.0474**	-0.0131
Head	0.0172	0.0787***	0.0199	0.0533	0.0025	0.0173	0.0097	0.0390**
Married	0.0212	0.0379**	-0.0030	0.0580	0.0351***	0.0347**	0.0207	0.0507***
Children	0.0026	0.0045	-0.0036	0.0099	0.0028	0.0011	0.0170***	-0.0064
Sample size	12 104	6 885	10 079	6 311	9 875	7 086	8 061	6 707
Chi-squared	2176.97	1292.44	1615.73	1159.60	1689.33	1303.34	1317.17	1252.38
Pseudo R <sup>2</sup>	0.2838	0.2409	0.3849	0.3580	0.3483	0.2771	0.3628	0.3450

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\*\*\* Significant at 1%    \*\* Significant at 5%    \* Significant at 10%

Also, in QLFS 2008Q4 and QLFS 2014Q4 the regression results show that males residing in the Western Cape, Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo provinces are less likely to be employed in highly-skilled occupations than males residing in the Eastern Cape province. Furthermore, females that are married and the head of households are more likely to be employed in highly-skilled occupations. Finally, there is a positive relationship between the number of children in a household and highly-skilled employment likelihood of females, for all survey periods except QLFS 2014Q4.

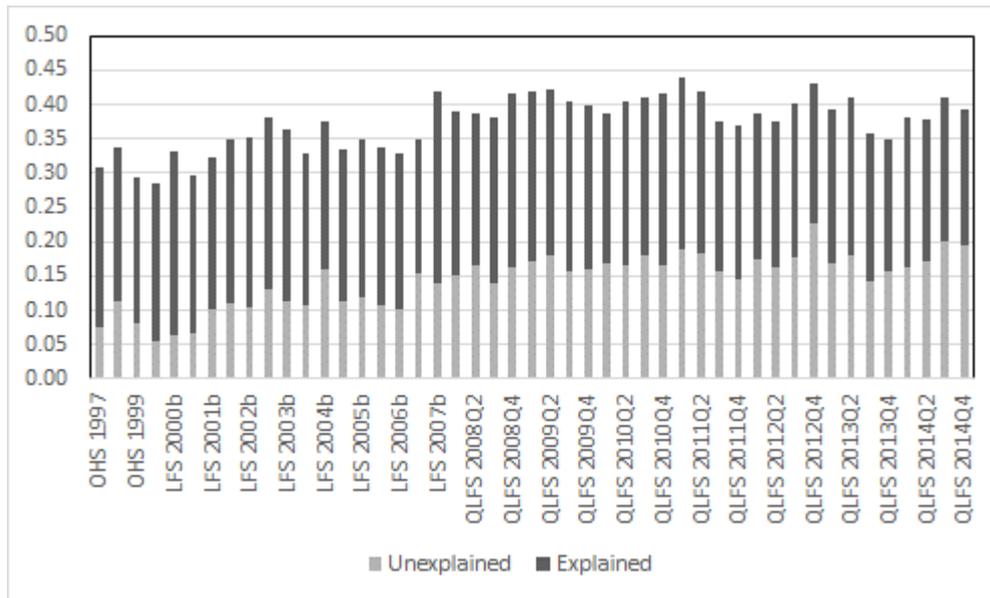
In Figures 4.6, 4.7 and 4.8 the differential in the average likelihood of attaining a highly-skilled occupation is decomposed for Whites and Blacks, Whites and Coloureds, and males and females. Figure 4.6 show an increasing occupational attainment gap between Whites and Blacks. This gap is driven partially by an increase in the unexplained component, which is in line with the results found in Burger and Jafta (2006). This result is quite worrying, as it implies that discrimination against Blacks on highly-skilled employment (compared to Whites) has become more serious over the years.

Similarly, Figure 4.7 indicates that the total gap of the White-Coloured highly-skilled occupational employment likelihood increased between OHS 1997 and QLFS 2014Q4 from 0.29 to 0.36. Also, the unexplained component of this gap increased during the same period from 18.7 percentage points to 40.2 percentage points.. When comparing Figures 4.6 and 4.7 it is found that the unexplained component is smaller in Figure 4.7. This implies that discrimination against Blacks (compared to Whites) seeking highly-skilled occupations is relatively more serious when compared Coloureds to Whites.

In Figure 4.8, the results on the decomposition of the total male-female highly-skilled employment likelihood gap show no clear trend over time. As stated previously, employment discrimination against females is very serious (Figure 4.5), but if we only restrict the analysis to finding highly-skilled employment, the results (Figure 4.8) indicate that there is no suggestion that females are seriously discriminated against. These results suggest that when it comes to employment discrimination against females, this may have taken place more seriously when it comes to the unskilled or semi-skilled occupations. Alternatively, it may be possible that Affirmative Action is relatively more successful in promoting the appointment of female workers in the highly paid, high-level positions.

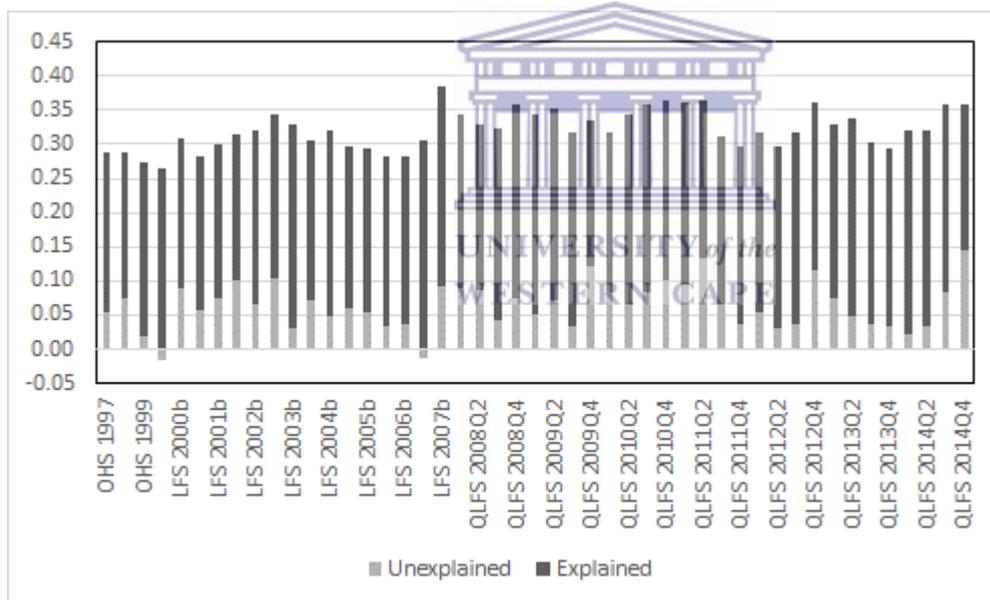
The occupational attainment gap for the White-Black decomposition is of a similar magnitude as the White-Coloured decomposition (Figures 4.6 and 4.7) as opposed to the case of the employment gap in which the White-Black decomposition is bigger than the White-Coloured decomposition (Figures 4.3 and 4.4). This implies that Coloureds and Blacks are in a similar position when seeking employment in highly-skilled occupations, but Coloureds find any other type of employment easier than Blacks (Burger and Jafta 2006: 25). This also suggests that Affirmative Action was not entirely successful in reducing discrimination in the labour market, especially in the case of discrimination against Blacks (reference group is Whites, i.e. Figure 4.3) seeking employment, even after controlling for differences in characteristics.

**Figure 4.6: Decomposition of average White-Black highly-skilled occupational attainment differential**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

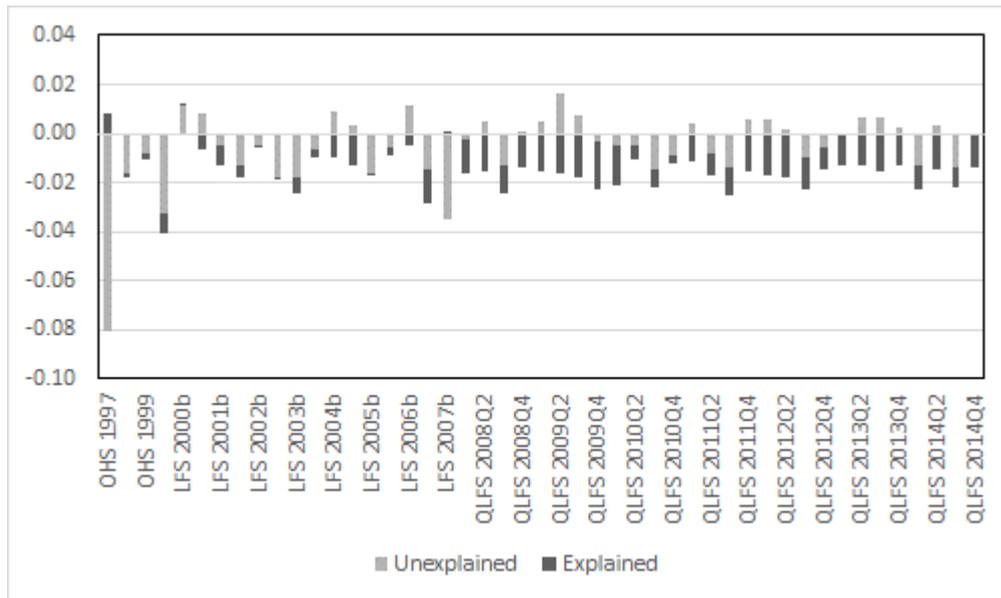
**Figure 4.7: Decomposition of average White-Coloured highly-skilled occupational attainment differential**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

Finally, in both Figures 4.6 and 4.7, it can be seen that the explained component is very high, both in absolute and proportional terms. The results are not surprising, as the whites are expected to possess strongly characteristics (e.g. significantly higher educational attainment – refer to Table 4.2) and hence they are associated with a greater likelihood of being employed in highly-skilled occupations. What is worrying is that in both figures, there is no clear indication that the explained component is reducing over time.

**Figure 4.8: Decomposition of average male-female highly-skilled occupational attainment differential**



Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data

Figure A.2 in the Appendix displays the results on the average White-Black highly-skilled occupational employment gap decomposition for males and females respectively. It also reports the results on the average male-female highly-skilled occupational employment gap decomposition for Blacks and Whites respectively. Figure A.2(a) shows the average White-Black highly-skilled occupational employment gap decomposition for males, and reveals that the gap gradually increased between 1997 and 2014 from 0.35 to 0.42. The unexplained component of the highly-skilled occupational employment gap for males increased steadily between 1997 and 2014 from 0.11 to 0.23. The unexplained component therefore increased from 32 percentage points to 55 percentage points of the gap. The White-Black highly-skilled occupational employment gap for females (Figure A.2(b)) increased significantly between 1997 and 2007 from 0.30 to 0.44, before declining to 0.39 in 2014. The explained component of the gap remained dominant throughout the period indicating that characteristic differences between White and Black females contribute significantly to the White-Black highly-skilled occupational employment gap for females. However, the unexplained component of the gap increased over time from 13 percentage points in 1997 to 44 percentage points in 2014, which implies that discrimination between against Black females increased.

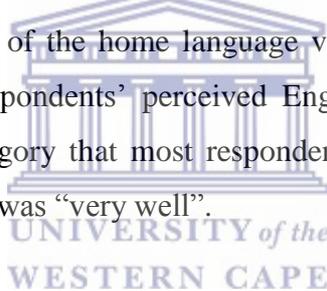
Both Figures A.2(a) and A.2(b) reveal an increase in the unexplained component of the highly-skilled occupational employment gap. It also shows that the unexplained component is greater in A.2 (a), i.e. Black males are discriminated more seriously when it comes to finding highly-skilled employment, but such discrimination against Black females is less serious

(Figure A.2(b)). This could imply that Affirmative Action measures may be working relatively better for Black females than Black males.

Figures A.2(c) and A.2(d) display the gender highly-skilled occupational employment gap decompositions for Blacks and Whites respectively. Similarly to the findings from Figure A.1, it is observed that the gender highly-skilled occupational employment gaps are much smaller than the race highly-skilled occupational employment gaps, implying that gender as a source of discrimination is not as important as race. Both Figures A.2 (c) and (d) display no strong trend over time.

#### **4.4 Further analysis using the NIDS data**

This section of the study uses the NIDS data to determine if there was a significant reduction in employment discrimination by race and gender after including the language proficiency variables and educational quality indicators as additional explanatory variables. Table 4.7 shows the frequency distribution of the home language variable for NIDS 2008-2012. The frequency distribution of the respondents' perceived English language proficiency is also displayed in Table 4.7. The category that most respondents selected in both the perceived English reading and writing level was "very well".



It should be noted that if respondents choose English as a home language they are not asked the English proficiency questions. In other words, only those who choose Afrikaans or any other African language as a home language are allowed to answer the proficiency questions. A "combined" categorical variable is therefore created with six categories namely: (i) whether the respondents speak English, (ii) if respondents speak Afrikaans and read and write English very well, (iii) others who speak Afrikaans, (iv) those that speak any other African and read and write English very well, (v) others who speak any other African language, and (vi) those with an unspecified home language, with others who speak any other African languages used as a reference group.

**Table 4.7: Frequency distribution of the home language variables, language proficiency variables and educational quality indicators, NIDS 2008-2012**

Home language	NIDS 2008		NIDS 2010		NIDS 2012	
	n	%	n	%	n	%
English	594	4.3%	441	3.1%	414	2.5%
Afrikaans	2 059	14.7%	1 967	13.7%	2 303	13.9%
African	9 850	70.4%	10 991	76.4%	11 645	70.1%
Unspecified	1 481	10.6%	982	6.8%	2 244	13.5%
	13 984	100.0%	14 381	100.0%	16 606	100.0%
English reading level <sup>#</sup>	n	%	n	%	n	%
Very well	4 948	41.5%	5 776	44.6%	7 587	54.4%
Fair	3 021	25.4%	3 646	28.1%	3 389	24.3%
Not well	1 897	15.9%	1 960	15.1%	1 769	12.7%
Not at all	2 018	16.9%	1 006	7.8%	1 197	8.6%
Unspecified	25	0.2%	570	4.4%	6	0.0%
	11 909	100.0%	12 958	100.0%	13 948	100.0%
English writing level <sup>#</sup>	n	%	n	%	n	%
Very well	4 834	40.6%	5 705	44.0%	7 501	53.8%
Fair	3 023	25.4%	3 620	27.9%	3 384	24.3%
Not well	1 938	16.3%	1 956	15.1%	1 804	12.9%
Not at all	2 095	17.6%	1 104	8.5%	1 252	9.0%
Unspecified	19	0.2%	573	4.4%	7	0.1%
	11 909	100.0%	12 958	100.0%	13 948	100.0%
Home language and English proficiency level	n	%	n	%	n	%
Speak English	594	4.2%	441	3.1%	414	2.5%
Speak Afrikaans; read & write English well	885	6.3%	722	5.0%	969	5.8%
Others who speak Afrikaans	1 174	8.4%	1 245	8.7%	1 334	8.0%
Speak African language; read & write English well	3 875	27.7%	4 853	33.7%	6 437	38.8%
Others who speak African languages	5 975	42.7%	6 138	42.7%	5 208	31.4%
Home language unspecified	1 481	10.6%	982	6.8%	2 244	13.5%
	13 984	100.0%	14 381	100.0%	16 606	100.0%
School quintile	n	%	n	%	n	%
Quintile1	2 372	17.0%	2 099	14.6%	3 326	20.0%
Quintile2	1 756	12.6%	1 714	11.9%	3 269	19.7%
Quintile3	2 539	18.2%	2 038	14.2%	3 010	18.1%
Quintile4	1 307	9.3%	1 164	8.1%	844	5.1%
Quintile5	962	6.9%	623	4.3%	506	3.0%
Information not available	5 048	36.1%	6 743	46.9%	5 651	34.0%
	13 984	100.0%	14 381	100.0%	16 606	100.0%
School fee status	n	%	n	%	n	%
Zero fee	3 212	23.0%	3 767	26.2%	9 885	59.5%
Non-zero fee	3 030	21.7%	4 191	29.1%	993	6.0%
Information not available	7 742	55.4%	6 423	44.7%	5 728	34.5%
	13 984	100.0%	14 381	100.0%	16 606	100.0%
Former department of the school	n	%	n	%	n	%
Independent	1 477	10.6%	1 181	8.2%	1 866	11.2%
Self-governing	2 814	20.1%	2 696	18.7%	3 932	23.7%
DET (Black)	2 511	18.0%	2 126	14.8%	3 244	19.5%
HOA (White)	429	3.1%	274	1.9%	420	2.5%
HOR (Coloured)	1 070	7.7%	761	5.3%	1 440	8.7%
HOD (Indian)	146	1.0%	144	1.0%	196	1.2%
WECD / TED / CED / FED	302	2.2%	162	1.1%	301	1.8%
New	700	5.0%	676	4.7%	965	5.8%
Information not available	4 535	32.4%	6 361	44.2%	4 242	25.5%
	13 984	100.0%	14 381	100.0%	16 606	100.0%

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

<sup>#</sup> Only the respondents whose home language is specified but not English were asked the two English proficiency questions.

The results of Table 4.7 indicate that more than 70% of the labour force participants in the sample speak African languages at home, in all three surveys. In addition, for those reporting to speak Afrikaans or any African language, an increasing proportion of these people report to have very good English reading (this share increased from 41.5% in 2008 to 54.4% in 2012) and English writing (this proportion increased from 40.6% in 2008 to 53.8% in 2012) levels.

Table 4.7 also shows the frequency distribution of the educational quality indicators for NIDS 2008-2012. As stated previously, these indicators are school quintile variables, whether the respondents attended a zero-fee school and the former department of the school. The study includes six school quintile dummies with quintile 1 used as a reference group. It includes dummies on whether the respondents paid school fees or not with the category “zero fee” used as the reference group. The study also includes dummies on the former department of the school which are independent homelands, self-governing territories, DET (former Black schools), HOA (former Indian schools), HOR (former Coloured schools), HOD (former White schools), WECD/TED/CED/FED and New, with independent homelands used as a reference group.

It should be noted that information on these three educational quality indicators is not available in a high proportion of adults. For example, Table 4.7 indicates that for the school quintile and school fee status, information is not available for approximately one-third of the sample in 2012. Also, information on the ex-department of the school is not available for 25.5% of the sample in 2012.

The frequency distribution of the “combined” home language and English proficiency variable as well as the educational quality indicators by race for NIDS 2008-2012 is displayed in Table 4.8. With regards to the former variable, the table firstly reveals that a high proportion of Coloureds, Indians and Whites have English as their home language, with the highest being 89 per cent for Indians in NIDS 2010. It can also be observed that there is a high and increasing proportion of Coloureds and Whites who speak Afrikaans and read and write English very well. For Coloureds this proportion increased from 23 per cent in NIDS 2008 to 37 per cent in NIDS 2012, and for Whites it increased from 37 per cent in NIDS 2008 to 44 per cent in NIDS 2012. Lastly, the Black racial group has the highest proportion of adults who speak African languages and read and write English very well. This percentage increased between NIDS 2008-2012 from 39 per cent to 53 per cent.

**Table 4.8: Frequency distribution of the “combined” home language and English proficiency variable and educational quality indicators by race, NIDS 2008-2012**

Home language and English proficiency level	NIDS 2008				NIDS 2010				NIDS 2012			
	Black	Coloured	Indian	White	Black	Coloured	Indian	White	Black	Coloured	Indian	White
Speak English	0.90	22.81	73.78	31.71	0.54	22.67	89.04	32.24	0.48	16.63	77.31	23.61
Speak Afrikaans; read & write English well	0.39	22.71	3.59	36.59	0.18	23.95	0.81	44.24	0.23	32.69	0.22	43.85
Others who speak Afrikaans	0.25	34.16	0.00	9.42	0.26	39.90	0.00	11.83	0.27	36.96	0.00	9.56
Speak African language; read & write English well	39.31	1.14	3.46	3.83	44.43	0.62	0.00	0.00	53.10	0.24	0.06	0.00
Others who speak African languages	50.77	2.47	0.00	0.51	48.57	0.64	0.00	0.00	34.23	0.25	0.00	0.00
Home language unspecified	8.38	16.71	19.16	17.94	6.03	12.22	10.15	11.70	11.69	13.23	22.41	22.98
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
School quintile	Black	Coloured	Indian	White	Black	Coloured	Indian	White	Black	Coloured	Indian	White
Quintile1	17.56	3.10	4.12	0.67	13.18	1.80	0.00	0.35	19.71	3.75	0.06	1.72
Quintile2	12.94	3.45	0.39	0.89	10.80	1.54	3.35	0.39	19.49	3.50	0.49	0.30
Quintile3	22.77	7.51	2.28	3.83	16.80	5.74	1.92	0.75	22.08	12.86	1.64	2.90
Quintile4	9.10	23.44	23.86	5.73	8.14	20.36	15.82	4.19	5.35	24.28	2.26	1.76
Quintile5	3.57	20.68	21.24	39.11	2.95	14.96	29.00	26.15	2.17	18.28	11.04	35.63
Info not available	34.05	41.81	48.12	49.76	48.14	55.61	49.90	68.16	31.20	37.34	84.52	57.69
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
School fee status	Black	Coloured	Indian	White	Black	Coloured	Indian	White	Black	Coloured	Indian	White
Zero fee	22.19	8.63	1.06	1.95	23.63	3.18	2.16	0.74	65.21	25.40	6.92	5.22
Non-zero fee	21.60	40.91	56.97	39.91	30.58	42.32	56.03	34.99	3.00	37.27	8.56	33.98
Info not available	56.22	50.46	41.97	58.13	45.78	54.50	41.80	64.26	31.79	37.33	84.52	60.80
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Former department of school	Black	Coloured	Indian	White	Black	Coloured	Indian	White	Black	Coloured	Indian	White
Independent	15.28	2.37	0.00	1.43	10.47	0.74	0.00	0.57	15.28	2.05	1.39	0.56
Self-governing	22.98	1.06	2.73	1.03	18.09	0.68	8.32	1.72	23.11	0.33	0.54	1.47
DET (Black)	23.03	3.02	4.54	7.62	18.10	1.72	2.69	2.47	26.21	3.66	0.71	4.00
HOA (White)	1.16	3.60	10.16	25.86	1.28	2.47	10.37	20.87	2.18	4.07	9.07	30.29
HOR (Coloured)	1.25	45.16	0.55	2.56	1.21	32.16	3.85	0.96	1.39	54.04	0.67	2.00
HOD (Indian)	0.46	1.35	33.38	0.88	0.64	3.56	23.72	0.61	0.82	0.85	37.69	0.73
WECD/TED/CED/FED	0.62	3.55	0.00	14.93	0.41	4.00	0.46	9.93	0.83	5.14	2.17	15.10
New	5.69	1.10	12.07	4.27	4.25	0.98	6.27	3.88	6.85	1.17	13.68	3.76
Info not available	29.54	38.79	36.58	41.41	45.56	53.68	44.31	58.98	23.32	28.69	34.08	42.08
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

Pertaining to the educational quality indicators, the results from Table 4.8 firstly show that the Black population group is mostly located within quintile 1, 2 and 3 schools, as opposed to the White population group who are mostly situated within quintile 5 schools. The share of Blacks located within quintile 1, 2 and 3 schools increased between NIDS 2008-2012, whereas the fraction of Whites in quintile 5 schools decreased between NIDS 2008-2012. Furthermore, the table reveals that in NIDS 2012 majority of the Black population group are in zero-fee schools contrasted with the Coloureds and Whites who are in non-zero fee schools. Lastly, most of the Blacks, Coloureds, Indians and Whites are situated within the former Black (DET), former Coloured (HOR), former Indian (HOD) and former White (HOA) department of schools, respectively. The percentage of Blacks, Coloureds, Indians and Whites located within these department declined between NIDS 2008-2010, before increasing between NIDS 2010-2012.

**Table 4.9: Frequency distribution of the “combined” home language and English proficiency variable and educational quality indicators by gender, NIDS 2008-2012**

Home language and English proficiency level	NIDS 2008		NIDS 2010		NIDS 2012	
	Male	Female	Male	Female	Male	Female
Speak English	7.53	8.51	6.52	9.59	4.98	7.52
Speak Afrikaans; read & write English well	6.17	6.26	6.42	7.04	6.09	8.39
Others who speak Afrikaans	3.53	4.64	4.92	5.07	4.60	4.48
Speak African language; read & write English well	30.48	31.94	34.29	35.27	40.91	42.66
Others who speak African languages	37.38	41.98	38.34	37.79	26.17	27.71
Home language unspecified	14.90	6.67	9.50	5.25	17.25	9.24
	100.00	100.00	100.00	100.00	100.00	100.00
School quintile	Male	Female	Male	Female	Male	Female
Quintile1	13.30	14.87	10.98	10.08	15.42	16.60
Quintile2	9.89	11.02	8.50	8.91	15.01	16.37
Quintile3	18.14	19.51	15.33	12.39	18.33	19.43
Quintile4	10.40	10.39	9.64	8.55	6.55	6.86
Quintile5	9.16	9.38	6.56	7.53	6.70	7.27
Information not available	39.11	34.82	49.00	52.54	37.99	33.48
	100.00	100.00	100.00	100.00	100.00	100.00
School fee status	Male	Female	Male	Female	Male	Female
Zero fee	17.63	18.85	19.21	18.63	52.70	55.94
Non-zero fee	24.91	27.23	33.90	31.77	8.57	9.82
Information not available	57.47	53.92	46.89	49.59	38.72	34.24
	100.00	100.00	100.00	100.00	100.00	100.00
Former department of school	Male	Female	Male	Female	Male	Female
Independent	11.64	12.81	8.71	7.95	12.12	12.48
Self-governing	17.72	18.62	14.67	14.55	17.38	19.31
DET (Black)	18.18	19.98	15.37	13.96	21.28	21.42
HOA (White)	4.82	3.73	3.86	3.35	4.92	5.33
HOR (Coloured)	4.17	5.98	3.95	4.17	5.79	6.89
HOD (Indian)	1.25	1.69	1.44	1.61	1.60	2.08
WECD/TED/CED/FED	2.45	2.29	1.64	1.73	2.55	2.62
New	5.14	5.47	4.14	3.81	5.96	6.49
Information not available	34.62	29.43	46.22	48.85	28.40	23.38
	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

Table 4.9 presents the frequency distribution of the “combined” variable and educational quality indicators by gender for NIDS 2008-2012. In terms of the former variable, the results indicate that a high proportion of males and females speak African languages and perceive that they read and write English very well. This percentage increased for both males and females between NIDS 2008-2012 from 30 per cent to 41 per cent for males and from 32 per cent to 43 per cent for females. With reference to the school quality indicators, it is observed that most of the males and females are located within quintile 3 schools. The percentage of males located within quintile 3 schools declined between NIDS 2008-2010 from 18 per cent to 15 per cent, before increasing between NIDS 2010-2012 from 15 per cent to 18 per cent.

Table 4.10 displays the labour force participation likelihood of the working-age population, the employment likelihood of the labour force, and the highly-skilled occupation employment likelihood of employed for NIDS 2008-2012. With reference to the “combined” variable, it is found that there is a higher likelihood of participating in the labour market for the two groups “Speak English” and “Speak Afrikaans; read and write English very well”. The same result is observed for the employment likelihood and highly-skilled employment likelihood. Additionally, adults who speak any African languages and do not read and write English very well are least likely to find highly-skilled employment.

In terms of the educational quality indicators, it is firstly found that the probability of participating in the labour market, being employed or being employed in highly-skilled occupations (if employed) is the highest when for those attending quintile 4 or quintile 5 schools. Those who attended non-zero fee schools are more likely to participate in the labour market, to be employed and to be employed in highly-skilled occupations. Lastly, the three probabilities are the highest for respondents who attended a former HOA (White) school.

To conclude the results of the descriptive analysis using the NIDS data, it can be summarised that the following groups of associated with better labour market outcomes (in terms of participation, employment, and highly-skilled occupational attainment likelihoods): those who speak English or speak Afrikaans but claim to read and write English very well, study at non-zero fees former-white (HOA) schools in quintile 4 or 5.

**Table 4.10: Labour force participation likelihood of working-age population, employment likelihood of labour force, and highly-skilled occupation employment likelihood of employed, NIDS 2008-2012**

Home language and English proficiency level	NIDS 2008			NIDS 2010			NIDS 2012		
	[I]	[II]	[III]	[I]	[II]	[III]	[I]	[II]	[III]
Speak English	69.1%	81.4%	35.7%	56.8%	86.3%	60.3%	58.9%	84.4%	52.8%
Speak Afrikaans; read & write English well	77.6%*	87.2%*	43.5%*	63.5%*	88.2%*	53.8%*	62.2%*	88.1%*	51.1%*
Others who speak Afrikaans	63.4%*	60.8%*	12.9%*	56.1%*	76.8%*	16.9%*	50.9%*	80.2%*	22.0%*
Speak African language; read & write English well	63.2%*	60.0%*	24.7%*	50.9%*	64.8%*	24.1%*	59.9%*	66.5%*	25.7%*
Others who speak African languages	55.8%*	58.7%*	4.4%*	45.6%*	55.1%*	7.9%*	43.9%*	60.0%*	6.4%*
Home language unspecified	75.4%*	69.0%*	2.1%*	62.6%*	66.4%*	1.0%*	63.0%*	73.8%*	0.0%*
<b>School quintile</b>									
Quintile1	56.9%	57.4%	12.5%	35.8%	57.0%	16.1%	49.9%	60.5%	25.5%
Quintile2	57.5%*	60.7%*	13.6%*	38.5%*	58.6%*	16.1%	50.1%*	62.8%*	20.3%*
Quintile3	57.9%*	54.7%*	15.1%*	45.1%*	51.2%*	22.9%*	55.2%*	63.3%*	17.8%*
Quintile4	67.6%*	67.5%*	22.4%*	49.7%*	71.0%*	31.5%*	58.7%*	72.3%*	25.4%*
Quintile5	66.0%*	81.5%*	36.7%*	51.2%*	83.6%*	53.8%*	56.3%*	84.0%*	53.0%*
Information not available	67.2%*	67.5%*	14.4%*	58.7%*	68.5%*	21.2%*	60.3%*	75.8%*	18.0%*
<b>School fee status</b>									
Zero fee	57.9%	59.0%	14.1%	37.0%	57.2%	16.3%	52.4%	62.0%	21.5%
Non-zero fee	63.4%*	67.3%*	24.9%*	48.2%*	65.5%*	35.1%*	56.9%*	86.3%*	43.3%*
Information not available	64.3%*	65.1%*	15.5%*	59.1%*	68.7%*	20.7%*	60.4%*	75.8%*	18.4%*
<b>Former department of school</b>									
Independent	56.5%	58.5%	16.4%	39.0%	61.9%	17.0%	50.0%	67.2%	24.2%
Self-governing	56.5%	57.9%*	12.7%*	39.6%*	46.2%*	26.5%*	47.6%*	59.1%*	19.1%*
DET (Black)	62.6%*	56.5%*	18.4%*	45.8%*	64.3%*	21.3%*	60.8%*	64.3%*	21.1%*
HOA (White)	69.5%*	87.8%*	34.6%*	54.9%*	86.4%*	68.3%*	59.5%*	84.5%*	52.7%*
HOR (Coloured)	68.8%*	72.4%*	27.9%*	57.0%*	71.9%*	27.0%*	53.9%*	83.2%*	24.5%*
HOD (Indian)	69.6%*	78.7%*	24.5%*	47.5%*	87.5%*	36.2%*	50.4%*	75.2%*	43.7%*
WECD/TED/CED/FED	59.8%*	82.9%*	35.6%*	46.7%*	91.1%*	28.0%*	56.7%*	77.8%*	51.4%*
New	57.2%*	65.1%*	18.5%*	41.6%*	54.4%*	35.6%*	48.6%*	65.1%*	29.6%*
Information not available	68.3%*	68.1%*	13.6%*	59.1%*	68.8%*	20.8%*	61.6%*	75.1%*	12.9%*

Note:

[I]: Labour force participation likelihood of working-age population

[II]: Employment likelihood of labour force

[III]: Highly-skilled occupation employment likelihood of the employed

Reference group for comparing the statistical significance of the rates:

- "Combined" home language and English proficiency variable: Speak English

- School quintile: Quintile 1

- School fee status: Zero fees

- Former department of the school: Independent

\* The rate is statistically significantly different from that of the reference group at alpha = 5%.

Lastly, these three waves of NIDS data are used to conduct Oaxaca-Blinder decomposition on employment probability gap and highly-skilled occupational attainment probability gap by race (Whites vs. Blacks; Whites vs. Coloureds) and gender (Males vs. Females), before and after including the home language and educational quality indicator variables as explanatory

variables. Nonetheless, it is important to mention once again that the results should be interpreted with great caution, due to the following data issues:

- Very small sample size of the non-African population groups (see Table 3.1);
- Some respondents in the sample did not specify their home language (this proportion is as low as 6.8% in 2010 to as high as 13.5% in 2012 – see Table 4.7);
- The respondents' answers on their English reading and writing proficiency level are based on their subjective self-perception;
- Information on school quintile, school fee status and former department of the school is not available for a high proportion of people in the sample (refer to Table 4.7)
- Dummy variables are created to control for respondents with unspecified information on home language and the educational quality indicators, yet the econometric analysis results should still be interpreted with great caution.<sup>8</sup>

Tables 4.11 and 4.12 display the Oaxaca-Blinder decomposition results between Whites and Blacks, Whites and Coloureds, as well as males and females before and after adding the language proficiency variables and educational quality indicators, on employment likelihood (Table 4.11) and highly-skilled employment likelihood (Table 4.12). First, looking at Table 4.11, it is observed that after adding the language dummies in the White-Black employment gap decomposition the unexplained component declined significantly for NIDS 2008 and 2010. The decline was from 14.3 percentage points to -6 percentage points for NIDS 2008 and from 27.9 percentage points to 8.3 percentage points for NIDS 2010. This component further declined with the inclusion of the educational quality indicators for all three survey periods. The decline was from -6 percentage points to -19.1 percentage points for NIDS 2008, from 8.3 percentage points to 7.4 percentage points for NIDS 2010, and from 53.2 percentage points to 51.5 percentage points in NIDS 2012. This implies that the extent of employment discrimination against Blacks is not that serious after controlling for the language dummies and educational quality indicators. However, it should be noted that over the period NIDS 2008-2012, the White-Black employment probability gap increased before and after including the additional explanatory variables. Also, for the same time period, the unexplained component of this gap increased before and after adding the additional variables. Similarly to the OHS, LFS and QLFS findings the fact that the unexplained component shows no clear downward trend over time could imply that Affirmative Action may not be successful in

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<sup>8</sup> It is preferred not to drop the observations with unspecified information on the abovementioned variables, or the sample size would become even smaller and the results of the empirical analysis could be biased. For instance, if one decides to drop people with unspecified information on home language or educational quality in NIDS 2012, the sample size for the empirical analysis would drop drastically from the original 16 606 to 10 523.

reducing discrimination within the South African labour market, thereby confirming the findings of Burger and Jafta (2006 and 2010).

**Table 4.11: Oaxaca-Blinder Decomposition results on employment likelihood by race and gender after controlling for home language, English proficiency and school quality, NIDS 2008-2012**

<b>White vs. Black</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.2435	85.7%	0.3014	106.0%	0.3453	119.1%
	Unexplained	0.0408	14.3%	-0.0171	-6.0%	-0.0553	-19.1%
	Total	0.2843	100.0%	0.2842	100.0%	0.2900	100.0%
2010	Explained	0.2929	72.1%	0.3694	91.7%	0.3750	92.6%
	Unexplained	0.1133	27.9%	0.0333	8.3%	0.0301	7.4%
	Total	0.4062	100.0%	0.4027	100.0%	0.4051	100.0%
2012	Explained	0.2453	64.6%	0.1749	46.8%	0.1835	48.5%
	Unexplained	0.1344	35.4%	0.1987	53.2%	0.1946	51.5%
	Total	0.3797	100.0%	0.3736	100.0%	0.3782	100.0%
<b>White vs. Coloured</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.0192	12.3%	0.0089	5.7%	-0.0145	-9.0%
	Unexplained	0.1364	87.7%	0.1475	94.3%	0.1769	109.0%
	Total	0.1556	100.0%	0.1564	100.0%	0.1623	100.0%
2010	Explained	0.0843	42.0%	0.0977	48.9%	0.1089	55.2%
	Unexplained	0.1165	58.0%	0.1020	51.1%	0.0884	44.8%
	Total	0.2008	100.0%	0.1997	100.0%	0.1973	100.0%
2012	Explained	-0.0179	-10.9%	-0.0209	-13.5%	-0.0863	-54.8%
	Unexplained	0.1818	110.9%	0.1761	113.5%	0.2439	154.8%
	Total	0.1639	100.0%	0.1552	100.0%	0.1576	100.0%
<b>Male vs. Female</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.0156	8.0%	0.0178	9.1%	0.0193	9.9%
	Unexplained	0.1797	92.0%	0.1775	90.9%	0.1759	90.1%
	Total	0.1953	100.0%	0.1953	100.0%	0.1952	100.0%
2010	Explained	-0.0019	-1.2%	-0.0026	-1.7%	-0.0071	-4.6%
	Unexplained	0.1567	101.2%	0.1556	101.7%	0.1608	104.6%
	Total	0.1548	100.0%	0.1530	100.0%	0.1537	100.0%
2012	Explained	0.0094	6.9%	0.0137	10.2%	0.0124	9.3%
	Unexplained	0.1264	93.1%	0.1209	89.8%	0.1215	90.7%
	Total	0.1358	100.0%	0.1346	100.0%	0.1339	100.0%

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

The White-Coloured employment probability gap decomposition result shows no clear trends over time. This peculiar result could be due to the very small sample size observed in Table

3.1 in which Coloureds consisted of around 14 per cent of the total working-age population and Whites around 3 per cent. Finally, there were also no significant changes in the male-female employment gap decomposition after controlling for the language proficiency variables and educational quality indicators, despite the fact that the unexplained component accounts for a very high proportion of the total gap, just like what happened using the OHS/LFS/QLFS data (refer to Figure 4.5).

**Table 4.12: Oaxaca-Blinder Decomposition results on average highly-skilled occupational attainment differential by race and gender after controlling for home language, English proficiency and educational quality, NIDS 2008-2012**

<b>White vs. Black</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.2138	79.9%	0.2930	111.2%	0.2969	111.1%
	Unexplained	0.0537	20.1%	-0.0294	-11.2%	-0.0297	-11.1%
	Total	0.2675	100.0%	0.2636	100.0%	0.2672	100.0%
2010	Explained	0.2038	63.4%	0.1712	50.6%	0.1994	55.4%
	Unexplained	0.1176	36.6%	0.1673	49.4%	0.1603	44.6%
	Total	0.3213	100.0%	0.3385	100.0%	0.3597	100.0%
2012	Explained	0.1799	71.3%	0.2114	71.5%	0.1915	64.9%
	Unexplained	0.0725	28.7%	0.0844	28.5%	0.1038	35.1%
	Total	0.2524	100.0%	0.2957	100.0%	0.2952	100.0%
<b>White vs. Coloured</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.2153	125.0%	0.2332	138.8%	0.2321	135.1%
	Unexplained	-0.0431	-25.0%	-0.0652	-38.8%	-0.0603	-35.1%
	Total	0.1722	100.0%	0.1681	100.0%	0.1719	100.0%
2010	Explained	0.2555	98.8%	0.2968	113.6%	0.2637	89.8%
	Unexplained	0.0030	1.2%	-0.0355	-13.6%	0.0299	10.2%
	Total	0.2585	100.0%	0.2613	100.0%	0.2936	100.0%
2012	Explained	0.1586	75.9%	0.1345	52.7%	0.1947	75.4%
	Unexplained	0.0503	24.1%	0.1208	47.3%	0.0635	24.6%
	Total	0.2089	100.0%	0.2553	100.0%	0.2583	100.0%
<b>Male vs. Female</b>		<b>Before</b>		<b>After adding language dummies</b>		<b>After adding school quality</b>	
2008	Explained	0.0145	-28.2%	-0.0083	15.9%	-0.0063	12.8%
	Unexplained	-0.0658	128.2%	-0.0439	84.1%	-0.0427	87.2%
	Total	-0.0513	100.0%	-0.0522	100.0%	-0.0490	100.0%
2010	Explained	-0.0284	47.9%	-0.0399	78.3%	-0.0344	61.3%
	Unexplained	-0.0310	52.1%	-0.0111	21.7%	-0.0217	38.7%
	Total	-0.0594	100.0%	-0.0509	100.0%	-0.0561	100.0%
2012	Explained	-0.0105	15.7%	-0.0318	47.7%	-0.0300	51.1%
	Unexplained	-0.0561	84.3%	-0.0348	52.3%	-0.0287	48.9%
	Total	-0.0665	100.0%	-0.0666	100.0%	-0.0587	100.0%

Source: Own calculations using NIDS 2008, 2010 and 2012 data.

Finally, Table 4.12 shows the decomposition results on highly-skilled occupational attainment. In general, it can be seen that the unexplained component increased between 2008 and 2010, before declining in 2012 when comparing the average (Whites – Blacks) probability gap. This takes place even after including the additional explanatory variables on language and educational quality.

The White-Coloured probability gap decomposition result shows no clear trends over time just like what happened in Table 4.11, and once again this may be attributed to the too sample size of both groups in the NIDS data. Finally, when looking at the (Male – Female) probability gap decomposition results over time, it is interesting that in all three waves, the unexplained component in proportional terms decreased, after including the abovementioned additional explanatory variables (e.g. dropping from 128.2% to 87.2% in 2008, and from 84.3% to 48.9% in 2012). In addition, it is important to note that the total employment probability gap is negative in all three waves, and this result is quite similar to what was observed when using the OHS/LFS/QLFS data (refer to Figure 4.8).

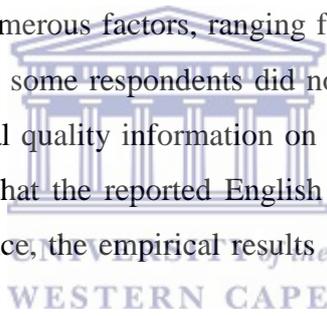
#### 4.5 Conclusion

This chapter discussed the descriptive and multivariate results of the study, using the OHS/LFS/QLFS data. Firstly, the participation and employment likelihood by race and gender was interpreted in the descriptive analysis. This included a discussion on the trends in the LFPR and unemployment rates over the years. Also, results on the demographic composition of the employed and the highly-skilled employed by race and gender in selected surveys was presented.

Secondly, the multivariate analysis employed in this study was based on three labour market models describing the labour force participation, employment and occupational attainment. According to the results on employment likelihood by race, males are significantly more likely to be employed than females for both the Black and Coloured racial groups. Also, being married and the head of household significantly increases the likelihood of being employed for all race groups considered. The multivariate analysis also included the Oaxaca-Blinder decompositions for the employment probits and highly-skilled employment probits from OHS1997 to QLFS2014Q4. The White-Black employment gap declined between 1997 and 2014 from 0.46 in 1997 to 0.31 in 2014. However, the decomposition results show that the unexplained component of the employment gap does not reveal any strong downward trend

overtime. This implies that Affirmative Action was not successful in reducing discrimination in the South African labour market.

Lastly, NIDS data was used to conduct a further analysis by including additional explanatory variables on home language, self-perceived English proficiency level, and educational quality (as reflected by three variables, namely school quintile, school fee status, and former department of the school). The analysis was conducted to explore if employment discrimination by race and gender may have declined after controlling for language proficiency and educational quality. The descriptive analysis (Table 4.10) indicated that the labour market outcome (i.e. probabilities of participating in the labour force, being employed, and involved in highly-skilled occupations) of those speaking English at home, speak Afrikaans at home but report to write and read English very well, studying at non-zero fees former-white (HOA) schools in quintile 5 is significantly better. Nonetheless, the Oaxaca-Blinder decomposition using the NIDS data does not seem to have yield very robust results, and this could be attributed to numerous factors, ranging from the very small sample size of the non-Black population groups, some respondents did not specify their home language, to the non-availability of educational quality information on a high proportion of sample in all three waves as well as the fact that the reported English proficiency level is based on the respondents' self-perception. Hence, the empirical results (Tables 4.11 and 4.12) need to be interpreted with great caution.



## CHAPTER FIVE: CONCLUSION

### 5.1 Introduction

This study examined the impact of Affirmative Action on employment discrimination (by gender and race) since the advent of democracy. The data used in this study represents the labour force between 15 and 65 years, but self-employed as well as informal sector, domestic and agricultural employees were excluded from the analysis. The methodology used in this study firstly estimated probit models describing the labour force participation, employment and occupational attainment, followed by the Oaxaca-Blinder decomposition, using data from OHS 1997-1999, LFS 2000-2007, QLFS 2008-2014 and NIDS 2008-2012. The Oaxaca-Blinder decomposition using NIDS 2008-2012 data estimated employment discrimination before and after adding the language proficiency variables and the educational quality indicators. This was done to determine if there was a reduction in employment discrimination by race and gender after including these additional explanatory variables.



### 5.2 Review of findings

With reference to labour market status, the White and Black population groups had the highest and lowest LFPR respectively. Also, males were more likely to participate in the labour market than females. It was found that the unemployment rate for females was always higher when compared to males and the unemployment rate for Whites was much lower when compared to Blacks.

Regarding the demographic composition of the employed by race, it was observed that the proportion of male employees have declined for all race groups considered. This reduction was the greatest for Blacks, as the male share declined from 70.2 per cent in 1997 to 59.4 per cent in 2014. Also, with regard to the provincial share of employed in each race group, it is interesting that the Gauteng share was most dominant for Blacks and Whites, but the Western Cape share was the highest for Coloureds. Furthermore, for all three race groups, the mean years of educational attainment showed an upward trend over the years, but the Whites were significantly more educated than the Coloureds and Blacks (by about 3 years).

According to the results on employment likelihood by race, males are significantly more likely to be employed than females for both the Black and Coloured racial groups.

Additionally, being married and the head of household significantly increases the likelihood of being employed for all race groups considered. With regards to highly-skilled employment likelihood by race, results indicate that males are significantly less likely to be employed in highly-skilled occupations than females, for all race groups considered. Furthermore, Black head of households are less likely to be employed in highly-skilled occupations for LFS 2003b and QLFS2008Q4. .

As stated previously the Oaxaca-Blinder decomposition for the employment probits and highly-skilled employment probits was firstly conducted for OHS 1997 to QLFS2014Q4 and then for NIDS 2008 to 2012 before and after including the language proficiency variables and educational quality indicators. For OHS1997 to QLFS2014Q4 it was found that the White-Black employment probability gap declined between 1997 and 2014 from 0.46 in 1997 to 0.31 in 2014. However, the decomposition results show that the unexplained component of the employment gap does not reveal any strong downward trend overtime. This implies that Affirmative Action was not successful in drastically reducing discrimination in the South African labour market. Also, the unexplained component is most dominant in the male-female employment gap. This implies that employment discrimination against females is very serious. With regards to the occupational attainment gap, the results show that there was an increasing occupational attainment gap between Whites and Blacks which was partially driven by an increase in the unexplained component. Similarly, the White-Coloured occupational employment likelihood increased with an increase in the unexplained component. These findings are in line with a very recent statement made by the Chairperson of the Employment Equity Commission (EEC), Tabea Kabinda, in which she said that Affirmative Action in South Africa is extremely slow. She also stated that historical stereotypes still existed, meaning White men still remain in the most powerful employment positions (Giokos & Mtyala 2016).

When using NIDS data, the Oaxaca-Blinder decomposition results on the White-Black employment gap indicate that after adding the language dummies and educational quality indicators the unexplained component declined significantly in NIDS 2008 and 2010. This implies that the extent of employment discrimination against Blacks is not that serious after controlling for the language dummies and educational quality indicators. However, over the period NIDS 2008-2012 the White-Black employment gap increased before and after including the additional explanatory variables. Also, for the same time period, the unexplained component of this gap increased before and after adding the additional variables.

Similarly to the OHS, LFS and QLFS findings the fact that the unexplained component shows no clear downward trend over time implies that Affirmative Action may not be successful in reducing discrimination in the South African labour market. Nonetheless, these results using the NIDS data need to be interpreted with great caution, due to various data issues, as already discussed thoroughly in Section 4.4.

### 5.3 Conclusion

Overall, the findings of this study indicate that the introduction of Affirmative Action in the South African labour market did not significantly reduce employment discrimination against Blacks and females in the 1997-2014 period. What is also worrying is that when examining the employment discrimination by race, there is no indication that the explained component has decreased over time (see Figures 4.3 and 4.4). This result may imply that the Blacks have not been catching up against the Coloureds and Whites in terms of their characteristics (e.g. educational attainment).

With regard to policy recommendations, firstly, it is important to improve not only the educational attainment (i.e. quantity) of the Blacks, but the government needs to continue to improve the quality of education of the former non-White schools. Altman (2005: 7) and Festus, Kasongo, Moses and Yu (2015: 2) state that the disparities in the quality and access of educational attainment continue to negatively affect labour market prospects for most of the non-White South Africans. Policies that could improve the employment prospects of vulnerable groups include: (i) implementing financial incentives that are triggered towards specific educational programmes, in order to reduce the skills mismatch within the economy, (ii) developing networks for vulnerable learners through work placements and (iii) enhancing the quality and accessibility of mathematics and science educators in former non-White schools (Altman 2005: 7).

Furthermore, the National Development Plan (NDP) aims to significantly improve the quality of education by: (i) ensuring a proper nutrition and diet for children to enable them to develop both physically and mentally, (ii) improving the leadership of all schools, specifically principals and deputy principals, (iii) developing the Further Education and Training System as it is proven to be ineffective (too small and poor quality), and (iv) increasing participation and graduation rates at higher education institutions by implementing bridging courses to help Black previously disadvantaged students (National Planning Commission 2012: 49-50).

Secondly, apart from policies aimed at improving the quality and access of educational attainment, policies aimed at enhancing real GDP growth also has significant impacts on employment creation in the economy. Oosthuizen (2006: 58) states that “economic growth has been unable to provide the necessary employment opportunities required by population growth and rising labour force participation rates, resulting in a rapidly rising rate of unemployment”. Hence, the change in real GDP growth was not significant enough to absorb all the net labour market entrants (Festus, Kasongo, Moses and Yu 2015: 4). The NDP lists nine chief challenges in achieving sustainable growth:

*“(1) Too few people work, (2) the quality of school education for Black people is poor, (3) infrastructure is poorly located, inadequate and under-maintained, (4) special divides hobble inclusive development, (5) the economy is unsustainable resource intensive, (6) the public health system cannot meet demand or sustain quality, (7) public services are uneven and often of poor quality, (8) corruption levels are high, and (9) South Africa remains a divided society” (National Planning Commission 2012: 25).*

To improve economic growth the NDP recommends making exports more mining, construction, manufacturing, agricultural and business service orientated. This will potentially increase exports because South Africa has a comparative advantage in these areas. Also, infrastructure should be improved in order to enable economic creation that is beneficial to job creation and growth. Additionally, the cost of living for working-class and low-income households should be reduced. Further recommendations include financial provision for small businesses through development finance institutions, improved education and vocational training, and making the labour market more receptive to economic opportunity by ensuring life time learning and career progressions (National Planning Commission 2012: 39-40).

Thirdly, policies should also be aimed at rectifying labour market rigidities (employment and wage rigidities) that came about by the implementation of post-1994 labour legislations. Kaplan, De Kadt and Altbeker (2013: 3) as well as Festus et al. (2015: 3) state that the South African labour market regime is a significant contributor to the unemployment problem in the country. The labour legislations implemented post-1994 had tremendous effects on the rights of employees but it also limited the ability of employers to alter their intake of labour. This increased unemployment because the market was unable to function efficiently. Kaplan, De Kadt and Altbeker (2013: 3) state that the Commission for Conciliation, Mediation and Arbitration (CCMA) poses a problem to small firm employers. It is found that this institution is mostly used by lower-skilled employees and majority of the cases are decided in their

favour. This imposes a burden on small firm employers who do not have specialised human resource staff.

Also, the hiring and firing regulations of the country significantly hinders the hiring of new staff as it requires a substantial amount of time and hassle. Borat (2012: 12, 14) found that South Africa's hiring and firing rigidity measures are significantly above the world mean. Additionally, the author found that the lack of flexibility in the South African labour market lies explicitly within the regions of hiring and firing provisions.

Furthermore, the collective bargaining, wage setting and bargaining council extensions also has a significant impact on employment. It is proven that collective bargaining and unionisation are connected to low employment levels and higher wages in South Africa. Moreover, bargaining councils, who are typically controlled by large firms, extend their agreements to smaller firms and these agreements are not always to the benefit of these smaller firms, specifically in the case of minimum wages (Kaplan, De Kadt & Altbeker 2013: 3). Festus et al. (2015: 3) state that minimum wages has a negative effect on small firms, thereby hampering the promotion of SMMEs and increasing unemployment levels. Overall, Kaplan et al. (2013: 4) found that the South African labour market policy is focused more on establishing "decent jobs", at the expense of reduced employment creation. The policy favours employed individuals in established unions and large corporations over lower-skilled employees in smaller businesses, and the unemployed.

Further policy recommendations include improving the skills level of workers. Considering that the economy has shifted towards becoming more capital and skills intensive (Festus, Kasongo, Moses & Yu 2015: 20; Oosthuizen 2006: 40; Borat 2012: 3), the labour force in the economy needs to develop more appropriate skills. The implementation of the Expanded Public Works Programme (EPWP) contributes towards the skills acquisition of the workforce, however, further skills development policies are needed. For example, the integrated skills transfer suggestion by Festus, Kasongo, Moses & Yu (2015: 21) in which the older generation passes on skills to the newer generations.

Given that poverty negatively impacts the ability of individuals to seek employment, policies aimed at simplifying the employment seeking process for poor individuals are greatly encouraged. Borat (2012: 7-9) supports a transport subsidy for unemployed youth in non-urban areas. Festus et al. (2015: 22) discuss two of the potential benefits of the transport

subsidy. The first benefit is that economic opportunities will go further than urban areas and residents close to urban areas, as people living outside of these areas will also gain employment opportunities. The second is that the subsidy would provide a deterrent to urbanisation, this would result in social and budgetary benefits.

Lastly, Kaplan et al. (2013: 2) state that youth unemployment, which is commonly higher than the unemployment of older people, is very high by global standards. The implementation of the Youth wage subsidy on 1 January 2014 is expected to help with the youth unemployment problem. This subsidy offers a fiscal incentive for firms to employ more young personnel, with the expectation of creating job opportunities and providing the youth with vital skills and experience (Bhorat 2012: 5). The policy however, is only implemented for two years, so the effectiveness of the policy is yet to be determined.

To conclude, while reducing employment discrimination by gender and race via Affirmative Action remains important (i.e. reducing the unexplained component), great attention should still be given to improve the education and skills level of the workseekers of the previously disadvantaged groups (i.e. reducing the explained component), before there would be more speedy improvement of their labour market outcome in future.



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## APPENDIX

**Table A.1: LFPR by gender and race, 1995-2014**

	<b>Black</b>	<b>Coloured</b>	<b>White</b>	<b>Male</b>	<b>Female</b>
OHS 1995	43.12%	60.07%	63.33%	58.24%	38.02%
OHS 1996	39.71%	59.03%	63.74%	54.24%	36.65%
OHS 1997	40.72%	57.17%	61.95%	54.93%	36.38%
OHS 1998	44.86%	58.20%	64.99%	58.42%	39.98%
OHS 1999	47.23%	62.62%	67.69%	59.40%	44.16%
LFS 2000a	59.22%	67.62%	68.14%	66.43%	56.48%
LFS 2000b	56.56%	64.82%	68.37%	66.12%	52.02%
LFS 2001a	57.20%	65.49%	68.34%	65.89%	53.25%
LFS 2001b	53.23%	64.05%	69.03%	63.74%	49.36%
LFS 2002a	55.49%	67.17%	69.21%	65.25%	51.77%
LFS 2002b	54.10%	64.54%	67.78%	64.24%	49.93%
LFS 2003a	54.11%	65.98%	69.53%	64.14%	50.49%
LFS 2003b	51.43%	63.25%	69.46%	62.72%	47.38%
LFS 2004a	50.98%	63.93%	67.99%	61.94%	47.06%
LFS 2004b	50.64%	61.83%	68.81%	62.00%	46.16%
LFS 2005a	51.77%	63.03%	68.47%	62.55%	47.67%
LFS 2005b	53.93%	63.92%	67.77%	63.74%	49.87%
LFS 2006a	53.41%	63.43%	68.27%	62.90%	49.62%
LFS 2006b	54.91%	64.27%	67.98%	63.92%	51.09%
LFS 2007a	53.91%	63.94%	67.70%	63.01%	49.91%
LFS 2007b	53.92%	61.76%	71.16%	63.91%	49.73%
QLFS 2008Q1	57.04%	65.37%	70.96%	67.43%	51.78%
QLFS 2008Q2	57.14%	64.65%	69.42%	67.10%	51.82%
QLFS 2008Q3	56.82%	64.06%	69.44%	66.93%	51.44%
QLFS 2008Q4	56.50%	64.11%	68.80%	66.37%	51.24%
QLFS 2009Q1	56.39%	65.83%	70.35%	66.60%	51.47%
QLFS 2009Q2	55.25%	64.59%	69.40%	65.48%	50.27%
QLFS 2009Q3	53.72%	63.94%	67.52%	63.67%	49.12%
QLFS 2009Q4	53.60%	64.62%	68.75%	64.23%	48.66%
QLFS 2010Q1	53.12%	64.96%	69.15%	63.59%	48.77%
QLFS 2010Q2	53.10%	63.72%	68.26%	63.47%	48.53%
QLFS 2010Q3	52.43%	63.43%	66.38%	62.88%	47.72%
QLFS 2010Q4	52.14%	62.32%	66.84%	62.38%	47.56%
QLFS 2011Q1	52.60%	63.30%	67.43%	62.42%	48.40%
QLFS 2011Q2	53.31%	60.62%	67.50%	62.60%	48.86%
QLFS 2011Q3	53.14%	63.93%	67.70%	62.73%	48.92%
QLFS 2011Q4	52.88%	62.72%	68.03%	62.40%	48.66%
QLFS 2012Q1	53.41%	63.34%	67.70%	62.80%	49.22%
QLFS 2012Q2	53.35%	62.46%	67.03%	62.76%	48.70%
QLFS 2012Q3	54.31%	64.10%	66.98%	63.89%	49.49%
QLFS 2012Q4	53.28%	63.36%	66.28%	62.76%	48.74%
QLFS 2013Q1	53.57%	62.96%	66.91%	63.08%	49.00%
QLFS 2013Q2	54.05%	63.40%	67.44%	63.04%	49.94%
QLFS 2013Q3	54.61%	63.58%	68.55%	63.07%	50.85%
QLFS 2013Q4	54.72%	64.07%	67.38%	63.42%	50.48%
QLFS 2014Q1	54.76%	64.39%	67.37%	63.38%	50.60%
QLFS 2014Q2	54.94%	64.85%	67.16%	63.60%	50.62%
QLFS 2014Q3	54.70%	65.11%	66.72%	63.65%	50.25%
QLFS 2014Q4	54.37%	63.67%	67.15%	63.23%	49.94%

Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data.

Note:

- The Coloured LFPR is statistically different from the Black LFPR at  $\alpha = 5\%$  in all surveys.
- The White LFPR is statistically different from the Black LFPR at  $\alpha = 5\%$  in all surveys.
- The female LFPR is statistically different from the male LFPR at  $\alpha = 5\%$  in all surveys.

**Table A.2: Unemployment rates by gender and race, 1995-2014**

	<b>Black</b>	<b>Coloured</b>	<b>White</b>	<b>Male</b>	<b>Female</b>
OHS 1995	21.63%	15.92%	3.92%	13.76%	22.94%
OHS 1996	26.17%	11.84%	3.71%	16.19%	24.73%
OHS 1997	27.14%	15.26%	3.89%	17.43%	26.52%
OHS 1998	32.05%	15.79%	4.38%	21.54%	30.13%
OHS 1999	29.21%	15.25%	4.72%	19.76%	27.82%
LFS 2000a	31.58%	20.44%	7.61%	25.04%	28.77%
LFS 2000b	30.47%	18.57%	7.32%	22.44%	29.50%
LFS 2001a	31.08%	21.23%	6.92%	24.57%	28.64%
LFS 2001b	35.70%	21.17%	5.85%	25.76%	33.81%
LFS 2002a	35.19%	24.10%	6.52%	26.08%	33.87%
LFS 2002b	36.42%	22.96%	5.99%	25.93%	35.89%
LFS 2003a	37.32%	22.37%	6.49%	27.21%	35.89%
LFS 2003b	33.90%	21.06%	4.99%	24.67%	32.05%
LFS 2004a	34.18%	18.05%	4.89%	23.86%	32.89%
LFS 2004b	31.33%	21.78%	5.42%	23.05%	30.18%
LFS 2005a	31.65%	19.77%	5.06%	22.41%	31.40%
LFS 2005b	31.49%	22.44%	5.04%	22.58%	31.65%
LFS 2006a	30.66%	18.92%	4.73%	21.56%	30.28%
LFS 2006b	30.51%	19.42%	4.51%	21.18%	30.67%
LFS 2007a	30.23%	19.79%	4.30%	21.10%	30.78%
LFS 2007b	26.80%	20.64%	3.84%	19.84%	26.11%
QLFS 2008Q1	27.23%	19.22%	5.20%	20.44%	26.61%
QLFS 2008Q2	26.39%	19.47%	4.56%	19.66%	26.21%
QLFS 2008Q3	26.81%	18.94%	4.11%	20.35%	25.78%
QLFS 2008Q4	25.39%	17.63%	2.95%	18.73%	24.86%
QLFS 2009Q1	26.98%	19.19%	4.41%	20.87%	25.53%
QLFS 2009Q2	27.26%	19.42%	4.53%	21.52%	25.23%
QLFS 2009Q3	28.50%	21.57%	4.82%	22.93%	26.26%
QLFS 2009Q4	28.19%	20.69%	4.88%	22.80%	25.60%
QLFS 2010Q1	29.27%	21.73%	6.19%	23.31%	27.12%
QLFS 2010Q2	29.05%	22.57%	6.45%	23.20%	27.31%
QLFS 2010Q3	29.77%	22.69%	5.12%	23.45%	27.83%
QLFS 2010Q4	27.84%	21.49%	5.60%	21.95%	26.29%
QLFS 2011Q1	28.63%	22.97%	5.99%	22.35%	27.87%
QLFS 2011Q2	29.68%	23.11%	4.96%	23.44%	28.11%
QLFS 2011Q3	28.65%	23.89%	5.59%	22.86%	27.49%
QLFS 2011Q4	27.28%	21.44%	6.72%	22.00%	25.85%
QLFS 2012Q1	28.64%	24.04%	6.06%	23.17%	27.24%
QLFS 2012Q2	28.29%	23.99%	5.67%	23.06%	26.83%
QLFS 2012Q3	28.54%	24.66%	5.94%	23.26%	27.48%
QLFS 2012Q4	27.83%	23.70%	5.50%	22.39%	27.02%
QLFS 2013Q1	28.33%	23.59%	7.31%	23.60%	26.77%
QLFS 2013Q2	28.54%	25.28%	5.99%	23.42%	27.50%
QLFS 2013Q3	27.51%	24.55%	6.69%	23.05%	26.15%
QLFS 2013Q4	27.08%	22.97%	7.12%	22.35%	26.24%
QLFS 2014Q1	28.44%	23.55%	6.52%	23.65%	26.96%
QLFS 2014Q2	28.30%	25.30%	8.02%	23.73%	27.47%
QLFS 2014Q3	28.54%	24.05%	7.24%	23.39%	27.79%
QLFS 2014Q4	27.12%	22.87%	7.66%	22.36%	26.49%

Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data.

Note:

- The Coloured unemployment rate is statistically different from the Black unemployment rate at  $\alpha = 5\%$  in all surveys.
- The White unemployment rate is statistically different from the Black unemployment rate at  $\alpha = 5\%$  in all surveys.
- The female unemployment rate is statistically different from the male unemployment rate at  $\alpha = 5\%$  in all surveys.

**Table A.3: Likelihood of employed involved in highly-skilled occupations by gender and race, 1995-2014**

	<b>Black</b>	<b>Coloured</b>	<b>White</b>	<b>Male</b>	<b>Female</b>
OHS 1995	14.56%	10.02%	41.37%	18.65%	21.67%
OHS 1996	15.74%	17.22%	44.19%	20.48%	26.20%
OHS 1997	16.71%	18.14%	49.63%	22.70%	27.08%
OHS 1998	13.88%	16.22%	51.28%	22.20%	23.70%
OHS 1999	14.15%	15.28%	50.05%	21.62%	22.44%
LFS 2000a	10.46%	15.06%	45.68%	18.56%	16.90%
LFS 2000b	11.38%	12.65%	49.41%	18.46%	19.14%
LFS 2001a	11.43%	15.19%	47.46%	19.59%	17.32%
LFS 2001b	12.41%	14.37%	50.58%	20.41%	21.35%
LFS 2002a	12.37%	14.61%	51.67%	21.24%	19.74%
LFS 2002b	13.42%	14.41%	53.28%	21.34%	21.95%
LFS 2003a	12.48%	14.62%	54.40%	21.16%	21.17%
LFS 2003b	13.28%	14.68%	55.18%	21.64%	22.73%
LFS 2004a	13.44%	16.11%	53.35%	21.85%	22.08%
LFS 2004b	12.70%	16.69%	55.88%	21.22%	22.13%
LFS 2005a	12.81%	16.10%	51.45%	19.65%	22.07%
LFS 2005b	13.74%	17.72%	52.61%	21.22%	21.78%
LFS 2006a	13.27%	18.19%	52.39%	20.81%	21.58%
LFS 2006b	13.15%	18.60%	53.83%	20.76%	21.63%
LFS 2007a	13.43%	18.15%	54.10%	20.05%	22.66%
LFS 2007b	17.24%	19.94%	59.66%	23.62%	27.60%
QLFS 2008Q1	14.95%	19.08%	59.08%	22.61%	23.81%
QLFS 2008Q2	15.52%	21.76%	59.73%	23.08%	24.53%
QLFS 2008Q3	15.91%	21.97%	60.14%	23.28%	25.24%
QLFS 2008Q4	15.77%	22.93%	62.18%	23.69%	25.17%
QLFS 2009Q1	16.12%	22.18%	61.84%	23.99%	25.49%
QLFS 2009Q2	15.72%	21.59%	61.52%	24.04%	24.60%
QLFS 2009Q3	16.57%	22.73%	60.04%	24.78%	24.97%
QLFS 2009Q4	16.32%	21.50%	58.59%	24.01%	24.74%
QLFS 2010Q1	16.26%	21.55%	58.58%	24.28%	24.97%
QLFS 2010Q2	15.92%	22.19%	60.42%	24.07%	25.04%
QLFS 2010Q3	15.36%	22.00%	60.38%	23.44%	25.10%
QLFS 2010Q4	16.69%	23.72%	63.19%	24.68%	26.67%
QLFS 2011Q1	16.40%	25.26%	64.53%	24.79%	26.73%
QLFS 2011Q2	16.24%	23.88%	64.11%	24.54%	26.95%
QLFS 2011Q3	16.26%	25.07%	61.96%	24.03%	26.22%
QLFS 2011Q4	16.87%	25.09%	60.33%	24.37%	25.82%
QLFS 2012Q1	16.97%	24.28%	60.66%	24.47%	26.12%
QLFS 2012Q2	17.27%	26.45%	60.98%	24.97%	26.45%
QLFS 2012Q3	17.15%	25.51%	61.48%	24.75%	26.19%
QLFS 2012Q4	16.79%	24.01%	61.97%	24.37%	25.71%
QLFS 2013Q1	17.79%	24.54%	61.69%	25.73%	25.75%
QLFS 2013Q2	17.86%	23.80%	63.39%	25.76%	26.25%
QLFS 2013Q3	18.30%	23.05%	60.98%	25.71%	25.68%
QLFS 2013Q4	17.64%	22.55%	60.21%	24.30%	25.42%
QLFS 2014Q1	17.94%	22.50%	61.38%	24.87%	25.75%
QLFS 2014Q2	18.05%	23.55%	60.78%	25.04%	25.48%
QLFS 2014Q3	17.69%	24.06%	63.44%	24.88%	26.22%
QLFS 2014Q4	15.73%	19.45%	58.72%	22.29%	22.97%

Source: Own calculations using OHS 1995-1999, LFS 2000-2007 and QLFS 2008-2014 data.

Note:

- The Coloureds' highly-skilled occupation employment likelihood is statistically different from that of the Blacks at  $\alpha = 5\%$  in all surveys.
- The Whites' highly-skilled occupation employment likelihood is statistically different from that of the Blacks at  $\alpha = 5\%$  in all surveys.
- The females' highly-skilled occupation employment likelihood is statistically different from that of the males at  $\alpha = 5\%$  in all surveys, except LFS2003a, QLFS2013Q1 and QLFS2013Q3.

**Table A.4: Probit regressions on labour force participation likelihood of working-age population by race, selected surveys**

	Marginal effects											
	OHS 1997			LFS 2003b			QLFS 2008Q4			QLFS 2014Q4		
	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White	Black	Coloured	White
Male	0.1921***	0.2211***	0.1553***	0.1775***	0.1713***	0.1306***	0.2124***	0.2158***	0.0618**	0.1772***	0.2241***	0.2012***
Age	0.0863***	0.0923***	0.0933***	0.0968***	0.0924***	0.0983***	0.1081***	0.0923***	0.1020***	0.1112***	0.1038***	0.1032***
Age squared	-0.0011***	-0.0013***	-0.0013***	-0.0012***	-0.0013***	-0.0013***	-0.0014***	-0.0013***	-0.0013***	-0.0014***	-0.0014***	-0.0013***
Primary	0.0158***	0.0025	-0.0049	0.0229***	-0.0002	0.0996***	0.0220***	0.0286***	0.0484**	0.0074**	0.0206**	0.0662**
Secondary	0.0060***	0.0244***	0.0350***	0.0139***	0.0178***	0.0196	0.0302***	0.0282***	0.0427**	0.0355***	0.0148**	0.0059
Matric	0.1859***	0.1301***	0.1830***	0.1691***	0.2185***	0.1581***	0.1620***	0.1603***	0.1044***	0.1319***	0.1707***	0.1338***
Matric + Cert/Dip	0.3043***	0.1116	0.0889**	0.2735***	0.1968**	0.1723***	0.1831***	0.2564***	0.1397***	0.1896***	0.0635	0.0826
Degree	-0.0070	0.0062	0.0088	0.0162	-0.0867	-0.0185	0.0855***	-0.0789*	-0.0085	0.0291	0.0338	0.0241
Western Cape	0.2649***	0.1345***	-0.0362	0.2847***	0.0665**	-0.0870**	0.2027***	0.0421	-0.0950**	0.2164***	0.0218	-0.0764
Northern Cape	0.2243***	-0.0070	0.0526	0.1684***	-0.0851**	-0.1254**	0.1270***	0.0197	-0.0955	0.1962***	-0.1014**	-0.0274
Free State	0.1817***	-0.0810*	0.0507	0.1498***	-0.0593	-0.0722*	0.1016***	-0.0622	-0.0891*	0.1704***	-0.1031*	-0.1928***
KwaZulu-Natal	0.1113***	0.0659	0.0805*	0.1114***	-0.0237	-0.0080	0.0961***	0.0306	-0.1018*	0.0095	-0.0109	-0.1566**
Northwest	0.1522***	-0.1622***	-0.0400	0.0537***	-0.2354**	-0.1576***	0.1078***	0.0132	-0.0948*	0.0804***	-0.2415**	-0.2089***
Gauteng	0.2717***	0.1293***	0.0479	0.1839***	-0.0295	0.0109	0.2229***	0.1013***	-0.0470	0.1870***	-0.0206	-0.0714
Mpumalanga	0.1665***	0.0388	0.0349	0.0916***	-0.1566***	0.0406	0.1046***	0.0055	0.0244	0.1264***	-0.2559**	-0.0566
Limpopo	0.0190	-0.4777***	0.0144	-0.0453***	-0.1813***	-0.0328	-0.0382	-0.1072	-0.0218	-0.0809***	-0.4943**	-0.1690*
Head	0.16615***	0.2264***	0.2962***	0.1748***	0.2334***	0.2497***	0.1650***	0.2127***	0.2997***	0.1576***	0.1389***	0.1485***
Married	0.0537***	0.0150	0.0253	0.0455***	0.0485**	0.0140	0.0249***	0.0473**	0.1010***	0.0217**	0.0079	0.0655*
Children	-0.0108***	-0.0230***	-0.0104	-0.0304***	-0.0192	-0.0367***	-0.0305***	-0.0154**	-0.0618**	-0.0154***	-0.0056	-0.0120
Elderly	-0.0064	0.0059	0.0553***	-0.0337***	0.0124	0.0733***	-0.0278***	0.0112	0.0266	-0.0181**	-0.0001	-0.0052
Male 15 to 59	-0.0045**	0.0039	0.0142	-0.0007	0.0019	0.0100	0.0056	-0.0138*	0.0130	-0.0025	-0.0178**	-0.0062
Female 15 to 59	0.0158***	0.0503***	0.0417***	0.0105***	0.0277***	0.0305***	0.0211***	0.0226**	0.0036	0.0137***	0.0345***	-0.0159
Sample size	57 534	9 556	5 635	41 325	6 851	4 944	39 152	5 597	3 768	36 172	5 756	3 079
Chi-squared	12855.86	1660.13	1392.45	7749.14	1013.26	1118.94	7996.93	1259.10	824.69	7317.36	1219.89	677.26
Pseudo R <sup>2</sup>	0.2924	0.2227	0.2894	0.2993	0.2673	0.3172	0.3263	0.2741	0.3360	0.3110	0.2643	0.3070

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\*\*\* Significant at 1%      \*\* Significant at 5%      \* Significant at 10%

**Table A.5: Probit regressions on labour force participation likelihood of working-age population by gender, selected surveys**

	Marginal effects							
	OHS 1997		LFS 2003b		QLFS 2008Q4		QLFS 2014Q4	
	Male	Female	Male	Female	Male	Female	Male	Female
Coloured	0.1649***	0.1640***	0.0747***	0.1277***	0.0622***	0.0625***	0.0818***	0.0631***
Indian	0.1426***	0.0133	0.0761***	-0.0799***	-0.0066	-0.1103***	0.0682**	-0.1296***
White	0.0503***	0.0173	-0.0268	-0.0445***	-0.0874***	-0.0762***	0.0400*	-0.0360*
Age	0.1035***	0.0789***	0.1065***	0.0911***	0.1083***	0.1002***	0.1194***	0.1031***
Age squared	-0.0014***	-0.0010***	-0.0014***	-0.0012***	-0.0014***	-0.0013***	-0.0015***	-0.0013***
Primary	0.0107***	0.0155***	0.0101***	0.0280***	0.0228***	0.0189***	0.0204***	-0.0028
Secondary	-0.0018	0.0127***	0.0037	0.0169***	0.0199***	0.0401***	0.0153***	0.0477***
Matric	0.1804***	0.1838***	0.1575***	0.1819***	0.1143***	0.1810***	0.1194***	0.1324***
Matric + Cert/Dip	0.1651***	0.2172***	0.1304***	0.3038***	0.1210***	0.2922***	0.0392	0.2485***
Degree	-0.0250	-0.0090	0.0027	-0.0289	0.0049	-0.0244	0.0532**	-0.0007
Western Cape	0.2231***	0.1208**	0.2017***	0.1103***	0.1603***	0.0774***	0.1666***	0.1399***
Northern Cape	0.1606***	0.0660	0.1156***	0.0112	0.1165***	0.0654***	0.1209***	0.1164***
Free State	0.1625***	0.1339***	0.1195***	0.0921	0.0973	0.0440	0.1165***	0.1312***
KwaZulu-Natal	0.1243***	0.0782***	0.0889***	0.0843	0.0934	0.0397	-0.0076	-0.0090
Northwest	0.1673***	0.0669	0.0778***	-0.0350	0.1288***	0.0148	0.0804	0.0099
Gauteng	0.2375***	0.2023***	0.1480***	0.1453***	0.2000***	0.1394***	0.1560***	0.1351***
Mpumalanga	0.1856***	0.1004***	0.0917***	0.0500	0.1299***	0.0291	0.1195***	0.0738***
Limpopo	0.0104	0.0129	-0.0728***	-0.0435***	-0.0136	-0.0750***	-0.0831***	-0.1108***
Head	0.1858***	0.0544***	0.1980***	0.0679	0.1751***	0.0541***	0.1343***	0.0512***
Married	0.2042***	-0.0701***	0.1606***	-0.0788***	0.1569***	-0.0988***	0.1960***	-0.1060***
Children	-0.0149***	-0.0118***	-0.0284***	-0.0289***	-0.0222	-0.0340***	-0.0129***	-0.0162***
Elderly	-0.0252***	-0.0035	-0.0316***	-0.0325***	-0.0307***	-0.0185***	-0.0299***	-0.0168*
Male 15 to 59	0.0026	0.0047**	0.0031	0.0102	0.0103**	0.0095***	0.0017	0.0048
Female 15 to 59	0.0006	0.0135	-0.0040	0.0058	-0.0003	0.0105**	-0.0060	0.0056
Sample size	33 321	41 431	26 018	28 587	22 934	27 039	21 108	24 948
Chi-squared	10192.47	6500.65	6127.45	4376.02	5251.59	5402.90	4872.81	4063.68
Pseudo R <sup>2</sup>	0.3371	0.2289	0.3555	0.2463	0.3697	0.2722	0.3624	0.2589

Source: Own calculations using OHS 1997, LFS 2003 September, QLFS 2008Q4 and QLFS 2014Q4 data.

\*\*\* Significant at 1%      \*\* Significant at 5%      \* Significant at 10%

**Table A.6: Decomposition of White-Black average employment probability gap, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.2320	0.2239	0.4559	50.89%	49.11%	100.00%
OHS 1998	0.2468	0.2344	0.4812	51.28%	48.72%	100.00%
OHS 1999	0.2245	0.2442	0.4687	47.89%	52.11%	100.00%
LFS 2000a	0.2481	0.2570	0.5052	49.12%	50.88%	100.00%
LFS 2000b	0.2439	0.2259	0.4698	51.91%	48.09%	100.00%
LFS 2001a	0.2468	0.2467	0.4935	50.00%	50.00%	100.00%
LFS 2001b	0.2518	0.2652	0.5170	48.70%	51.30%	100.00%
LFS 2002a	0.2513	0.2565	0.5078	49.50%	50.50%	100.00%
LFS 2002b	0.2489	0.2595	0.5083	48.96%	51.04%	100.00%
LFS 2003a	0.2621	0.2565	0.5186	50.53%	49.47%	100.00%
LFS 2003b	0.2463	0.2648	0.5112	48.19%	51.81%	100.00%
LFS 2004a	0.2332	0.2631	0.4963	46.98%	53.02%	100.00%
LFS 2004b	0.2585	0.2143	0.4727	54.67%	45.33%	100.00%
LFS 2005a	0.2619	0.2281	0.4900	53.44%	46.56%	100.00%
LFS 2005b	0.2729	0.2360	0.5088	53.63%	46.37%	100.00%
LFS 2006a	0.2718	0.2159	0.4877	55.73%	44.27%	100.00%
LFS 2006b	0.2538	0.2208	0.4746	53.48%	46.52%	100.00%
LFS 2007a	0.2400	0.2438	0.4838	49.60%	50.40%	100.00%
LFS 2007b	0.2517	0.1784	0.4301	58.52%	41.48%	100.00%
QLFS 2008Q1	0.2011	0.1760	0.3772	53.32%	46.68%	100.00%
QLFS 2008Q2	0.1956	0.1788	0.3743	52.24%	47.76%	100.00%
QLFS 2008Q3	0.1914	0.1948	0.3863	49.55%	50.45%	100.00%
QLFS 2008Q4	0.1976	0.1982	0.3958	49.92%	50.08%	100.00%
QLFS 2009Q1	0.2075	0.1781	0.3856	53.82%	46.18%	100.00%
QLFS 2009Q2	0.1872	0.1997	0.3869	48.39%	51.61%	100.00%
QLFS 2009Q3	0.1829	0.2069	0.3899	46.92%	53.08%	100.00%
QLFS 2009Q4	0.1857	0.1908	0.3765	49.32%	50.68%	100.00%
QLFS 2010Q1	0.1869	0.1927	0.3796	49.23%	50.77%	100.00%
QLFS 2010Q2	0.1750	0.1952	0.3701	47.27%	52.73%	100.00%
QLFS 2010Q3	0.1868	0.2190	0.4058	46.03%	53.97%	100.00%
QLFS 2010Q4	0.1839	0.1837	0.3676	50.02%	49.98%	100.00%
QLFS 2011Q1	0.1767	0.1796	0.3563	49.58%	50.42%	100.00%
QLFS 2011Q2	0.1858	0.2047	0.3905	47.58%	52.42%	100.00%
QLFS 2011Q3	0.1690	0.2076	0.3766	44.87%	55.13%	100.00%
QLFS 2011Q4	0.1805	0.1604	0.3408	52.95%	47.05%	100.00%
QLFS 2012Q1	0.1753	0.1998	0.3751	46.73%	53.27%	100.00%
QLFS 2012Q2	0.1764	0.2020	0.3784	46.62%	53.38%	100.00%
QLFS 2012Q3	0.1748	0.2021	0.3769	46.38%	53.62%	100.00%
QLFS 2012Q4	0.1747	0.2061	0.3808	45.88%	54.12%	100.00%
QLFS 2013Q1	0.1570	0.1789	0.3359	46.73%	53.27%	100.00%
QLFS 2013Q2	0.1710	0.1922	0.3631	47.08%	52.92%	100.00%
QLFS 2013Q3	0.1632	0.1810	0.3442	47.41%	52.59%	100.00%
QLFS 2013Q4	0.1421	0.1791	0.3212	44.25%	55.75%	100.00%
QLFS 2014Q1	0.1589	0.2056	0.3645	43.59%	56.41%	100.00%
QLFS 2014Q2	0.1574	0.1773	0.3347	47.02%	52.98%	100.00%
QLFS 2014Q3	0.1680	0.1740	0.3419	49.12%	50.88%	100.00%
QLFS 2014Q4	0.1547	0.1510	0.3057	50.59%	49.41%	100.00%

Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Table A.7: Decomposition of White-Coloured average employment probability gap, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.0389	0.1199	0.1588	24.52%	75.48%	100.00%
OHS 1998	0.0402	0.1036	0.1438	27.96%	72.04%	100.00%
OHS 1999	0.0663	0.0816	0.1478	44.83%	55.17%	100.00%
LFS 2000a	0.0056	0.1644	0.1700	3.30%	96.70%	100.00%
LFS 2000b	0.0587	0.0890	0.1477	39.74%	60.26%	100.00%
LFS 2001a	0.0752	0.1113	0.1865	40.33%	59.67%	100.00%
LFS 2001b	0.0507	0.1460	0.1966	25.76%	74.24%	100.00%
LFS 2002a	0.0837	0.1296	0.2133	39.23%	60.77%	100.00%
LFS 2002b	0.0882	0.1070	0.1952	45.17%	54.83%	100.00%
LFS 2003a	0.0598	0.1460	0.2058	29.04%	70.96%	100.00%
LFS 2003b	0.0982	0.1117	0.2099	46.79%	53.21%	100.00%
LFS 2004a	0.0609	0.1088	0.1697	35.91%	64.09%	100.00%
LFS 2004b	0.0885	0.1282	0.2166	40.83%	59.17%	100.00%
LFS 2005a	0.0912	0.0957	0.1869	48.81%	51.19%	100.00%
LFS 2005b	0.0860	0.1557	0.2417	35.59%	64.41%	100.00%
LFS 2006a	0.0854	0.0893	0.1747	48.87%	51.13%	100.00%
LFS 2006b	0.0890	0.1156	0.2046	43.49%	56.51%	100.00%
LFS 2007a	0.0591	0.1531	0.2122	27.84%	72.16%	100.00%
LFS 2007b	0.1069	0.1209	0.2279	46.93%	53.07%	100.00%
QLFS 2008Q1	0.0930	0.0740	0.1670	55.70%	44.30%	100.00%
QLFS 2008Q2	0.1058	0.0838	0.1896	55.78%	44.22%	100.00%
QLFS 2008Q3	0.0957	0.0951	0.1908	50.14%	49.86%	100.00%
QLFS 2008Q4	0.0947	0.1031	0.1978	47.89%	52.11%	100.00%
QLFS 2009Q1	0.0576	0.1263	0.1839	31.32%	68.68%	100.00%
QLFS 2009Q2	0.0918	0.1187	0.2105	43.59%	56.41%	100.00%
QLFS 2009Q3	0.1126	0.1141	0.2266	49.67%	50.33%	100.00%
QLFS 2009Q4	0.0900	0.1175	0.2075	43.38%	56.62%	100.00%
QLFS 2010Q1	0.0888	0.1008	0.1896	46.84%	53.16%	100.00%
QLFS 2010Q2	0.0786	0.1190	0.1975	39.79%	60.21%	100.00%
QLFS 2010Q3	0.1167	0.1089	0.2255	51.72%	48.28%	100.00%
QLFS 2010Q4	0.1162	0.0812	0.1975	58.87%	41.13%	100.00%
QLFS 2011Q1	0.1044	0.0993	0.2037	51.23%	48.77%	100.00%
QLFS 2011Q2	0.0791	0.1640	0.2431	32.54%	67.46%	100.00%
QLFS 2011Q3	0.1052	0.1255	0.2306	45.60%	54.40%	100.00%
QLFS 2011Q4	0.0770	0.0988	0.1758	43.80%	56.20%	100.00%
QLFS 2012Q1	0.0597	0.1585	0.2183	27.36%	72.64%	100.00%
QLFS 2012Q2	0.0821	0.1586	0.2408	34.11%	65.89%	100.00%
QLFS 2012Q3	0.1135	0.1167	0.2302	49.32%	50.68%	100.00%
QLFS 2012Q4	0.1244	0.0984	0.2229	55.83%	44.17%	100.00%
QLFS 2013Q1	0.1049	0.0795	0.1844	56.88%	43.12%	100.00%
QLFS 2013Q2	0.0878	0.1396	0.2274	38.60%	61.40%	100.00%
QLFS 2013Q3	0.0966	0.1190	0.2156	44.79%	55.21%	100.00%
QLFS 2013Q4	0.0641	0.1199	0.1840	34.82%	65.18%	100.00%
QLFS 2014Q1	0.0348	0.1878	0.2226	15.61%	84.39%	100.00%
QLFS 2014Q2	0.1073	0.1117	0.2189	49.00%	51.00%	100.00%
QLFS 2014Q3	0.0846	0.1295	0.2141	39.52%	60.48%	100.00%
QLFS 2014Q4	0.1124	0.0735	0.1860	60.47%	39.53%	100.00%

Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Table A.8: Decomposition of male-female average employment probability gap, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.0280	0.1374	0.1654	16.95%	83.05%	100.00%
OHS 1998	0.0290	0.1173	0.1463	19.82%	80.18%	100.00%
OHS 1999	0.0387	0.1000	0.1387	27.88%	72.12%	100.00%
LFS 2000a	0.0310	0.0727	0.1037	29.92%	70.08%	100.00%
LFS 2000b	0.0481	0.1060	0.1541	31.23%	68.77%	100.00%
LFS 2001a	0.0468	0.0637	0.1105	42.39%	57.61%	100.00%
LFS 2001b	0.0448	0.0918	0.1367	32.81%	67.19%	100.00%
LFS 2002a	0.0483	0.0777	0.1260	38.33%	61.67%	100.00%
LFS 2002b	0.0416	0.1127	0.1543	26.95%	73.05%	100.00%
LFS 2003a	0.0439	0.0916	0.1355	32.43%	67.57%	100.00%
LFS 2003b	0.0378	0.0743	0.1120	33.71%	66.29%	100.00%
LFS 2004a	0.0303	0.1013	0.1317	23.04%	76.96%	100.00%
LFS 2004b	0.0393	0.0925	0.1317	29.81%	70.19%	100.00%
LFS 2005a	0.0329	0.1127	0.1456	22.59%	77.41%	100.00%
LFS 2005b	0.0421	0.1121	0.1542	27.29%	72.71%	100.00%
LFS 2006a	0.0381	0.1034	0.1414	26.93%	73.07%	100.00%
LFS 2006b	0.0426	0.1076	0.1502	28.38%	71.62%	100.00%
LFS 2007a	0.0243	0.1300	0.1543	15.74%	84.26%	100.00%
LFS 2007b	0.0356	0.0837	0.1193	29.84%	70.16%	100.00%
QLFS 2008Q1	0.0241	0.0999	0.1240	19.41%	80.59%	100.00%
QLFS 2008Q2	0.0267	0.1006	0.1273	20.95%	79.05%	100.00%
QLFS 2008Q3	0.0206	0.1019	0.1225	16.84%	83.16%	100.00%
QLFS 2008Q4	0.0203	0.1074	0.1277	15.90%	84.10%	100.00%
QLFS 2009Q1	0.0170	0.0928	0.1098	15.46%	84.54%	100.00%
QLFS 2009Q2	0.0143	0.0844	0.0987	14.48%	85.52%	100.00%
QLFS 2009Q3	0.0172	0.0746	0.0918	18.72%	81.28%	100.00%
QLFS 2009Q4	0.0127	0.0678	0.0805	15.80%	84.20%	100.00%
QLFS 2010Q1	0.0171	0.0668	0.0839	20.37%	79.63%	100.00%
QLFS 2010Q2	0.0126	0.0824	0.0950	13.26%	86.74%	100.00%
QLFS 2010Q3	0.0165	0.0872	0.1037	15.91%	84.09%	100.00%
QLFS 2010Q4	0.0172	0.0766	0.0938	18.33%	81.67%	100.00%
QLFS 2011Q1	0.0142	0.0878	0.1020	13.89%	86.11%	100.00%
QLFS 2011Q2	0.0169	0.0741	0.0910	18.56%	81.44%	100.00%
QLFS 2011Q3	0.0173	0.0885	0.1058	16.35%	83.65%	100.00%
QLFS 2011Q4	0.0111	0.0866	0.0977	11.41%	88.59%	100.00%
QLFS 2012Q1	0.0104	0.0826	0.0930	11.17%	88.83%	100.00%
QLFS 2012Q2	0.0160	0.0735	0.0895	17.92%	82.08%	100.00%
QLFS 2012Q3	0.0131	0.0689	0.0820	15.97%	84.03%	100.00%
QLFS 2012Q4	0.0167	0.0691	0.0858	19.41%	80.59%	100.00%
QLFS 2013Q1	0.0125	0.0484	0.0609	20.45%	79.55%	100.00%
QLFS 2013Q2	0.0112	0.0652	0.0765	14.70%	85.30%	100.00%
QLFS 2013Q3	0.0132	0.0487	0.0619	21.33%	78.67%	100.00%
QLFS 2013Q4	0.0123	0.0646	0.0769	16.00%	84.00%	100.00%
QLFS 2014Q1	0.0107	0.0595	0.0702	15.22%	84.78%	100.00%
QLFS 2014Q2	0.0033	0.0689	0.0722	4.62%	95.38%	100.00%
QLFS 2014Q3	0.0071	0.0804	0.0875	8.15%	91.85%	100.00%
QLFS 2014Q4	0.0043	0.0690	0.0733	5.86%	94.14%	100.00%

Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Table A.9: Decomposition of average White-Black differential in highly-skilled occupational attainment, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.2346	0.0746	0.3092	75.87%	24.13%	100.00%
OHS 1998	0.2260	0.1125	0.3385	66.77%	33.23%	100.00%
OHS 1999	0.2116	0.0814	0.2930	72.22%	27.78%	100.00%
LFS 2000a	0.2303	0.0561	0.2864	80.40%	19.60%	100.00%
LFS 2000b	0.2669	0.0646	0.3315	80.50%	19.50%	100.00%
LFS 2001a	0.2309	0.0656	0.2966	77.87%	22.13%	100.00%
LFS 2001b	0.2204	0.1017	0.3221	68.42%	31.58%	100.00%
LFS 2002a	0.2396	0.1089	0.3485	68.75%	31.25%	100.00%
LFS 2002b	0.2483	0.1048	0.3531	70.32%	29.68%	100.00%
LFS 2003a	0.2498	0.1310	0.3808	65.59%	34.41%	100.00%
LFS 2003b	0.2488	0.1137	0.3624	68.64%	31.36%	100.00%
LFS 2004a	0.2221	0.1071	0.3292	67.46%	32.54%	100.00%
LFS 2004b	0.2150	0.1600	0.3750	57.33%	42.67%	100.00%
LFS 2005a	0.2234	0.1119	0.3352	66.62%	33.38%	100.00%
LFS 2005b	0.2302	0.1178	0.3481	66.14%	33.86%	100.00%
LFS 2006a	0.2301	0.1064	0.3365	68.39%	31.61%	100.00%
LFS 2006b	0.2269	0.1016	0.3285	69.07%	30.93%	100.00%
LFS 2007a	0.1931	0.1551	0.3481	55.46%	44.54%	100.00%
LFS 2007b	0.2820	0.1382	0.4202	67.11%	32.89%	100.00%
QLFS 2008Q1	0.2368	0.1520	0.3888	60.91%	39.09%	100.00%
QLFS 2008Q2	0.2212	0.1643	0.3855	57.37%	42.63%	100.00%
QLFS 2008Q3	0.2400	0.1408	0.3807	63.02%	36.98%	100.00%
QLFS 2008Q4	0.2526	0.1635	0.4162	60.70%	39.30%	100.00%
QLFS 2009Q1	0.2473	0.1723	0.4196	58.94%	41.06%	100.00%
QLFS 2009Q2	0.2432	0.1795	0.4227	57.54%	42.46%	100.00%
QLFS 2009Q3	0.2481	0.1566	0.4047	61.31%	38.69%	100.00%
QLFS 2009Q4	0.2392	0.1598	0.3991	59.95%	40.05%	100.00%
QLFS 2010Q1	0.2169	0.1697	0.3866	56.12%	43.88%	100.00%
QLFS 2010Q2	0.2386	0.1652	0.4038	59.09%	40.91%	100.00%
QLFS 2010Q3	0.2319	0.1798	0.4116	56.33%	43.67%	100.00%
QLFS 2010Q4	0.2499	0.1655	0.4154	60.15%	39.85%	100.00%
QLFS 2011Q1	0.2490	0.1892	0.4382	56.82%	43.18%	100.00%
QLFS 2011Q2	0.2370	0.1824	0.4194	56.51%	43.49%	100.00%
QLFS 2011Q3	0.2173	0.1583	0.3756	57.86%	42.14%	100.00%
QLFS 2011Q4	0.2234	0.1449	0.3683	60.66%	39.34%	100.00%
QLFS 2012Q1	0.2128	0.1730	0.3859	55.16%	44.84%	100.00%
QLFS 2012Q2	0.2133	0.1634	0.3767	56.63%	43.37%	100.00%
QLFS 2012Q3	0.2225	0.1782	0.4007	55.53%	44.47%	100.00%
QLFS 2012Q4	0.2052	0.2267	0.4320	47.51%	52.49%	100.00%
QLFS 2013Q1	0.2245	0.1691	0.3936	57.04%	42.96%	100.00%
QLFS 2013Q2	0.2312	0.1805	0.4117	56.16%	43.84%	100.00%
QLFS 2013Q3	0.2155	0.1437	0.3592	60.00%	40.00%	100.00%
QLFS 2013Q4	0.1937	0.1564	0.3502	55.32%	44.68%	100.00%
QLFS 2014Q1	0.2182	0.1634	0.3816	57.17%	42.83%	100.00%
QLFS 2014Q2	0.2096	0.1700	0.3796	55.22%	44.78%	100.00%
QLFS 2014Q3	0.2086	0.2016	0.4102	50.86%	49.14%	100.00%
QLFS 2014Q4	0.1976	0.1953	0.3929	50.29%	49.71%	100.00%

Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Table A.10: Decomposition of average White-Coloured differential in highly-skilled occupational attainment, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.2350	0.0540	0.2890	81.30%	18.70%	100.00%
OHS 1998	0.2130	0.0746	0.2876	74.05%	25.95%	100.00%
OHS 1999	0.2538	0.0198	0.2736	92.77%	7.23%	100.00%
LFS 2000a	0.2640	-0.0160	0.2480	106.46%	-6.46%	100.00%
LFS 2000b	0.2178	0.0904	0.3082	70.66%	29.34%	100.00%
LFS 2001a	0.2249	0.0568	0.2816	79.84%	20.16%	100.00%
LFS 2001b	0.2248	0.0738	0.2985	75.29%	24.71%	100.00%
LFS 2002a	0.2150	0.1009	0.3159	68.07%	31.93%	100.00%
LFS 2002b	0.2551	0.0652	0.3203	79.63%	20.37%	100.00%
LFS 2003a	0.2384	0.1043	0.3428	69.56%	30.44%	100.00%
LFS 2003b	0.2985	0.0305	0.3290	90.74%	9.26%	100.00%
LFS 2004a	0.2325	0.0725	0.3050	76.23%	23.77%	100.00%
LFS 2004b	0.2706	0.0495	0.3201	84.54%	15.46%	100.00%
LFS 2005a	0.2382	0.0592	0.2973	80.10%	19.90%	100.00%
LFS 2005b	0.2424	0.0529	0.2954	82.08%	17.92%	100.00%
LFS 2006a	0.2502	0.0332	0.2834	88.27%	11.73%	100.00%
LFS 2006b	0.2457	0.0358	0.2815	87.30%	12.70%	100.00%
LFS 2007a	0.3061	-0.0140	0.2920	104.81%	-4.81%	100.00%
LFS 2007b	0.2929	0.0921	0.3850	76.07%	23.93%	100.00%
QLFS 2008Q1	0.2540	0.0907	0.3447	73.68%	26.32%	100.00%
QLFS 2008Q2	0.2418	0.0859	0.3277	73.79%	26.21%	100.00%
QLFS 2008Q3	0.2787	0.0432	0.3219	86.58%	13.42%	100.00%
QLFS 2008Q4	0.2825	0.0754	0.3579	78.95%	21.05%	100.00%
QLFS 2009Q1	0.2930	0.0516	0.3446	85.02%	14.98%	100.00%
QLFS 2009Q2	0.2801	0.0728	0.3528	79.38%	20.62%	100.00%
QLFS 2009Q3	0.2837	0.0348	0.3185	89.09%	10.91%	100.00%
QLFS 2009Q4	0.2137	0.1220	0.3357	63.66%	36.34%	100.00%
QLFS 2010Q1	0.2364	0.0824	0.3187	74.16%	25.84%	100.00%
QLFS 2010Q2	0.2768	0.0665	0.3433	80.63%	19.37%	100.00%
QLFS 2010Q3	0.2748	0.0843	0.3591	76.53%	23.47%	100.00%
QLFS 2010Q4	0.2632	0.1005	0.3637	72.38%	27.62%	100.00%
QLFS 2011Q1	0.2655	0.0950	0.3605	73.65%	26.35%	100.00%
QLFS 2011Q2	0.2315	0.1335	0.3650	63.42%	36.58%	100.00%
QLFS 2011Q3	0.2456	0.0653	0.3109	78.99%	21.01%	100.00%
QLFS 2011Q4	0.2623	0.0359	0.2982	87.98%	12.02%	100.00%
QLFS 2012Q1	0.2641	0.0541	0.3182	83.01%	16.99%	100.00%
QLFS 2012Q2	0.2634	0.0322	0.2956	89.11%	10.89%	100.00%
QLFS 2012Q3	0.2790	0.0379	0.3170	88.03%	11.97%	100.00%
QLFS 2012Q4	0.2444	0.1165	0.3609	67.71%	32.29%	100.00%
QLFS 2013Q1	0.2538	0.0750	0.3288	77.20%	22.80%	100.00%
QLFS 2013Q2	0.2877	0.0490	0.3366	85.45%	14.55%	100.00%
QLFS 2013Q3	0.2676	0.0353	0.3029	88.35%	11.65%	100.00%
QLFS 2013Q4	0.2597	0.0336	0.2932	88.55%	11.45%	100.00%
QLFS 2014Q1	0.2992	0.0219	0.3211	93.18%	6.82%	100.00%
QLFS 2014Q2	0.2893	0.0323	0.3216	89.96%	10.04%	100.00%
QLFS 2014Q3	0.2752	0.0834	0.3586	76.75%	23.25%	100.00%
QLFS 2014Q4	0.2139	0.1436	0.3575	59.84%	40.16%	100.00%

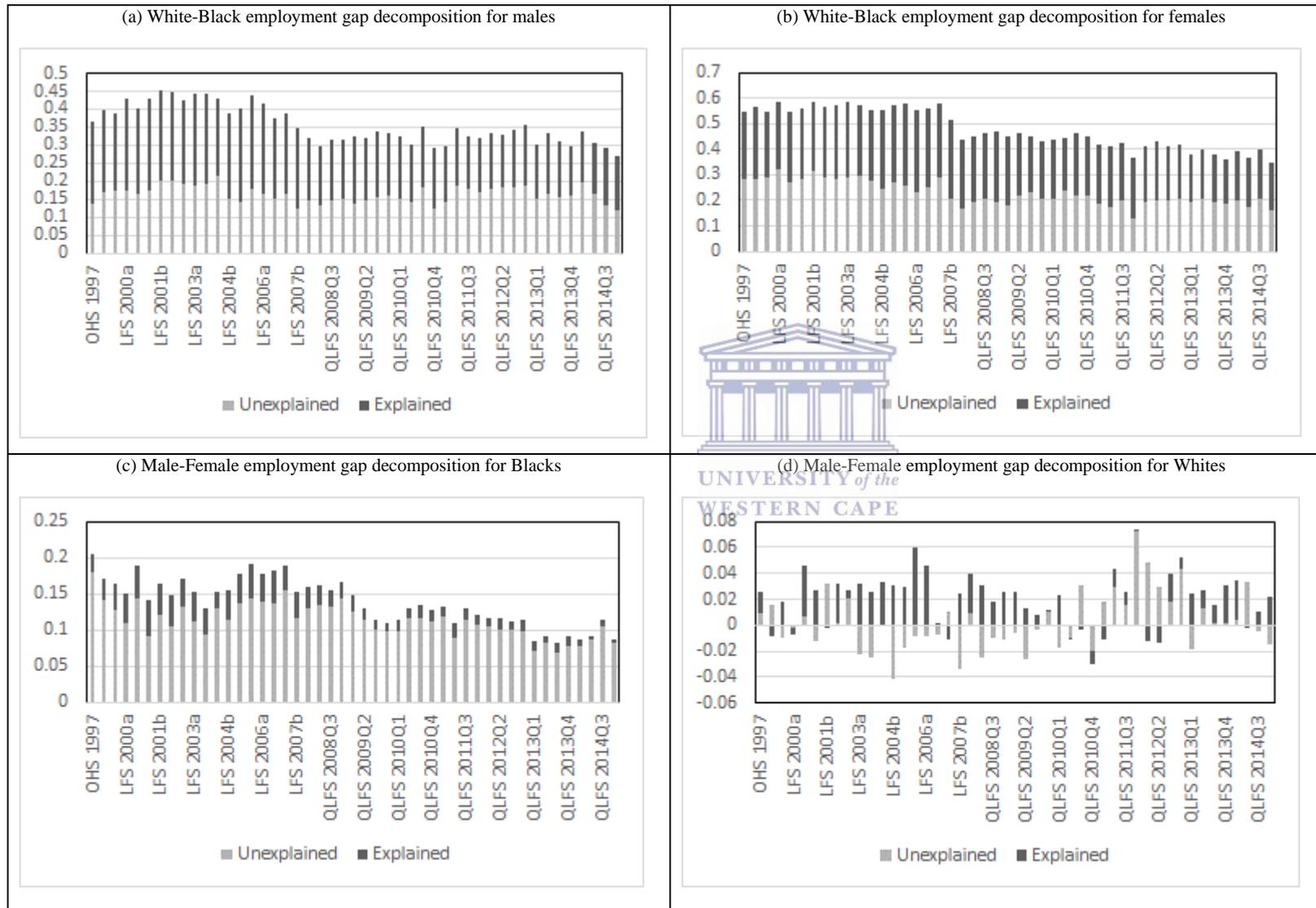
Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Table A.11: Decomposition of average male-female differential in highly-skilled occupational attainment, 1997-2014**

	Absolute			Relative		
	Explained	Unexplained	Total	Explained	Unexplained	Total
OHS 1997	0.0082	-0.0807	-0.0725	-11.29%	111.29%	100.00%
OHS 1998	-0.0015	-0.0164	-0.0180	8.56%	91.44%	100.00%
OHS 1999	-0.0028	-0.0079	-0.0107	26.49%	73.51%	100.00%
LFS 2000a	-0.0081	-0.0324	-0.0405	20.03%	79.97%	100.00%
LFS 2000b	0.0000	0.0111	0.0111	0.42%	99.58%	100.00%
LFS 2001a	-0.0067	0.0081	0.0014	-489.29%	589.29%	100.00%
LFS 2001b	-0.0081	-0.0048	-0.0128	62.74%	37.26%	100.00%
LFS 2002a	-0.0050	-0.0132	-0.0182	27.39%	72.61%	100.00%
LFS 2002b	-0.0010	-0.0045	-0.0055	18.81%	81.19%	100.00%
LFS 2003a	-0.0011	-0.0180	-0.0191	5.66%	94.34%	100.00%
LFS 2003b	-0.0068	-0.0177	-0.0245	27.84%	72.16%	100.00%
LFS 2004a	-0.0035	-0.0064	-0.0100	35.53%	64.47%	100.00%
LFS 2004b	-0.0094	0.0088	-0.0006	1460.18%	-1360.18%	100.00%
LFS 2005a	-0.0127	0.0034	-0.0093	136.59%	-36.59%	100.00%
LFS 2005b	-0.0001	-0.0164	-0.0165	0.43%	99.57%	100.00%
LFS 2006a	-0.0034	-0.0055	-0.0090	38.53%	61.47%	100.00%
LFS 2006b	-0.0046	0.0113	0.0067	-69.33%	169.33%	100.00%
LFS 2007a	-0.0143	-0.0144	-0.0287	49.87%	50.13%	100.00%
LFS 2007b	0.0011	-0.0353	-0.0342	-3.10%	103.10%	100.00%
QLFS 2008Q1	-0.0139	-0.0021	-0.0160	86.94%	13.06%	100.00%
QLFS 2008Q2	-0.0154	0.0048	-0.0106	145.41%	-45.41%	100.00%
QLFS 2008Q3	-0.0114	-0.0129	-0.0243	46.98%	53.02%	100.00%
QLFS 2008Q4	-0.0134	0.0012	-0.0122	110.05%	-10.05%	100.00%
QLFS 2009Q1	-0.0151	0.0052	-0.0099	152.76%	-52.76%	100.00%
QLFS 2009Q2	-0.0161	0.0163	0.0002	-9192.18%	9292.18%	100.00%
QLFS 2009Q3	-0.0176	-0.0076	-0.0099	176.73%	-76.73%	100.00%
QLFS 2009Q4	-0.0192	-0.0033	-0.0225	85.27%	14.73%	100.00%
QLFS 2010Q1	-0.0158	-0.0050	-0.0208	75.75%	24.25%	100.00%
QLFS 2010Q2	-0.0059	-0.0045	-0.0104	56.85%	43.15%	100.00%
QLFS 2010Q3	-0.0076	-0.0143	-0.0219	34.77%	65.23%	100.00%
QLFS 2010Q4	-0.0029	-0.0090	-0.0120	24.63%	75.37%	100.00%
QLFS 2011Q1	-0.0110	0.0043	-0.0066	164.91%	-64.91%	100.00%
QLFS 2011Q2	-0.0087	-0.0084	-0.0170	50.97%	49.03%	100.00%
QLFS 2011Q3	-0.0114	-0.0136	-0.0250	45.63%	54.37%	100.00%
QLFS 2011Q4	-0.0157	0.0060	-0.0097	162.22%	-62.22%	100.00%
QLFS 2012Q1	-0.0173	0.0055	-0.0118	146.24%	-46.24%	100.00%
QLFS 2012Q2	-0.0175	0.0019	-0.0156	111.99%	-11.99%	100.00%
QLFS 2012Q3	-0.0126	-0.0098	-0.0224	56.32%	43.68%	100.00%
QLFS 2012Q4	-0.0089	-0.0059	-0.0148	60.05%	39.95%	100.00%
QLFS 2013Q1	-0.0128	-0.0005	-0.0133	95.98%	4.02%	100.00%
QLFS 2013Q2	-0.0133	0.0069	-0.0064	208.47%	-108.47%	100.00%
QLFS 2013Q3	-0.0157	0.0066	-0.0091	172.39%	-72.39%	100.00%
QLFS 2013Q4	-0.0129	0.0027	-0.0102	126.93%	-26.93%	100.00%
QLFS 2014Q1	-0.0097	-0.0133	-0.0230	42.14%	57.86%	100.00%
QLFS 2014Q2	-0.0149	0.0032	-0.0117	127.63%	-27.63%	100.00%
QLFS 2014Q3	-0.0080	-0.0136	-0.0217	37.07%	62.93%	100.00%
QLFS 2014Q4	-0.0129	-0.0006	-0.0135	95.44%	4.56%	100.00%

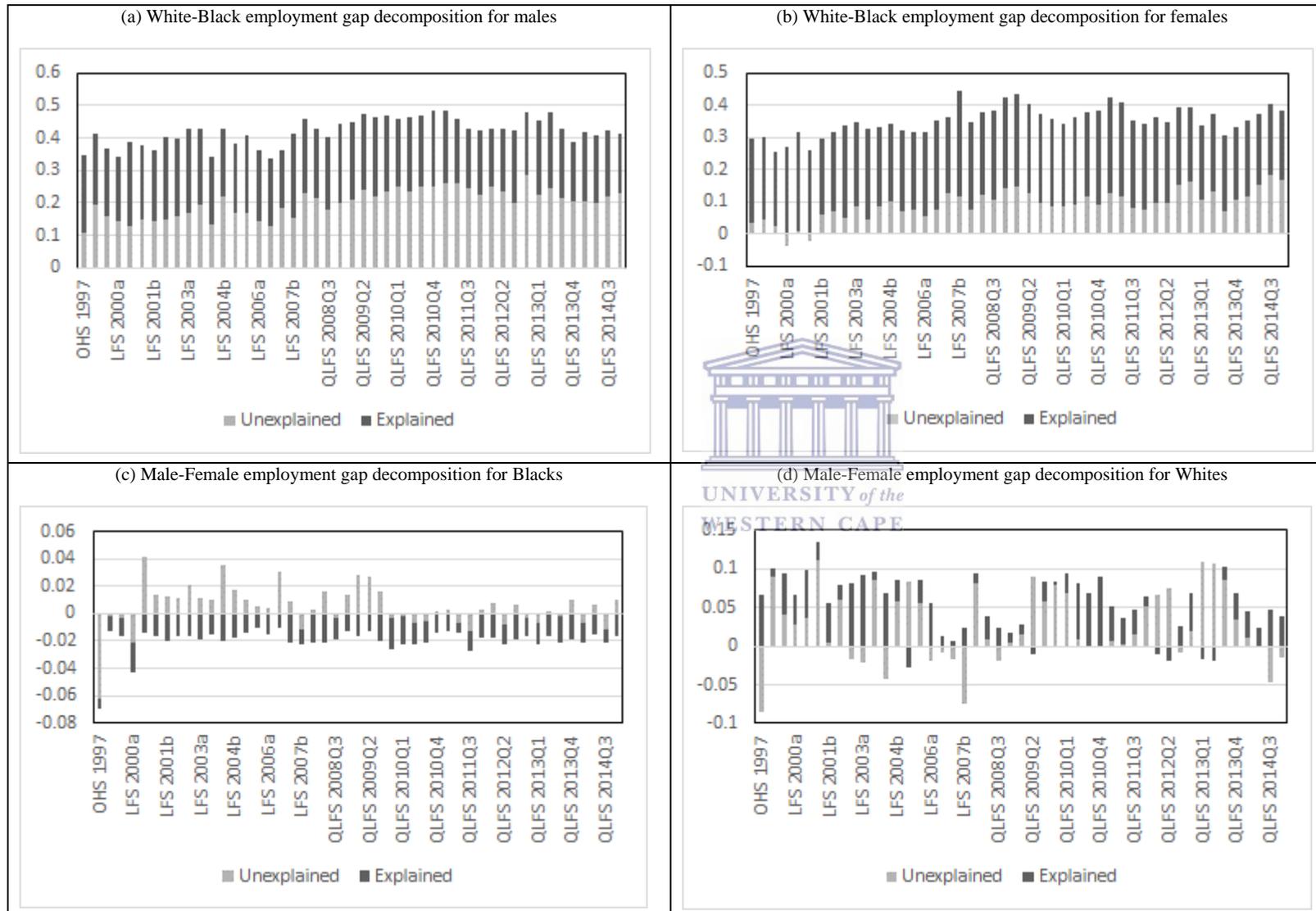
Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Figure A.1: Decomposition of average racial and gender employment gaps, by gender and race: 1997-2014**



Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.

**Figure A.2: Decomposition of average racial and gender highly-skilled occupational employment gaps, by gender and race: 1997-2014**



Source: Own calculations using OHS 1997-1999, LFS 2000-2007 and QLFS 2008-2014 data.