Returns to Race: Labour Market Discrimination in Post-Apartheid South Africa

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ABSTRACT

This paper empirically assesses the impact of post-1994 policy making on racial discrimination in the South African labour market. The post-apartheid government has implemented a series of remedial measures, including an ambitious set of black empowerment and affirmative action policies. The first part of the paper gives an overview of the South African labour market post-1994 and the most important legislation, regulations and other measures aimed at redressing the inequalities of the past. We then argue that some assessment of whether the aims of these measures are being achieved is necessary. The empirical part of the paper employs the decomposition techniques of Oaxaca (1973) and Blinder (1973), Brown, Moon and Zoloth (1980) and Juhn, Murphy and Pierce (1991, 1993) to analyse three stages of the employment process: employment, occupational attainment and wage determination. Fifteen nationally representative household surveys are used to compare the evolution of discriminatory hiring and remuneration practices between 1995 and 2004 and across population groups. The results suggest that affirmative action policies have had no observable effect on the racial employment gap, and its impact on the wage distribution is limited to a small narrowing of wages at the top of the wage distribution. There appears to have been a shift away from "pure discrimination" and towards differential returns to education, which is consistent with an increasingly important role for the quality of education in labour market outcomes.

Keywords: Discrimination, South Africa
JEL codes: J31, J71

Returns to Race: Labour Market Discrimination in Post-Apartheid South Africa[1]

1. Introduction

South Africa has long been notorious for its exceptionally high levels of inequality and the persistence of racial overtones. The 1994 general elections and the subsequent redrafting of the South African Constitution marked the end of an era of legislated labour market discrimination under apartheid. Over the past ten years the post-1994 government has proposed and implemented a series of remedial measures, including an ambitious set of black empowerment and affirmative action policies. This paper aims to assess the impact of post-1994 policy making on racial discrimination in the South African labour market by employing three sets of decomposition techniques to track the evolution of the unexplained part of the racial gap in labour market outcomes.

This rest of the paper will be constructed as follows: section 2 looks at the South African labour market in the post-apartheid era and section 3 describes recently introduced affirmative action institutions and legislation. Section 4 details the data and econometric techniques, while section 5 reports the empirical results of the econometric analysis. Section 6 concludes.

2. The South African labour market in the post-1994 era

The effect of five decades of apartheid remains evident in many aspects of the South African economy, like the persistent association of race to poverty (Table 1). On average, Whites had wage earnings of almost twice as much as the second highest earning group (Indians), with Coloureds and Blacks earning considerably less. The same general trend can also be observed for poverty rates. This observed difference in earnings is at least partly explained by the persisting difference in human capital, another remnant of the apartheid area. In 2004 Whites had an average of 12.3 years of schooling, compared to the 10.7 years for Indians, 8.5 for Coloureds and 7.9 for Blacks. Despite the removal of discriminatory pay scales for teachers, the quality of education offered in historically black schools remains inferior and good teachers are still concentrated in urban and affluent suburban schools (Van der Berg 2001:8). A recent analysis of the 2000 Southern African Consortium of Monitoring Educational Quality survey data found a strong bimodality in the distribution of test scores across schools, and also that the between school variance comprises a much larger share of total variance than what is observed in other countries (Van der Berg 2005: 2). The evidence suggests a large difference in the quality of education in affluent schools (mainly

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attended by Indian and White pupils) and the non-affluent (attended by Coloured and Black students). The legacy of apartheid can therefore be expected to remain an important influence on labour market outcomes through the persistent quality of schooling differential.

Table 1: Demographic composition and economic characteristics of South African population

Population group	Labour Force share (%) 2004 LFS	Per capita wage earnings (R) 2004 LFS	Wage earnings share (%) 2004 LFS	Poverty rate (%) 2000 IES
Black	76.3	2023	41.2	33.0
Coloured	10.0	2702	9.9	11.8
Indian	3.0	5092	6.0	3.0
White	10.7	8484	42.9	0.4

*Note:* Own calculations from 2000 Income and Expenditure Survey and 2004 Labour Force Surveys.

Despite comprising only 11% of the labour force, the White population group still earns more than any other population group in the country. A 1998 survey of 455 firms showed that 89% of senior management posts were still held by White males, compared to the 6% held by Black males (Msimang 2000).

Figure 1: Distribution of log of real wage rates (1995), by population group
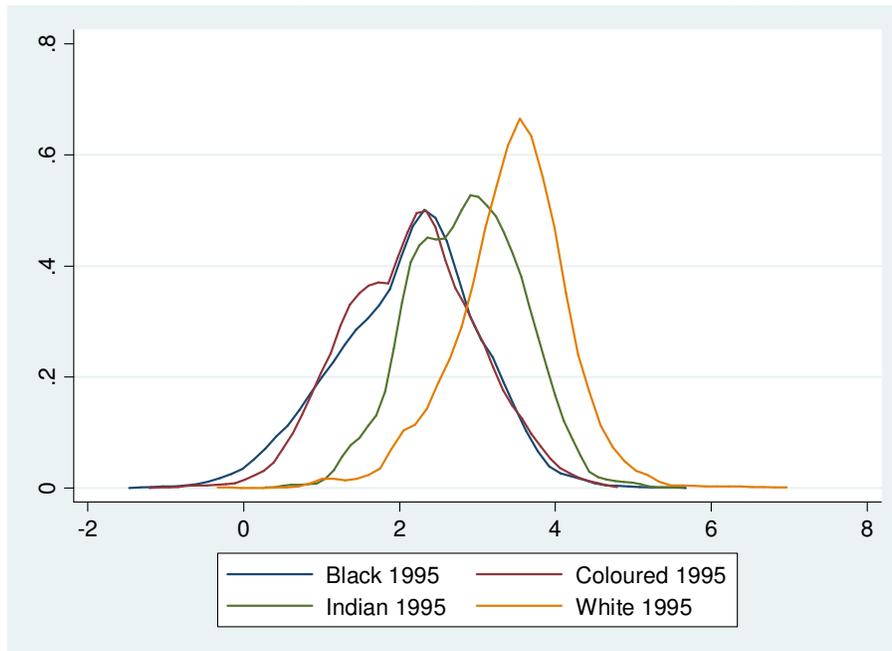
Note: Own calculations from 1995 October Household Survey

Figure 2: Distribution of log of real wage rates (2004), by population group
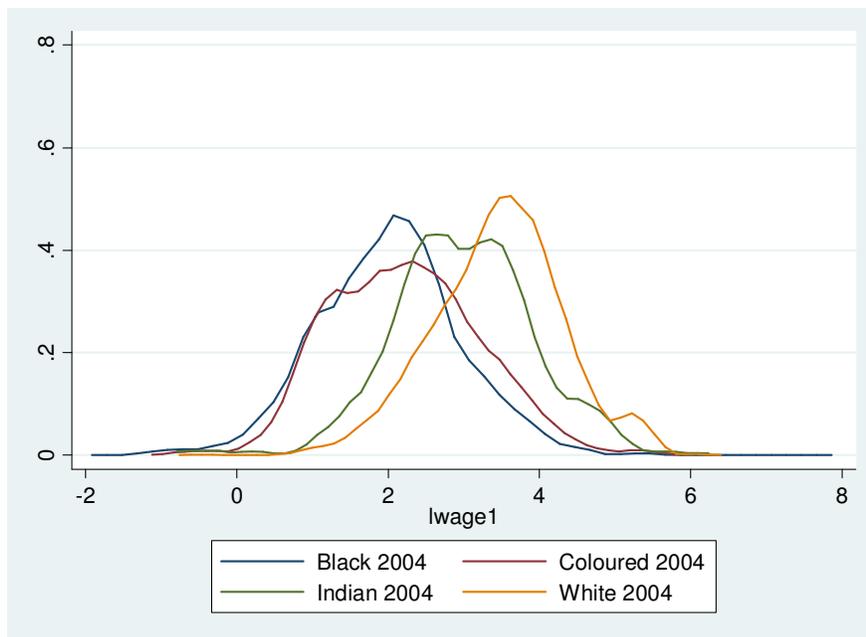
Note: Own calculations from September 2004 Labour Force Survey

Figures 1 and 2 present the kernel density functions of the log of male formal sector, non-agricultural real wage rates for the different population groups in 1995 and 2004. In both years the White wage distribution lies to the right of that of the other population groups. Between 1995 and 2004, the mean Indian and Coloured wage rates increased by approximately 10 percent, whereas the White mean wage rate stayed about the same and the Black wage rate decreased by 8 percent. The movement of particularly Black wages over the surveys suggests that these changes may have as much to do with changes in Stats SA's surveying methodology as with the actual trends in wages, particularly before the implementation of the Labour Force Surveys in 2000[2]. There is also a tendency towards positive skewness for all but the White population group, particularly for Coloured and Black workers. The 2004 distributions all have a higher variance than in 1995, and this change is most pronounced for the White and Indian wage distributions.

The economy's move towards capital intensification that started in the 1970's is still continuing in the post-apartheid labour market (Bhorat 2003), and has led to a large shift in the demand for labour from unskilled to skilled workers. Due to the huge backlog in Black education, this has led to a major skills mismatch in the economy. The result is that South Africa experienced high and growing unemployment for most of the post-1994 decade. Since it has been mainly Black workers who have carried the brunt of this shift in labour demand, the racial employment gap rose between 1995 and 2004, although this could be the result of an increasing skills premium in employment rather than implying increasing discrimination. The improved capturing of informal sector employment by the household surveys over time, combined with the fact that these jobs are predominantly held by Black workers means that the employment gap is even larger when

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[2] The Black wage rate shows a 7% decrease between 1995 and 1996, and a 23% decrease between 1997 and 1998, but a steady upward trend from 1998 to 2004.

considering only formal sector employment (as we do in this study) rather than total employment.

3. Black economic empowerment

The highest law of the country, the constitution of South Africa (1996), requires of the government to redress the injustices of the past, while adhering to the principle of good governance. The ultimate ideal envisaged in the constitution is a non-racial, non-sexist democracy for South Africa.

The definition of Black Economic Empowerment (BEE) has evolved over time and different government policy documents do not provide a homogenous definition. One of the earliest documents on BEE was the Labour Market Commission Report by the Presidential Commission to investigate labour market policy, entitled 'Restructuring the South African Labour Market', published in June 1996. The Commission's terms of reference included, *inter alia,* the proposal of mechanisms to redress discrimination in the labour market. In particular, the Commission considered 'a policy framework for Affirmative Action in employment with due regard for the objectives of employment creation, fair remuneration, productivity enhancement and macroeconomic stability.'(1996: xiv). Since then, the government has put various pieces of legislation, regulations and measures aimed at facilitating the redress of past inequalities in place. These initiatives have expanded the focus area for redress from the labour market to the whole economy and the social sphere.

The *Broad*-based Black Economic Empowerment, as defined in the Broad-based Black Economic Empowerment Act of 2003 thus has as its purpose the
"economic empowerment of all black people, including women, workers, youth, people with disabilities and people living in rural areas".

The Act requires that the Minister of Trade and Industry develop and publish Codes of Good Practice, aimed at setting guidelines for the process of BBEE in the whole economy. Concurrently, sectoral charters have been developed for particular sections of the economy, e.g. mining, the financial sector, agriculture, tourism and the information and communications technology sector. To measure compliance with BBEE requirements, the Department of Trade and Industry has developed the balanced scorecard, consisting of three broad components. The scorecard will be used for government procurement[3], public-private partnerships, sale of state-owned enterprises, when licenses are applied for, and for any other relevant economic activity (Tucker, 2003:1).

The three core components of BBEE comprise direct empowerment through ownership and control

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[3] The balanced scorecard used in terms of the Preferential Procurement Policy Framework Act differs in the weights it assigns to the different components from that used by the DTI and several of the sectoral charters.

of businesses and assets, Human Resource Development and Indirect empowerment by means of preferential procurement, enterprise development, profit- and contract sharing by black enterprises, local content requirements, etc.

Direct empowerment specifically focuses on (i) Ownership (i.e. equity ownership by previously disadvantaged people, including black women and disabled persons), and (ii) Management, which measures the percentage of black persons in executive management, on the board of directors and in board committees. Ownership carries a weighting of 20% on the scorecard, while the weighting for management is 10% (Mason and Watson, 2005:2).

The first category of indirect empowerment is preferential procurement, aimed at enabling black enterprises to grow, while the second category, enterprise development comprises investment in black-owned or black-empowered enterprises[4] and joint ventures with black-owned or black-empowered enterprises contributes a weighting of 10% to the balanced scorecard (Mason and Watson, 2005:3). Preferential procurement is worth a weight of 20%. A residual, which will differ according to the sector being measured[5], carries a further 10%.

For the purposes of this paper, we focus specifically on the employment equity component of the Human Resources Development criterion discussed below.

3.1 Human resource development

The human resource development category weighs 30% in the scorecard and consists of a skills development and an employment equity component.

3.1.1. Employment equity

The Labour Market Commission Report (1996:138-139) saw employment equity as a broad term intended to describe the labour market as both *non-discriminatory* and *socially equitable* [italics in original]. Along the same lines of thinking, equal opportunity means "non-discrimination."[6] The report, however, maintains that social equity in the labour market requires that extra-market factors that perpetuate unequal opportunities be taken into account. The Employment Equity Act of 1998 concurs with this view.

The Employment Equity Act of 1998, requires employers to take steps to combat unfair

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[4] An enterprise is defined as black-owned if it owns 50.1% of the equity, while a black-empowered enterprise is one where at least 25.1% of equity is in black hands (Dekker, 2004:9).

[5] This could, for example, be local content requirements.

[6] Although in many instances 'Equal Opportunity' institutions really mean Affirmative Action, which in practice must amount to discrimination.

discrimination, to develop employment-equity plans to achieve an equitable representation of all designated groups in the workplace and to submit annual reports to the Department of Labour. The Employment Equity Act was introduced to eradicate the remnants of discriminatory laws in the past, which resulted in disparities in employment, occupation, and income (as illustrated in section 2). The purpose is thus to achieve equity in the work place by promoting opportunities for designated groups that were previously disadvantaged (women, black people and the disabled).

The department of Trade and Industry's balanced score card counts the percentage of black people in the organisation's total work force and allocates 10 per cent to this factor.

3.1.2. Skills development

The second aspect of human resource development is skills development, where the scorecard measures skills development expenditure as a percentage of total payroll. The skills development component weighs a further 20% on the balanced score card (Dekker, 2004:10). Legislation also governs the pursuit of the skills development objective: The Skills Development Act of 1998, and the Skills Development Levies Act (1999), oblige all employers to give attention to the training and education of employees and to contribute 1% of their payroll to the Sectoral Education and Training Authority.

Having reviewed the measures to redress past discrimination, we can now proceed to assess the outcomes of BBEE measures to determine whether the stated goals were achieved. Out of all the components of the government's Broad-based Black Economic Empowerment strategy, this paper focuses on employment equity, since the Employment Equity Act of 1998 has been in effect longest and our data sets allow the assessment of progress in this area.

Since affirmative action measures were only formally introduced in 1998, a potential cause for concern is that the period of this study, which ends in 2004, may be too short to allow these policies to have had an effect. At its National Conference in 1992, the ANC adopted Policy Guidelines which showed its strong support for affirmative action policies. After the ANC came into power, affirmative action was specified as being a part of the country's official Reconstruction and Development Program. It is unlikely that any firms were surprised by the passing of the Employment Equity Act in 1998, and evidence suggests that as many as 94% of private sector firms surveyed had started their own affirmative action programs by 1995 (Adam 2000: 82).

It should also be acknowledged that a comparison between the 1995 to 2004 household surveys is in no sense a controlled experiment able to isolate the impact of affirmative action. South Africa underwent many other policy implementations and institutional changes (the adoption of an inflation targeting framework for monetary policy, for example) during the same period. This restricts what

we can claim to learn about the direct effect of affirmative action. What we can do is compare our results to the concrete goals that these policies set out for itself:

> *"promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination; and implementing affirmative action measures to redress the disadvantages in employment experienced by designated groups, to ensure their equitable representation in all occupational categories and levels in the workforce."*
> (Republic of South Africa 1998)

4. Data and methodology

4.1 Approaches to measuring discrimination

When studying discrimination, economists traditionally decompose the average racial wage differential (or the race gap for some other labour market outcome) into two parts: one which is due to the difference in average skill levels, and another which remains after controlling for this difference. If productivity differences can be completely controlled for, it follows that the latter component must be due to racial discrimination. The simplest technique in testing for discrimination is to estimate a wage-earnings function and include a dummy variable representing race in the vector of explanatory variables. If race has significant explanatory power after controlling for skill differences, then evidence of labour market discrimination exists.

4.1.1 The Oaxaca-Blinder decomposition

A second way of testing for discrimination was developed by Blinder (1973) and Oaxaca (1973). This decomposition technique allows economists to identify the percentage of the average wage gap which is attributable to differences in skills. By the same reasoning as before, the remaining wage gap can be interpreted as discrimination. Darity and Mason (1998: 68) state that there is no reason to expect that the two methods should give different results when testing for labour market discrimination, but that the Oaxaca-Blinder decomposition may be preferable in that it allows for the coefficients of the two different groups to take on different values.

To better explain the Oaxaca-Blinder decomposition methodology, we will start by noting that the log of wages is usually specified as being dependent on a set of individual characteristics, x_i, so that a wage earnings function is estimated with the equation:

$$\ln W = \alpha + \sum x_i \beta_i + \varepsilon$$

or in matrix notation:

$$\ln W = X\beta + \varepsilon$$

where X includes a constant. It follows that the difference in the average log of wages between Whites and Blacks can be expressed as:

$$\ln \overline{W}_W - \ln \overline{W}_B = \overline{X}_W \beta_w - \overline{X}_B \beta_B \qquad (2)$$

where $\overline{W}_i$ is the average wage for group i, $\overline{X}_i$ is the vector containing the productive characteristics evaluated at the average for group i, β_i is the vector of coefficients representing the market's valuation of the characteristics in $\overline{X}_i$ and subscripts W and B refer to the White and Black population groups. If the two β_i vectors differ then the market rewards the same characteristics differently if possessed by members of different population groups. Equation (2) can be rewritten as:

$$\ln \overline{W}_W - \ln \overline{W}_B = \left(\overline{X}_W - \overline{X}_B\right)\beta^* + \overline{X}_W \left(\beta_w - \beta^*\right) + \overline{X}_B \left(\beta^* - \beta_B\right) \qquad (3)$$

where β^* is the vector of coefficients that would prevail in the absence of discrimination. The wage gap can now be conceptualised as consisting of the wage differential that results from differences in the average productive characteristics between Whites and Blacks, $\left(\overline{X}_W - \overline{X}_B\right)\beta^*$, the difference between what White workers are receiving and what they would receive in a non-discriminating labour market, $\overline{X}_W \left(\beta_W - \beta^*\right)$, and the difference between what Black workers would be paid in the absence of discrimination and what they are actually being paid, $\overline{X}_B \left(\beta^* - \beta_B\right)$. The last two terms reflect White advantage and Black disadvantage respectively, but will be jointly referred to as the unexplained component of the wage gap in this study.

The choice of a vector of coefficients in the non-discriminating scenario, β^*, depends on our underlying assumption regarding discrimination. If for example, it is assumed that White workers are paid their marginal productivity, and that the wage gap is solely due to Black disadvantage, then the White wage structure would prevail in a non-discriminating labour market so that $\beta^* = \beta_w$. In this case, equation (3) will reduce to:

$$\ln \overline{W}_W - \ln \overline{W}_B = \left(\overline{X}_W - \overline{X}_B\right)\beta_W + \overline{X}_B \left(\beta_W - \beta_B\right)$$

as per Blinder (1973: 438). In an attempt to base the choice of β^* more thoroughly on theoretical foundations, Neumark (1998) extends the simple neoclassical model of discrimination and then derives the Oaxaca-Blinder estimator of discrimination from this model. According to his model, β^* can be obtained from a regression on the pooled sample of the two groups. Since this offers the largest available sample size for estimating β^*, it has the additional advantage of producing the smallest standard error for the estimated differentials.

So far we have restricted the discussion to the decomposition of the wage gap, but we are also interested in the existence of discrimination for two other labour market outcomes: employment and occupational attainment. The Oaxaca-Blinder decomposition has also been extended to binary models by Gomulka and Stern (1990), so that equation (3) can be expressed as:

$$\overline{L}_w - \overline{L}_b = \left[\overline{L}\left(X_W \beta^*\right) - \overline{L}\left(X_B \beta^*\right)\right] + \left[\overline{L}\left(X_W \beta_W\right) - \overline{L}\left(X_W \beta^*\right)\right] + \left[\overline{L}\left(X_B \beta^*\right) - \overline{L}\left(X_B \beta_B\right)\right] \quad (4)$$

where L_i is a non-linear function, like a probit, that determines the probability of some labour market. $\overline{L}_i$ indicates the average of the values of the function, that is $\frac{1}{n}\sum_{i=1}^{n} L(X_i \beta)$, which is generally different from the value of the function evaluated at the average of the $X_i\beta$'s, $L\left(\frac{1}{n}\sum_{i=1}^{n} X_i \beta\right)$. The same arguments apply to the decomposition of the average race gap of employment or occupational attainment into explained and unexplained components.

There are some obvious difficulties in empirically estimating equations (3) or (4). Data restrictions and the unobservability of some of the productive characteristics (like work ethic, ability or schooling quality) mean that some of the explanatory variables are almost always omitted in empirical studies. Most labour economists believe that these omitted variables will be lower amongst "minorities" (Holzer and Neumark 2000b: 495) and that its omission will therefore result in an overestimation of labour market discrimination. D'Amico (1987: 312) regards the size of the unexplained share of the wage gap as "an index of the virility of labour market discrimination". Other studies refer to it as the "upper limit to discrimination", which assumes that the misspecification problems will necessarily have an upward bias on the estimate. The unexplained component only captures the discrimination that occurs in the labour market. Models of discrimination which endogenise the human capital investment decision, like that of Coate and Loury (1993) or Lundberg and Startz (1983), suggest that a feedback mechanism exists from discrimination to human capital formation. In this case some part of the explained component of the race gap is actually due to labour market discrimination, so that the empirical estimate of discrimination will be downwardly biased. This study will be restricted to the analysis of the discrimination that takes place *after* individuals enter the labour market, and will merely note at this stage that the unexplained component in the Oaxaca-Blinder decomposition is a noisy approximation to discrimination that also captures quality differences in education and any difference in unobservable skills.

Another issue that could complicate the estimation of the above-mentioned labour market outcomes is selection bias. Since neither the economically active nor the employed can be

considered to be a random sampling from the total population, regular single equation techniques could yield inconsistent estimates of the regression coefficients. This can be addressed by using the Heckman (for wages) and Heckprobit (for employment or occupational selection) procedures, both of which first estimate a model of selection into the relevant sample. In the case of the Heckman two-step model a selection equation, such as

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

where the individual is employed if $I_i^* > 0$ and unemployed if $I_i^* \leq 0$, can be modeled using a probit specification. The β's from the wage regression specified above can now be consistently estimated by adding an artificial regressor (the Inverse Mills ratio) constructed as

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

to the wage equation, where $\phi(.)$ and $\Phi(.)$ represent the normal probability density and normal cumulative distribution functions, respectively. That is, estimating

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

will allow the researcher to estimate the parameters consistently, where the β's now represent the marginal effect of an increase in the X's on a person's expected offered log wage. The Inverse Mills ratio can now be subtracted from both sides of the equation, so that the racial gap in *wages offered* can be decomposed into its different parts. The Heck-probit, which works in an analogous way, allows consistent estimation of dichotomous outcomes.

4.1.2 The Brown- Moon-Zoloth decomposition

Many empirical studies of wage discrimination include occupational dummies in the wage regression, which implicitly assumes exogenous occupation selection. This method risks ignoring a potentially important channel through which labour market discrimination can work: differential access to skilled occupations. Brown, Moon and Zoloth (1980) addressed this shortcoming of the Oaxaca decomposition by developing a procedure that treats occupational selection as endogenous. The wage gap can be rewritten as the weighted average wage over N occupations

$$\ln \overline{W_w} - \ln \overline{W_B} = \sum_{j=1}^{N} p_W^j \overline{X}_W^j \beta_W^j - \sum_{j=1}^{N} p_B^j \overline{X}_B^j \beta_B^j$$

where j denotes the occupation j and p_i^j is the proportion of workers from group i working in occupation j. Assuming that the non-discriminatory wage is represented by White wages, the wage gap can be decomposed further

$$\ln\overline{W_w} - \ln\overline{W_B} = \sum_{j=1}^{N}\left(p_W^j - \hat{p}_B^j\right)\overline{X}_W^j\beta_W^j + \sum_{j=1}^{N}p_B^j\left(\overline{X}_W^j - \overline{X}_B^j\right)\beta_W^j$$

$$= \sum_{j=1}^{N}\left(\hat{p}_B^j - p_B^j\right)\overline{X}_W^j\beta_W^j + \sum_{j=1}^{N}p_B^j\left(\beta_W^j - \beta_B^j\right)\overline{X}_B^j$$

where $\hat{p}_B^j$ is the predicted share of Black workers employed in occupation j, assuming the White occupational distribution and using a multinomial logit regression. The advantages to assuming that the non-discriminating wage structure can be estimated using a pooled regression of both groups was discussed earlier, which makes it necessary to adjust the decomposition above:

$$\ln\overline{W_w} - \ln\overline{W_B} = \sum_{j=1}^{N}\left(p_W^j - \hat{p}_W^j\right)\overline{X}^{j*}\beta^* + \sum_{j=1}^{N}\left(\hat{p}_B^j - p_B^j\right)\overline{X}^{j*}\beta^{j*} + \sum_{j=1}^{N}\left(\hat{p}_W^j - \hat{p}_B^j\right)\overline{X}^{j*}\beta^{j*}$$

$$+ \sum_{j=1}^{N}p_W^j\left(\overline{X}_W^j\beta_W^j - \overline{X}_W^j\beta^{j*}\right) + \sum_{j=1}^{N}p_B^j\left(\overline{X}_B^j\beta^{j*} - \overline{X}_B^j\beta_B^j\right)$$

$$+ \sum_{j=1}^{N}p_W^j\left(\overline{X}_W^j\beta^{j*} - \overline{X}^{j*}\beta^{j*}\right) + \sum_{j=1}^{N}p_B^j\left(\overline{X}^{j*}\beta^{j*} - \overline{X}_B^j\beta^{j*}\right)$$

The first two terms represent the component of the wage gap due to inter-occupational differences in remuneration (or discrimination) and the third term is due to inter-occupational differences in productivity. The fourth and fifth terms denote intra-occupational discrimination, whereas the sum of the sixth and seventh terms represents intra-occupational productivity differences.

4.1.3 The Juhn-Murphy-Pierce decomposition

The Oaxaca-Blinder method decomposes the difference in labour market outcomes between the average White and the average Black worker. Juhn, Murphy and Pierce (1991, 1993) extended this technique to also allow for decompositions at points other than the mean of the wage distribution. Using the same notation as before, the differential at quantile q can now be decomposed as

$$\ln\overline{W}_{W,q} - \ln\overline{W}_{B,q} = \overline{X}_{W,q}\beta_W + \overline{\varepsilon}_{W,q} - \overline{X}_{B,q}\beta_B - \overline{\varepsilon}_{B,q}$$

$$= \left(\overline{X}_{W,q} - \overline{X}_{B,q}\right)\beta^* + \overline{X}_{W,q}\left(\beta_W - \beta^*\right) + \overline{X}_{B,q}\left(\beta^* - \beta_B\right) + \left(\overline{\varepsilon}_{W,q} - \overline{\varepsilon}_{B,q}\right)$$

where subscript q indicates the average value for the q'th quantile.

The first three terms are still interpreted as the components explained by productive characteristics, and that left unexplained (including discrimination). The fourth term represents differences in the quantities and prices of unobservable characteristics, and results from changes in the distribution of the residual from the wage regression. When considering this decomposition at the mean (the Oaxaca-Blinder decomposition) the fourth term will necessarily be zero, but at other points of the distribution it may add to our understanding of wage differences. An increase in the component due to unobserved characteristics can reflect either a widening of the racial gap in the quantities of unobserved skills, an increase in the difference between how the market rewards these skills if

possessed by members from different groups, or an increase in the premium paid to the existing unobservable skills gap.

4.2 Proposed empirical model

Our empirical study will consist of three labour market models describing employment, occupational attainment and wage determination. In choosing the determinants for the employment equation this study follows the empirical literature by including years of education (linearly and squared), potential experience (linearly and squared)[7], variables of household composition (household headship, whether the worker is married, and the number of children in the household), and geography (whether living in a rural or urban area, as well as controlling for the province of residence). Union membership, and industry and occupation of employment are added as explanatory variables for the wage regressions.

Educational attainment is expected to increase employability, either by increasing worker productivity or as a signal of some unobservable productive characteristic. Potential experience is allowed to enter the labour market models non-linearly, since its impact on employment outcomes are expected to be concave.

The direction of the effect of being married and having children are ambiguous. Both variables increase the worker's responsibilities to his family and thereby decrease the reservation wage. Some employers may also prefer the more stable supply of labour associated with providing for a family. On the other hand, having a family will make the worker less willing to travel long distances in order to find work, and this lower mobility can adversely affect employability.

Living in a rural area is usually associated with economic marginalisation, but its effect on employment outcomes in South Africa is sometimes found to be positive (Bhorat and Leibbrandt 2001 and Rospabe 2002). One possible explanation is that the strong culture of migrant labour has led to an over-supply of labour in the metropolitan areas. In controlling for province of residence, we would expect that living in the provinces containing the two biggest metropolitan areas (Western Cape and Gauteng) will positively affect employment, whereas the provinces containing the old homelands (Limpopo, the Eastern Cape and Kwazulu-Natal) will adversely affect employment.

Economic models of bargaining suggest that union membership increases bargaining power with employers. Belonging to a union is therefore expected to increase an individual's wage. In controlling for industries, nine different industry classifications are used: agriculture, mining,

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[7] Data on actual experience is not available, so potential experience is calculated as age minus 6 minus years of educational attainment. High rates of school repetition and the high unemployment rate suggest that the difference between actual and potential experience is potentially large.

manufacturing, utilities, construction, trade, transportation, financial intermediation and services.

The aim of our empirical analysis is to estimate the component of the average race gap in labour market outcomes that can be ascribed to racial discrimination.

This is complicated by the presence of gender discrimination, particularly if some interaction exists between the two types of discrimination. Isolating the effect of racial discrimination will be much simpler if our sample is restricted to males. This step is not uncommon in studies of racial discrimination (Blackaby, Leslie, Murphy and O'Leary 1998 and Rospabe 2002). The case for the separate analysis of males is strengthened by evidence that there exists a structural break between males and females in the employment process[8].

An often debated point in studies of the South African labour market is whether to use the broad or the narrow definition of unemployment. The narrowly defined unemployed include only those who, when questioned, had actively looked for work in the preceding four weeks. The broadly unemployed also includes those who expressed the desire to work, but who had not *actively* been looking for work in the preceding four weeks. What is at stake is whether the non-searching unemployed should be considered as economically active or not. This decision has a massive effect on the final unemployment rate in South Africa: Kingdon and Knight (2000: 3) show that the gap between the unemployment rates was in the order of 15 percentage points during the 1990's. The choice of a definition of unemployment can therefore have important effects on empirical studies. The South African government's adoption of the narrow definition as the country's "official" definition[9] notwithstanding, Kingdon and Knight (2000) argue that the broad definition is more appropriate for South Africa, since an analysis of the non-searching unemployed suggest that on average they more closely resemble discouraged job-seekers than the voluntarily unemployed. For this reason the broad definition of unemployment will be used in the empirical part of our study.

Due to the definitional differences of the informal sector and domestic workers between surveys (Bhorat 2003), as well as the fact that wages and employment figures for these sectors are more volatile than can reasonably be expected to be the case in the labour market, they are omitted from our empirical analysis. Since our aim is to study the effect of affirmative action policies, and these policies are unlikely to have a large impact on the informal sector or domestic workers, the omission of these sectors will not distort our results. Our analysis also excludes individuals older than 65 or younger than 16 as economically inactive.

Models such as Bergman (1971) emphasised the importance of differential access to high paying

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[8] Using a dummy variable group test, the hypothesis that males and females should be included in the same regression yields F-test statistics of 2039.08 for 1995, which indicates rejection at a level of confidence exceeding 99.99%.
[9] This was mainly due to the ILO's appeal for countries to use the narrow definition in order to promote objectivity in international comparison (Kingdon and Knight 2000: 1).

occupations, in contrast to the traditional neoclassical model's focus on differential pay for the same work. To this end we would like to model the racial difference in the probability of being employed in a more skilled occupation.

4.3 Data description

In studying the evolution of discrimination in post-apartheid South Africa this paper will make use of fifteen household surveys: the annual October Household Surveys from 1995 to 1999 and the bi-annual Labour Force Surveys from 2000 to 2004, all of which are nationally representative surveys. The survey design was taken into account in estimating the empirical models.

Data on individual earnings are collected by first asking respondents their total monthly income/salary, and then asking a follow-up question for respondents who refused to answer or did not know, allowing them to only specify an income interval. Another question had them estimate the number of hours in a week that they usually spend working. The wage earnings data for these surveys is therefore a mixture of interval and point data. Since we are interested in differences in average wages, these were calculated by dividing earnings by hours worked. To overcome the problem that interval data poses in this regard, it was decided to attach a point value to each income interval. We logged all the wage earnings point data, as well as the interval used a constant only interval regression on all point and interval wage earnings data A log-normal distribution was fitted on all the observations for every year using an interval regression with only a constant. This allowed us to use all the information from interval and point data to estimate the parameters for a log-normal distribution of wage earnings. Observations in each interval were now assigned the average value for the given distribution, conditional on lying in the specified interval.

The empirical analysis proceeded by estimating the wage regression with the Heckman procedure. Both the wage and selection equations included education and education squared, experience and experience squared, headship, rural residence and province. The wage equation also included industry of employment, union membership, the number of members who were employed and the number of members who were employed as senior officials or managers, whereas the selection equation included the number of children younger than six, the number of children between seven and fifteen, the number of unemployed members of the household and the employment rates for the magisterial district and primary sampling unit. The resulting racial gaps in wages offered were very unstable, however, as can be observed from Table A1 in the Appendix, so that the problem of sample-selection was ignored for the remainder of the empirical study.

5. Empirical results

5.1 The Oaxaca-Blinder decomposition

5.1.1 The employment gap

The first labour market outcome of interest is the probability of being employed. In 1995 the White population group had an unemployment rate of only 6%, compared to 38% for Blacks, 23% for Coloureds and 14% for Indians. By 2004 the rapid increase in labour market participation rates had increased the unemployment rate for all the population groups, and this change was disproportionately borne by the Black population group. Figure 3 shows the formal sector employment rates for the Black and White population groups in the 1995-1997 and 2003-2004 periods. In 1995-1997 the probability of being employed increased sharply for members of the Black population group who completed high school or some form of tertiary qualification, whereas the White population group experienced high formal employment rates, regardless of their education. Between 1995 and 2004 Black workers saw a large decrease in their probability of being employed. White workers with an incomplete secondary education also experienced a decrease in employment rates, so that educational attainment became an important determinant of the employability of Whites.

Figure 3: Formal sector employment rate, by population group and educational attainment
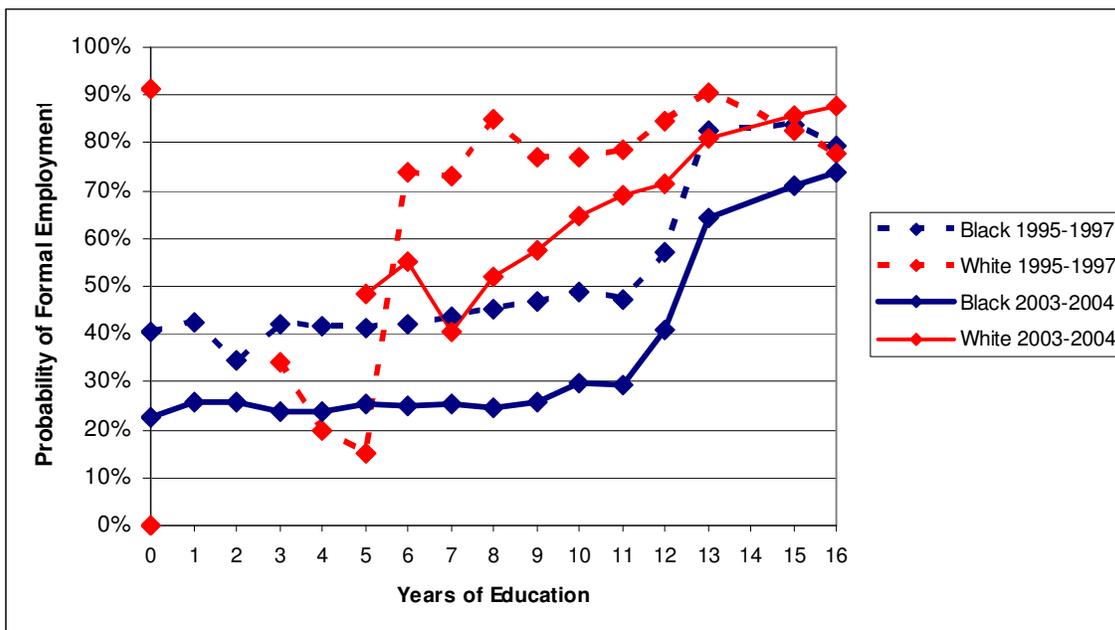

Table 2 displays the regression results for the probit model of employment, estimated by population group for male members of the labour force in 1995 and 2004.

Table 2: Probit regression on employment, by population group

| Dependent variable: Employment				
	1995		2004	
	Black	*White*	*Black*	*White*
Education	-0.073	0.175	-0.062	0.109
	(6.69)**	(1.62)	(6.31)**	(1.08)
Education²	0.008	-0.004	0.008	0
	(9.58)**	(0.81)	(12.52)**	(0.01)
Experience	0.047	0.014	0.049	0.016
	(10.11)**	(1.02)	(13.26)**	(1.29)
Experience²	-0.001	-0.001	-0.001	0
	(11.15)**	(2.47)*	(13.04)**	(1.55)
Household head	0.986	0.51	0.752	0.561
	(29.90)**	(4.34)**	(27.83)**	(5.23)**
Rural	0.194	-0.062	-0.099	-0.053
	(6.83)**	(0.59)	(3.91)**	(0.52)
Married	0.431	0.519	0.512	0.171
	(12.18)**	(4.81)**	(19.01)**	(1.66)
Children	-0.065	-0.048	-0.087	0.036
	(8.34)**	(1.13)	(11.71)**	(0.87)
Western Cape	0.198	-0.036	-0.04	0.022
	(2.42)*	(0.24)	(0.59)	(0.18)
Eastern Cape	-0.548	-0.035	-0.491	0.276
	(11.86)**	(0.20)	(11.39)**	(1.94)
Northern Cape	-0.009	0.569	0.201	0.443
	(0.10)	(2.18)*	(3.24)**	(2.86)**
KwaZulu-Natal	-0.186	-0.028	-0.152	0.238
	(4.12)**	(0.18)	(3.86)**	(1.52)
Northwest	-0.161	-0.067	-0.12	0.262
	(3.16)**	(0.33)	(2.86)**	(1.80)
Gauteng	-0.059	0.041	-0.234	0.268
	(1.14)	(0.28)	(6.02)**	(2.36)*
Mpumalanga	-0.089	0.053	-0.051	0.31
	(1.77)	(0.31)	(1.18)	(1.77)
Limpopo	-0.547	0.432	-0.394	0.508
	(10.38)**	(1.52)	(9.04)**	(2.76)**
Constant	-0.386	-0.55	-1.097	-0.967
	(5.54)**	(0.89)	(17.81)**	(1.52)
Observations	15,159	3,902	30,814	4,269
Correctly Predicted	76.2%	93.9%	72.1%	88.1%
Pseudo R²	0.21	0.11	0.19	0.10

Notes: Robust z statistics in parentheses. * significant at 5%; ** significant at 1%. Reference province: Free State

The signs of the coefficients are generally in line with what economic theory would predict and with other empirical studies. Additional children are found to decrease the probability of being employed (only significantly for Black males), whereas being married increases this probability. The returns to education in terms of employment are convex and highly significant for Blacks, but almost linear and much less significant for Whites. The concavity observed in educational returns for Whites in

1995 means that the returns to education were lower than in 2004 for workers with more than 8 years of education.

Figures 4, 5 and 6 show the racial gaps in formal employment between Whites and Blacks, Whites and Coloureds, and Whites and Indians. The White-Black employment gap increased substantially between 1995 and 2000, and then stabilised. The Oaxaca-Blinder technique was used to decompose this gap and shows that the unexplained component did not reveal a strong trend over time, and definitely did not decline in the post-1994 period. The fact that the unemployment rate increased more rapidly for the Black population group is mainly attributable to differences in productive characteristics, driven by the increasing demand for skilled labour resulting from the structural changes in the South African economy mentioned in section 2. The Coloured-White gap also rose until around 2001 and declined thereafter, whereas the Indian-White gap shows no real trend over time. The employment gap is much higher between Blacks and Whites than for the other two comparisons. It can also be observed that the unexplained component, which contains the effect of discrimination, is generally the highest for Blacks, and much lower for Coloureds and Indians. Although the results are consistent with a substantial role for employer discrimination, the largest share of the employment gaps, and changes in this differential, is the result of skill differences.

### Figure 4: Decomposition of average White-Black Employment Gap
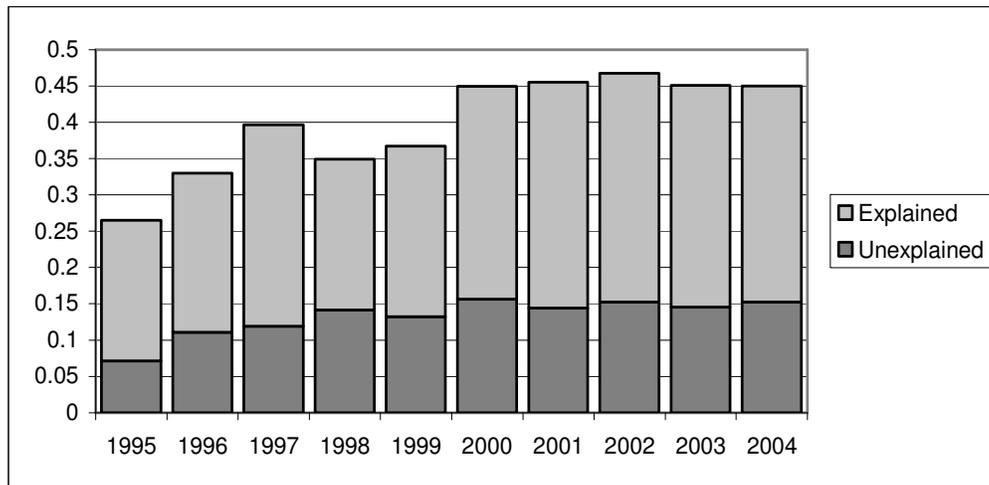
Source: Own calculations from October Household and Labour Force Surveys.

Figure 5: Decomposition of average White-Coloured Employment Gap
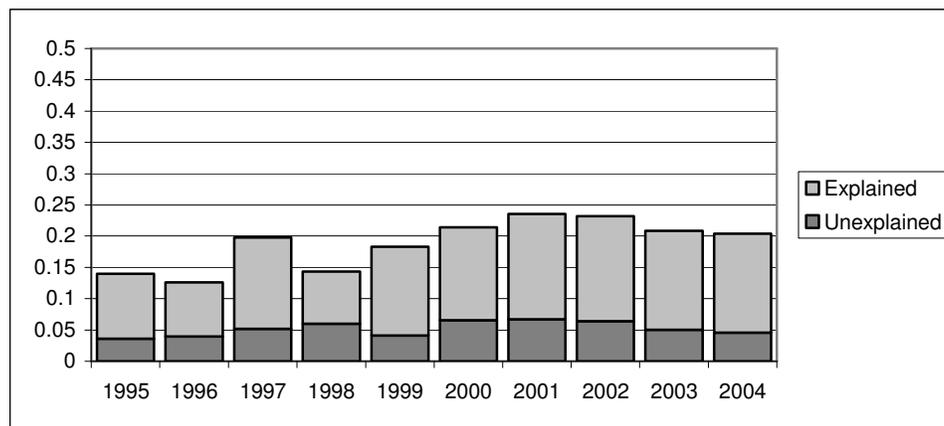
Source: Own calculations from October Household and Labour Force Surveys.

Figure 6: Decomposition of average White -Indian Employment Gap
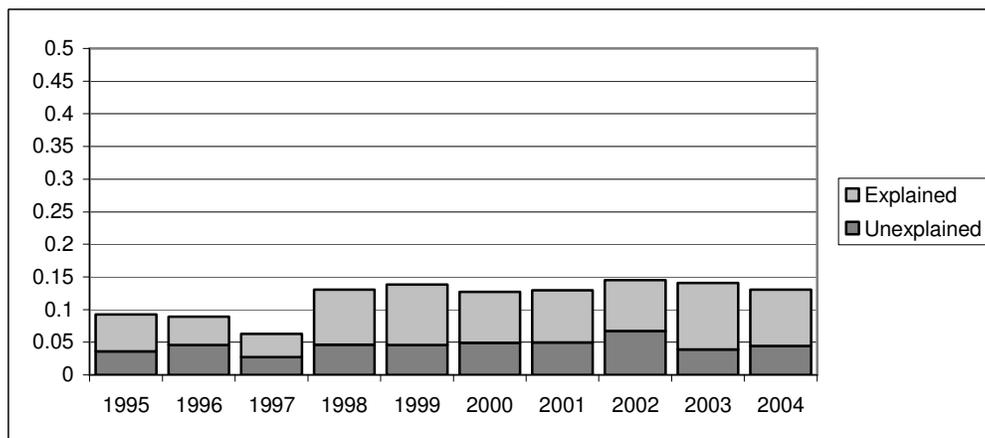
Source: Own calculations from October Household and Labour Force Surveys.

The fact that we do not observe a downward trend in the unexplained component of the employment gap could suggest that affirmative action has been unsuccessful in reducing discriminatory hiring practices, but is also consistent with an important role for the quality of education in the employment process. Since this comparison is not a controlled experiment we do not observe the counterfactual: the employment gap in the absence of affirmative action. It seems inappropriate to evaluate the success of these polices based on developments in the South African economy, like the decreasing demand for unskilled labour, which government obviously had no control over. This notwithstanding, affirmative action has not yet been successful in its aim to "*redress the disadvantages in employment experienced by designated groups*".

5.1.2 Occupational attainment differential

The second labour market outcome that we are interested in is the level of occupational attainment. South Africa's history of occupational segregation suggests that the employment gap may be concealing discriminatory hiring practices. If most Whites are employed as high skilled workers and most Blacks are restricted to low skilled jobs, then the employment gap will understate true hiring

discrimination. This study looked at the results for the decomposition of two outcomes: the probability of being employed in a semi-skilled, rather than an unskilled occupation and the probability of being employed in a highly skilled, rather than a semi-skilled occupation. The focus here will be mainly on the latter. Table 3 displays selected coefficients for a probit regression on whether a labourer is employed in a highly skilled rather than a semi-skilled occupation.

Table 3: Probit regression on attaining a highly skilled occupation

Dependent variable: Highly Skilled Occupation				
	1995		2004	
	Black	*White*	*Black*	*White*
Education	-0.307	-0.363	-0.133	0.267
	(10.19)**	(3.11)**	(3.56)**	(1.16)
Education²	0.035	0.032	0.02	-0.002
	(17.36)**	(6.72)**	(9.26)**	(0.18)
Experience	-0.009	0.055	0.019	0.019
	(0.70)	(4.86)**	(1.80)	(1.46)
Experience²	0.001	-0.001	0	0
	(2.11)*	(2.75)**	(0.98)	(0.78)
Household head	0.159	0.142	-0.051	0.139
	(2.11)*	(1.28)	(0.70)	(1.25)
Rural	0.082	-0.823	0.081	-0.21
	(1.35)	(9.53)**	(1.04)	(2.35)*
Married	0.195	0.027	0.191	0.281
	(2.47)*	(0.30)	(2.99)**	(2.91)**
Children	0.058	0.01	0.034	-0.033
	(3.15)**	(0.36)	(1.82)	(0.93)
Western Cape	0.043	0.253	-0.018	0.309
	(0.23)	(2.51)*	(0.12)	(2.66)**
Eastern Cape	0.04	0.157	0.191	0.088
	(0.36)	(1.37)	(1.95)	(0.73)
Northern Cape	-0.194	-0.122	0.105	-0.056
	(0.71)	(0.92)	(0.74)	(0.42)
KwaZulu-Natal	-0.048	-0.066	0.101	0.265
	(0.47)	(0.62)	(1.10)	(2.16)*
Northwest	0.114	-0.028	-0.038	0.046
	(1.01)	(0.21)	(0.38)	(0.33)
Gauteng	-0.174	0.292	0.175	0.263
	(1.63)	(3.11)**	(2.00)*	(2.46)*
Mpumalanga	-0.049	0.035	-0.184	0.037
	(0.39)	(0.30)	(1.76)	(0.27)
Limpopo	0.257	0.074	0.013	0.013
	(2.30)*	(0.39)	(0.12)	(0.08)
Constant	-2.095	-1.501	-2.46	-3.559
	(10.98)**	(2.08)*	(12.21)**	(2.35)*
Observations	4,266	3,377	6,757	3,437
Correctly Predicted	84.7%	71.8%	82.9%	65.9%
Pseudo R²	0.32	0.21	0.24	0.12

Notes: Robust z statistics in parentheses. * significant at 5%; ** significant at 1%. Reference province: Free State

The impact of education on being employed in a highly skilled job is significant and convex (except for Whites in 2004). The coefficients also indicate that Blacks experience a sharper increase in their probability of being employed in a highly skilled occupation as they increase their level of educational attainment. It can be observed that the difference between the White and Black constants was positive in 1995, but had turned negative by 2004, which could be indicative of a decrease in discrimination in occupational selection.

In figures 7, 8 and 9 the differential in the average probability of attaining a skilled occupation is decomposed. The results show a rising occupational gap between Whites and Blacks (driven in part by an increase in the unexplained component), although most of the increase occurred between 1997 and 1998. Both the total gap and the unexplained part of the decomposition appear to be fairly stable over time for the Coloured-White and Indian-White comparisons. The ranking of the unexplained shares of the gap is the same: the highest for Blacks, lower for Coloureds and very small for Indians. Although the Coloured group had a much lower employment gap (compared to Whites) than Blacks, the occupational gap is almost of the same magnitude, which suggest that Coloured workers face less of an obstacle in finding work than Blacks, but are confronted with similar odds in moving from semi- to highly skilled employment. It can again be observed that the implementation of affirmative action legislation has not been able to shrink the part of the occupational gap that includes discrimination.

**Figure 7: Decomposition of average White-Black Differential in Skilled Occupational Attainment**
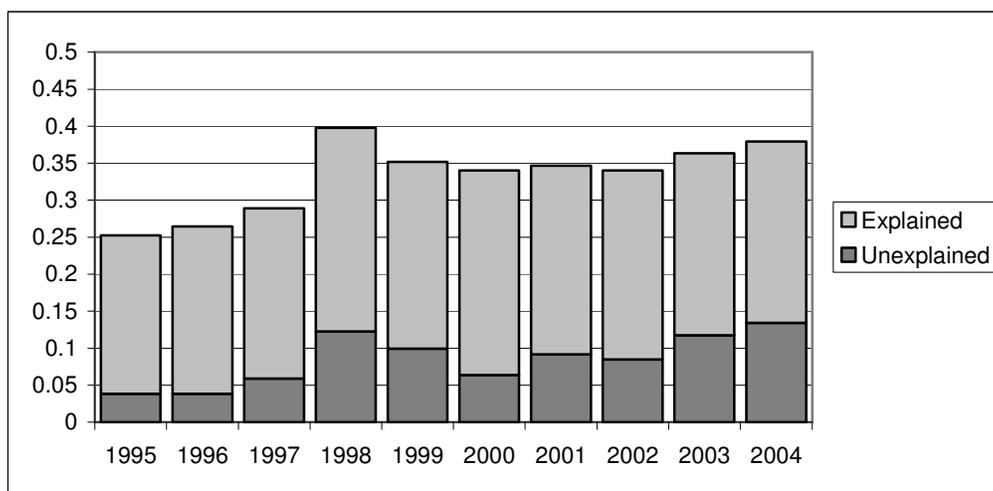
Source: Own calculations from October Household and Labour Force Surveys.

Figure 8: Decomposition of average White-Coloured Differential in Skilled Occupational Attainment
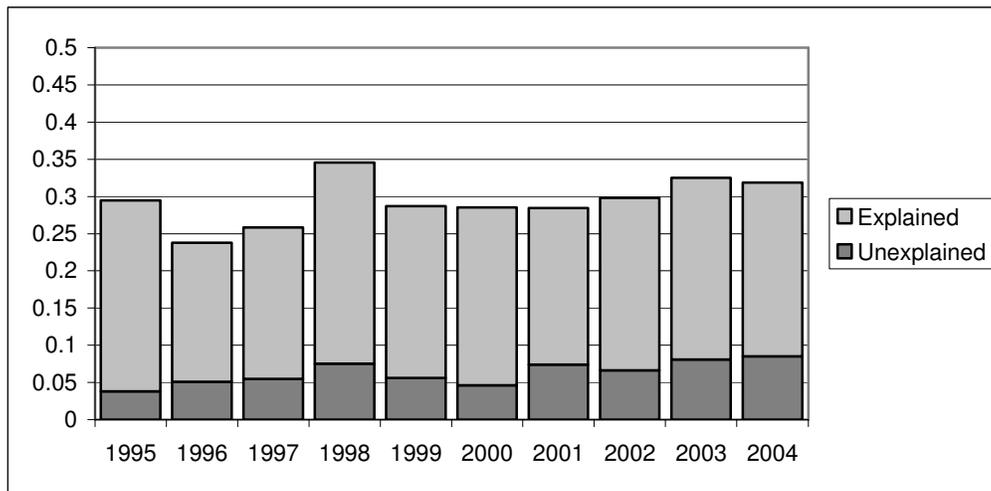
Source: Own calculations from October Household and Labour Force Surveys.

Figure 9: Decomposition of average White-Indian Differential in Skilled Occupational Attainment
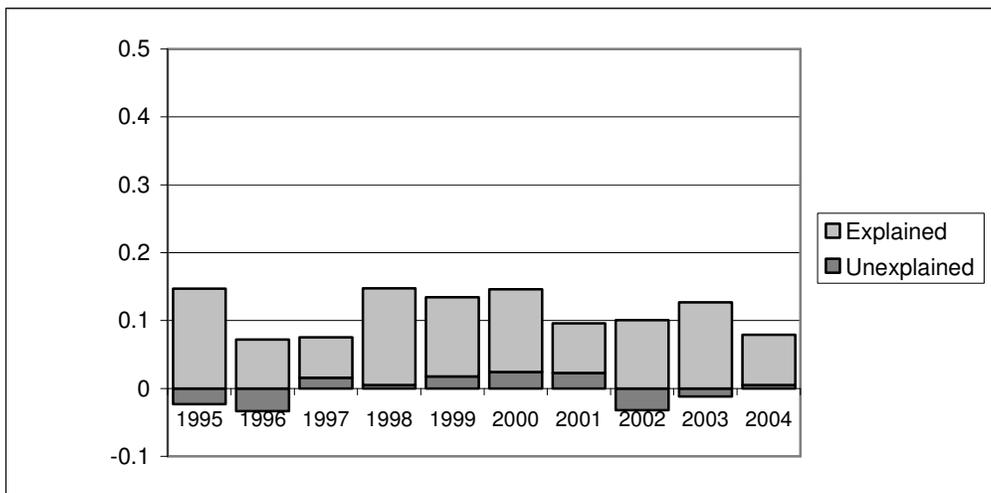
Source: Own calculations from October Household and Labour Force Surveys.

The same procedure as above was used to compare the unskilled/semi-skilled occupation outcome (excluding highly skilled workers) by population groups. The results are reported as Figure A1, A2 and A3 in the Appendix. Again the component unexplained by productive characteristics is larger for Blacks than for Coloureds, and smaller for Indians and again there is no discernable downward trend over time. Interestingly, with the exception of Coloureds, productive characteristics appear to explain a larger share of the semi-skilled/highly skilled occupational gap than the unskilled/semi-skilled gap and also showed a stronger increase over time. This could potentially be one of the areas where affirmative action has had an effect: by focusing on the top end of the occupational distribution, employers may be more careful in using race (either directly or as a proxy for unobservable productive characteristics) as a basis for hiring or promoting into highly skilled occupations than into semi-skilled occupations.

5.1.3 The wage gap

The final labour market outcome is wage determination. Figure 10 shows the average log wage rates for formal sector workers of different levels of educational attainment, by population group. It can be observed that there was a small decline in the wage rates of White workers with incomplete secondary education between 1995 and 2004, so that wages increase more steeply for every level of educational attainment. Black workers with incomplete secondary education experienced an even larger decrease in their wages, so that the Black wage curve in the 2003-2004 period is flatter up to the completion of high school, and then starts increasing sharply. The results of the regressions on the log of the real wage rate for all male labourers employed in the formal sector are presented in Table 4.

Figure 10: Formal sector wage rate, by population group and educational attainment
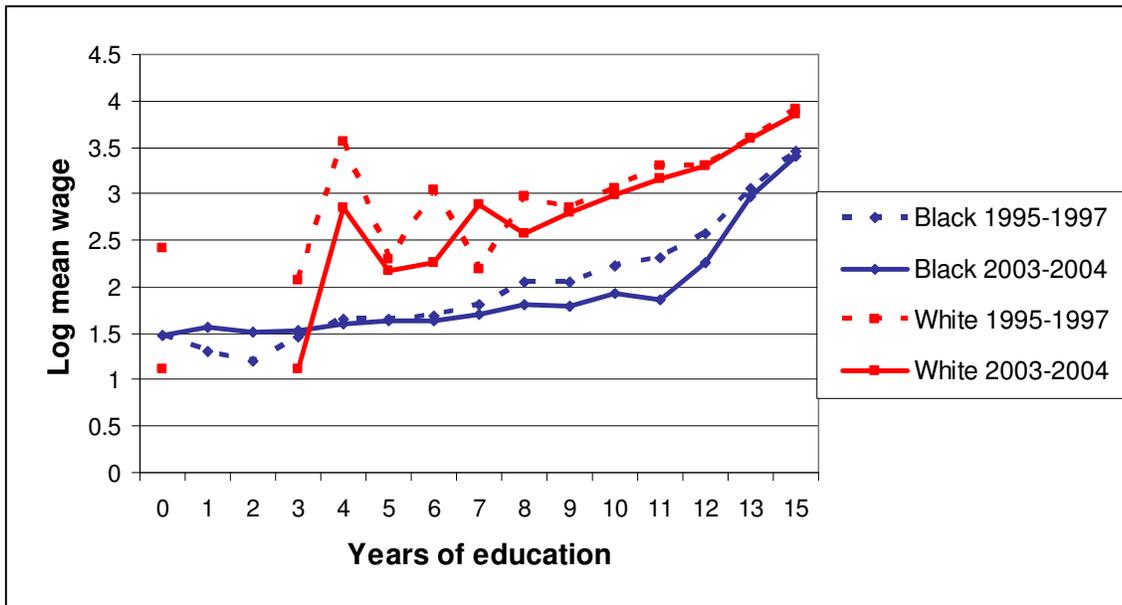
Table 4: OLS regression on log of real wages

Dependent variable: Log of real wage rate

	1995		2004	
	Black	*White*	*Black*	*White*
Education	-0.037	0.029	-0.033	0.146
	(6.78)**	(0.44)	(6.58)**	(4.15)**
Education²	0.007	0.004	0.006	-0.002
	(16.45)**	(1.36)	(18.93)**	(1.93)
Experience	0.022	0.049	0.025	0.038
	(8.71)**	(12.51)**	(10.30)**	(7.22)**
Experience²	0	-0.001	0	-0.001
	(5.91)**	(9.21)**	(5.24)**	(5.86)**
Household head	0.11	0.269	0.12	0.202
	(6.76)**	(7.47)**	(7.07)**	(4.77)**
Rural	-0.125	-0.019	-0.144	-0.2
	(7.58)**	(0.48)	(9.40)**	(3.05)**
Married	0.093	0.106	0.073	0.135
	(6.04)**	(3.33)**	(5.21)**	(3.58)**
Children	-0.001	-0.002	-0.006	0.026
	(0.30)	(0.16)	(1.31)	(1.71)
Union	0.157	0.07	0.328	-0.008
	(11.29)**	(2.98)**	(24.02)**	(0.23)
Western Cape	0.379	-0.036	0.17	0.103
	(11.10)**	(0.80)	(5.49)**	(1.81)
Eastern Cape	0.35	-0.053	0.116	-0.006
	(12.78)**	(0.99)	(4.03)**	(0.09)
Northern Cape	0.395	-0.124	0.169	-0.068
	(6.96)**	(1.58)	(3.39)**	(0.69)
KwaZulu-Natal	0.436	0.018	0.258	0.067
	(18.30)**	(0.37)	(10.94)**	(1.07)
Northwest	0.391	-0.024	0.186	0.073
	(15.28)**	(0.41)	(7.27)**	(0.93)
Gauteng	0.443	0.143	0.355	0.194
	(19.19)**	(3.50)**	(15.99)**	(3.70)**
Mpumalanga	0.302	0.062	0.167	0.066
	(10.74)**	(1.13)	(6.21)**	(0.90)
Limpopo	0.532	0.083	0.121	-0.105
	(18.06)**	(1.14)	(4.33)**	(1.16)
Constant	1.596	1.841	1.399	1.287
	(30.74)**	(4.64)	(28.14)**	(4.81)**

Also corrected for occupation and industry of employment, and province of residence

Observations	9,535	2,890	12,623	2,934
R-squared	0.59	0.47	0.54	0.33

Notes: Absolute value of t statistics in parentheses. * significant at 5%; ** significant at 1%. .

Education is an important determinant of wages - although neither education nor education squared is significant for the white population group in 1995, they are jointly significant – and the returns to education are convex in three of the four regressions. Where experience enters the equation non-linearly, it has the expected concave relationship to earnings.

Again, the results show evidence of a persistent race effect (figures 11, 12 and 13), with no signs of an impact of affirmative action either on the total wage gap or on the component unexplained by productive characteristics. Since the wage regression controls for occupation, the unexplained component only captures wage differences within occupations. Although the wage gaps of the Coloured-White and Black-White comparisons are of similar magnitudes, the part unexplained by productive characteristics for Coloureds is as small as that of the Indian-White comparison.

Figure 11: Decomposition of average White-Black Wage Gap
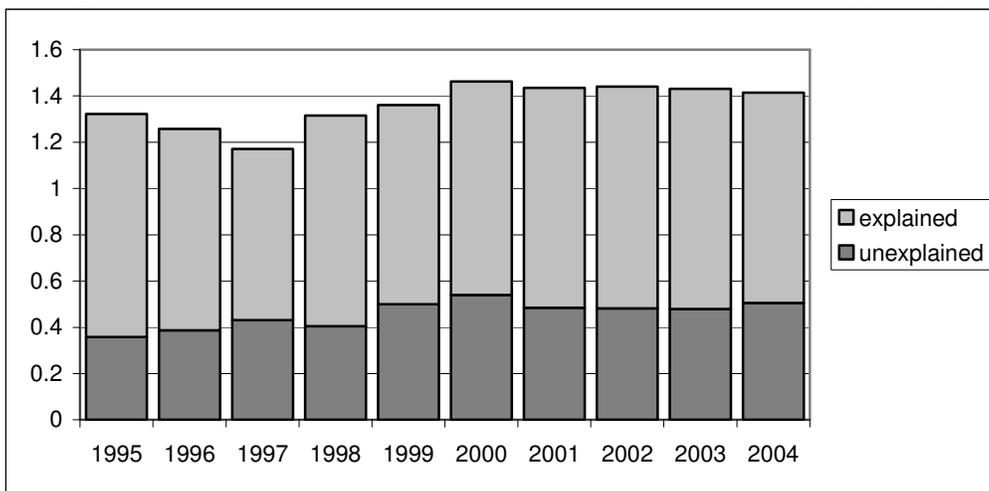
Source: Own calculations from October Household and Labour Force Surveys.

Figure 12: Decomposition of average White-Coloured Wage Gap
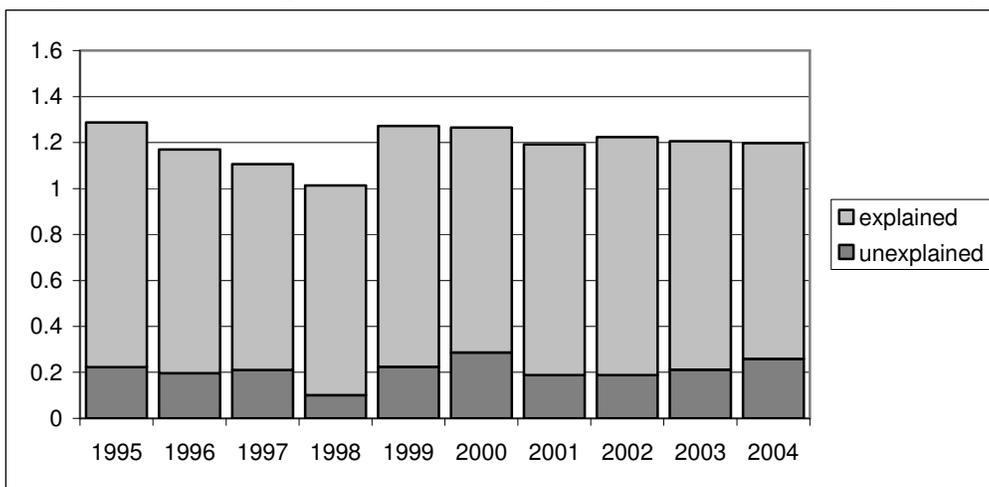
Source: Own calculations from October Household and Labour Force Surveys.

Figure 13: Decomposition of average White-Indian Wage Gap
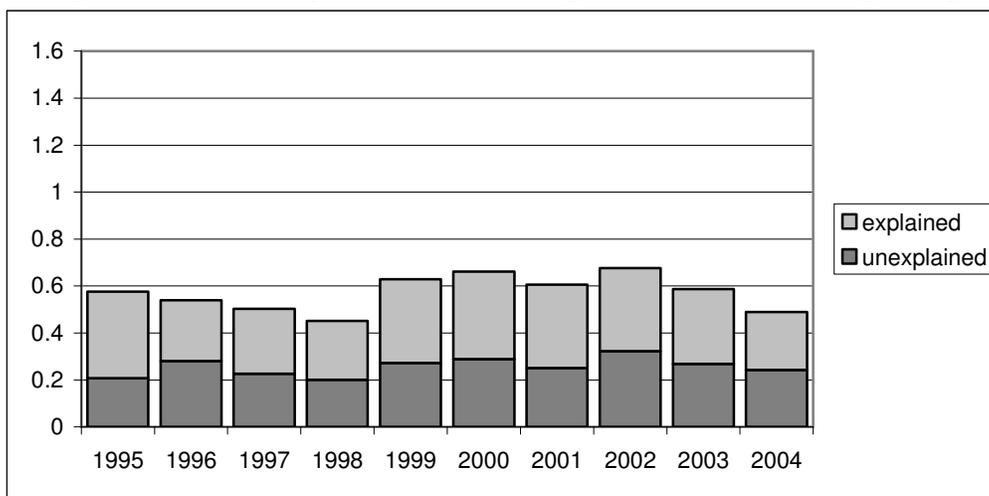
Source: Own calculations from October Household and Labour Force Surveys.

The same decompositions were applied to labour market participants who only entered the labour market in the previous 10 years and on workers with a complete secondary education or higher, since it can be hypothesised that the effects of affirmative action will be more pronounced for these groups. The results showed that although the unexplained components were smaller in labour market outcomes for these groups than for the labour force as a whole, there is still no discernable downward trend between 1995 and 2004.

The Oaxaca-Blinder method decomposes the wage gap into the shares due to differences in the vector of productive characteristics and differences in the remuneration accruing to these characteristics. Hence it is possible to further disaggregate these shares into the explained and unexplained effects due to each of the characteristics. The results of such a detailed Oaxaca-Blinder decomposition for 1995 and 2004 are presented in Figures A4 and A5 in the Appendix. In 1995 education was the most important variable in explaining the racial wage gap, both in terms of the unexplained and explained components. The constant term in this disaggregation represents "pure discrimination" rather than the race effect that works through any of the explanatory variables, although Figure 11 showed that the magnitudes of the explained and unexplained components were largely unchanged between 1995 and 2004, Figure A5 indicates that there were important shifts within these components. Education's share in the total wage gap grew considerably between 1995 and 2004, but this was mainly the result of its increasing share in the unexplained component. In fact, in 2004 the differential returns to education were the largest single driver of the wage gap. This result is consistent with the large quality of education differences mentioned in Section 2. The contribution made by "pure discrimination" turned from 14% in favour of Whites to 7% in favour of Blacks, although neither of these was significantly different from 0[10].

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[10] Oaxaca and Ransom (1999) show that there is an identification problem in estimating the separate contributions of each of a set of dummy variables, resulting from the arbitrariness of choosing a reference group. A similar problem also presents itself in estimating the contribution of continuous variables, but since the education variable has a natural zero-point this should not present a real problem in estimating the

It is possible that after 1994 and the end of legislated labour market protection of White workers, pure discrimination against Black workers had decreased. Although this result suggests a more competitive labour market where outcomes are increasingly based on productive characteristics, this is of little consolation to the average Black worker who is now at a disadvantage due to the lower quality of education he received. The result holds important implications for policies aimed at narrowing the racial wage gap, since the source now appears to be that the average Black worker would have attended a school of an inferior quality to that attended by the average White worker. Any policy aimed at addressing the wage gap by focusing only on the labour market while neglecting to correct the inequalities in the educational system will necessarily fail to provide a sustainable solution to this problem.

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contribution of this variable.

5.2 The Brown-Moon-Zoloth decomposition

The Brown-Moon-Zoloth decomposition allows us to endogenise the occupational selection and to thereby further distinguish between inter-occupational and intra-occupational "discrimination". Domestic workers were omitted, and since there were few White skilled agricultural and fishery workers left after the agricultural sector was omitted, this group was combined with **service workers and shop and market sales workers, who had a similar average wage rate**. In the end, eight occupation categories were used in the decomposition. Figure 14 shows the result for this decomposition of the White-Black wage gap for the ten years under consideration. Intra-occupational productivity differences comprise the largest share of the wage gap for each year, followed by the unexplained intra-occupational component, inter-occupational productivity differences and the unexplained inter-occupational component. The largest part of the wage gap is thus due to differences in wages within rather than between occupation categories. This result is likely to depend crucially on the relatively few categories used for the decomposition. It is interesting to note that the explained: unexplained shares ratio is higher between occupations than within occupations for each of the ten years considered. It is possible that the focus of affirmative action policies on the top end of the skills ladder has made employers more careful of using race (directly or as a proxy for unobservable skills) as the basis for hiring into highly skilled positions, but that it remains an important determinant when deciding actual responsibilities and wages within these occupational categories.

Figure 14: Brown-Moon-Zoloth Decomposition of average White-Black Wage Gap
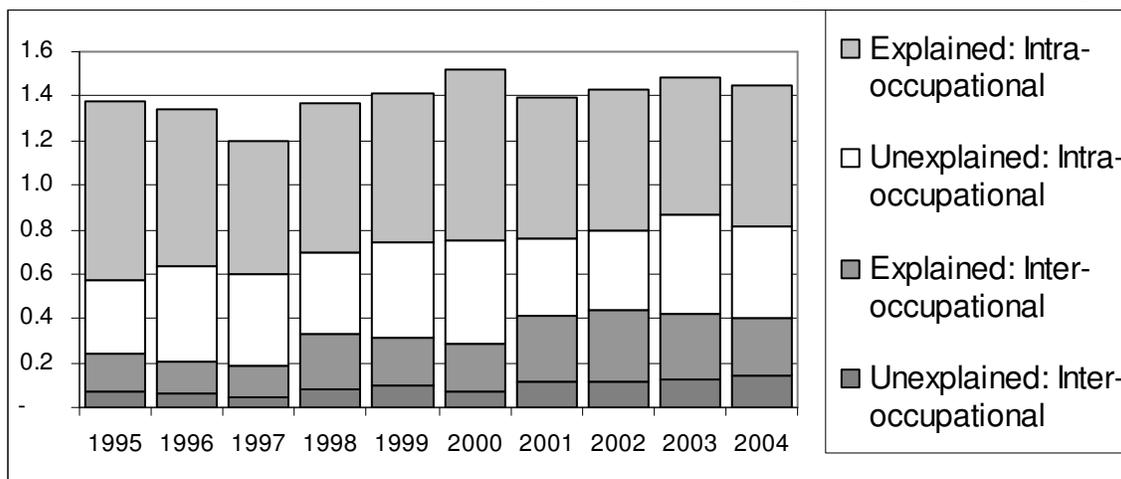
Source: Own calculations from October Household and Labour Force Surveys.

5.3 The Juhn-Murphy-Pierce decomposition

The Oaxaca-Blinder decomposition compares the average White worker with the average Black worker. If affirmative action has only impacted at the top end of the wage distribution, while not benefiting the average Black worker, then this could explain why we are unable to find any impact of these policies on the trend of the unexplained component of wages over time. The Juhn-Murphy-Pierce decomposition allows us to decompose the racial wage gap at different points of the wage distribution, and also to account for the effect of unobservable characteristics in the wage gap. Figures A6 to A11 shows these decompositions at the 10th, 25th, 50th, 75th, 90th and 95th percentiles.

The median decomposition shows total wage gaps that are very similar to that observed at the mean of the distribution. It is possible that the small downward trend in the racial gap at the 10th percentile after 2001 reflects an actual closing of the skills gap (since we also observed a decrease in the share of Black workers with incomplete primary education), although the trend is small and short enough to maybe just capture the effect of random sampling error. We also see a slight narrowing of the raw wage gap after 2000 at the 75th, 90th and 95th percentiles, although it is only at the 95th percentile where this is the result of a steady downward trend in the unexplained component. The decrease in the unexplained component seems to have started in 1999, which is the year after the passing of the Employment Equity Act, but may merely reflect Stats SA's timing in settling on a consistent surveying methodology (see footnore 1). The total wage gap has not been falling at the same rate as the unexplained component, due to the increasing importance of unobservable characteristics in determining wages. There are a few hypotheses that are consistent with this observation. It could be that discriminating employers are choosing to reward White unobservable characteristics rather than their observable characteristics, or that there has been an increase in the racial gap in unobservable skills, but there is little reason to believe that either of these had occurred. Another potential explanation is that there is a rising premium on unobservable skills at the top of the wage distribution, so that the existing unobservable skills gap between Whites and Blacks (itself the product of a legacy of discrimination) is playing an increasingly important role in determining wages. The widening of both the Black and White wage distributions between 1995 and 2004 (as mentioned in section 2), and the general tendency for our regressions on labour market outcomes to have a lower (pseudo) R^2 in 2004 than in 1995 is consistent with such a hypothesis.

If it is true that affirmative action has only benefited the highest earning 5% of Black wage earners, then it is difficult to support this policy on the grounds of greater income equality or as a means of helping the average Black worker in the labour market, although it may still have positive feedback effects into human capital investment through "role model" effects. Assuming that affirmative action has a redistributive effect on wages, without changing total wage earnings, and that the increase in

the wages of the Black workers who benefit are of the same magnitude as the wage decreases of the White workers it penalises, then an increase in the wage earnings of 5 percent of Black, Coloured and Indian workers corresponds to a decrease in the wages of around 17 percent of White workers.

6. Conclusion

This study started by highlighting some of the most important characteristics and trends in the South African labour market after 1994, and then looked at recently enacted affirmative action policies. Oaxaca-Blinder decompositions were used to evaluate the evolution of discrimination at three stages of the employment process: employment, occupational attainment and wages. Somewhat surprisingly, the unexplained component of the average race gaps did not show a strong downward trend for any of these outcomes for any of the three previously disadvantaged population groups. Affirmative action policies have therefore not been successful in its aim to "redress the disadvantages in employment experienced by designated groups [or] to ensure their equitable representation in all occupational categories and levels in the workforce". The fact that skills appear to be more important in determining wages between occupations than within occupations, and are more important in moving from a semi-skilled to a highly skilled than moving from a unskilled to a semi-skilled occupation, suggests that affirmative action may be influencing labour market outcomes by focusing attention on representation at the top end of the occupational ladder. The detailed Oaxaca Blinder decomposition also suggests that the effect of "pure discrimination" has been substituted by differential returns to education, probably driven by the increasing importance of existing quality of education differences between population groups. This has had no effect on the average Black worker, who now faces a disadvantage of the same magnitude, but for a different reason. It does seem to suggest that the most efficient way of narrowing the wage gap in the long-run is to improve the quality of education offered at "historically Black" schools.

The Juhn-Murphy-Pierce decomposition shows that although the average Black worker is no better off today vis-à-vis the average White worker than in 1995, this is not true at the top of the wage distribution. These workers have seen a narrowing of the wage gap, despite an increased premium on unobservable skills that has favoured Whites. This result suggests that affirmative action has had an effect on the labour market since 1995, but that the impact has been restricted to a relatively small group of workers.

Race continues to earn returns in the South African labour market. Increased average educational attainment for Blacks in skilled occupations suggest that affirmative action is not steering the economy towards a "patronising equilibrium", but the labour market's tendency to evaluate

educational attainment differently for the different population groups could hamper black skill acquisition in the future. Any recommendation for policy-makers should include a focus on attempting to increase Black returns to education if they want to avoid a widening of the productivity gap.

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Appendix

Table A1: Oaxaca decomposition of wages offered, using Heckman procedure

		White-Black	White-Coloured	White-Indian
1995	Race gap	1.04	0.96	0.55
	Productivity %	54%	84%	81%
1997	Race gap	0.75	-0.24	-0.57
	Productivity %	57%	-232%	-59%
2000	Race gap	1.44	0.83	0.68
	Productivity %	48%	71%	68%
2002	Race gap	1.63	0.54	0.71
	Productivity %	39%	94%	55%
2003	Race gap	1.78	1.11	0.67
	Productivity %	31%	57%	58%

Figure A1: Decomposition of average White-Black Differential in Occupational Attainment
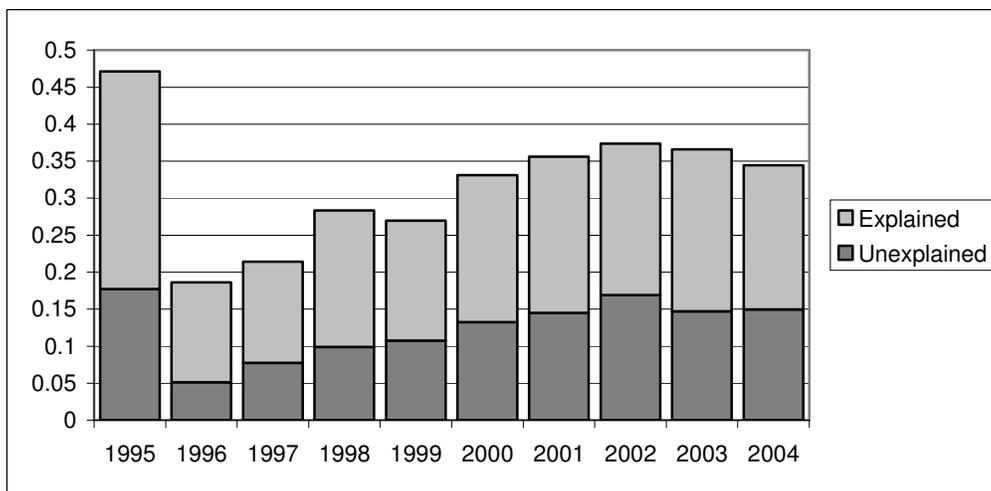
Source: Own calculations from October Household and Labour Force Surveys.

Figure A2: Decomposition of average White-Coloured Differential in Occupational Attainment
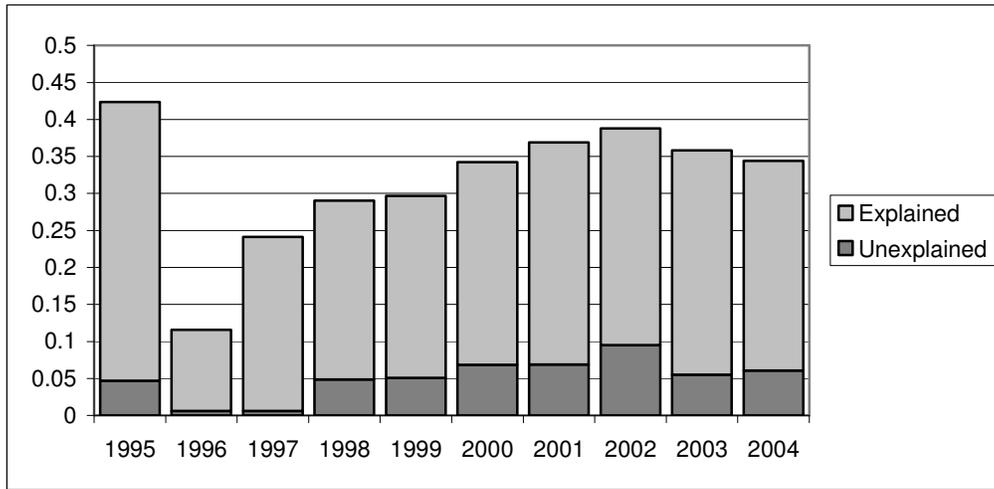
Source: Own calculations from October Household and Labour Force Surveys.

Figure A3: Decomposition of average White-Indian Differential in Occupational Attainment
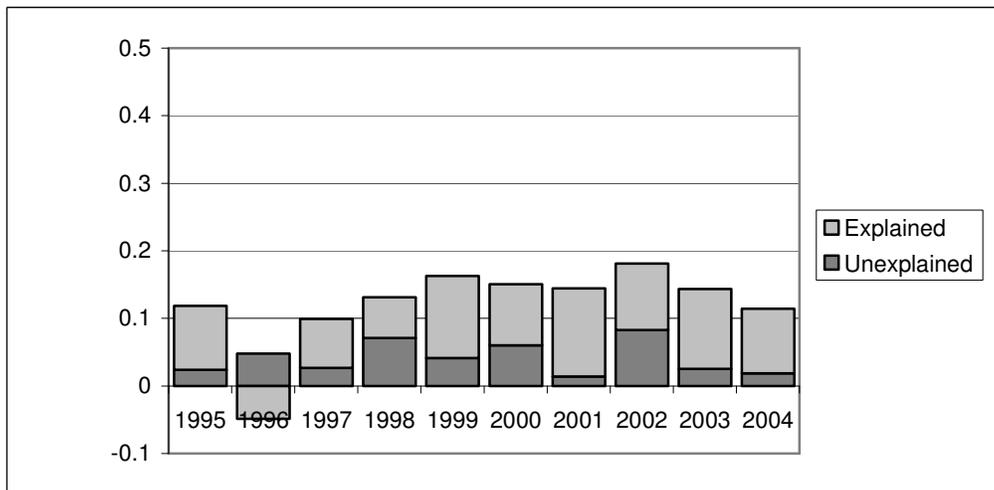

Source: Own calculations from October Household and Labour Force Surveys.

**Figure A4: Detailed Decomposition of Average White-Black Wage Gap, 1995**
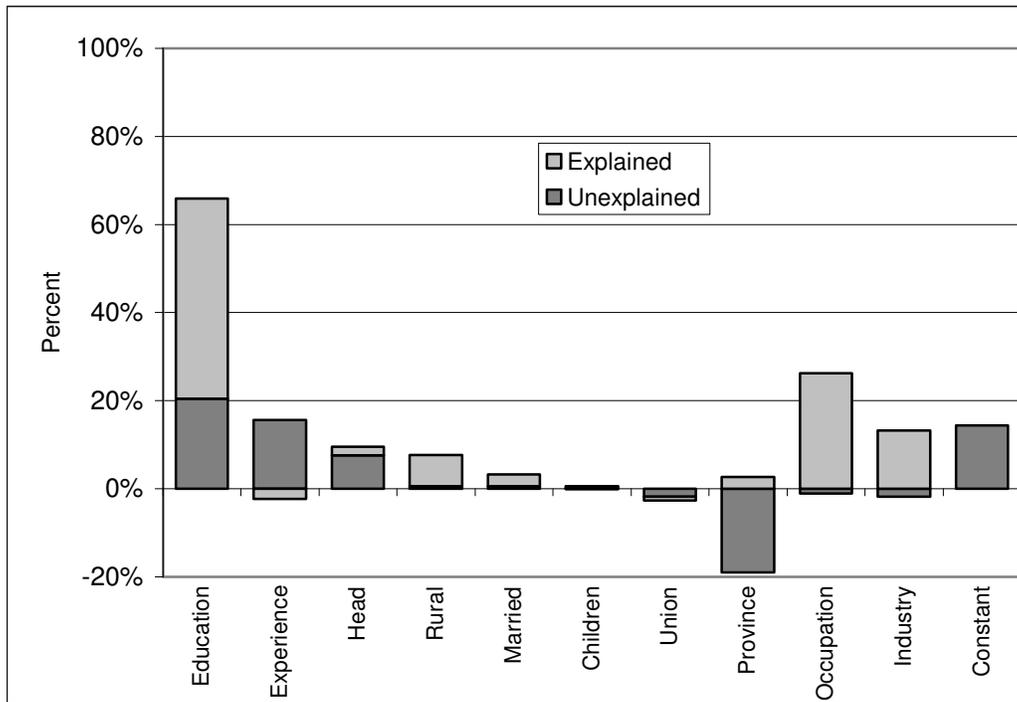
Source: Own calculations from 1995 October Household Survey

Figure A5: Detailed Decomposition of Average White-Black Wage Gap, 2004
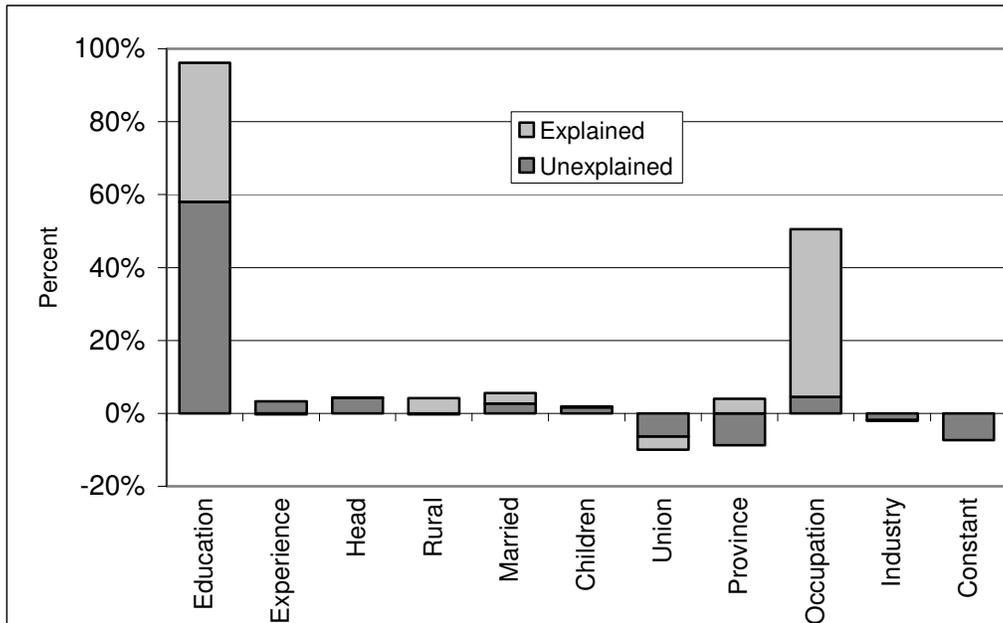
Source: Own calculations from 2004 Labour Force Surveys.

Figure A6: Decomposition of White-Black Wage Differential at 10th Percentile
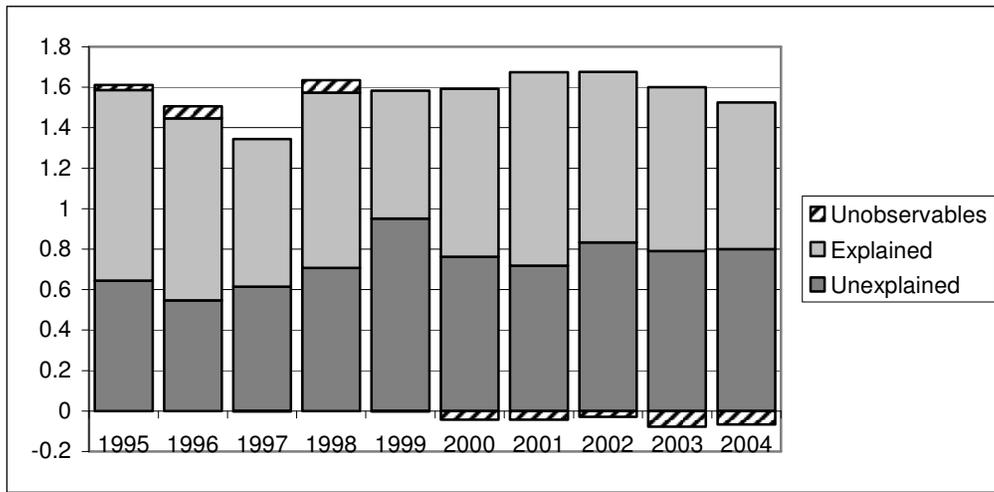

Source: Own calculations from October Household and Labour Force Surveys.

Figure A7: Decomposition of White-Black Wage Differential at 25th Percentile
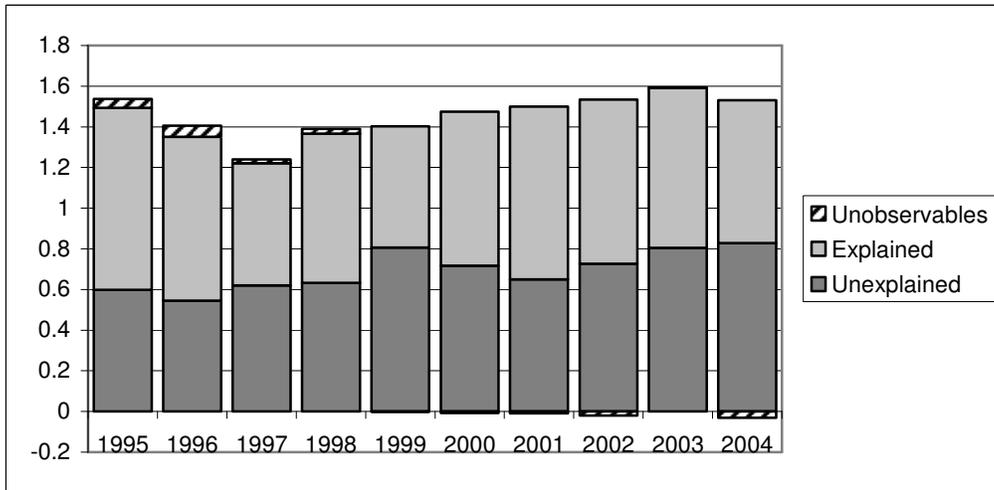
Source: Own calculations from October Household and Labour Force Surveys.

Figure A8: Decomposition of White-Black Wage Differential at Median
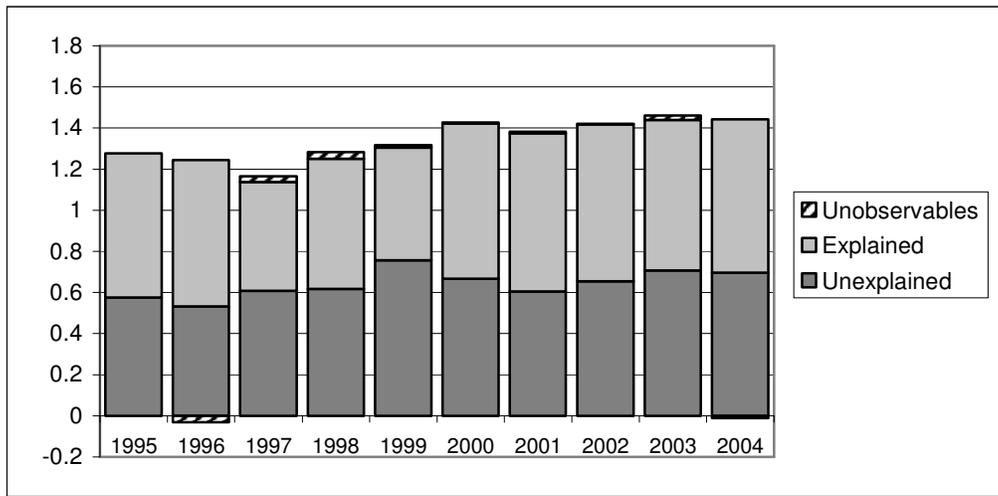
Source: Own calculations from October Household and Labour Force Surveys.

**Figure A9: Decomposition of White-Black Wage Differential at 75th Percentile**
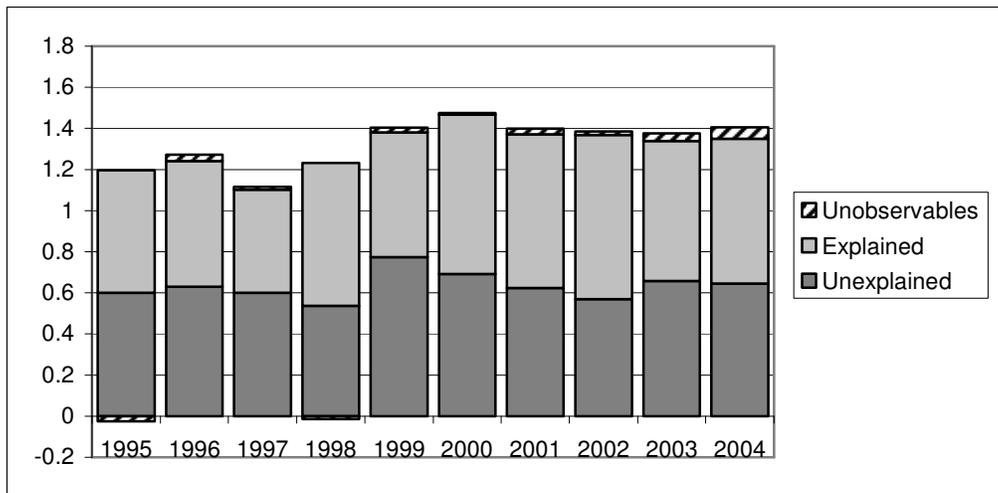
Source: Own calculations from October Household and Labour Force Surveys.

Figure A10: Decomposition of White-Black Wage Differential at 90th Percentile
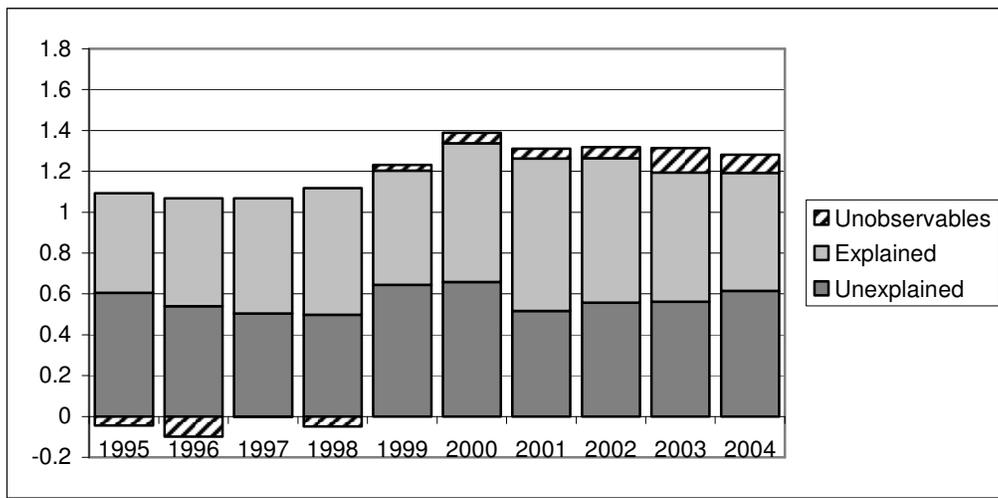
Figure A11: Decomposition of White-Black Wage Differential at 95th Percentile