THE GENDER WAGE GAP IN THE POST-APARTHEID SOUTH AFRICAN LABOUR MARKET

HAROON BHORAT
SUMAYYA GOGA

DPRU WORKING PAPER 12/148
JULY 2012

DEVELOPMENT POLICY
RESEARCH UNIT

THE GENDER WAGE GAP IN THE POST-APARTHEID SOUTH AFRICAN LABOUR MARKET

DEVELOPMENT POLICY RESEARCH UNIT

HAROON BHORAT

Development Policy Research Unit

haroon.bhorat@uct.ac.za

SUMAYYA GOGA

Development Policy Research Unit

sumayya.goga@uct.ac.za

Working Paper 12/148

ISBN 978-1-920055-89-9

July 2012

ABSTRACT

We estimate the gender wage gap for Africans in post-apartheid South Africa over the 2001 to 2007 period. Separate male and female earnings equations yields no significant decline in the conditional wage gap, regardless of whether we correct for selection into the labour force and employment or not. Notwithstanding this, the data appear to reveal a decline in the "explained" proportion of the gap with no significant change in the "unexplained" proportion of the gap. Nevertheless, the "unexplained" proportion or discrimination accounted for 71 percent of the gap in 2007 when using the uncorrected estimates (and the male wage structure as the non-discriminatory norm) thus highlighting the presence, arguably, of substantial discrimination against African women in the post-apartheid South African labour market.

We note though that the assumption that the "unexplained" component accounts for discrimination has been criticized for a number of reasons, including the fact that women may self-select into certain types of jobs, the impact of gender-based pre-labour market factors as well as omitted variable bias. Finally, we find that using the either the male or pooled wage structure as the non-discriminatory wage structure provides similar results when undertaking the decomposition. In turn, using the female wage structure results in the harshest results as far as gender discrimination is concerned.

JEL Codes: J16, J31

Keywords: Gender; Wage Gap; Discrimination; South Africa; Earnings

Acknowledgements

The authors would like to thank Dorrit Posel for comments on earlier versions of this study.

CONTENTS

1. INTRODUCTION

The status of women and their treatment in the workplace is a key area of enquiry, both in the cross-country and within country literature. In South Africa, apartheid policies resulted in non-White men and women being subjected to legalized discrimination, though different races suffered to differing degrees. The advent of democracy in South Africa in 1994 however resulted in a variety of programmes and policies to aid the integration of previously disadvantaged groups into the labour market. For example, the Employment Equity Act (No. 55 of 1998) seeks to promote and ensure equal opportunities in the workplace for all employees. The two main objectives of the Act are to promote equal opportunity and fair treatment in employment through the elimination of unfair discrimination, and to implement affirmative action measures to redress the disadvantages in employment experienced by designated groups in order to ensure their equitable representation in all occupational categories and levels in the workforce. In particular, the affirmative action measures are applicable to Black people (including Africans, Coloured and Indians), women and the disabled.

Women throughout the world earn less than their male counterparts on average, and this is a consistently observed phenomenon. The large body of international literature on the gender pay gap shows that it is prevalent in most countries in the world, even though it is predominantly on the decline (Polachek and Xiang, 2006). However, the international literature shows large variations in the gender pay gap between countries, with European countries such as Belgium, the Czech Republic, Hungary, Italy, Poland and Sweden together with Australia exhibiting a gender pay gap of around 20 percent over 1970 to 2000 based on OECD data. Other developed countries such as Austria, Canada, South Korea and Japan show gender pay gaps as large as 40 to 50 percent. In turn, the gender pay gap has reduced significantly over time in advanced countries such as France, the United States and the United Kingdom, while in other countries such as Belgium, Luxembourg, Spain, Sweden and Switzerland, the gap has remained relatively unchanged (Polachek and Xiang, 2006).

Earnings gap and earnings discrimination studies in post-apartheid South Africa have focused predominantly on the race dimension (see for instance Mwabu and Schultz, 1996; Allanson et al, 2001; Erichsen and Wakeford, 2001; Rospabé, 2002; Chamberlain and Van der Berg, 2002; Burger and Jafta, 2006), with fewer studies having taken the gender dimension into account (see for example Isemonger and Roberts, 1999; Rospabé, 2001; Hinks, 2002; Gruen, 2004; Ntuli, 2007; Casale and Posel, 2010). While this is unsurprising given South Africa's history of apartheid, studies examining gender earnings differentials are beginning to take on increased importance, due, in part, to the feminization of the labour force in post-apartheid South Africa (Casale and Posel, 2002), as well as the focus of employment equity legislation on the representation and treatment of, among others, women in the labour market.

Most gender earnings gap studies in South Africa have typically calculated the gap only at the mean of the distribution (see for instance Hinks, 2002; Rospabé, 2001; Gruen, 2004). Only Ntuli (2007) who looked at gender earnings gaps for Africans in formal employment in South Africa, considered the gap and discrimination across the distribution through the use of quantile regressions for the 1995 to 2004 period.[1,2] Ntuli (2007) found that counterfactual earnings gaps generally declined as one proceeded from the bottom to the upper tails of the earnings distribution in the years under consideration, but did not yield a declining tendency over the 1995 to 2004 period, though a slight decline was evident at the 10th, 25th and 90th percentiles. Ntuli (2007) thus concluded that if discrimination is the main factor that drives these pay gaps, then female workers in the upper quantiles became more disadvantaged with time.

Hinks (2002), Rospabé (2001) and Gruen (2004) all used October Household Survey (OHS) data to shed light on the post-apartheid gender wage gap, though both Hinks's (2002) and Rospabé's (2001) studies are single year studies, while Gruen's work considers the 1995 to 1999 period. Hinks (2002) found a relatively small gap between male and female earnings for the African and Coloured populations, while gender earnings differentials were largest for Indians and Whites. He explained the

[1] Nationally representative labour market data was collected using the October Household Survey (OHS) between 1995 and 1999. This survey was replaced by the Labour Force Survey (LFS) in 2000. The LFS was conducted bi-annually between 2000 and 2007.

[2] Ntuli (2007) included domestic workers in her sample. It is difficult to ascertain how Ntuli generated a sample of earnings for the formally employed using the OHS, since it is not possible from the information provided in the survey to identify formality of earnings employment.

result for the African and Coloured cohorts by the fact that earnings themselves were so low for these two groups, that it therefore followed that consequent gender differentials and discrimination would also be quite low. In turn, using the 1999 OHS, Rospabé (2001) found that large earnings inequalities prevailed between men and women, especially among African and White workers, and that much of the gap, particularly for the White population group, was attributable to earnings discrimination.

The difference in findings between the two studies, particularly regarding the African cohort, may be a result of the surveys used in the analyses: That is, the 1995 OHS used by Hinks (2002) may not be a representative sample, particularly of Africans. More specifically, Hinks (2002) suspects that African domestic workers were considerably undersampled in the 1995 OHS, and Muller (2009) corroborates this suggestion. Alternatively gender discrimination among Africans may have increased in the period between 1995 and 1999, but this seems unlikely in light of equity legislation in the post-apartheid period. Finally, Gruen (2004) found that gender based discrimination for both African and White workers was large and growing between 1995 and 1999, though Gruen's (2004) analysis of changes in the gender wage gap from 1995 to 1999, like Hinks (2002), may also be compromised by the use of 1995 as the base year.

Casale and Posel (2010) considered the gender wage gap in the context of union membership in South Africa using LFS data from 2003. More specifically, they investigated whether the gender wage gap is, as expected, lower among union members compared to non-union members, and found that when controlling for a variety of factors, a higher gender wage premium is evident for males in the union than non-union sector. This is explained by the fact that women with similar characteristics to men in union jobs are not rewarded as well as their counterparts, and this, in turn, may be explained by the types of high-skilled jobs that women in union employment are crowded into, as well as the wage-bargaining power of unions with regard to these occupations.

South African studies on the gender pay gap have thus typically been single year studies (Hinks, 2002; Rospabé, 2001), with the exceptions of Ntuli (2007) and Gruen's (2004) studies. Furthermore, none of the recent studies for South Africa have considered the gender pay gap over time using only the Labour Force Surveys (LFSs).[3] Given the comparability issues between the OHS and the LFS[4], we argue that the use of the LFSs only is pertinent to understanding the gender pay gap in post-apartheid South Africa. The analysis in this paper therefore uses post-2000 LFS data to consider both the magnitude of the gender pay gap as well as its evolution between 2001 and 2007. Use of this data allows us to control for survey design in measuring changes over time, since the instruments have been largely unchanged since the introduction of the survey.[5]

2. CHANGES IN THE GENDER EARNINGS GAP: A DESCRIPTIVE ANALYSIS

2.1 Data

The empirical analysis in this study is based on nationally representative household surveys conducted by the central statistical agency in South Africa, Statistics South Africa. Specifically, we used the September rounds of the 2001, 2005 and 2007 LFSs. In the 2001 LFS about 27,000 households and 106,000 individuals were interviewed, while in the 2005 and 2007 LFSs around 28,000 households (109,000 and 106,000 individuals respectively) were interviewed. All employed Africans between the ages of 15 and 65 were included in the sample used to analyse the gender

[3] More recently, unpublished papers by Muller (2009) and Shepherd (2008) estimate discrimination using both OHS and LFS data. Using data from 1995 to 2006, Muller (2009) finds a gender wage gap for both part-time and full-time workers and furthermore finds a decrease in the differential, particularly for part-time workers, over time. In turn, Shepherd (2008) finds that African women's earnings were higher than their male counterparts following changes in labour legislation, and this is explained, through the use of the Oaxaca (1973) decomposition, by both greater endowments of productive characteristics as well as declining discrimination which stabilized after 2000.

[4] Specifically, questions relating to the individual's employment status changed in the cross-over from the OHS to the LFS. Thus, the LFSs provide a far more detailed explanation of what constitutes work, and therefore capture irregular and informal work activities more comprehensively than the OHSs (Casale, Muller and Posel, 2004). In addition, changes within the OHS series itself make the OHS data between years complicated to compare (Casale, Muller and Posel, 2004). Burger and Yu (2006) for instance, in an analysis of wage trends in post-*apartheid* South Africa, acknowledge that "it is widely accepted that that the OHS and LFS datasets cannot easily be compared, [but] these difficulties are often overlooked in the service of constructing a longer time series" (Burger and Yu, 2006: 2).

[5] We note that we have opted to use the 2001 LFS rather than the 2000 LFS in light of the fact that the 2000 data seems to be an outlier in the series: Burger and Yu (2006) found that average earnings were dramatically higher in the September 2000 LFS than in the surveys directly preceding and following it (Burger and Yu, 2006).

wage gap, and students were excluded. All three years of LFS data were weighted using population weights based on the 2001 Census.

The earnings data in the LFSs include a combination of both point and bracket responses. Casale and Posel (2005) showed that different methods of combining the point and bracket responses produce consistent summary measures. Given this finding, we chose to use the 'midpoint method' due to its simplicity; the method entails assigning a point value equal to the midpoint of the corresponding earnings bracket for those that responded in brackets.[6,7]

Earnings have been analysed in the South African labour market in both monthly and hourly terms.[8] However, closer examination of hours worked by the employed reveals significant variations by gender. On average, males worked longer hours than females in 2001, and this is true for both the 2005 and 2007 years as well. An analysis of earnings inequality needs to recognise these gender differences in hours worked. In our study, we therefore generate an hourly earnings rate to explore the gender gap in earnings.

2.2 Descriptive Statistics

We descriptively analyse the evolution of the gender wage gap between 2001 and 2007 using mean earnings in Table 1 below. The overall gender disaggregation of earnings over the 2001 to 2007 period shows two important results: Firstly, in both 2001 and 2005 males earned significantly more than females, with the average earnings of females in 2001 and 2005 standing at 76 and 79 percent of average earnings for the male cohort. Secondly, the data shows that the gap, as measured by the ratio of female to male earnings ("Female / Male Ratio"), narrowed between 2001 and 2007 with the result that by 2007 the average earnings of males and females did not differ significantly from each other.

Table 1: Gender Wage Gaps (Real Mean Hourly Earnings): 2001, 2005 and 2007

	2001	2005	2007	% change (2001-2007)	
	Female / Male Ratio			Male	Female
TOTAL	0.76†	0.79†	0.83	25.5%*	36.6%*
By Race					
African	0.79†	0.86†	0.82†	32.4%*	37.1%*
Coloured	0.80†	0.84	0.94	31.1%*	55.6%*
Asian	0.79†	0.68	0.57	116.9%	57.3%*
White	0.72†	0.69†	0.83	31.7%	52.1%

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. * indicates change at the 5% level of significance.
2. † indicates that average male and female hourly earnings are significantly different from each other in the year in question at the 5% level of significance.
3. All earnings data have been deflated to 2000 real earnings in order to aid comparability between the years.
4. The data are weighted.

Average hourly wage disaggregation by race and gender (not shown here) yields segmentation by race in the earnings market: For both the male and female cohorts, the average earnings of Africans were significantly lower than for Coloureds. In turn, White and then Asian workers earned significantly

[6] Casale and Posel (2005) find that although the method is crude, there is no evidence to suggest that the midpoint method generates biased earnings estimates, or at least estimates that are more biased than other methods.

[7] The earnings of those who responded with a point estimate but who failed to specify an income period where required were set to missing. Earnings were also set to missing for those who refused to answer the income question or did not know their income. Those who reported zero earnings were kept in the sample. Furthermore, those reporting zero earnings were treated consistently in the descriptive and regression analyses, and where earnings were logged, those with earnings from zero to R1 were converted to R1 in order to maintain their earnings information.

[8] There are two hours worked questions in the LFSs, that is the hours *usually* worked in the main job and in other activities, and the hours worked *in the past 7 days* in the main job and in other activities. We used the hours *usually* worked in the main job. Where respondents reported zero hours usually worked in their main job, we used hours worked in the past 7 days in the main job. Where respondents reported working more than 84 hours a week, that is more than 12 hours a day for seven days of the week, we set their hours worked to missing. The 12-hour a day cut-off resulted in 208 of 16,983 (1.22%), 353 of 16,620 (2.12%) and 299 of 16,549 (1.81%) observations being dropped from the 2007, 2005 and 2001 samples respectively.

more than African and Coloured workers in all of the years under consideration. Given this segmentation, we show the female / male wage ratio by race in the table above.

We find a significant gender wage gap in the data for 2001 across all race groups, but particularly for the White cohort. In turn, over the 2001 to 2007 period the table provides evidence of a narrowing of the gender pay gap for the African, Coloured and White employed. As far as Africans and Coloureds are concerned, the results are unsurprising given that African and Coloured women's earnings were increasing at a faster rate than their male counterparts over the period. As a result, by 2007 the female to male ratio of average earnings for Africans had increased from 79 to 82 percent, while the difference between Coloured male and female earnings became insignificant. It must be noted though that although both African and Coloured women made significant gains in the period in terms of the gender wage gap, African women continued to display mean earnings below that of their male counterparts in 2007.

Given the segmentation of the wage labour market in terms of race, the remainder of this paper focuses solely on the African cohort. Africans constituted the largest proportion of the labour force in South Africa (77 percent in 2007), but were underrepresented in employment (70 percent in 2007). In Table 2 below, we consider the average characteristics of African male and female workers in 2001, 2005 and 2007. An asterisk signifies a significant difference between the mean estimates for males and females for that year.

Considering personal characteristics first, the table shows that in each of the years, on average, African females in the sample were significantly older than African males, though not by much, while the average education levels of African men and women in the sample were similar, at around Grade 9. African men in the sample were significantly more likely to be married than African women with, for instance, 42 percent of African women married in 2007 while the corresponding number for African men stood at around 55 percent. Men in the sample were also more likely to be the head of their households: 75 percent of African men in the sample were the head of their households in 2007, while only 46 percent of African women in the sample held the same position.

Table 2: Average Characteristics of Africans by Gender: 2001, 2005 & 2007

	2001				2005				2007			
	Female		Male		Female		Male		Female		Male	
	Mean	*S Er*	Mean	*S Er*	Mean	*S Er*	Mean	*S Er*	Mean	*S Er*	Mean	*S Er*
Personal Characteristics												
Age	38.40*	*0.18*	37.53*	*0.18*	38.37*	*0.19*	36.93*	*0.21*	38.18*	*0.27*	36.60*	*0.21*
Years of Edu	8.06	*0.09*	7.85	*0.08*	8.79	*0.08*	8.64	*0.08*	9.21	*0.10*	8.94	*0.09*
Married	0.45*	*0.01*	0.62*	*0.01*	0.44*	*0.01*	0.58*	*0.01*	0.42*	*0.01*	0.55*	*0.01*
Head of HH	0.45*	*0.01*	0.79*	*0.01*	0.47*	*0.01*	0.78*	*0.01*	0.46*	*0.01*	0.75*	*0.01*
Work Characteristics												
Hourly wage	7.43*	*0.25*	9.35*	*0.21*	8.97*	*0.40*	10.44*	*0.34*	10.18*	*0.36*	12.38*	*0.44*
Month hours	188.43*	*1.25*	208.17*	*0.90*	193.54*	*1.33*	213.53*	*1.20*	180.83*	*1.28*	199.73*	*1.06*
Experience	24.29	*0.23*	23.63	*0.22*	23.55*	*0.24*	22.27*	*0.24*	22.93*	*0.33*	21.63*	*0.24*
Public sector	0.17*	*0.01*	0.14*	*0.01*	0.16*	*0.01*	0.12*	*0.01*	0.17*	*0.01*	0.12*	*0.01*
Formal sector	0.47*	*0.01*	0.72*	*0.01*	0.48*	*0.01*	0.72*	*0.01*	0.56*	*0.01*	0.75*	*0.01*

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. * signifies a significant difference between the mean estimates for males and females for that year.
2. All earnings data have been deflated to 2000 real earnings in order to aid comparability between the years.
3. The data are weighted.
4. The sample includes all Africans between 15 and 65 who are employed have non-missing wage and hours of work data.
5. Standard errors are shown in italics next to mean estimates.

In terms of work characteristics, it is clear that African women worked significantly shorter weeks than their male counterparts: For instance, African men worked around 50-hour work weeks in 2007 while women worked around 45-hour work weeks. This result is unsurprising given that women generally bear the majority of the burden of household chores. The significant difference in hours worked per month between African men and women in 2001, 2005 and 2007 justifies the use of an hourly wage

variable in our multivariate analysis below. Though the experience variable in the table above shows that women were significantly more experienced than men in 2005 and 2007, this variable must be treated with caution. Experience is proxied in this paper using age minus years of education minus childhood, and is thus an indicator of age. The findings on the estimates of the experience variable are in line with the fact that African women in the sample are significantly older than their male counterparts.

The vulnerability of African women in the labour market is partly captured by the formal sector variable. Hence, the data show that while around 47 percent of African females in 2001 were employed in the formal sector, 73 percent of African males worked in the formal sector. By 2007 though, the proportion of African women employed in formal sector jobs rose to around 56 percent while the proportion of African males in formal sector jobs stayed at a similar level. Finally, the data in the table above illustrates that women in the sample were more likely than men to work in the public sector and that this trend intensified over the period. Ultimately, given the fact that the mean productive characteristics of African male and female workers differ significantly over a range of personal and work-related characteristics, the data above justifies estimating separate male and female earnings equations in the multivariate analysis below.

3. THE GENDER WAGE GAP AND DISCRIMINATION

In this section, we investigate the gender earnings gap more comprehensively by controlling for productivity-related characteristics of men and women. Our paper thus does not use a gender-pooled model with a dummy variable for sex in order to estimate the gender wage gap since the underlying assumption with this approach is that female and male earnings differ by a fixed amount (the shift parameter), and that human capital characteristics and other characteristics have the same impact on the earnings of men and women (Beblo et al, 2003).

We thus test for the presence of a gender wage gap by estimating separate earnings equations for each of the genders for each year prior to using the Oaxaca-Blinder decomposition to decompose the gender wage gap into “explained” and “unexplained” components. Separation of the male and female earnings equations is justified on the basis that we reject the null hypothesis that the coefficients from the male and female equations are the same using a Chow Test.[9]

3.1 Specifying the Model

In the paper, we first estimate separate earnings equations for males and females:

$$ln\, Y_m = X_m b_m$$

where Y_m and Y_f are the earnings of males and females respectively, b_m and b_f are vectors of regressors for male and female earnings functions and and are vectors of parameters for male and female earnings functions. The difference between male and female earnings, or the earnings gap, can then be defined as:

$$ln\, Y_m - ln\, Y_f = X_m b_m - X_f b_f$$

If the two b vectors differ, then the same characteristics of the two groups are rewarded differently.

With some rearranging, it can be shown that the gender wage gap can be decomposed as follows:

$$ln\, Y_m - ln\, Y_f = (X_m - X_f) b_m + X_f (b_m - b_f)$$

The earnings gap now consists of two parts: i) the explained portion, or the actual differences in endowment levels between the two groups (the first term) and ii) the unexplained portion, or the differences in the market evaluation of the same endowments (second term). The first term represents how much of the wage gap arises because men and women differ on average in their

[9] Other studies like De la Rica et al (2008) first used the dummy variable method to estimate the gender earnings differential before separating male and female equations. They call their results from the dummy variable method ‘tentative’ since they reject the null hypothesis of equal coefficients on the covariates for both genders.

wage determining characteristics. In turn, the second term is often taken to be a measure of discrimination.

The decomposition above assumes that the male wage structure is the norm, namely that male earnings will prevail in the absence of discrimination. The decomposition can however be undertaken relative to male or female earnings, depending on which earnings level one thinks will prevail in the absence of discrimination. Using the estimated male coefficients as the standard implies that men on average are compensated properly but women on the other hand are undercompensated, and vice versa. In practice, the estimated male wage structure is commonly adopted as the non-discriminatory norm since male workers are usually the dominant group (Oaxaca, 2007).

Accounting for Selection

Biases in the estimation of earnings can arise from several sources. Potential sources of bias include measurement error as well as omitted variable bias. Specific to the South African situation is its unique problem of sample selection bias. South Africa has a very high unemployment rate and thus the decision to participate in the labour market does not guarantee that one will find employment. Estimating an earnings equation simply on the sub-sample of earners could thus bias estimates as the sub-sample may not be a representative sample.

Therefore, we model earnings in three sequential phases: firstly, the decision to participate in the labour market[10]; secondly, the probability of finding employment; and thirdly, the earnings of the employed (Bhorat and Leibbrandt, 2001: 107-129). The earnings function is therefore modelled on the characteristics of earners conditional on the fact that these earners are a subsample of all the employed which is in turn a subsample of potential participants. Though we present both corrected and uncorrected estimates in section 3.2 below, we prefer the uncorrected estimates given the difficulty with identifying appropriate exclusion restrictions as well as other criticisms regarding accounting for sample selection (see Muller (2009), for instance).

When decomposing gender earnings gaps, it is not obvious how the selection term should be treated in the overall decomposition. Specifically, it is not clear whether it should be attributed to differences in endowments or included in the remuneration effect. The literature consists of several variations, but there is no clear consensus on the appropriate procedure to be used, and it appears to be dependent on the specific empirical problem at hand (Beblo, 2003). According to Jann (2008), the most straightforward way to deal with the selection term in the decomposition is to deduct the selection effects from the overall differential and then apply the standard decomposition formulas to the adjusted differential. This is the approach taken in this study.

Explanatory Variables and the Gender Earnings Gap: Some Concerns

Below we highlight challenges as far as the impact of specific regressors on the gender wage gap is concerned. In the literature, experience is commonly proxied by taking a person's age, less their years of schooling plus six (to account for early childhood). This proxy has been criticised on the grounds that people do not work continuously after having completed school, and this is particularly true in South Africa (Woolard, 2002). A further issue with this proxy relates to the fact that women often have more interrupted work histories than their male counterparts due, for example, to family responsibilities (see for instance, Kunze, 2008). Thus, if work experience itself is gendered, then the implication is that a measured gender earnings gap with such a proxy may be overestimated (or biased upwards). In the absence of data on actual experience though, we use this proxy in our paper.

Although occupation groups are commonly controlled for in the gender earnings gap literature, a critique of including these as regressors in the earnings equation is that the occupation group in which men and women find themselves may be correlated with unobserved heterogeneity components of earnings – that is, the occupation variables may not be exogenous. It is in fact observed that men and women move into different fields, in other words there is a degree of self-selection into occupations groups (Kunze, 2008). The theory of compensating differentials, for instance, argues that women may choose occupations or jobs that fit in with their lifestyles, more specifically, as far as family responsibilities and child care is concerned. Women may therefore be willing to accept a lower pay for working conditions which suit them (see Filer, 1985).

[10] Labour force participants include both searching and non-searching unemployed.

Additionally, men and women may gain access to jobs associated with different earnings, and thus estimating earnings discrimination without taking discrimination at the occupation level into account may underestimate the extent of discrimination. Rospabé (2001) for instance, finds significant occupational discrimination and argues that gender disparities in occupational distribution are likely to strongly affect gender earnings differences.

Thus, when occupation groups are included in the regression, then gender differences in occupation may be considered to be voluntary, that is, discrimination is confined to gender wage gaps within occupations. Excluding occupation groups may therefore be preferred if one believes that gender differences in occupational affiliation are a result of labour market discrimination. The difficulty arises from the fact that in aggregate labour markets it is difficult to identify how much of the gender differences in occupational distribution is a reflection of discriminatory forces and how much may be attributed to preferences as far as careers are concerned (Oaxaca, 2007).

We have followed Rospabé (2001) and included 'marriage' in our earnings equations as a proxy for unobserved factors such as stability, discipline and motivation. Weichselbaumer and Winter-Ebmer (2003) indicate that the marital status of an individual can be interpreted as a productivity indicator, and may have a different impact on each of the sexes. While household responsibilities may make females less productive at work, males may benefit from their wives' reproductive work and thus earn a marriage premium through being more productive. In corroboration of a marriage premium for men, Casale and Posel (2010) conducted a study using the LFSs in South Africa, and found a significant earnings premium for married men, though the premium reduced significantly when they controlled for fixed effects using panel data.

3.2 Results

Our wage estimations below include education, experience, location, occupation groups and industry as explanatory variables. Furthermore, we have also included dummy variables for public/private sector employment, formal/informal sector employment[11] and self/wage employment. Table 3 (see page 10 and 11) shows the results from the wage estimations for African males and females without correcting for sample selection, while estimates that have accounted for sample selection bias are shown in Appendix 3. Uncorrected estimates would possibly be higher than they should be, since they may reflect the direct effect of the explanatory variables on earnings as well as the indirect effects of those same explanatory variables on labour force participation and employment.

For the wage estimates that account for sample selection, we first estimate a labour force participation probit. Included in the participation probit are individual characteristics including age, education levels and province. Importantly though, it is recognized in the literature that an individual's decision to participate in the labour market may be influenced by the household within which the individual resides. Thus, included in the participation equation are a range of household variables including the number of children under seven in the household, the number of children aged eight to fifteen in the household, the number of men and women of working age in the household, and the number of people over 65 years of age in the household. The results from the participation probits are shown in Appendix 1.[12]

Having considered the determinants of participation, we retain the sample of participants and estimate the probability of employment. We exclude household variables from the employment equation but include all other variables from the participation equations. Household variables are excluded since they are seen to influence the decision to seek work but not the probability of employment.

[11] The formal sector variable used in this study is a variable derived by Statistics South Africa using the same two questions in each of the LFSs. The first question enquires about the kind of work the individual is involved in in their main job, and the second question asks the respondent to self-report on whether the organization / business / enterprise where the person works is in the 'formal' sector, 'informal' sector or they 'don't know'.

[12] In terms of the household variables, the results from the participation probit (see Appendix 1) show that for women the number of other working-age women in the household impacts on the probability of a woman participating in the labour market and this is significant in all three years. As expected, the number of children under seven years of age and the number of children aged eight to fifteen in the household impacts negatively on the probability of women participating in the labour market. The probability of an African woman participating in the labour market is negatively impacted on by the number of people over 65 years of age in the household in 2001, probably due to the presence of pension income in the household, but the effect was dampened by 2005 and was not found in the 2007 results. In turn, household variables appear to have less of an impact on the probability of African men participating in the labour market.

Furthermore, the Inverse Mills Ratios from the participation equations are included in the employment probits. The results from the employment probits are shown in Appendix 2.[13]

Finally, wages are modelled for African males and females and the wage estimations include the Inverse Mills Ratios from the employment probits. As far as exclusion restrictions are concerned, we note that the participation equations contain household variables, while the employment probits contains age dummies and the Inverse Mills Ratios from the participation probits. In turn, the wage estimations contain experience variables rather than age dummies.

The results from the uncorrected and corrected wages estimations indicate that returns to observable characteristics are different for the two sexes. Linear splines, as utilized in this paper for education, are commonly used when the effect of a continuous variable on the outcome is thought not to be linear. The South African earnings literature uses a mixture of splines and 'years of education' and where splines are used, studies create the splines at different intervals (see for instance Bhorat and Leibbrandt, 2001; Chamberlain and Van der Berg, 2002; Ntuli, 2007). Splines used in this study were found to be significantly different from each other.

The education variables in the three years show similar returns between males and females, though the uncorrected estimates are higher than the corrected estimates for all three years. Interestingly, the value of a diploma and degree increased between 2001 and 2007 for both males and females, while a matric education does not seem to have had much impact on earnings over time. The implication of this is that skilled workers are becoming increasingly valued over time.

The separation of the equations highlights a more pronounced marriage premium for African men in comparison to women, and this is true for all three years of data shown, though the gap between the male and female marriage premiums is higher for the uncorrected estimates than the corrected estimates. A large and significant male marital earnings premium is consistent with findings reported in Casale and Posel (2010). In turn, an almost negligible (or insignificant marriage premium for women, as shown in the 2005 and 2007 uncorrected estimates and the 2007 corrected estimates) is consistent with other studies that show that family responsibilities associated with marriage and having children negatively affects the compensation of women, and having a home-bound husband does not improve compensation (Korenman and Neumark, 1992; Erhemjamts et al, 2010).

In all three years, experience appears to have had a marginally larger (positive) impact on African male earnings than on African female earnings. However, as mentioned above, women's work histories are likely to be more interrupted than men's, particularly in developing countries. The proxy for work experience may therefore be overestimating experience, particularly for females, and this may be an explanation for this result.

Being employed in the public sector (as opposed to the private sector) is associated with a higher return for African women than for African men, and this effect became more pronounced between 2001 and 2007. This result highlights the increasing importance of public sector employment and the higher premium being offered here to African women over time. In turn, being in the formal sector too provided a higher premium for African women than for African men in all three years, though the gap between the premium earned by men and women largely remained the same over the period. The results from the formal sector variable reinforce the continuing vulnerability of women in low-paid informal work.

[13] The results from the employment probits (see Appendix 2) show firstly, that for both females and males, the probability of finding employment is higher for older people than for those in the 15-25 year age bracket. This result highlights the youth unemployment problem in the South African economy. Secondly, positive and significant coefficients on the education variables – particularly the matric, diploma and degree variables – reinforce results from other studies which argue that labour demand patterns show a growing demand for higher-skilled labour, and stagnant or declining demand for less skilled workers (Bhorat and Hodge, 1998). Thirdly, the province of residence is important, particularly for women: The probability of finding employment is lower for women in poorer provinces. Unsurprisingly, being the head of the family has a very large and significant impact on the probability of finding employment for both women and men. Finally, the Inverse Mills Ratios from the participation probits are for most part insignificant for both men and women. This implies that sampling bias does not exist in the sample. While this result is surprising given the nature of the unemployment problem in the South African labour market, it may reflect the fact that the exclusion restrictions in the participation probits may not be strong enough.

Table 3: Estimated Gender Earnings Equations, Uncorrected for Selection: 2001, 2005 & 2007

	2001				2005				2007			
	Male		Female		Male		Female		Male		Female	
	Coefficient	*St Er*	Coefficient	*St Er*	Coefficient	*St Er*	Coefficient	*St Er*	Coefficient	*St Er*	Coefficient	*St Er*
Education												
None-Grade8	0.040 *	*0.005*	0.034 *	*0.005*	0.031 *	*0.006*	0.031 *	*0.005*	0.023 ***	*0.012*	0.034 *	*0.011*
Grade9-Grade11	0.064 *	*0.013*	0.067 *	*0.015*	0.054 *	*0.014*	0.057 *	*0.013*	0.057 *	*0.015*	0.048 *	*0.015*
Grade12	0.185 *	*0.038*	0.200 *	*0.046*	0.273 *	*0.035*	0.180 *	*0.040*	0.178 *	*0.046*	0.212 *	*0.058*
Diploma	0.377 *	*0.052*	0.407 *	*0.055*	0.384 *	*0.053*	0.438 *	*0.058*	0.502 *	*0.052*	0.528 *	*0.058*
Degree	0.187 *	*0.031*	0.192 *	*0.037*	0.295 *	*0.044*	0.273 *	*0.040*	0.233 *	*0.046*	0.189 *	*0.034*
Occupation												
Manager	0.780 *	*0.087*	0.761 *	*0.127*	0.817 *	*0.081*	0.788 *	*0.139*	0.982 *	*0.073*	0.738 *	*0.109*
Professional	0.489 *	*0.049*	0.483 *	*0.061*	0.613 *	*0.054*	0.492 *	*0.060*	0.503 *	*0.056*	0.436 *	*0.060*
Clerk	0.361 *	*0.046*	0.371 *	*0.052*	0.455 *	*0.056*	0.353 *	*0.050*	0.274 *	*0.083*	0.312 *	*0.050*
Service and Sales	0.009	*0.038*	0.051	*0.042*	0.017	*0.041*	-0.067 ***	*0.040*	0.046	*0.055*	-0.020	*0.050*
Skilled Agricultural	0.177 **	*0.072*	-0.143 **	*0.069*	-0.333 *	*0.074*	-0.380 *	*0.065*	-0.081	*0.083*	-0.482 *	*0.067*
Craft and Related	0.228 *	*0.036*	0.064	*0.058*	0.162 *	*0.036*	-0.009	*0.059*	0.202 *	*0.030*	0.100 ***	*0.053*
Operator / Assembler	0.155 *	*0.029*	0.037	*0.075*	0.208 *	*0.034*	0.106	*0.082*	0.233 *	*0.043*	0.063	*0.061*
Domestic Worker	-0.378 *	*0.062*	-0.074	*0.066*	-0.117 ***	*0.071*	0.111	*0.080*	-0.070	*0.082*	0.170 **	*0.080*
Industry												
Agriculture	-0.796 *	*0.087*	-0.551 *	*0.064*	-0.512 *	*0.045*	-0.390 *	*0.066*	-0.598 *	*0.043*	-0.269 *	*0.065*
Mining	0.194 *	*0.049*	0.264 ***	*0.159*	0.382 *	*0.052*	0.272 ***	*0.155*	0.343 *	*0.059*	0.697 *	*0.124*
Utilities	0.235 *	*0.046*	0.188	*0.194*	0.180 **	*0.090*	0.246	*0.216*	0.266 **	*0.122*	0.777 *	*0.220*
Construction	-0.148 *	*0.038*	-0.280 *	*0.089*	-0.121 **	*0.048*	-0.298 *	*0.091*	-0.142 *	*0.042*	-0.286 *	*0.078*
Trade	-0.224 *	*0.072*	-0.227 *	*0.053*	-0.249 *	*0.046*	-0.258 *	*0.061*	-0.261 *	*0.041*	-0.111 **	*0.053*
Transport	-0.024	*0.036*	0.032	*0.099*	-0.011	*0.050*	0.087	*0.123*	-0.032	*0.086*	0.100	*0.112*
Financial Services	-0.059	*0.029*	0.135 ***	*0.075*	-0.151 *	*0.050*	0.149 ***	*0.080*	-0.191 *	*0.049*	0.056	*0.065*
Community Service	-0.098 ***	*0.062*	-0.042	*0.064*	-0.204 *	*0.055*	-0.083	*0.072*	0.002	*0.064*	0.039	*0.073*
Other	-0.464 **	*0.087*	-0.040	*0.223*	0.839 **	*0.422*	-0.567 ***	*0.294*	0.128	*0.223*	-0.319	*0.213*
Public Sector	0.459 *	*0.049*	0.500 *	*0.053*	0.512 *	*0.046*	0.582 *	*0.059*	0.327 *	*0.055*	0.411 *	*0.058*
Married	0.127 *	*0.022*	0.050 **	*0.023*	0.054 **	*0.025*	0.028	*0.023*	0.096 *	*0.027*	0.013	*0.029*

Experience	0.038	*	*0.003*	0.029	*	*0.004*	0.031	*	*0.003*	0.027	*	*0.003*	0.025	*	*0.004*	0.022	*	*0.004*
Experience-squared	0.000	*	*0.000*	0.000	*	*0.000*	0.000	*	*0.000*	0.000	*	*0.000*	0.000	*	*0.000*	0.000	*	*0.000*
Formal Sector	0.424	*	*0.033*	0.529	*	*0.044*	0.446	*	*0.037*	0.545	*	*0.053*	0.428	*	*0.051*	0.534	*	*0.051*
Wage Employed	-0.018		*0.048*	-0.180	*	*0.049*	-0.016		*0.049*	-0.104	***	*0.056*	-0.098	***	*0.054*	-0.108		*0.066*
Constant	0.536	*	*0.090*	0.554	*	*0.085*	0.675	*	*0.090*	0.537	*	*0.093*	1.062	*	*0.141*	0.715	*	*0.128*
Province Controls	*Yes*			*Yes*			*Yes*			*Yes*			*Yes*			*Yes*		
No of Obs	8690			7162			8463			7471			8915			7587		
F-stat	201.0			264.5			155.8			151.5			141.1			187.3		
R-squared	0.539			0.613			0.517			0.592			0.511			0.567		

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. The data are weighted using 2001 Census weights.
2. The dependent variable is log of real hourly wages.
3. *** - significant at the ten percent level; **- significant at the five percent level; * - significant at the one percent level.
4. The sample includes all Africans between 15 and 65 who are employed and have non-missing wage and hours of work data.
5. The industry variables have been shortened and represent the following: Agriculture, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas and Water (Utilities); Construction; Wholesale and Retail Trade; Transport, Storage and Communication; Financial and Business Services; Community, Social and Personal Services.
6. The reference variables for the occupation and industry categories used in the estimation are elementary workers and manufacturing industry.

As far as wage and self-employment is concerned, the results show that African men earn a similar wage, whether they are wage- or self-employed.[14] In turn, the uncorrected estimates show that while being wage-employed rather than self-employed was associated with an earnings penalty of around 16 percent[15] for African women in 2001, the gap decreased in 2005 and by 2007 there was no significant difference between the earnings of wage- and self-employed women. Corrected estimates show similar results. These results may be a reflection of increasing opportunities for African women in the labour market between 2001 and 2007, a period during which the economy grew fairly rapidly.

The occupation disaggregation indicates differing returns to occupation by gender. The returns to being a manager rather than an elementary worker were higher for African males than African females in all three years for both sets of estimates and this trend was reinforced over time. The same is true for professionals. These results may provide tentative evidence of "glass ceiling" effects in the South African labour market. Service workers and elementary workers earned a similar amount in all three years (at the 5 percent level of significance) for both the African male and female subgroups. In turn, while African male craft workers and operators and assemblers earned significantly more than their counterparts in elementary work in 2001, 2005 and 2007, the earnings of African female craft workers and operators and assemblers, for the most part, did not differ significantly from that of elementary workers in any of the years. These results may also though be due to the low proportion of African female craft workers and operators and assemblers in the sample. For example, the male-female split for craft workers for the African sample in 2007 stood at 82 percent -18 percent while the corresponding split for operators and assemblers stood at 87 percent -13 percent.

The data for domestic workers shows an interesting trend with both African male and female domestic workers performing better over time in comparison with other elementary workers. In the case of male workers, the negative premium for male domestic workers compared to elementary workers declined from around 31 percent in 2001 (uncorrected estimate) to no significant difference by 2007. In turn, while there was no significant difference between the earnings of female elementary and domestic workers in 2001 and 2005, by 2007 female domestic workers earned around 18.5 percent (uncorrected estimate) more than their counterparts in other elementary jobs. The trends for both African men and women point to rising wages in the domestic sector, and this can arguably be attributed to legislation regarding minimum wages for domestic workers introduced in August 2002. We note though that the male-female sample split for domestic workers is uneven, standing at 22 percent -78 percent for the African sub-population in 2007.

The occupation data in the tables above thus show some clear differences between the earnings of African men and women within different occupations groups. However given that men and women may gain access to different jobs, or select into different jobs, estimating the gender pay gap without taking this selection into account may underestimate the gender pay gap. Estimating such selection equations for South Africa are however, at present, not possible due to the lack of suitable exclusion restrictions within the labour force survey data.[16]

Finally, for the corrected estimates, the Inverse Mills Ratios are negative and significant for both males and females in all three years, except for the 2005 estimation for African females. The significant results suggest that sampling bias does exist in the data, that is, that the sample of employed (earners) is not a random selection of people drawn from the pool of participants. As with other South African studies, our study shows negative sample selection terms (see for instance Bhorat and Leibbrandt, 2001; Chamberlain and Van der Berg, 2002).

In general though, the estimates from the corrected and uncorrected estimates are quite similar and have the same signs, though the uncorrected estimates are slightly larger than the corrected estimates. This is expected though, since the uncorrected estimation picks up the direct effects of the explanatory variables on the earnings, as well as the indirect effects of those same explanatory variables on labour force participation and employment.

[14] Though a negative premium of around 10 percent is shown for the 2007 period, it is significant only at the 10 percent level of significance.

[15] To calculate the percentage change in earnings from the coefficient on a dummy variable in a semilogarithmic model, we used the following conversion (see Halvorsen and Palmquist, 1980): $100.\{exp(y) - 1\}$

[16] As far as the industry variables are concerned, though the data indicates differing returns to industry groups by gender, the results are difficult to interpret since the disaggregations are very broad, that is, the industry dummies represent a variety of occupation groups within each industry.

Considering Discrimination: Decomposing the Gender Wage Gap

Below we use the Oaxaca-Blinder decomposition technique to counterfactually decompose the mean differences in log wages (based on the earnings equations above) into explained and unexplained components. The unexplained component is often taken to be a measure of discrimination. As is well known, discrimination is generally accounted for by economists using two theories: 'tastes / preferences' and 'statistical discrimination'. The rationale behind the taste or preferences theory is that employers would pay more in order not to be associated with members of certain groups. For instance then, if an employer prefers not to hire women, in the choice between an equally productive man and women the employer would be willing to pay more to hire the man rather than the women. Alternatively, he would be willing to hire the woman at a lower salary than he would be prepared to pay the man (Oaxaca, 2007).

'Statistical discrimination' may occur in one of two ways: Firstly, if employers believe that men are more productive than women (and the costs of determining whether a particular male or female applicant is more productive is high), the employer will use the gender of the applicants as a signal of productivity or offer a lower wage to the female. Secondly, if employers feel that the productivity of a woman may be impacted on by, for instance, childbirth or leave due to child care (and the costs of determining whether a particular male of female applicant is more productive is high), a risk averse employer will offer a lower wage to a female applicant (Oaxaca, 2007).

When decomposing gender earnings gaps using the Oaxaca-Blinder decomposition[17], it is necessary to specify whether the male or female earnings estimation is the 'unbiased' measure of earnings. The choice of reference coefficients is determined by how one conceives discrimination to be practiced. More specifically, if one feels that women are compensated fairly but men are overcompensated, one would use the female coefficients as reference coefficients. However, if it is thought that men are compensated fairly, but women are undercompensated one would use the male coefficients as reference coefficients. In Table 4 below we show the decomposition using both the male and female coefficients as the reference coefficients, and with and without accounting for sample selection bias. In order to provide further sensitivity testing, we also compute the two-fold decomposition using the coefficients from a pooled model over both groups as the reference coefficients. In this case, a variable representing the gender of the individual is included in the pooled model as a control variable, as suggested by Jann (2008). Given the introduction of affirmative action policies and the abolition of discrimination, one would expect to see an improved representation of women in the economy as well as a decreasing gender wage gap and discrimination in post-apartheid South Africa. Considering the uncorrected estimates first, it immediately appears from the table as though there was a decline in the gender wage gap from around 0.37 (or more than 40 percent) in 2001 to 0.30 (or around 34 percent) in 2007. However, examination of the confidence intervals reveals that the decrease in the gender wage gap between 2001 and 2007 was not significant.

[17] For the decomposition we used Jann's (2008) methodology.

Table 4: Gender Wage Gap Decompositions: 2001, 2005 & 2007

	2001			2005			2007		
	Ref Coeff – Female	**Ref Coeff – Male**	**Ref Coeff – Pooled**	**Ref Coeff – Female**	**Ref Coeff – Male**	**Ref Coeff – Pooled**	**Ref Coeff – Female**	**Ref Coeff – Male**	**Ref Coeff – Pooled**
	Uncorrected								
Difference	0.372 *(0.024)*			0.336 *(0.022)*			0.300 *(0.028)*		
Explained	0.097 *(0.030)*	0.191 *(0.022)*	0.159 *(0.021)*	0.059 *(0.027)*	0.140 *(0.021)*	0.121 *(0.019)*	0.033 *(0.027)*	0.086* *(0.025)*	0.065* *(0.022)*
Unexplained	0.275 *(0.026)*	0.181 *(0.018)*	0.213 *(0.016)*	0.277 *(0.026)*	0.196 *(0.021)*	0.215 *(0.018)*	0.267 *(0.025)*	0.214 *(0.024)*	0.235 *(0.020)*
	Corrected								
Difference	0.360 *(0.040)*			0.377 *(0.040)*			0.389 *(0.045)*		
Explained	0.102 *(0.029)*	0.187 *(0.022)*	0.161 *(0.020)*	0.062 *(0.027)*	0.138 *(0.020)*	0.124 *(0.018)*	0.037 *(0.027)*	0.084* *(0.023)*	0.068* *(0.022)*
Unexplained	0.258 *(0.042)*	0.173 *(0.037)*	0.199 *(0.036)*	0.314 *(0.044)*	0.239 *(0.040)*	0.253 *(0.038)*	0.352 *(0.043)*	0.305 *(0.043)*	0.321 *(0.040)*

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. The data are weighted using 2001 Census weights.
2. The sample includes all Africans between 15 and 65 who are employed have non-missing wage and hours of work data.
3. An asterisk indicates a significant change in the 2001 to 2007 period at the 5 percent level of significance.
4. Standard errors are shown in brackets below estimates.

In turn, the corrected estimates show a higher gender earnings gap than the uncorrected estimates in all three years. As with the uncorrected estimates, examination of the confidence intervals reveals that any changes between the years were not significant. We conclude then – considering uncorrected and corrected estimates – that though a gender earnings gap of between around 35 and 45 percent existed for the African subpopulation in 2001, 2005 and 2007 the gap appears to have stayed the same over the 2001 to 2007 period.

Notwithstanding the above, the data show some important additional results. Firstly, as noted in Table 5 below the unexplained proportion of the gap is higher than the explained proportion of the gap for both the corrected and uncorrected estimates in all three years when using either the male, female or pooled estimates as reference estimates.[18] Put differently, a greater proportion of the gender pay gap is explained by discrimination or unobservable characteristics with regard to earnings between the genders than by differences in observable characteristics between males and females.

[18] The only exception is the decomposition using the male coefficients as the reference coefficients in 2001.

Table 3: Proportional Disaggregation of the Gender Pay Gap, Corrected and Uncorrected Estimates: 2001, 2005 and 2007

	2001	2005	2007	2001	2005	2007	2001	2005	2007
	Reference coefficients – Female			**Reference coefficients – Male**			**Reference coefficients – Pooled**		
	Uncorrected								
Difference	100%								
Explained	26.1%	17.5%	11.0%	51.3%	41.7%	28.6%	42.8%	36.0%	21.8%
Unexplained	73.9%	82.5%	89.0%	48.7%	58.3%	71.4%	57.2%	64.0%	78.2%
	Corrected								
Difference	100%								
Explained	28.3%	16.6%	9.5%	52.0%	36.7%	21.6%	44.7%	32.8%	17.5%
Unexplained	71.7%	83.4%	90.5%	48.0%	63.3%	78.4%	55.3%	67.2%	82.5%

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes: 1. The data are weighted using 2001 Census weights.
2. The sample includes all Africans between 15 and 65 who are employed have non-missing wage and hours of work data.
3. There was no significant change in the overall gap between 2001 and 2007 at the 1 and 5 percent levels of significance.

However, the differences between the contributions of the unexplained and explained portions of the gender wage gap are different depending on the reference group used. Using the female coefficients as the reference coefficients produces the harshest results: Here we find that the unexplained proportion of the gap ranges from between 70 to 91 percent (when considering both uncorrected and corrected estimates). In turn, using the male or pooled estimates as the reference estimates shows an unexplained proportion of between 55 and 82 percent. Importantly, the results using the pooled and male estimates as reference estimates are more closely aligned than when the female estimates are used as reference estimates. Notably, Appleton, Hoddinott and Krishnan (1999) found a similar result in their study of gender wage gaps in for Ethiopia, Cote d'Ivoire and Uganda.

For instance, using the male estimates as reference estimates, the 2001 data shows an almost even split between the explained and unexplained proportions of the gap, while using the pooled model shows a 40 percent - 60 percent split in favour of the unexplained proportion. By contrast, the split using the female model as the reference model stands at 26 percent - 74 percent (28 percent - 72 percent) for the uncorrected (corrected) results.

As far as changes over time are concerned, the results in Table 5 above show that the explained component of the gap in the aggregate gender pay gap decreased significantly between 2001 and 2007 when using the male wage structure or the pooled wage structure as the non-discriminatory wage structure. In turn, there was no significant change in the unexplained component regardless of the reference coefficients used or whether the correcting for sample selection or not.[19]

In general then, the results suggest that whilst the conditional gender wage gap has not decreased in the period, the unexplained component or discrimination against African women in the labour market has also been stagnant. The presence of a large unexplained component does however appear to indicate that there is substantial discrimination against African women, while the decreasing explained proportion suggests that gender wage gaps in post-apartheid South Africa are increasingly explained by factors other than those that are observable.

However, the assumption that the unexplained portion of the gender earnings gap is a measure only of discrimination has been subjected to much criticism. For instance, Kunze (2008) argues that unobserved skills may affect individual's choices of work histories and may therefore, in part, account for the unexplained portion of the differences in earnings between genders (Kunze, 2008), and Jann (2008) corroborates this. The unexplained portion could also be representative of pre-labour market factors such as school quality and family background, both of which can bias the measure of discrimination. Finally, if a human capital attribute that affects earnings is omitted, the measured discrimination component would be contaminated, though the direction of the bias cannot be

[19] In general, the unexplained proportions are larger for the corrected estimates compared to the uncorrected estimates.

presumed given that the omission of variables could over- or under-estimate discrimination (Oaxaca, 2007).

Thus, while traditional explanations for the unexplained component point to discrimination, studies are increasingly beginning to point to factors such as support networks (Erhemjamts et al, 2010), and ambition, leadership, and income expectations in explaining the gender wage gap (see for instance Fortin, 2006). In South Africa, the use of traditional surveys such as the LFSs may be constraining deeper analyses of these questions. Thus, panel data surveys as well as other surveys that bring firm and individual level data together may help to shed further light on the determinants of the gender wage gap. Nevertheless, if the unexplained portion is taken to be discrimination, then the data indicates that, for the African cohort, discrimination in earnings between the genders is substantial. However, if the residual predominantly represents unobserved attributes, then the results may suggest the presence of selection effects into occupation groups. In either case, the high unexplained proportion of the gender wage gap using this decomposition is an important result in the context of concerns about the status and treatment of women in the post-apartheid labour market, though the reasons may be better sought through non-traditional survey instruments.

4. CONCLUSION

In South Africa, estimating gender earnings gaps has only recently become possible with the introduction of nationally representative household surveys in 1995. While a variety of methods and labour force surveys have been used in the analysis of gender wage gaps in South Africa, none of the studies have only focused on the Labour Force Surveys (introduced in 2000). Given issues with comparability between the October Household Surveys and Labour Force Surveys, we argue that the use of only the Labour Force Surveys is pertinent to our understanding of gender pay differentials in post-apartheid South Africa because survey instruments have been largely unchanged since the introduction of the survey.

Estimating gender wage gaps and discrimination is complicated for a variety of reasons, including the appropriate methodology to be used, whether and how to correct for sample selection into – for instance – the labour force or occupation groups, and what constitutes discrimination (see Oaxaca (2007) for a comprehensive discussion of challenges in estimating discrimination). Keeping this in mind, in estimating gender wage gaps for the African sub-population between 2001 and 2007 in South Africa, we find that it is prudent to separate male and female wage equations, since the data shows that there are differing returns to observable characteristics. While we show both corrected and uncorrected estimates, we prefer the results that do not correct for selection into the labour force and employment due to the difficulty with finding suitable exclusion restrictions as well as other criticism regarding correcting for sample selection. We note though that corrected and uncorrected results are similar.

Using the Oaxaca-Blinder decomposition, we find that there was no significant decrease in the gender wage gap for the African cohort (using either corrected or uncorrected estimates) over the 2001 to 2007 period. Despite this however, we find that the explained proportion of the gender wage gap has been on the decline with no significant increase in the unexplained proportion. The implication of this is that discrimination against African women did not increase in the period though substantial discrimination still exists, with around 71 percent of the wage gap remaining unexplained in 2007 (using the uncorrected estimates and the male wage structure as the non-discriminatory wage structure). The impact of factors such as unobserved skills on individual's choices of work histories and pre-labour market factors such as school quality and family background, as well as the omission of variables may however impact on our measure of discrimination.

Finally, the data shows that reference coefficients are important in the Oaxaca-Blinder decomposition of the gender wage gap. The use of the male wage structure as the non-discriminatory wage structure implies that men are paid fairly while women are underpaid and vice versa. Using the female wage structure as the non-discriminatory norm appears to produce the harshest results as far as discrimination is concerned. In turn, using male coefficients or pooled coefficients as the reference coefficients produce similar results. We prefer either of these although the male wage structure is more often adopted as the non-discriminatory wage structure in the literature. Ultimately then, the notion that the conditional gender wage gap did not decline over the 6-year period between 2001 and

2007 – amidst corrective legislation and an officially non-discriminative society – is arguably a crucial signal pointing to the slow pace of change for African women in the South African labour market.

REFERENCES

Allanson, P. & Atkins, J. P. (2001). Labour Market Reform and the Evolution of the Racial Wage Hierarchy in Post-Apartheid South Africa, DPRU Working Paper No. 01/59. University of Cape Town.

Appleton, S., Hoddinott, J. & Krishnan, P. (1999). "The Gender Wage Gap in Three African Countries", *Economic Development and Cultural Change*, Vol. 47: (2).

Beblo, M., Beninger, D., Heinze, A. & Laisney, F. (2003). Measuring Selectivity-Corrected Gender Wage Gaps in the EU, Discussion Paper No. 03-74. Centre for European Economic Research.

Bhorat, H. & Leibbrandt, M. (2001). Modelling Vulnerability and Low Earnings in the South African Labour Market. Chapter 3 in Bhorat, H; Leibbrandt, M; Maziya, M; Van der Berg, S; and Woolard, I. 2001. Fighting poverty: Labour Markets and Inequality in South Africa. Cape Town: UCT Press.

Blinder, A. (1973). "Wage Discrimination: Reduced Form and Structural Variables", *Journal of Human Resources*, Vol 8.

Burger, R. & Jafta, R. (2006). Returns to Race: Labour Market Discrimination in Post-Apartheid South Africa, Stellenbosch University Economic Working Paper: 04/06.

Burger, R. & Yu, D. (2006). Wage Trends in Post-Apartheid South Africa: Constructing an Earnings Series from Household Survey Data, Stellenbosch University Economic Working Paper: 10/06.

Casale, D. & Posel, D. (2002). "The Continued Feminisation of the Labour Force in South Africa: An Analysis of Recent Data and Trends", *The South African Journal of Economics*, Vol. 70:(1).

Casale, D., Muller, C., & Posel, D. (2004). "'Two Million Net New Jobs': A Reconsideration of the Rise in Employment in South Africa", *The South African Journal of Economics*, Vol. 72:(5).

Casale, D. & Posel, D. (2005). Who replies in brackets and what are the implications? An analysis of earnings data in South Africa, ERSA Working Paper No. 7.

Casale, D. & Posel, D. (2010). "The Male Marital Earnings Premium in the Context of Bride Wealth Payments: Evidence from South Africa", *Economic Development and Cultural Change*, Vol 58:(2).

Casale, D. & Posel, D. (2010). "Unions and the Gender Wage Gap in South Africa", *Journal of African Economies*, first published online August 3, 2010.

Chamberlain, D. & Van der Berg, S. (2002). Earning Functions Labour Market Discrimination and Quality of Education in South Africa, Stellenbosch University Economic Working Paper: 2/2002.

de la Rica, S., Dolado, J.J. & Llorens, V. (2008). "Ceilings or Floors? Gender Wage Gaps by Education in Spain", *Journal of Population Economics*, Vol 21:(3).

Erhemjamts, O., Minnick, K. & Wiggins, R.A. (2010). Bridging the Gender Pay Gap: Explaining the Unexplainable, Unpublished Paper. University of Bentley, February 2010.

Erichsen, G. & Wakeford, J. (2001). Racial Wage Discrimination in SA before and after the first Democratic Election, DPRU Working Paper No 01/49. University of Cape Town.

Filer, R. (1985). "Male-Female Wage Differences: The Importance of Compensating Differentials", *Industrial and Labor Relations Review*, Vol 38.

Fortin, N.M. (2006). Greed, Altruism, and the Gender Wage Gap, Unpublished Paper. University of British Columbia, February 2006.

Gruen, C. (2004). "Direct and Indirect Gender wage discrimination in the South Africa labour market", *International Journal of Manpower*, Vol. 25: (3-4).

Hinks, T. (2002). "Gender, Wage differentials and Discrimination in the new South Africa", *Applied Economics*, Vol. 34:(16)

Isemonger, A.G. & Roberts, N.J. (1999). "Post Entry Gender Discrimination in the South African Labour Market", *Journal of Studies in Economics and Econometrics*, Vol 23:(2).

Jann, B. (2008). A Stata Implementation of the Blinder-Oaxaca Decomposition, ETH Zurich Sociology Working Paper No. 5.

Kunze, A. (2008). "Gender Wage Gap Studies: Consistency and Decomposition", *Empirical Economics*, Vol 35:(1)

Korenman, S. & Neumark, D. (1992). "Marriage, motherhood, and wages", *Journal of Human Resources*, Vol. 27.

Muller, C. (2009). Trends in the gender wage gap and gender discrimination among part-time and full-time workers in post-apartheid South Africa, Working Paper 124. University of KwaZulu-Natal.

Mwabu, G. & Schultz, T.P. (1996). "Education Returns Across Quantiles of the Wage Function: Alternative Explanations for Returns to Education by Race in South Africa", *American Economic Review*, Vol 86:(2).

Ntuli, M. (2007). Exploring gender wage 'discrimination' in South Africa, 1995-2004: A Quantile Regression Approach, IPC Working Paper Series No. 56.

Oaxaca, R. (1973). "Male Female Wage Differentials in Urban Labour Markets", *International Economic Review*, Vol. 14:(3).

Oaxaca, R. (2007). "The Challenge of Measuring Labor Market Discrimination Against Women", *Swedish Economic Policy Review*, Vol 14.

Polachek, S.W. & Xiang, J. (2006). The Gender Pay Gap: A Cross-Country Analysis, Unpublished Paper. SUNY-Binghamton, February 2006.

Rospabé, S. (2001). An Empirical Evaluation of Gender Discrimination in Employment Occupation and Wage in South Africa in the late 1990s, Mimeographed University of Cape Town.

Rospabé, S. (2002). "How Did Labour Market Racial Discrimination Evolve After the End of Apartheid?" *South African Journal of Economics*, Vol. 70:(1).

Shepherd, D. (2008). Post-Apartheid Trends in Gender Discrimination in South Africa: Analysis through Decomposition Techniques, Stellenbosch University Economic Working Paper: 06/08.

Weichselbaumer, D. & Winter-Ebmer, R. (2005). "A Meta-Analysis of the International Gender Wage Gap", *Journal of Economic Surveys*, Vol 19(3).

Woolard, I. (2002). A Comparison of Wage Levels and Wage Inequality in the Public and Private Sectors, 1995 and 2000, DPRU Working Paper No. 02/62. University of Cape Town.

APPENDIX

Appendix 1: Determinants of Labour Force Participation, Probit Model: 2001, 2005 & 2007

	2001				2005				2007			
	Female		Male		Female		Male		Female		Male	
	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er
Age												
Age_25-34	**0.247** *	*0.037*	**0.235** *	*0.053*	**0.227** *	*0.040*	**0.242** *	*0.051*	**0.177** *	*0.049*	**0.136** **	*0.064*
Age_35-44	**0.184** *	*0.042*	**-0.009**	*0.058*	**0.074**	*0.047*	**-0.059**	*0.060*	**0.133** *	*0.049*	**-0.104**	*0.068*
Age_45-54	**-0.221** *	*0.043*	**-0.452** *	*0.064*	**-0.256** *	*0.051*	**-0.499** *	*0.072*	**-0.217** *	*0.054*	**-0.416** *	*0.065*
Age_55-65	**-1.107** *	*0.049*	**-1.211** *	*0.069*	**-1.161** *	*0.051*	**-1.216** *	*0.071*	**-1.111** *	*0.063*	**-1.252** *	*0.079*
Education												
None-Grade8	**0.049** *	*0.005*	**0.052** *	*0.007*	**0.051** *	*0.006*	**0.062** *	*0.008*	**0.065** *	*0.006*	**0.053** *	*0.008*
Grade9-Grade11	**0.057** *	*0.017*	**0.023**	*0.022*	**0.061** *	*0.016*	**0.040**	*0.024*	**0.093** *	*0.017*	**0.057** **	*0.023*
Grade12	**0.236** *	*0.054*	**0.177** *	*0.068*	**0.266** *	*0.055*	**0.126** ***	*0.073*	**0.141** *	*0.055*	**0.178** **	*0.074*
Diploma	**0.544** *	*0.109*	**-0.061**	*0.111*	**0.306** *	*0.106*	**0.266** **	*0.127*	**0.468** *	*0.110*	**0.105**	*0.131*
Degree	**-0.068**	*0.077*	**0.199** **	*0.096*	**0.141**	*0.110*	**-0.033**	*0.105*	**-0.015**	*0.155*	**0.233** **	*0.107*
Province												
Western Cape	**-0.104**	*0.099*	**0.162**	*0.107*	**-0.164** **	*0.081*	**0.040**	*0.126*	**-0.085**	*0.118*	**-0.130**	*0.150*
Eastern Cape	**-0.312** *	*0.056*	**-0.271** *	*0.064*	**-0.360** *	*0.053*	**-0.472** *	*0.076*	**-0.340** *	*0.061*	**-0.402** *	*0.085*
Northern Cape	**-0.231** **	*0.099*	**-0.163** ***	*0.094*	**-0.106**	*0.088*	**-0.249** **	*0.106*	**-0.321** *	*0.088*	**-0.341** *	*0.132*
Free State	**-0.009**	*0.062*	**0.060**	*0.084*	**-0.303** *	*0.057*	**-0.283** *	*0.083*	**-0.127** ***	*0.067*	**-0.323** *	*0.091*
KwaZulu-Natal	**-0.312** *	*0.055*	**-0.157** *	*0.059*	**-0.319** *	*0.049*	**-0.411** *	*0.072*	**-0.225** *	*0.055*	**-0.333** *	*0.082*
North West	**-0.278** *	*0.058*	**-0.041**	*0.065*	**-0.233** *	*0.058*	**-0.134** ***	*0.074*	**-0.319** *	*0.064*	**-0.160** ***	*0.091*
Mpumalanga	**-0.132** **	*0.063*	**-0.033**	*0.080*	**-0.117** **	*0.059*	**-0.166** **	*0.083*	**-0.012**	*0.066*	**-0.001**	*0.089*
Limpopo	**-0.111** ***	*0.061*	**-0.197** *	*0.064*	**-0.170** **	*0.070*	**-0.387** *	*0.095*	**-0.058**	*0.059*	**-0.111**	*0.093*
Head of Household	**0.163** *	*0.031*	**0.644** *	*0.051*	**0.196** *	*0.030*	**0.553** *	*0.054*	**0.226** *	*0.035*	**0.583** *	*0.054*
Household Vars												
No:Children < 7 yrs	**-0.057** *	*0.011*	**0.020** ***	*0.017*	**-0.078** *	*0.014*	**-0.009**	*0.022*	**-0.083** *	*0.013*	**-0.020**	*0.021*
No:Children 8-15 yrs	**-0.054** *	*0.011*	**-0.042** *	*0.015*	**-0.025** **	*0.014*	**-0.028** ***	*0.016*	**-0.038** *	*0.013*	**-0.004**	*0.018*
No: Men 15-65 yrs	**-0.005**	*0.011*	**-0.015**	*0.016*	**-0.014** *	*0.015*	**-0.011**	*0.017*	**0.008**	*0.015*	**0.044** **	*0.018*
No: Women 15-65yr	**0.094** *	*0.013*	**-0.022**	*0.017*	**0.068** *	*0.014*	**-0.014**	*0.018*	**0.099** *	*0.013*	**-0.016**	*0.019*

No: People > 65 yrs	**-0.061**	**	*0.028*	**-0.012**		*0.037*	**-0.070**	**	*0.036*	**0.026**	*0.042*	**-0.054**		*0.035*	**-0.050**		*0.043*
Constant	0.464	*	*0.068*	**0.884**	*	*0.080*	**0.587**	*	*0.073*	**0.968**	* *0.100*	**0.315**	*	*0.091*	**0.847**	*	*0.110*

No of Obs	**22197**	**18273**	**22687**	**18123**	**22320**	**17661**
F-stat	**110.97**	**46.27**	**109.74**	**60.28**	**101.08**	**41.43**
Prob > F	**0**	**0**	**0**	**0**	**0**	**0**

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. The data are weighted using 2001 Census weights.
2. The dependent variable is the probability of participating in the labour force.
3. *** - significant at the ten percent level; **- significant at the five percent level; * - significant at the one percent level.
4. The sample includes all Africans between 15 and 65 years of age.
5. The reference variables for the age and province categories used in the estimation are 15-24 year olds and the Gauteng province.

Appendix 2: Determinants of Finding Employment, Probit Model: 2001, 2005 & 2007

	2001				2005				2007			
	Female		Male		Female		Male		Female		Male	
	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er
Age												
Age_25-34	**0.446** *	*0.043*	**0.355** *	*0.044*	**0.445** *	*0.045*	**0.348** *	*0.044*	**0.530** *	*0.059*	**0.441** *	*0.049*
Age_35-44	**0.979** *	*0.045*	**0.471** *	*0.048*	**0.878** *	*0.044*	**0.435** *	*0.054*	**0.868** *	*0.055*	**0.558** *	*0.065*
Age_45-54	**1.192** *	*0.056*	**0.477** *	*0.069*	**1.289** *	*0.065*	**0.467** *	*0.079*	**1.191** *	*0.064*	**0.548** *	*0.076*
Age_55-65	**1.728** *	*0.193*	**0.487** *	*0.161*	**2.149** *	*0.205*	**0.621** *	*0.186*	**1.618** *	*0.195*	**0.866** *	*0.214*
Education												
None-Grade8	**-0.003**	*0.009*	**0.000**	*0.010*	**-0.005**	*0.011*	**-0.008**	*0.012*	**-0.031** **	*0.013*	**-0.006**	*0.013*
Grade9-Grade11	**-0.012**	*0.018*	**-0.004**	*0.017*	**-0.030**	*0.019*	**-0.011**	*0.018*	**0.055** **	*0.028*	**-0.002**	*0.022*
Grade12	**0.170** *	*0.049*	**0.159** *	*0.049*	**0.224** *	*0.056*	**0.128** **	*0.050*	**0.242** *	*0.051*	**0.108** ***	*0.064*
Diploma	**0.530** *	*0.069*	**0.390** *	*0.078*	**0.726** *	*0.074*	**0.535** *	*0.089*	**0.555** *	*0.077*	**0.466** *	*0.091*
Degree	**0.215** *	*0.057*	**0.157** **	*0.064*	**0.311** *	*0.070*	**0.238** *	*0.082*	**0.300** *	*0.075*	**0.293** *	*0.093*
Province												
Western Cape	**0.117**	*0.088*	**0.128**	*0.117*	**0.288** *	*0.105*	**0.067**	*0.087*	**0.053**	*0.138*	**0.121**	*0.102*
Eastern Cape	**-0.057**	*0.062*	**-0.191** *	*0.067*	**-0.057**	*0.072*	**-0.219** *	*0.084*	**-0.309** *	*0.105*	**-0.199** **	*0.087*
Northern Cape	**0.132**	*0.088*	**0.133**	*0.101*	**-0.248** *	*0.086*	**0.024**	*0.114*	**-0.318** **	*0.125*	**0.099**	*0.125*
Free State	**-0.003**	*0.054*	**0.137** **	*0.065*	**-0.086**	*0.072*	**-0.027**	*0.083*	**-0.314** *	*0.092*	**-0.051**	*0.096*
KwaZulu-Natal	**-0.002**	*0.059*	**-0.133** **	*0.055*	**0.002**	*0.064*	**-0.226** *	*0.079*	**-0.221** **	*0.093*	**-0.341** *	*0.072*
North West	**-0.165** *	*0.059*	**0.066**	*0.063*	**-0.176** *	*0.064*	**-0.163** **	*0.070*	**-0.326** *	*0.099*	**-0.184** **	*0.088*
Mpumalanga	**0.078**	*0.056*	**0.135** **	*0.065*	**-0.140** **	*0.068*	**0.024**	*0.073*	**-0.255** *	*0.095*	**0.115**	*0.081*
Limpopo	**-0.307** *	*0.058*	**-0.218** *	*0.066*	**-0.520** *	*0.070*	**-0.404** *	*0.085*	**-0.684** *	*0.089*	**-0.498** *	*0.086*
Head of Household	**0.675** *	*0.035*	**1.204** *	*0.061*	**0.592** *	*0.041*	**1.084** *	*0.063*	**0.571** *	*0.040*	**0.930** *	*0.080*
Inverse Mills Ratio	**-0.402**	*0.255*	**0.023**	*0.318*	**-0.673** **	*0.278*	**-0.261**	*0.340*	**-0.209**	*0.284*	**-0.625**	*0.402*
Constant	**-0.850** *	*0.148*	**-0.797** *	*0.137*	**-0.646** *	*0.160*	**-0.404** *	*0.157*	**-0.501** *	*0.190*	**-0.257**	*0.187*

No of Obs	**16711**	**16061**	**16921**	**15492**	**16330**	**15114**
F-stat	**107.68**	**118.55**	**108.76**	**105.56**	**76.43**	**71.55**
Prob > F	**0**	**0**	**0**	**0**	**0**	**0**

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. The data are weighted using 2001 Census weights.
2. The dependent variable is the probability of finding employment.
3. *** - significant at the ten percent level; **- significant at the five percent level; * - significant at the one percent level.
4. The sample includes all Africans of working age who are participating in the labour force (and includes discouraged workseekers).
5. The reference variables for the age and province categories used in the estimation are 15-24 year olds and the Gauteng province.

Appendix 3: Estimated Gender Earnings Equations, Corrected for Selection: 2001, 2005 & 2007

	2001				2005				2007			
	Male		Female		Male		Female		Male		Female	
	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er	Coefficient	St Er
Education												
None-Grade8	**0.039** *	*0.005*	**0.033** *	*0.005*	**0.030** *	*0.006*	**0.030** *	*0.005*	**0.020** ***	*0.012*	**0.034** *	*0.011*
Grade9-Grade11	**0.062** *	*0.013*	**0.067** *	*0.015*	**0.050** *	*0.014*	**0.056** *	*0.013*	**0.052** *	*0.014*	**0.047** *	*0.015*
Grade12	**0.172** *	*0.038*	**0.188** *	*0.046*	**0.262** *	*0.036*	**0.177** *	*0.040*	**0.152** *	*0.042*	**0.206** *	*0.058*
Diploma	**0.351** *	*0.052*	**0.376** *	*0.055*	**0.346** *	*0.054*	**0.422** *	*0.060*	**0.429** *	*0.053*	**0.502** *	*0.060*
Degree	**0.179** *	*0.031*	**0.182** *	*0.037*	**0.286** *	*0.045*	**0.268** *	*0.040*	**0.208** *	*0.044*	**0.181** *	*0.034*
Province Controls	***Yes***		***Yes***		***Yes***		***Yes***		***Yes***		***Yes***	
Occupation												
Manager	**0.779** *	*0.087*	**0.764** *	*0.126*	**0.815** *	*0.081*	**0.787** *	*0.140*	**0.992** *	*0.073*	**0.740** *	*0.108*
Professional	**0.487** *	*0.049*	**0.487** *	*0.060*	**0.614** *	*0.053*	**0.491** *	*0.060*	**0.506** *	*0.055*	**0.435** *	*0.060*
Clerk	**0.361** *	*0.046*	**0.375** *	*0.051*	**0.459** *	*0.056*	**0.356** *	*0.050*	**0.285** *	*0.080*	**0.316** *	*0.050*
Service and Sales	**0.008**	*0.038*	**0.053**	*0.042*	**0.015**	*0.041*	**-0.067** ***	*0.040*	**0.050**	*0.053*	**-0.020**	*0.050*
Skilled Agricultural	**0.185** *	*0.072*	**-0.140** **	*0.070*	**-0.318** *	*0.074*	**-0.377** *	*0.065*	**-0.057**	*0.080*	**-0.483** *	*0.067*
Craft and Related	**0.227** *	*0.037*	**0.060**	*0.058*	**0.162** *	*0.036*	**-0.008**	*0.059*	**0.198** *	*0.030*	**0.100** ***	*0.053*
Operator / Assembler	**0.155** *	*0.029*	**0.036**	*0.075*	**0.206** *	*0.034*	**0.106**	*0.082*	**0.229** *	*0.043*	**0.063**	*0.061*
Domestic Worker	**-0.385** *	*0.062*	**-0.089**	*0.066*	**-0.125** ***	*0.071*	**0.106**	*0.081*	**-0.085**	*0.077*	**0.166** **	*0.079*
Industry												
Agriculture	**-0.798** *	*0.044*	**-0.550** *	*0.064*	**-0.514** *	*0.045*	**-0.389** *	*0.066*	**-0.600** *	*0.043*	**-0.267** *	*0.065*
Mining	**0.186** *	*0.039*	**0.235**	*0.152*	**0.376** *	*0.052*	**0.264** ***	*0.155*	**0.336** *	*0.057*	**0.692** *	*0.125*
Utilities	**0.238** *	*0.080*	**0.171**	*0.196*	**0.191** **	*0.089*	**0.245**	*0.217*	**0.273** **	*0.118*	**0.777** *	*0.214*
Construction	**-0.146** *	*0.050*	**-0.288** *	*0.088*	**-0.121** **	*0.048*	**-0.296** *	*0.091*	**-0.137** *	*0.041*	**-0.286** *	*0.077*
Trade	**-0.221** *	*0.041*	**-0.231** *	*0.053*	**-0.248** *	*0.046*	**-0.257** *	*0.062*	**-0.254** *	*0.040*	**-0.111** **	*0.053*
Transport	**-0.020**	*0.046*	**0.027**	*0.097*	**-0.010**	*0.050*	**0.089**	*0.123*	**-0.025**	*0.084*	**0.099**	*0.111*
Financial Services	**-0.061**	*0.053*	**0.131** ***	*0.075*	**-0.153** *	*0.050*	**0.149** ***	*0.080*	**-0.190** *	*0.048*	**0.052**	*0.065*
Community Service	**-0.093** ***	*0.054*	**-0.047**	*0.064*	**-0.203** *	*0.055*	**-0.082**	*0.072*	**0.014**	*0.066*	**0.040**	*0.073*
Other	**-0.447** ***	*0.230*	**-0.046**	*0.214*	**0.804** **	*0.403*	**-0.567** ***	*0.300*	**0.116**	*0.263*	**-0.326**	*0.227*
Public Sector	**0.458** *	*0.048*	**0.501** *	*0.053*	**0.513** *	*0.046*	**0.583** *	*0.059*	**0.320** *	*0.057*	**0.410** *	*0.059*

Married	**0.102**	*	*0.023*	**0.083**	*	*0.026*	**0.033**		*0.026*	**0.043**	***	*0.026*	**0.056**	**	*0.027*	**0.034**		*0.031*
Experience	**0.035**	*	*0.004*	**0.026**	*	*0.004*	**0.026**	*	*0.004*	**0.026**	*	*0.004*	**0.015**	*	*0.004*	**0.019**	*	*0.004*
Experience-squared	**0.000**	*	*0.000*	**0.000**	*	*0.000*	**0.000**	*	*0.000*	**0.000**	*	*0.000*	**0.000**	**	*0.000*	**0.000**	**	*0.000*
Formal Sector	**0.421**	*	*0.033*	**0.520**	*	*0.044*	**0.437**	*	*0.038*	**0.542**	*	*0.053*	**0.418**	*	*0.052*	**0.532**	*	*0.051*
Wage Employed	**-0.017**		*0.048*	**-0.170**	*	*0.048*	**-0.011**		*0.049*	**-0.101**	***	*0.056*	**-0.090**	***	*0.053*	**-0.104**		*0.066*
Inverse Mills Ratio	**-0.138**	*	*0.036*	**-0.112**	*	*0.035*	**-0.162**	*	*0.043*	**-0.054**		*0.040*	**-0.325**	*	*0.053*	**-0.093**	**	*0.048*
Constant	**0.690**	*	*0.099*	**0.694**	*	*0.095*	**0.836**	*	*0.102*	**0.588**	*	*0.105*	**1.368**	*	*0.148*	**0.805**	*	*0.133*

No of Obs	**8690**	**7162**	**8463**	**7471**	**7587**	**8915**
F-stat	**198.05**	**259.77**	**154.32**	**148.03**	**183.02**	**142.04**
R-squared	**0.5405**	**0.6136**	**0.5179**	**0.5917**	**0.5677**	**0.5158**

Source: Own calculations: LFS(2001:2), LFS(2005:2) & LFS(2007:2)

Notes:
1. The data are weighted using 2001 Census weights**.**
2. The dependent variable is log of real hourly wages.
3. *** - significant at the ten percent level; **- significant at the five percent level; * - significant at the one percent level.
4. The sample includes all Africans between 15 and 65 who are employed and have non-missing wage and hours of work data.
5. The industry variables have been shortened and represent the following: Agriculture, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas and Water (Utilities); Construction; Wholesale and Retail Trade; Transport, Storage and Communication; Financial and Business Services; Community, Social and Personal Services.
6. The reference variables for the occupation and industry categories used in the estimation are elementary workers and manufacturing industry.

Development Policy Research Unit
University of Cape Town
Private Bag
Rondebosch 7701
Cape Town
South Africa

Tel: +27 21 650 5705
Fax: +27 21 650 5711

www.dpru.uct.ac.za