EMPLOYMENT OUTCOMES AND RETURNS TO EARNINGS IN POST-APARTHEID SOUTH AFRICA

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ABSTRACT

This paper attempts to understand some of the key drivers of employment and earnings trends within the South African labour market in the 15 years following the demise of apartheid. A number of factors are discussed which feature in the understanding of South Africa's labour market dynamics in general, and its high unemployment levels in particular. The role of demographic characteristics in determining labour market outcomes is investigated, along with employment trends by sector. The paper also analyses the skills mismatch between labour demand and supply. The role played by the institutional regulatory framework in the labour market is examined and estimates of the wage premia associated with union and bargaining council membership are presented. The paper also discusses the role played by the quality of higher education in determining labour market success.

Acknowledgements

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CONTENTS

1. INTRODUCTION

South Africa's formal transition from White minority rule in 1994 justifiably received international attention and acclaim. In April 1994 the country's first democratically elected party, the African National Congress (ANC), was voted into power. Masked by this relatively peaceful transition from apartheid however, was the challenge that lay ahead in terms of dealing with the economic vestiges of the system of racial exclusivity. Nowhere is this challenge more apparent than within the area of labour markets. Probably the most perplexing, and troubling feature of the South African labour market remains its extraordinarily high unemployment rates. Indeed, together with the economy's stubbornly high (and growing) inequality levels, the rate of joblessness most cogently expresses the welfare and development challenges facing the society.

This paper attempts to understand some of the key drivers of employment trends within the South African labour market in the 15 years following the demise of apartheid, utilising data from the 1995 to 2009 period to provide a more detailed, and hopefully nuanced, assessment of some of the challenges in the labour market. It is worth noting however, that whilst the discussion here provides a flavour of selected labour market issues in South Africa, there are of course a range of factors pertinent to labour markets and employment creation – most notably generally accepted determinants of economic growth such as fixed investment levels; competitiveness; multi-factor productivity; domestic and foreign relative price fluctuations; monetary and fiscal policy and so on – which remain crucial to understanding outcomes in the South African labour market. These issues however, remain beyond the scope of this paper.

2. UNDERSTANDING A HIGH UNEMPLOYMENT LABOUR MARKET: An Overview of Labour Market Trends and Challenges in South Africa Since 1995

A number of factors feature in the understanding of South Africa's labour market dynamics in general, and its high unemployment levels in particular. In this section we explore some of the key supply-side dynamics characterising the post-apartheid labour market in South Africa. The availability of trend data from 1995 to 2009 makes it possible to examine the movements in the labour force, employment, and unemployment during the last 15 years. Furthermore, the release of quarterly data since 2008 allows us to investigate some of the effects of the 2008-2009 crisis on the South African labour market.

2.1 The Role of Race, Gender and Age in Determining Labour Market Outcomes

During the first 15 years of democratic rule in South Africa, the economy generated approximately 3.2 million jobs. Over the same period, some 5.3 million individuals entered the labour market in search of jobs. The consequence was an increase in the number of narrowly defined unemployed by 2.1 million individuals.

Table 1: The South African Labour Force, 1995 to 2009 (thousands)

Category	1995	2001	Q32009		Change	AAG 1995-09
	'000s	'000s	'000s	'000s	%	%
Official definition estimates						
Employment	9,645	11,181	12,884	3,239	33.6	2.1
Unemployment	2,032	4,655	4,119	2,087	102.8	5.2
Labour Force	11,676	15,836	17,003	5,327	45.6	2.7
Broad definition estimates						
Employment	9,645	11,181	12,884	3,239	33.6	2.1
Unemployment	4,239	7,649	5,751	1,512	35.7	2.2
Labour force	13,883	18,830	18,635	4,752	34.2	2.1

Source: OHS 1995; OHS 1997; LFS September 2000-2007; QLFS Quarter 1-4, 2008 and Quarter 1-3, 2009 (Statistics South Africa).
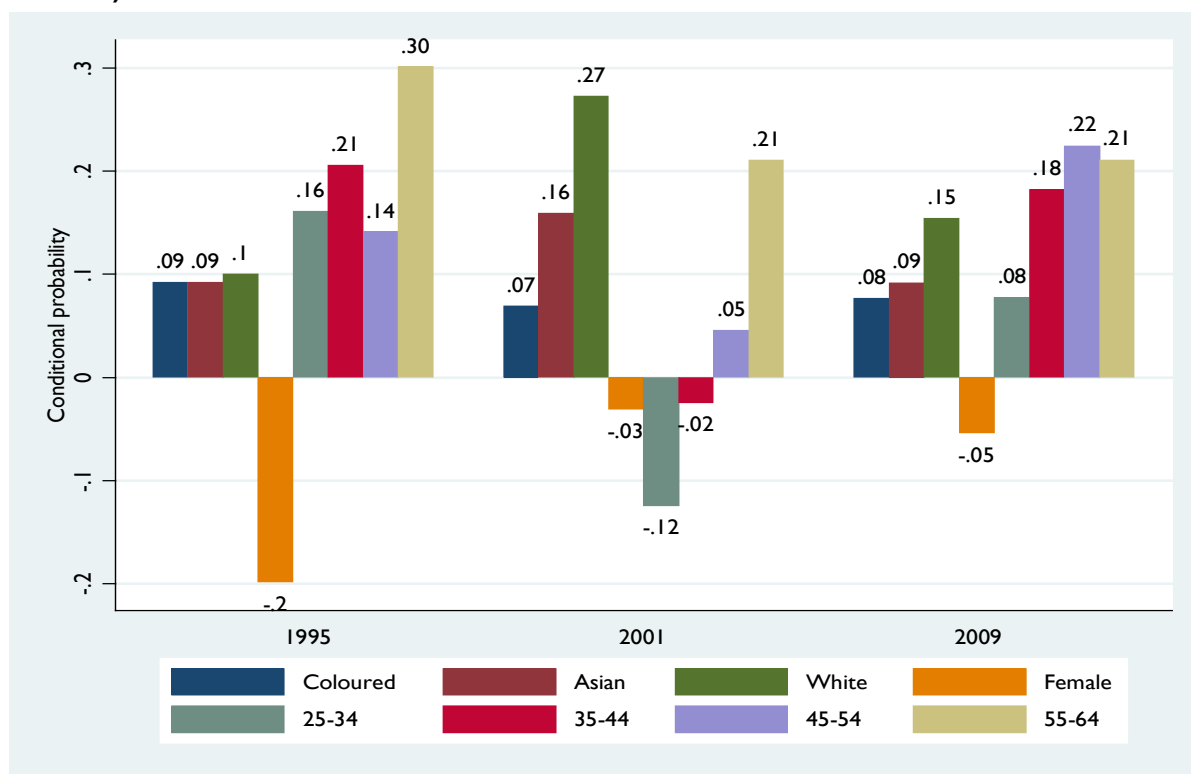
Notes:
1. Working age population includes individuals aged between 15 and 65 years old.
2. 1995 data is reweighted according to the 1996 Census. Data from 2000 onwards has been re-weighted according to the 2001 Census.
3. The expanded definition of the labour force includes discouraged work seekers.
4. The change in definitions of the broad unemployment rate renders the 2009 estimate incomparable with those of 1995 and 2001.
5. AAG is Average Annual Growth. Growth rates in this table are compound annual growth rates and were calculated using the 1995 and the 2009 estimates. Therefore, they may not match the other growth rates which were computed as the average of the annual growth rates from 1995 to 2009.
6. The estimates here employ the 'hybrid' labour market definitions for the OHS and LFS. Since the analysis of long term labour market trends in this paper required using the OHS, LFS and the QLFS surveys, we attempted to use a labour market status definition for the OHS and LFS surveys that was comparable to the QLFS surveys. These 'hybrid' labour market definitions for the OHS and LFS were constructed based on the definitions of 'employment', 'narrow unemployment', 'discouraged workers' and 'inactive workers' employed in the QLFS[1]. It is this hybrid labour market status definition that is utilised in the analysis in this paper. Nevertheless, it must be noted that the hybrid definition employed here is not a perfect remedy to the problem of comparability between the OHS and LFS surveys datasets and the new QLFS. Until such time as there is a time series of QLFS estimates of sufficient length, labour market analysis in South Africa will be vulnerable to these comparability issues.

During this period, the number of employed Africans grew significantly at an average annual rate of 3.5 percent per annum. Although both male and female employment increased between 1995 and 2009, female employment grew at twice the rate of male employment. Indeed, the feminisation of employment is a key trend observed in the post-apartheid labour market (see Casale, 2004; Casale & Posel, 2002).

Selected results from our estimates of employment probabilities and mean (semi-logarithmic) earnings are presented in Figure 1 and Figure 2 below. The econometric results suggest that race, some 15 years after apartheid ended, continues to define the probability of participation, employment and earnings in the South African labour market.

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[1] It is worth noting that in the construction of the hybrid labour market definitions for the OHS and LFS, each of the labour market states were specifically and individually coded, whilst the 'status' definitions created by Statistics South Africa in the OHS, LFS and QLFS datasets are coded using 'residual coding', that is, all of the labour market states captured by the status variable are not explicitly coded in either of the two surveys. For instance, in the QLFS 'employment', 'unemployment' and 'discouraged workseekers' are explicitly coded, while 'inactive workers' are essentially the residual.

Figure 1: The Conditional Probability of Being Employed: Race, Gender and Age (1995, 2001 and 2009)

Source: OHS 1995, LFS 2001 and QLFS 2009 Quarter 3; own calculations.
Notes: 1.   Estimates shown are marginal effects from an employment probit and were significant at the one % level.
         2.   A Heckman-two step approach was used (Heckman, 1979).
         3.   The dependent variable was a binary variable equal to 1 if the individual was employed and 0 otherwise, using the expanded definition of unemployment.
         4.   Robust standard errors used and individual weights assumed.
         5.   The number of observations included was 42,955 in 1995, 43,820 in 2001 and 41,894 in 2009.
         6.   Provincial controls and controls for level of education and literacy included in all regressions.
         7.   The referent for the race, gender and age variables are African, male, and individuals aged between 15 and 24 years respectively.
   8.   The value of R-squared was 0.28, 0.22 and 0.23 for 1995, 2001 and 2009 respectively.

The coefficients for race are positive and significant in all the periods under review. Since African is our referent variable for race, our results show that Coloured, Asian and White workers have consistently been more likely to be in employment than their African counterparts. Hence, some 15 years after apartheid ended, the labour market continues to afford a greater advantage in securing employment to non-Africans. We expect this race effect, particularly in the context of the variables available here, to embed a series of omitted variables in our estimation equation including for example, the quality of schooling and higher education, the availability of social networks, the specific field of expertise studied by individuals, parental influence and so on. These factors, together of course with employer discrimination, retain particular importance in the South African context in terms of the predicted racial differences in employment outcomes. Ultimately then, whilst the race coefficients are reflective of employment gaps, the size of these differentials are probably biased upwards given omitted variable bias.

Our results also indicate that the gender differences identified in the participation equation are also prevalent in our employment equation. Females have consistently been less likely to be in employment than males over the three periods. This suggests that despite a rapid growth in employment of women, females on average, and conditional on a range of additional factors, are less likely to be employed than males for all years under scrutiny here.

The age dummies in general indicate that relative to young people aged between 16 and 24 years, all older individuals are more likely to be employed. This result was true in 1995 and for 2009, and is the statistical mirror image of the economy's extraordinarily high youth unemployment levels.

In Figure 2 below, earnings function coefficients by race and gender are presented. The sample is based on all individuals employed by the choice of broad unemployment. We replaced the 2009 period with 2007, as it is the latest year for which earnings information is available. For each year we report the standard Ordinary Least Squares (OLS) coefficient at the mean of the wage distribution. In all the estimations, earnings are measured by the log of the monthly total wage earned by each individual.

Figure 2: Earnings function estimates (1995, 2001 and 2007)
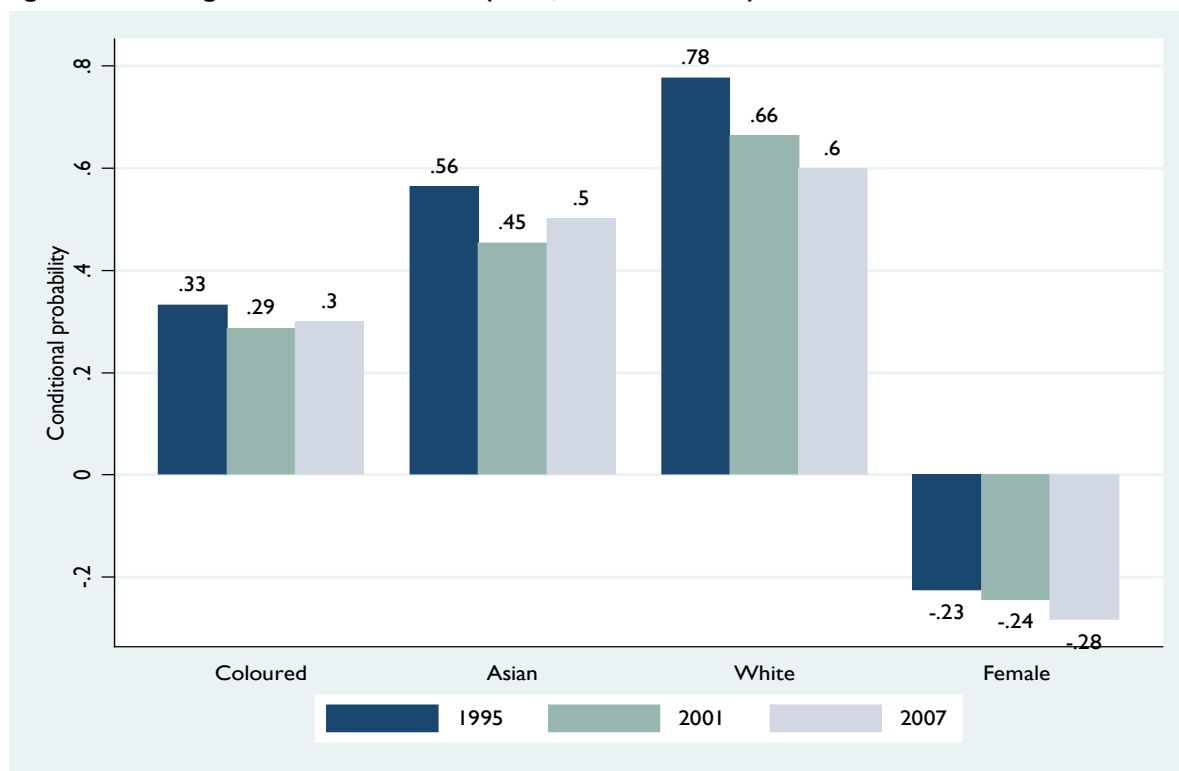
Source: OHS 1995, LFS September 2001 and 2007; own calculations.
Notes: 1. The dependent variable was the log of monthly earnings.
        2. Regression estimates shown were significant at the one percent level.
        3. A Heckman two-step model was implemented, consistent with the employment equation in Figure 1.
        4. Robust standard errors used and individual weights assumed.
        5. The number of observations included was 22,776 in 1995, 22,884 in 2001 and 22,936 in 2007.
        6. Controls were included for education, education of parents, province, occupation, sector of employment, experience, and experience squared, union membership and hours worked.
        7. The referent for the race, gender and age variables were African, male and individuals aged between 15 and 24 years respectively.
        8. The value of R-squared was 0.63, 0.66, and 0.63 for 1995, 2001 and 2009 respectively.

The results by race suggest that 15 years after the end of apartheid, racial differences in mean earnings remain. Hence in 2001, White workers earned on average 59.8 percent more than African workers, controlling for a range of factors. Two important nuances are worth noting here: Firstly as a measure of the conditional racial difference in wages, this is of course an over-estimate. Unobservable characteristics such as quality of human capital accumulated and so on – as in the estimates presented above from our employment equations – could be correlated in South Africa with race. The second perhaps more important result is that this conditional mean racial wage gap has declined significantly since 1995. Hence, whilst White employed individuals on average earned 77.6 percent more than their African counterparts, this premium declined by nearly 18 percentage points some 12 years later. The mean racial wage gap has therefore declined very rapidly in the post-apartheid labour market.

The same result though is not true for gender. Here the estimates indicate that the conditional mean gender wage gap has in fact increased since 1995, from earning 22.5 percent less than males in

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1995, women some 12 years later were earning 28.4 percent less.[2] This result implies that despite apparent gains in employment for women, the returns to employment have lagged behind those afforded to men.

Ultimately then, the above suggests at least three consistent trends regarding the labour market in the post-apartheid period. Firstly, it is evident that race and gender continue to define the probability of labour market outcomes; namely employment and earnings in the South African labour market. In particular, African women are on average less likely than Whites and males to find a job and when in employment; their conditional wage is significantly lower than White male employees. A second key result is that whilst the conditional mean racial wage gap (African-White) has declined in the post-apartheid period, the conditional mean gender wage gap has risen by around five percentage points when comparing male and female workers. Finally, age continues to be significantly and positively associated with a higher probability of employment and higher mean earnings.

2.2 Sectorally Uneven Employment Generation Since 1995

Aggregate employment growth in post-apartheid South Africa has been driven by the Financial and Business Services sector on the one hand and the Wholesale and Retail Trade sector on the other. The data shows that these two main sectors alone accounted for close to 2.3 million of the 3.4 million new jobs created in South Africa between 1995 and 2009. Put differently, 66 percent of all employment generation in post-apartheid South Africa can be located within these two sectors.

Table 1: Sectoral Distribution of Employment Change 1995-2009

	1995		2001		Q32009		AAG 1995 to 2009	Change	
	'000s	Share	'000s	Share	'000s	Share		'000s	Share
Primary	1,696	17.9	1,732	15.5	**952**	**7.4**	**-2.4**	**-744**	-22
Agriculture	1,247	13.2	1,178	10.5	**653**	**5.1**	**-1.7**	**-594**	**-17.3**
Mining	449	4.8	554	5.0	299	2.3	-2.9	-150	-4.4
Secondary	1,988	21.0	2,348	21.0	**2,861**	22.2	**3.1**	**873**	25
Manufacturing	1,452	15.4	1,620	14.5	**1,723**	13.4	**1.6**	**271**	7.9
Utilities	86	0.9	94	0.8	81	0.6	-0.2	-5	-0.2
Construction	449	4.8	634	5.7	**1,057**	**8.2**	**7.7**	**608**	17.7
Tertiary	5,774	61.0	7,058	63.1	**9,064**	**70.4**	**4.4**	**3,290**	96
Retail	1,684	17.8	2,454	22.0	**2,852**	**22.1**	**6.9**	**1,168**	34.1
Transport	483	5.1	546	4.9	**737**	**5.7**	**3.8**	**254**	7.4
Finance	592	6.3	1,035	9.3	**1,682**	**13.1**	**8.3**	**1,090**	31.8
CSP	2,205	23.3	1,989	17.8	**2,627**	**20.4**	**2.6**	**422**	12.3
Private Household	809	8.6	1,034	9.2	**1,166**	9.1	**2.7**	**357**	10.4
Total	9,458	100	11,179	100	**12,883**	100	**2.8**	**3,425**	100

Source: OHS 1995; OHS 1997; LFS September 2000-2007; QLFS Quarter 1-4, 2008 and Quarter 1-3, 2009 (Statistics South Africa).
Notes: 1.   AAG is the average annual growth rate, estimated as the average of the growth rates from 1995 to 2009.
          2.   Other and unspecified categories are not shown here.
          3.   Bold indicates that the change between 1995 and 2009 was statistically significant at five percent.

The secondary sectors also experienced employment expansion over the 15-year period, with Manufacturing and Construction adding approximately 271,000 and 608,000 jobs respectively. The poor performance of Manufacturing however, reflects a wider concern around both the lost opportunities in Manufacturing since the 1960's and the sector's on-going lack of dynamism and competitiveness in the post-apartheid era.

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[2] The changes in nominal mean monthly earnings by race and gender from 2001 to 2007 are statistically significant at five percent. The changes in real mean monthly earnings for males and females between 2001 and 2007 are statistically significant at the five and 10 percent levels respectively, whilst the real mean monthly earnings of Africans and Whites rose significantly between 2001 and 2007 at the five percent and 10 percent levels of significance respectively. Changes in real mean monthly earnings for the other race groups over the period are statistically insignificant.

However, an important part of the above analysis requires additional nuance. Hence, in what follows below, we provide a more detailed examination of the employment trends observed within the two largest job generators in the post-apartheid period, namely Financial and Business Services, and Wholesale and Retail Trade. We provide below the change in employment, in absolute terms, for the various sub-sectors within Financial and Business Services. The data suggests a key result: Of the total number of jobs created within this sector since 1995, the overwhelming majority of these have been in the sub-category defined simply as 'Business Services Not Elsewhere Classified'. Specifically, the data indicates that over the 1995-2007 period 77 percent of all the jobs created within Financial and Business Services were created in this 'Business NEC' or 'Other' sub-sector. Put differently, of the close to 1.2 million jobs generated in this sector, about 900,000 emanated from 'Other financial and business services'.

Figure 3: Change in Employment (thousands), 1995-2009: Financial and Business Services, by Sub-Sector
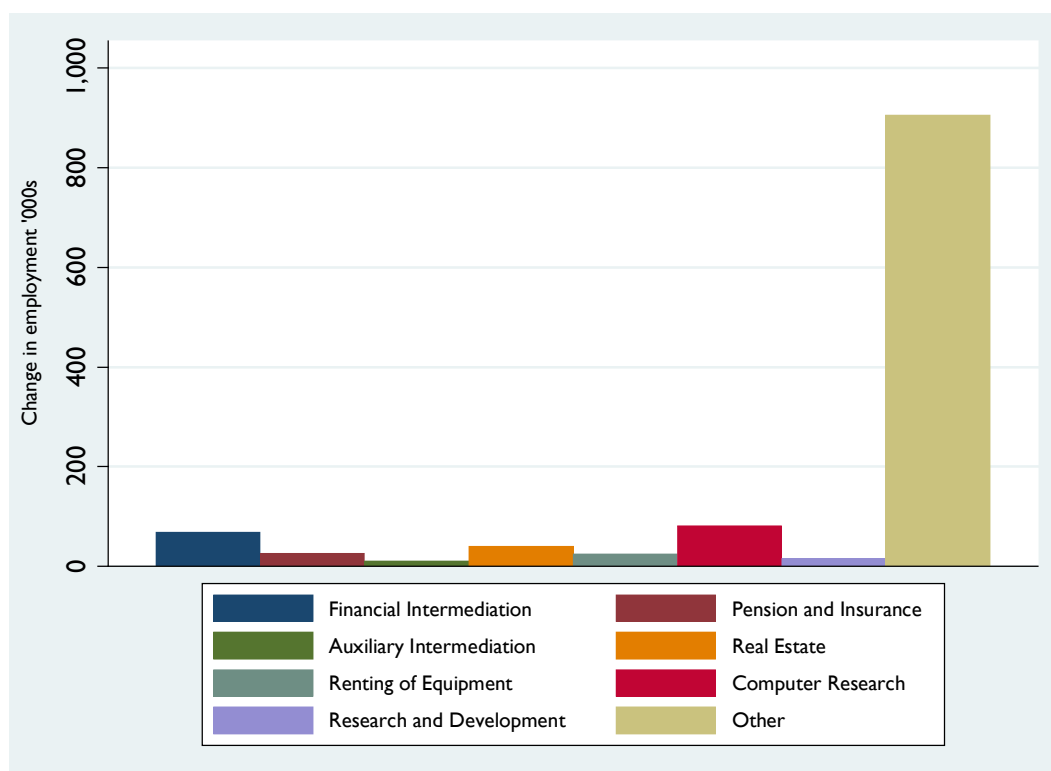
Source: OHS 1995; LFS September 2000-2007; QLFS Quarter 1-4, 2008 and Quarter 1-3, 2009 (Statistics South Africa).
Notes: Subsectors shown are Financial Intermediation, Pension and Insurance, Auxiliary Intermediation, Real Estate, Renting of Personal Equipment, Computer Research, Research and Development, and Other.

Closer inspection of this category reveals that it includes mainly employment agency, labour brokering (or Temporary Employment Services) and security services activities.[3] This result suggests that job growth within the Financial and Business Services main sector has effectively been driven by the rapid rise in two nodes of economic activity – security services and labour brokers. This is a critical result, as it suggests in part, that the high incidence of crime in South Africa has in fact resulted in a rapid employment expansion within the sub-sector providing crime prevention services. In addition, the rise in the use of employment agencies, long noted in public debates in South Africa, is now powerfully evident in these numbers. There would be two important caveats here. Firstly, clearly outside of employment agencies and security services, other activities within this sub-sector will have generated employment. Hence, the over 800,000 jobs within this sub-sector would not all be representative of security workers and labour broker employees. Secondly, given the fact that sector of employment is self-reported by individuals within the surveys used, the growth in labour broker

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[3] This sub-category consists in the main of activities noted officially in the survey codebook as: "labour recruitment and provision of staff; activities of employment agencies and recruiting organisations; hiring out of workers (labour brokering activities)**;** disinfecting and exterminating activities in buildings; investigation and security activities; building and industrial plant activities; photographic activities; packaging activities; other business activities; credit rating agency activities; debt collecting; agency activities; stenographic, duplicating, addressing, mailing list or similar activities; other business activities".

employment in particular may be an under-estimate of the true growth in jobs within the labour broker sub-sector. Finally, it should not be overlooked however, that outside of employment agencies, there was also a rapid rise in the growth of employment within Financial and Business Services. Hence, whilst off a low base in actual employment numbers, sub-sectors such as computer services, Research and Development, real estate services, renting of equipment and so on, in many cases witnessed an annualised growth in employment of 10 percent on average over the 14-year period under review.

In an attempt to shed some light on the implications of the first caveat mentioned above, the changes in the three main occupation groups[4] represented in the Business Activities Not Elsewhere Classified (NEC) category (notably Protective Service Workers Not Elsewhere Classified (NEC), Helpers, cleaners in offices, hotels, etc. and Farmhands and Labourers) are shown for the periods 1999 to 2011 and 2001 to 2011 in Table 3.[5] These subcategories were identified using the four digit occupational codes in the OHS and LFS surveys for individuals employed in the Business Activities NEC sector. These three groups accounted for the largest share of those employed within this category[6]. The share of each subcategory in the Business Activities NEC sector is shown in parentheses.

The results show that Protective Services Workers Not Elsewhere Classified[7] accounted for between 42 and 47 percent of employment in the Business activities Not Elsewhere Classified category. Helpers and cleaners in establishments such as offices and hotels accounted for the second largest share, which may be a reflection of the increase in the use of contract cleaning services over the period.

Table 3: Change in Employment: Business Activities Not Elsewhere Classified ("Other")

	1999	2001	2011	Average Annual Growth Rates	
				1999-2011	2001-2011
Business Activities NEC Selected occupations within this subsector	312, 401	398,022	810,035	8.3 %	7.4 %
	147,165	169360	349,885	7.5 %	7.5 %
Protective Services Workers NEC	*(47.1%)*	*(42.6%)*	*(43.2%)*		
Helpers, cleaners in offices, hotels, etc.	40,715	58,774	144,265	11.1 %	9.4%
	(13.0%)	*(14.8%)*	*(17.8%)*		
Farmhands and Labourers	131	0	49,167	63.9 %	...
	...	...	*(6.1%)*		
Total Employment South Africa	**10,411,239**	**11,178,049**	**13,343,731**	**2.1%**	**1.8%**

Source: OHS 1999: LFS September 2001; QLFS Quarter 4, 2011 (Statistics South Africa).

Though we consider different time periods here, the results above confirm that employment in the Business Activities Not Elsewhere Classified category increased at a much faster rate than aggregate employment.

Finally, in 2011 almost 50,000 of the employed in this sub-sector were classified as Farmhands and Labourers, in contrast to zero in 2001 and only 131 in 1999. While the absolute number of these

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[4] These are the main occupations in the second quarter of 2011.

[5] The detailed occupations were not recorded in the 1995 OHS.

[6] The three occupational groups (protective services, helpers and cleaners, and farmhands) were classified using the four digit occupational codes in the surveys for the Business Activities NEC sector only. Therefore the estimates provided here do not represent all the individuals in the three occupations who fall into other sectors (e.g. the total for farmhands is only for individuals who were coded as Farmhands in the occupational codes and who were employed within the Business Activities NEC sector).

[7] The category specifically includes security guards, security patrolmen, security patrolwomen, bodyguards, coastguards, beach guards, lifeguards, beach patrolmen, beach patrolwomen, traffic wardens, game wardens, bird sanctuary wardens, wildlife wardens, taxi-guards, traffic coordinators.

workers is small in 2011, the enormous growth rate can be seen as evidence of the increased number of labour broker workers employed as farm-hands and labourers.

To summarise, it is extremely difficult to accurately estimate the total number of workers employed in the labour brokering industry using official labour force data. It can, however, be assumed that a significant share of these workers are recorded in the official surveys in the sub-sector "Not Elsewhere Classified" within the Financial and Business Services Sector. As discussed above, this sub-sector accounted for a significant share in total employment growth in the post-apartheid period and can therefore be considered a key driver of job creation in the South African labour market.

Given the total employment growth within Wholesale and Retail Trade of 1.2 million jobs since 1995, the data below disaggregates by the four sub-sectors for which it is possible to generate a consistent series over the 14-year period. Employment creation within the sector, it is evident, is slightly more evenly distributed relative to Financial and Business Services. However, one sub-sector, namely 'Non-Motor Retail', dominates employment creation within the overall sector. Estimates reveal that this sub-sector generated about 770,000 of all the jobs in Wholesale in Retail, constituting 66 percent of all the jobs created in the main sector.

Figure 4: Change in Employment (thousands), 1995-2009: Wholesale and Retail Trade, By Sub-Sector
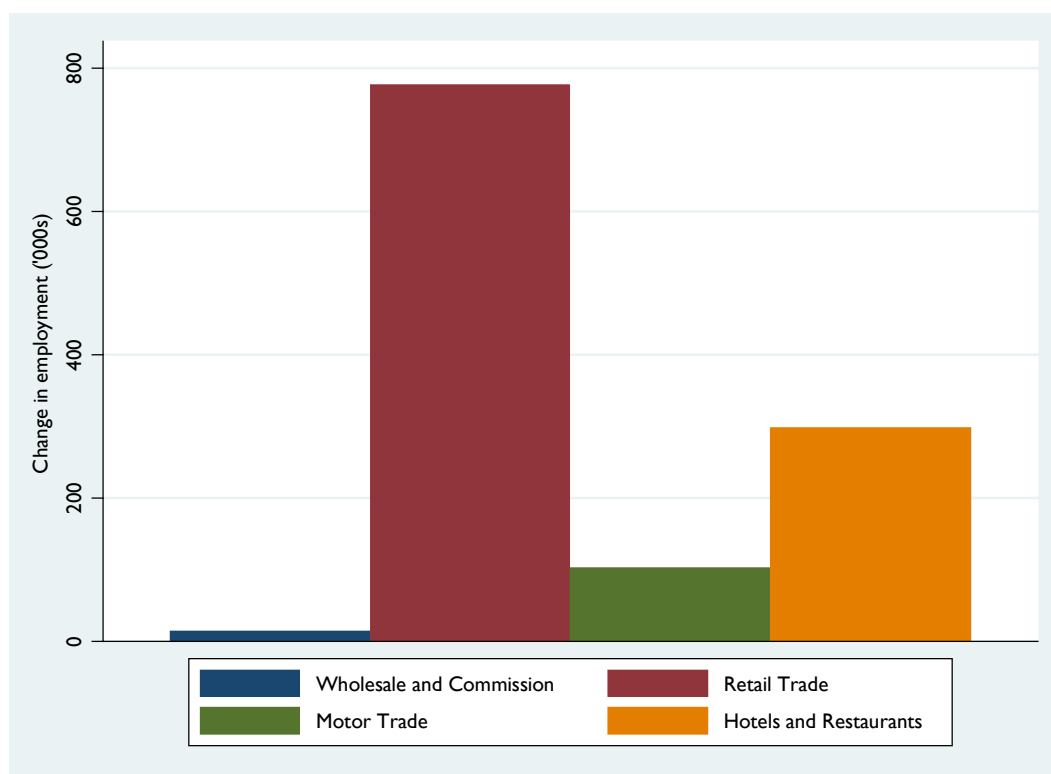
Source: OHS 1995; LFS September 2000-2007; QLFS Quarter 1-4, 2008 and Quarter 1-3, 2009 (Statistics South Africa).

This is followed by the 'Hotel and Restaurants' sub-sector where some 300,000 jobs were created, at an average rate of 12.3 percent per annum. This was notably at a growth rate higher than within the non-motor retail industry. Of relevance here also, is the fact that the largest share of employment creation within the latter industry in 2009 accrued to a category coded as 'Sales Not In Stores'. This would of course be a strong proxy for the informal sector. Indeed, in 2009, the 'Sales Not In Stores' employment constituted some 35 percent of all employment within non-motor retail industry. Whilst we do not dwell in detail here on the informal sector, this result does suggest that the informal sector has emerged as a key generator of employment within the Wholesale and Retail sector.

The sectoral results above therefore point to at least five key trends in employment in the post-apartheid period. Firstly, almost all the employment expansion since 1995 can be attributed to the tertiary sector and in particular, the Retail and Finance sectors. Secondly, growth in jobs in the

secondary sector was relatively unspectacular, and where there was an expansion this tended to be dominated by the Construction industry. Thirdly, and perhaps most worryingly, the sharp and significant absolute decline in the number of jobs in Agriculture and Mining is manifest of these sectors' declining share of GDP in the domestic economy. Fourthly, our detailed sub-sectoral analysis suggests that within these two job-generating main sectors, it has been sub-sectors such as security services; employment agencies (or labour brokers) and of course the informal sector which have dominated these employment shifts. In one sense this result alludes to the fact that job creation in the 14 years since 1995 has been dominated by atypical forms of employment – of employment not necessarily characterised by formal sector, and wage employment wherein the relationship between the direct employer and employee is underwritten by legislation. Finally, it is also possible to caricature South Africa's employment shifts since 1995 as characterised by a rise in employment in two services sectors on the one hand, and a collapse in demand for the unskilled-intensive extractive industries on the other.

2.3 The Skills Mismatch between Labour Demand and Supply

The figure below shows the changes in aggregate employment by education level during the 1995 to 2009 period. As the estimates indicate, since 1995 the fastest growth in employment was registered by better educated individuals, that is, those with a Grade 12 (4.8 percent per annum), a Diploma/Certificate with Grade 12 (5.8 percent per annum) or a Degree (7.1 percent per annum) qualification. The estimates are a signal that skills-biased labour demand shifts have characterised the post-apartheid period. Most notably, individuals with a Grade 12 or a tertiary qualification have gained the most since 1995.

Figure 5: Aggregate employment by education level 1995-2009 (percentage change)
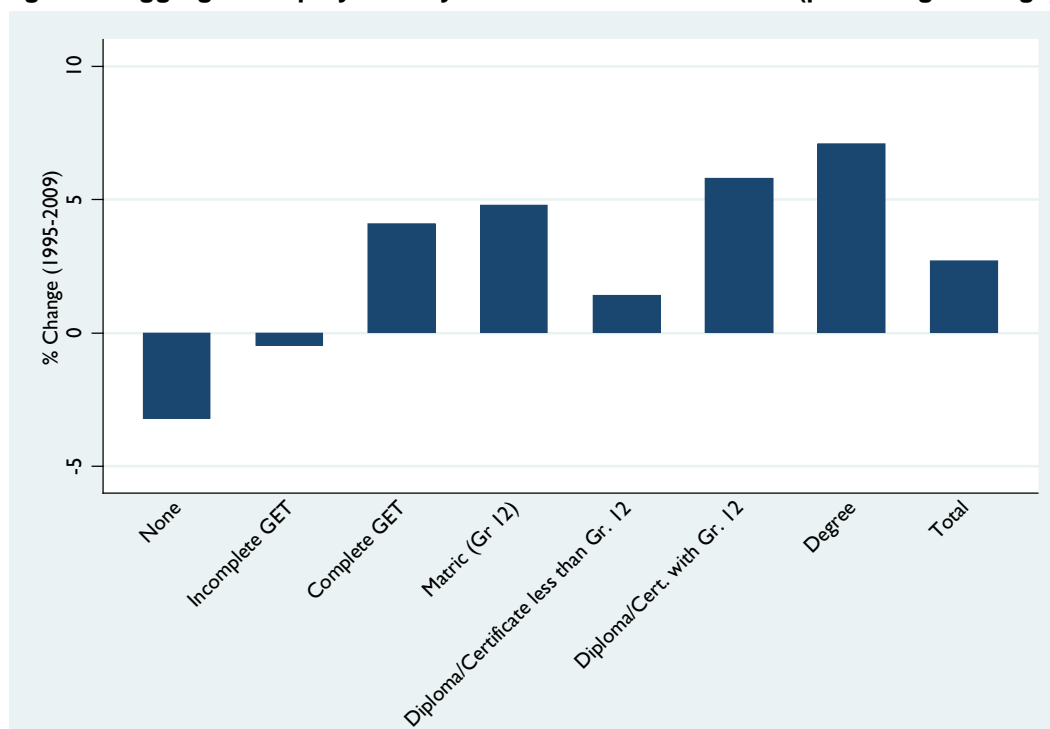
Source: OHS 1995; QLFS Quarter 3, 2009 (Statistics South Africa).

In order to investigate the relationship between trends in wages and employment, the figure below shows the relationship between the annual growth rate in the log of employment and in the log of real monthly wages over the 2000 to 2007 period. Since we normally expect employment adjustments to occur at a minimum in period $t+1$ for wages set in period t given the existence of contractual and regulatory constraints, the growth rates for the lagged wages for period t-1 are plotted with the growth rates for employment in period t. In addition though, in order to test this relationship relative to economic growth in particular, we also include the rate of output growth over the period. The results in general show a weak but positive relationship between the annual percentage change in employment and lagged real monthly earnings.

**Figure 6: Growth in Log Real Monthly Wages, Employment and GDP, 2000-2007**
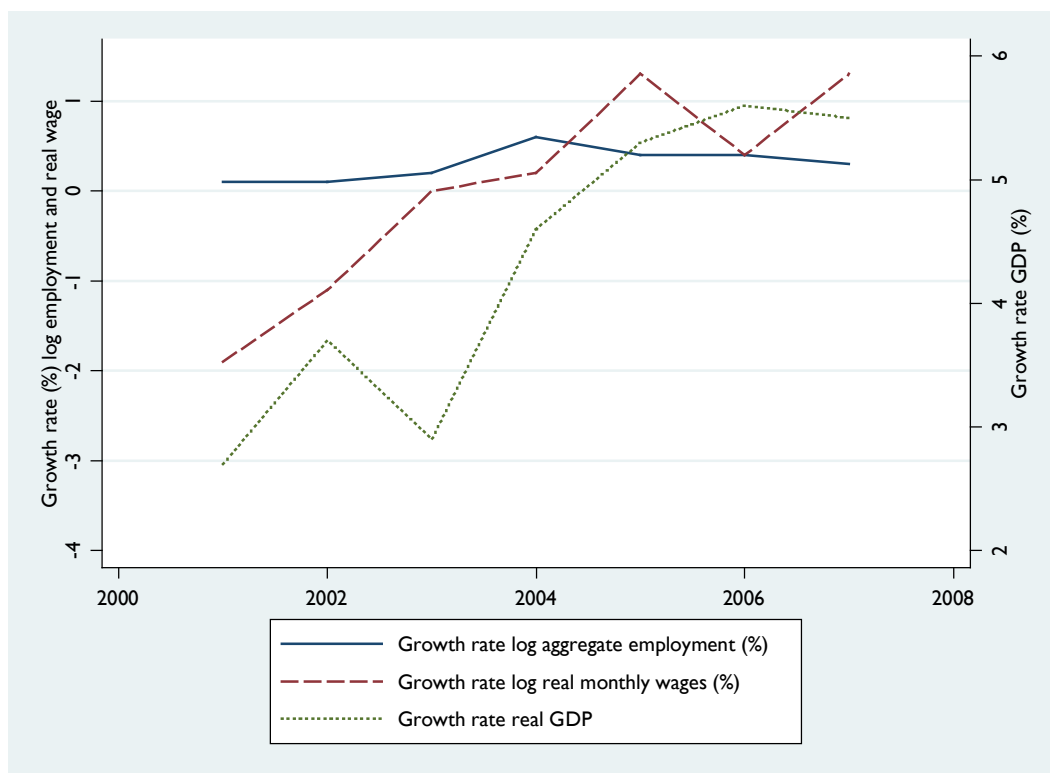
Source: Own calculations using September Labour Force Surveys (Statistics South Africa) from 2000 to 2007.
Note: 1.   Wages are in constant 2005 prices.
          2.   Wages were estimated using the midpoint of the monthly brackets.
          3.   Growth rates are annual percentage changes in the log of real monthly wages, the log of employment, and
                    real GDP respectively (constant 2005 prices).

The simple elasticity stands close to zero until about 2003, when it begins to turn positive for the rest of the period.   From about 2003 onwards then, one finds evidence, noted above, of rising real average wages and employment in the South African economy.   In addition, visually it is clear that positive economic growth was also associated not only with a rise in employment, but also a steady rise in the log of real monthly wages, although crucially it is clear that real wage growth only turns positive in the last four years of this period.   Certainly though, there is tentative evidence that, as economic growth begins to gain momentum, positive real wage growth occurred.

Labour market data from industrialised countries has often shown an increase both in the relative wages of skilled (tertiary education) to unskilled (high school education or less) workers, as well as in the ratio of employment for these workers across time.   The graph below then, presents the ratios of the real monthly wages of skilled workers relative to unskilled workers (W_s/W_u) as well as the ratio of skilled to unskilled employment (N_s/N_u) in 2001 and 2007. Skilled individuals are defined here as those with a tertiary education, whilst unskilled individuals are those with a Matric education or lower.

Figure 7: Skilled-Unskilled Relative Wages and Employment, 2001-2007
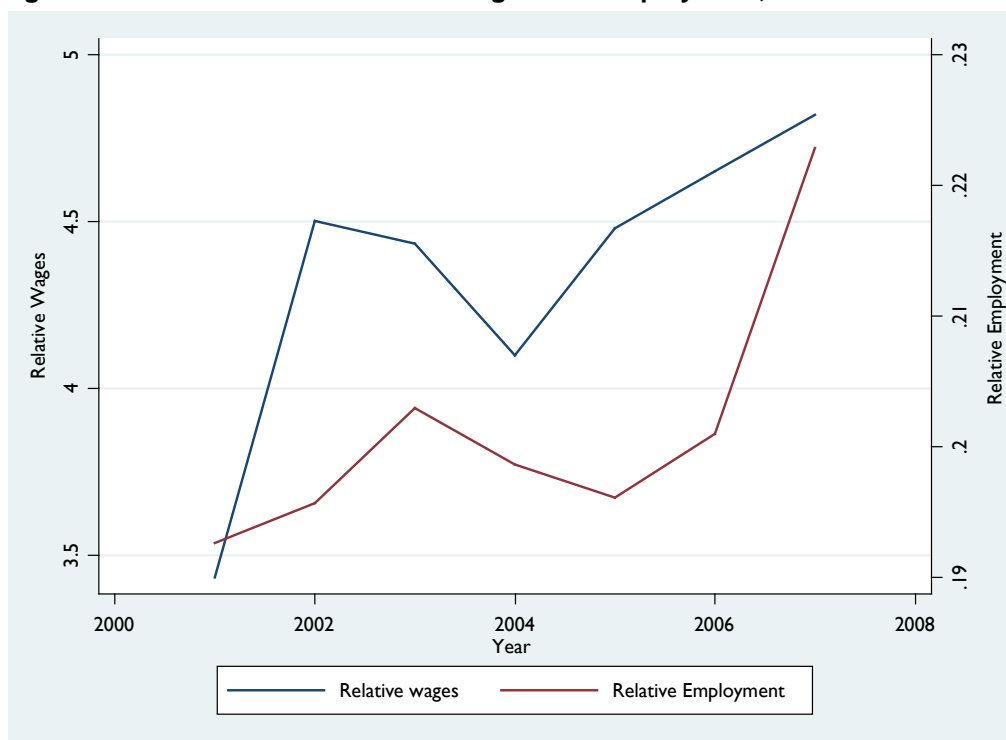
Source: LFS September 2001 and 2007, Statistics South Africa.
Note: 1. Wages are in constant 2005 prices.
2. Wages were estimated using the midpoint of the monthly brackets.
3. Skilled workers are defined here as workers with a graduate education, that is, a tertiary qualification. Unskilled workers are those with a high school education or less, that is, a Matric education or lower.

Over the period 2001 to 2007, both the ratio of (skilled-unskilled) wages and the concomitant ratio of skilled-unskilled employment rose. Specifically, the results show that the ratio of real monthly wages of skilled to unskilled individuals increased significantly between 2001 and 2007 at 4.4 percent per annum, whilst the relative employment of skilled individuals rose by 4.7 percent. Put differently, this increase in the relative employment and simultaneously the relative wages of skilled to unskilled workers is strong evidence of labour demand preferences driven by skills-biased technical change.

2.4 The Institutional and Regulatory Environment Remains Critical

Wage formation in the South African labour market is effectively managed, governed and operationalised through two key avenues. These are firstly, through institutionalised bargaining between employer and employee representatives, and secondly through government-mandated wage minima (known as sectoral determinations) set for very specific sectors. In the former case this bargaining takes place through either a formal bargaining council (usually sectorally representative) or more informal bargaining fora (Godfrey, 2007). The state only involves itself, by means of sectoral determinations, in sectors which tend to be unorganised, or those deemed to contain a disproportionate share of low paid, vulnerable workers.

Bargaining councils (known as industrial councils before 1995) are therefore the key institutions involved in the statutory system of collective bargaining and wage determination in the South African labour market. Although the share of formally employed who were members of a bargaining council doubled from 15 to 32 percent between 1995 and 2005, this accounted for less than a third of formal employment. Most of the increase in bargaining council membership during this period was driven by the public sector, whilst private bargaining council membership stagnated or declined.

A bargaining council can be established by one or more registered trade unions and one or more registered employer organisations for a specific industry and area[8]. Worker interests are therefore represented at a bargaining council by the representative trade union. Both trade unions and

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[8] In other words, unionized and non-unionized firms may co-exist within the same industry.

bargaining councils have claimed to be contributing to labour market inflexibility, and specifically wage inflexibility.

South Africa's strong trade union movement has often been raised as a key determinant of South Africa's high unemployment levels. Simply put, it has been argued that representative trade unions in South Africa, over time, have engendered a highly segmented labour market, ensuring that large numbers of the unemployed are excluded from work opportunities through the protection (in terms of wages and benefits) which trade unions offer to their members. By 2007, the data shows that South Africa had approximately 3.4 million individuals who reported being members of a union. This represented a union density of 26 percent, which importantly though, according to a range of OECD cross-country estimates, places South Africa in the middle of a range of OECD economies. Hence, South Africa's union density levels are not unusually high or low.

Much of the discussion on the role of trade unions in possibly engendering high levels of unemployment tends to revolve around the wage premia associated with bargaining council and trade union membership. Evidence indicates that public sector bargaining council members earn more than private sector bargaining council members, as well as more on average than non-bargaining council members. Bhorat, Goga and Van der Westhuizen (2012), using the 2005 Labour Force Survey, estimate the union wage gap controlling for both firm-level and job characteristics. When correcting for endogeneity of union status through a two-stage selection model and including firm size, the type of employment and non-wage benefits in the wage estimations, the estimated wage premium for formal sector African workers in the public sector (who are both union members and covered by bargaining council agreements) stands at 22 percent (*a+n+t* in Table 4 below).

Their estimates are presented in Table 4 below. The sample for the earnings estimations comprises all African, working-age, formally employed individuals who provided wage information in the survey. Earnings in the estimation are based on the log of total monthly wages.

Table 4: Union-Wage Premia in South Africa – Earnings Function Estimates, 2005

	I	II	III
Union (a)	0.0588**	0.0666**	0.068**
BC Dummy (b)		0.0894**	
BC Union Interaction (c)		-0.0038	
BC Private (m)			0.0859**
BC Public (n)			0.0995**
BC Private Union Interaction (s)			-0.0871
BC Public Union Interaction (t)			0.0323

Source: Bhorat, Goga and Van der Westhuizen (2012)
Notes: 1. The data are weighted using 2001 Census weights.
2. The dependent variable is the log of monthly wages.
3. *** - significant at the one percent level; **- significant at the five percent level; * - significant at the ten percent level.
4. The following personal characteristics were included: gender, a five-level education spline, whether the person is married or not, whether the person is the head of his/her household or not, whether the person resides in a metro area, and province controls.
5. General job characteristics included were occupation controls, industry controls, experience, experience squared, hours of work and a dummy for self-employment. Additionally, controls for type of job and firm size were included.
6. Estimates presented here use an instrumental variable approach to control for the endogeneity of union status.

The results from specifications I and II show that union members outside of the bargaining council system earned a premium of between 5.9 and 6.7 percent (a). In turn, the results indicate that workers covered by bargaining councils (but not belonging to unions) earned a 8.9 percent (b) premium over non-union workers not covered by bargaining council agreements.

Specification III separates those covered under agreements in the private sector from those covered by Public Service Co-ordinating Bargaining Council (PSCBC) agreements. The results suggest that the bargaining council premium for non-union members in both the private and public sector is positive and statistically significant, though the premium in the private sector is slightly lower, standing

at 8.6 percent (*m*), compared to the premium in the public sector of nearly 10 percent (*n*). It is clear then that bargaining council coverage (outside of union membership), in both the private and public sectors, is associated with a premium, though the premium is higher in the public sector. This suggests that bargained wages within both the private and public bargaining council systems are extended to non-unionised workers.

In turn, the union premium within the private bargaining council sector (*a+s*) is not significant. However, since the sum of the coefficients on the private bargaining council dummy and the private bargaining council-union interaction term (*s+m*) is not significantly different from zero, we can infer that irrespective of bargaining council coverage, unions attempted to win certain wage increases for their members in the private sector. Thus, we deduce from this result that unions which negotiated at the bargaining council level supplemented the minima negotiated with plant-level awards – not observed directly but deduced – when necessary.

Finally, considering the wage premium to union members within the PSCBC system, the results show a significant union premium within the PSCBC of 11 percent (*a+t*). Furthermore, since both *a+t* and *n* are positive and significant, it follows that union members won supplemental awards, relative to non-union members, for their members at the plant level. The total premium to these union members stands at 22 percent (*a+n+t*).

A final crucial result is that these estimates show that when we control for job and work characteristics, the conditional union-wage premia in South Africa is between six and seven percent. These results suggest that the union wage premia in South Africa are within the range of other developing country estimates (World Bank, 1995).

It appears then that estimates of union wage premia in South Africa from previous studies (Moll, 1993; Schultz and Mwabu, 1998; Azam and Rospabe, 2007; Banerjee et al., 2008) may be overestimated due to the exclusion of key controls that capture both firm and job characteristics, which are strongly associated with average earnings. This finding highlights both the importance of including firm and work characteristics in the wage equation, as well as the fact that the union wage premium, though significant, is possibly lower than implied in previous studies.

Another reason often sought for the economy's unemployment levels is that of the labour regulatory environment. The World Bank's Doing Business Survey provides objective measures of the costs of business regulation within an economy. We concentrate, in what follows below, on the labour regulation module within the survey.

Table 5 presents the means of the aggregated measures of regulation by country income level, as well as the estimates for South Africa. The rigidity of hiring index measures whether fixed term contracts are prohibited for permanent work, the maximum duration of fixed term contracts, as well as the minimum wages for trainees relative to the average value added per worker. The rigidity of firing index has a range of components which examine and evaluate specific dismissal clauses in the labour market legislation. The rigidity of hours index measures the various restrictions around night work, weekly holiday work as well as limits on the duration of a workweek and overtime work. The aggregate employment index (also referred to as the rigidity of employment index) is simply the average of the three sub-indices and thus presents an estimate of overall employment rigidity. Finally, the firing cost index measures the costs associated with terminating the employment of an individual in terms of the legislated notice period requirements, severance payments and other penalties.[9]

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[9] More information on the methodology used is available from
http://www.doingbusiness.org/MethodologySurveys/EmployingWorkers.aspx

Table 5: Mean Measures of Regulation, by Income Level, 2010

Area of Regulation	Low Income	LMI	UMI	South Africa	Total
Rigidity of Hiring	34.43	30.02	29.97	56.00	29.88
Rigidity of Firing	34.90	29.45	26.18	30.00	28.85
Rigidity of Hours	25.31	22.36	24.68	20.00	23.75
Aggregate Employment Index	*31.55*	*27.29*	*26.97*	*35.00*	*27.49*
Firing Costs	65.08	50.04	40.29	24.00	48.63

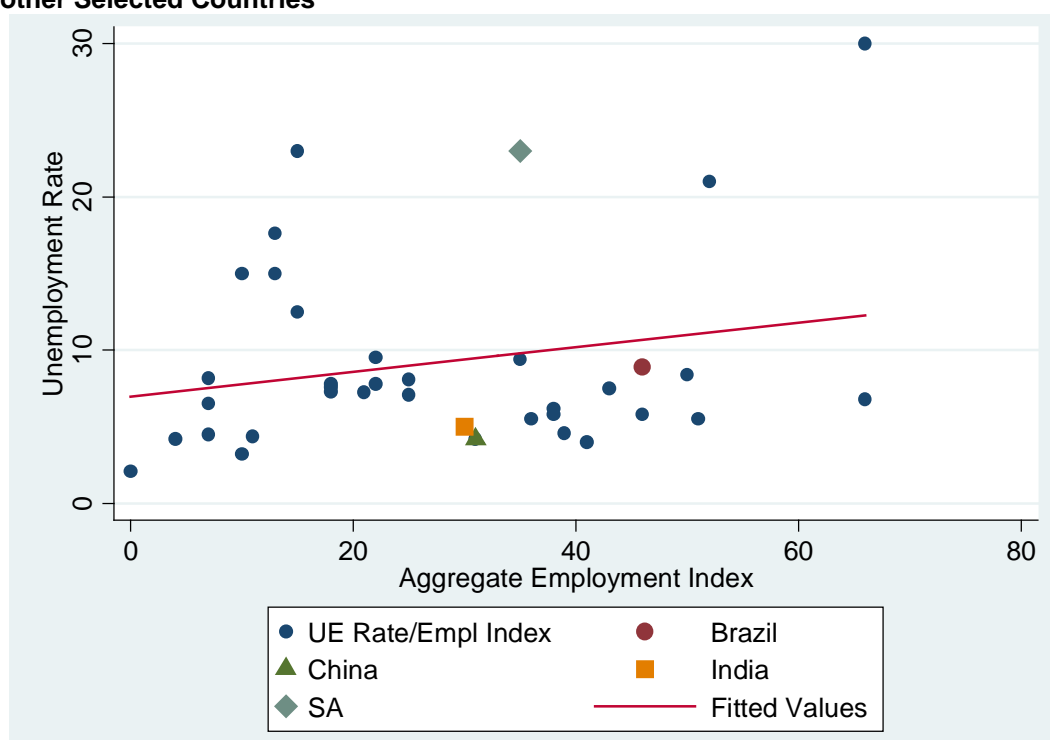Source: World Bank (2010) and authors' own calculations
Notes: Results may be biased due to small sample variance.

The results for South Africa indicate a relatively high level of difficulty of hiring workers, with the value of this index above the averages for all country income groups and indeed well above the average for all countries. The rigidity of hiring index value of 56 places South African at position 151 of 183 economies sampled in 2010. The country's value for the rigidity of firing index suggests that South Africa is only slightly above the global average, while the value for rigidity of hours index is less than the global average. Primarily as a result of the perceived difficulty of hiring in the country, South Africa has an aggregate employment index value above all the averages for the different income groups, ranking it 120th out of 183 countries. The value for firing costs, on the other hand, is far below the global average.

Figure 8 illustrates the relationship between the official unemployment rate and the value of the aggregate employment index for the sample of upper middle income countries, as well as for China, Brazil and India. The positions of these three countries, as well as that of South Africa, are specifically highlighted in the figure. The trend line appears to illustrate that for this sample of countries there is a weak positive relationship between the unemployment rate and the value of the aggregate employment index. Put differently, a relatively higher level of rigidity of employment may be associated with a relatively higher rate of joblessness. A simple linear correlation of the relationship however, found that it is not statistically significant.[10]

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[10] A simple cross-country regression of the narrow unemployment rate on the aggregate employment index yields a statistically insignificant coefficient.

Figure 8: Comparison of Aggregate Employment Index and Unemployment Rates for UMI and other Selected Countries

South Africa has the second highest rate of unemployment of the sample of countries, while the economy's relative level of rigidity is above average, but not particularly severe. As noted earlier, the country ranks at the 62nd percentile of the upper middle income country distribution. Brazil, in contrast, displays a relatively high level of aggregate rigidity but an unemployment rate of less than 10 percent. Both India and China have relatively benign levels of employment rigidity with values of 30 and 31 respectively (which are just slightly above the global average of 27.5) and relatively low levels of unemployment of less than five percent.

The above, albeit incomplete analysis, does confirm of course that unemployment will always be a function of a number of contributory variables. These may include labour regulation but will almost always include a range of additional demand- and supply-side factors. It is therefore not only incorrect, but also analytically incomplete, to exclusively focus on labour regulation when debating the causes of the high levels of unemployment in South Africa. This is in part supported by the evidence presented above, suggesting a statistically insignificant relationship between unemployment and employment rigidity using cross-country data.

It must be remembered however, that on the basis of the above evidence, South Africa does display a higher than average level of employment rigidity, driven by its relatively high levels of perceived hiring rigidity as well as its above average levels of firing rigidity. This suggests that in the current environment, any notion of a lack of flexibility within the South African labour market lies specifically within the areas of hiring and firing provisions. Legislation that governs fixed term contracts and the clauses governing dismissals and unfair labour practices (particularly, but not exclusively, as applicable during probation periods) are, according to the evidence presented here, at the heart of the labour market flexibility debate in South Africa.[11]

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[11] A more detailed discussion on current debates in the labour regulatory environment has been undertaken in Bhorat et al. (2009), Bhorat & Cheadle (2009) and Benjamin et al. (2010).

2.5 The Quality of Higher Education and Labour Market Outcomes

The discussion above provided some evidence that the post-apartheid labour market in South Africa has been characterised by skills-biased shifts in employment, with the highest returns in employment and wages accruing to skilled individuals. In South Africa there is a mismatch between the types of skills supplied in the labour market and those demanded by firms. Indeed, the rising spectre of graduate unemployment is testimony to precisely this problem. Data for the post-apartheid period indicates that unemployment rates amongst those with post-matric qualifications, although low in absolute terms, have increased the fastest relative to other education categories since 1995 (Bhorat et al., 2006). In addition, closer inspection of this graduate unemployment sample reveals firstly that it is disproportionately an African graduate problem: In 2005 Africans constituted some 85 percent of all unemployed individuals with a tertiary qualification. Secondly, the majority of these unemployed graduates had in fact not obtained a degree as some 82 percent of the sample had earned a diploma from an institution other than a university. The important point here is that the type of institution attended, the field of study, and possibly even the quality of the tertiary qualification, are also crucial determinants of the differential labour market outcomes for African participants relative to non-African work-seekers (Bhorat et al., 2006).

Bhorat, Mayet and Visser (2009) tested this hypothesis by modelling the probability of graduates finding employment when controlling for a range of observable characteristics including field of study and type of institution in a multivariate context. The analysis was based on data from a survey collected by the Human Sciences Research Council (HSRC) in 2005. The survey collected data from individuals who were either graduates or non-completers during the 2000 to 2002 period from seven selected Higher Education Institutions (HEIs).[12]

Their results are shown in the table below. The dependent variable was binary, equal to one if the individual was employed.

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[12] The selected institutions were the University of Stellenbosch, University of the North, University of the Western Cape, University of Fort Hare, University of Witwatersrand, Technikon Pretoria, and Peninsula Technikon. The data was gathered from two postal surveys:, the 2005 Graduation Destination Survey and the 2005 Student Retention Survey. The questionnaires were sent via mail to the sample of graduates and leavers respectively between June and September 2005. Graduates were defined as students who fulfilled the requirements for qualification in 2002. The estimates contain a residual bias of students who were still studying, since these were not surveyed. Of the total survey population of 34,548 students within selected HEI, there were 5,491 valid responses, representing a return rate of 15.8 percent. The dataset was weighted.

Table 6: Probability of Finding Employment: Selected results from a Sample of HEI Attendees

Variable	Marginal effects
Graduated	0,0084
Female	-0,1658**
Technikon	0,0594*
Degree Qualification	0,0307
African from HBI	-0,2248**
African from HWI	-0,2647**
Coloured from HBI	0,0324
Coloured from HWI	-0,0505
Asians from HWI	0,1003
Other from HBI	0,1164
Humanities	-0,0274
Education	0,2127**
Commerce	0,0554
Other field	0,0641
Maths scores in Matric	0,0260**
Used social network	0,0199
26-35	0,0672**
36-45	0,01995**
46-55	0,1845**
Number Observed	2,965

Source: Results from Bhorat, Mayet and Visser (2009).
Notes: 1. **significant at the one percent level.*significant at the five percent level.
   2. HWI and HBI denote Historically White and Historically Black Institutions respectively.
   3. The referent group is Whites aged between 16 and 25 years who attended a Historically White University, were registered for a Degree or Diploma/Certificate qualification, and who did not use a social network in their job search.
   4. The reference for field of study is Science, Engineering and Technology (SET).
   5. Provincial and socio-economic controls were also included (results not shown here).

The key result here is that the coefficient of the dummy variable for Africans at Historically White Institutions (HWIs) is significant and negative. The result then suggests that even when fully controlling for differences due to the quality of education and field of study, Africans at HWIs still have a lower probability of finding employment than Whites at these institutions. Indeed, the dummy variables for race and gender are significant across all specifications of the employment probit. Being African lowers the probability of finding a job relative to being White, and being female lowers the probability in finding employment relative to being male, even when controlling for a range of individual characteristics.

Surprisingly, the graduation dummy is insignificant. This suggests that whether an individual completes a tertiary qualification or drops out halfway does not have any bearing on the probability of finding employment. This may be attributed to the fact that the leavers in our sample have completed some years of tertiary education and perhaps also acquired some workplace skills while at the HEI, which may give still give them an advantage over those without any tertiary education.

Another result worth discussing is that the field of study plays a key role in determining labour market outcomes. At first glance, the results may suggest that students who specialized in education have a higher probability of finding employment relative to those who concentrated in Science, Engineering and Technology (SET) fields. However, it is important to note that these results may be due to a sample size effect. Examining the enrolment by field and institution type we note that Africans constitute a dominant share of those who studied education in the sample (92 percent of the 3,555 enrolled in education in the sample were African). Indeed, less than two percent of Whites in the sample studied education. The higher probability of finding employment for those in education relative to those in SET fields may be explained further by the fact that in our sample, for those enrolled in SET fields, a large share were leavers (44 percent for the whole sample, and 54 percent of those from HBIs). Put simply, lower throughputs in SET have a significant bearing on the labour market outcomes for this cohort of non-completers.

The technikon dummy variable was found to be positive and significant across all four specifications, suggesting an increased probability of finding employment for individuals who studied at technikons rather than universities. Although this is in contrast to the findings for the LFS employment probit above, it must be noted that only two technikons in South Africa were included in this analysis.

The coefficient for the variable measuring performance in Mathematics at the Matric level was found to be positive and significant, suggesting that students who scored higher in Mathematics in their Matric examinations had a higher probability of finding employment than their counterparts who scored lower. This proxy for relative performance at the HEI could arguably be a factor influencing employer decisions in the hiring process. Employers may thus be using grade performance, in addition to whether an individual is a graduate or not, in their hiring process. However, even when controlling for grades obtained, Africans at HWIs and Historically Black Institutions were still found to have lower employment probabilities than their White counterparts.

The dataset also contained information on the job search methods used by both the unemployed and the employed in the sample. Thirty percent of the employed found their job through a personal contact. Furthermore, a significantly higher proportion of Whites had made use of a social network in the job search process than Africans. A dummy variable was created that was 1 if the individual used a personal contact, or social network, and 0 if another method of job search was employed (other search methods included advertisement, direct application, employment agencies and recruitment at the HEI). However, the coefficient for this variable was not statistically significant in the equation, suggesting that the method of job search did not impact on the probability of securing employment for this sample of graduates and non-completers.

Overall then, the results obtained show that, given labour demand needs, and a certain level of human capital, race still influences the probability of finding employment. Even when fully controlling for type of institution and degree, Africans at HWIs have a lower probability of finding employment than Whites. There are two possible reasons for this differential in employment probabilities for Africans and Whites at HWIs. The first is that employers continue to discriminate against prospective African candidates. The second is that there are other characteristics on the basis of which employer decisions are made, that could not be controlled for, given the information in the dataset.

Within the context of this paper, these results suggest that despite clear evidence indicating variously the presence of skilled wage premium, skills-biased labour demand trends and relative wage hikes for degreed workers – this transmission from human capital accumulation to employment is far more complicated. In addition, and this is the surprising yet key result here, we do need to understand more about preferences of South African employers as well as their specific decision-making framework when employing individuals, who at first glance appear to be equally certified.

3. CONCLUSION

Ultimately then, in terms of potentially identifying those causes of high unemployment within the labour market in post-1994 South Africa, our analysis in this paper suggests a number of possible candidates. In particular, we highlighted five key challenges in the South African labour market.

Firstly, race, gender and age continue to play a significant role in defining labour market outcomes. Our econometric evidence however, whilst confirming much of the race, gender and age determinants of employment and earnings, did suggest some important changes in the post-1995 period. On the one hand, it was clear that the average African – White wage gap had declined significantly in the 1995 – 2007 period. On the other hand though, the gender wage gap has grown since 1995.

Secondly, employment generation since 1994 has been sectorally uneven. Our sectoral results allude to a key outcome: namely that the vast majority of jobs since 1995 have been created in the Financial and Business Services and the Wholesale and Retail Trade sectors, whilst primary sector employment has declined. Within Financial and Business Services however, it has been the rapid rise in crime prevention services and temporary employment agencies, notably labour brokering, which have driven employment not only in this sector, but in the aggregate as well.

Thirdly, the skills mismatch between labour demand and supply continues unabated. It is clear that a labour demand pattern characterised by the disproportionate employment of the better educated and

skilled continues to be a strong feature of this economy. These results corroborate the evidence that labour demand patterns in South Africa have been characterised by a rise in the relative demand for skilled and semi-skilled workers relative to the unskilled. This in turn, in the face of a constrained supply of individuals with these characteristics, has resulted in significant higher returns for those with some form of post-schooling qualification. The latter, arguably, has ultimately engendered a growth path heavily skewed towards the better skilled and educated. This skills-biased employment shift has exacerbated the mismatch between labour demand and supply, so in part, fuelling the post-1994 unemployment numbers.

Fourthly, the institutional and regulatory environment remains critical in South Africa. The union-wage premia results are critical as they suggest much lower union-wage effects than past studies for South Africa. They also show however, that Bargaining Councils are instrumental in significantly raising wages of their members relative to non-members. The critical question is whether there is an argument for hypothetically curtailing union activity in order to maximize employment creation. The fact that the union movement in South Africa remains central to industrial relations and indeed broader social and political stability, makes any discussion of this sort simplistic at best and fallacious at worst. Within the regulatory and institutional environment then, the analysis above suggests that very specific aspects of the regulatory architecture are worth policy scrutiny. On the basis of the available evidence, South Africa does display a higher than average level of employment protection legislation, driven by its relatively high levels of perceived hiring rigidity as well as its above average levels of firing rigidity. This suggests that in the current environment, any notion of a lack of flexibility within the South African labour market lies specifically within the areas of hiring and firing provisions. Legislation that governs fixed term contracts and the clauses governing dismissals and unfair labour practices (particularly but not exclusively as applicable during probation periods), are at the heart of the labour market regulation debate in South Africa

Fifthly, the quality of higher education remains a critical constraint in finding employment. Evidence suggests that even when fully controlling for differences due to the quality of education and field, Africans at Historically White Institutions still have a lower probability of finding employment than Whites at these institutions. Indeed it is evident that South Africa's unique history renders the quality of higher education a particularly important part of the labour market outcome debate.

Whilst the paper has been deliberately analytical, and has steered clear of any specific policy suggestions or proposals, any employment creation proposals need to be mindful of the various issues raised above. Perhaps the most important conclusion to be drawn from the above is that within the area of labour market interventions and policies it is hoped that the trade-offs and choices often so stark within this domain, are appreciated and understood by policy-makers, in the pursuit of a job-generating growth path for South Africa.

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