Youth Unemployment and the Transition from School to Work in Cape Town

By

Cecil Mlatsheni

Submitted in Fulfilment of the Degree

Doctor of Philosophy

June 2014

Acknowledgements

I thank my supervisor, Professor Murray Leibbrandt, who has, over the years, shared his expertise selflessly and has patiently guided me to this point. I am truly indebted to him for all sorts of support, for his ability to inspire confidence and for his ever-positive outlook.

I thank my family, my wife Zuki and my two boys, for being a source of inspiration, stability and joy.

Youth Unemployment and the Transition from School to Work in Cape Town

Abstract

This thesis utilises, in the main, a unique panel survey of youth in Cape Town to gain insights into the functioning of the labour market in relation to transitions from schooling to work for youth. The Cape Area Panel Survey (CAPS) was conducted between 2002 and 2006, a period which coincides with upswing in the South African economy culminating in relatively high economic growth in recent history. The introductory chapters utilise cross-sectional data (Labour Force Survey, 2005) in order to contextualise the panel data analysis that follows in subsequent chapters. A large portion of the South African population is youth. Either this facet of the demography of the country can be converted to a positive social benefit through reaping a demographic dividend or a high price could be paid through carrying a large contingent of unemployed. Indeed, much of the country's social safety net, social returns on investments in education and health and even infrastructure depend on the absorption of youth into a productive place in society. The labour market sits centre stage of all of this. The softest version of the South African dream is that post-apartheid youth cohorts have better opportunities and possibilities than their parents. These intergenerational concerns require the delivery of better education and health care but also the opportunities to use these human capital investments in gainful employment. In the introductory chapter, the perspective taken is to look at the labour market entry situation through the eyes of the youth. What does the employment situation look like to the youth as they consider leaving education to enter the labour market? How does this labour demand picture mesh with their individual, household and community contexts that they bring into the labour market? Through this interrogation, the chapter teases out a few key barriers to youth labour market participation and employment. The operation of these barriers is then illustrated by looking at the reality of securing employment for South Africa's youth. In particular, the disparities in youth unemployment observed by age, race and gender are investigated in Chapter 2. This is done by using the Labour Force 2005 data (LFS 2005) and applying the residual difference method of decomposing group wage differences (Oaxaca, 1973) to discrete choice models. I find that most

of the employment gap by age is explained by individual characteristics. Slightly more than half of the racial employment gap however is unexplained by individual characteristics while an even higher percentage of the gender employment gap is unexplained by individual characteristics. In Chapter 3 the nature and degree of duration dependence in the Cape Town labour market is examined using survival analysis. The CAPS has month-by-month data on job search and employment and is ideal for the duration analysis. I find positive duration dependence and a monotonically increasing hazard of exiting unemployment. Chapter 4 then investigates the extent to which the disadvantage experienced in securing employment translates into disadvantage in wages in the first job. A decomposition analysis of the race and gender wage gaps is also carried out. I find racial and gender wage gaps that are largely unexplained by observable individual characteristics.

Table of Contents

Chapter 1: Introduction

1. Introduction

Unemployment in South Africa is not a new phenomenon although its priority status may seem to some to be a post-1994 feature. The earliest post-transition review of the South African labour market is the 1996 ILO country review by Standing et al. (1996), who report that most analysts agree that unemployment rose sharply in the 1970s and that this rise continued through the 1980s and 1990s. The Current Population Survey (CPS) estimated that the strict unemployment rate in 1970 was 12% and that in 1980 it was 20%. However, comparable figures for 1990 are not available as the CPS was discontinued because its credibility had been brought into question. In 1991 estimates using Population Census data reported unemployment of 19%. The Southern Africa Labour and Development Research Unit survey of 1993, using the broad definition (widely regarded as the more appropriate definition), placed unemployment at 30%.

Numbers aside, many of the current troubling issues with regard to the nature of unemployment were evident even prior to the mid-1990s. One example of such issues is the labour absorptive capacity of the economy, which is the percentage of new labour market entrants that are employed in any given year. The labour absorptive capacity of the South African economy was above 90% in the 1960s, it fell to 15% in the 1970s and 1980s, it was negative between 1991 and 1993, and it rose again to 7% in 1995 (Standing et al., 1996). Similar results were reported by Loots (1996) and Ligthelm and Kritzinger-Van Niekerk (1990). Another longstanding troublesome issue is that of unemployment duration. In the mid-1990s findings were that nearly two thirds of the unemployed had never worked for pay (Standing et al., 1996). This feature of the unemployed has persisted as the 2005 Labour Force Survey indicates that 99% of unemployed individuals have either never been employed or have unemployment durations exceeding three years. In sum, chronic unemployment is not a recent feature of the South African labour market. Instead, there has been a continuation of a negative trend of the economy struggling to beat unemployment.

Research focusing on youth unemployment also has precedents. However, improvements in the quality of available data (pioneered by the SALDRU 1993 household survey) changed the landscape of research into youth labour market participants and indeed labour market participants in general. Studies of youth unemployment prior to the mid- 1990s (see Everatt & Sisulu, 1992; Truscott 1993; Van Zyl Slabbert, 1994 among others) have mainly focused on two issues. Firstly, they have detailed the reasons why the circumstances of youth are bleak. Account is given of the role that youth played in the fight against apartheid and how this led to social disintegration. There is also discussion of the deficiency in the education of these youths and its likely negative effect on their employment prospects. There is much debate in this literature of whether the youth is a 'lost generation', whether it is in 'crisis', and its state of being marginalised (Van Zyl Slabbert, 1994). Of course, some of the youth of the late 1980s are now among the 40 plus year olds whose employability is often debated. Secondly, this literature has also focused on finding solutions to the huge problem of youth joblessness. There is discussion of training programmes and possible reasons for their failure (Truscott, 1993) as well as recommendations of public works programmes. The literature of the subsequent period (see Bhorat & Oosthuizen, 2005; Mhone, 2000; Mlatsheni & Rospabe, 2001; Wittenberg & Pearce, 1996) has made good use of the household surveys and the censuses to provide more detailed information about the characteristics of youth and the nature of their labour market participation and outcomes.

One of the challenges many youth face is making a successful transition to adulthood. What constitutes a successful transition is likely to vary from individual to individual and factors such as socio-economic background and cultural norms are likely to play a role. In general, a key objective of a young man or woman is to achieve independence and for many to ultimately form a family and to support that family. The amount of human capital acquired has a strong influence on meeting these objectives. A greater degree and quality of education both aid a smooth transition from schooling to work. However, the reality is that youth often experience difficulty entering the labour market for various reasons and these will be discussed in more

detail below, with reference to South Africa. For example, job search depends on the availability of jobs, the kind of jobs that are available and also the proximity of these jobs. These factors intersect with the level and quality of education of these young work seekers. Their physical and mental health is also a concern. Single parenthood and poor physical health can inhibit labour market participation. These factors along with the stress of not finding employment may give rise to de-motivation and depression which, in turn, further hamper effective labour market participation. Given that this is the situation confronting youth as they consider entering the labour market, it is also a useful angle from which to assess policy initiatives directed at facilitating the entry of youth into the labour market.

A note on the timing of this analysis

The chosen period for the analysis in this thesis is 2002 to 2006 as mentioned earlier. This period is the range of the Cape Area Panel Survey (CAPS), which is one of the few (if not the only) South African studies that has the sort of data required for the analysis in Chapter 3 and Chapter 4 of this thesis. Specifically, such information relates to the first job and the first wage of youth in the form of a panel data set. Given that a main focus of the thesis is going to be the early to mid-2000s, this chapter (Chapter 1) and Chapter 2 utilise the 2005 Labour Force Survey (LFS, 2005) in setting the context of the labour market situation in the mid-2000s. This period is also an ideal time to study labour market dynamics in South Africa because this was a time when the South African economy was growing relatively well in comparison with other available periods. The growth rate of GDP was on an upward trajectory in the early to mid-2000s, peaking above 5% per annum. A number of economic shocks rocked the global economy subsequently such that the South African economy was also adversely affected. The economy was already beginning to slow down at the time of the 2008-09 recession and it subsequently went into recession. The negative effects of the global economic shocks were dampened by prudent macroeconomic policies. Nevertheless, South Africa lost close to 1 million jobs during the 2008-09 recession (IMF, 2011). In addition to this, by 2011 the ratio of employment to the working-age population had declined from around 45% in 2008 to 40% in 2011, implying that

employment had remained below the pre-crisis level. The labour market has therefore remained in a relatively depressed state.

The labour market situation, in sum, has not changed much between 2005 and 2013. The effects of the 2008-09 global recession served to reverse any gains that had been made in terms of employment. It is only in 2013 that employment levels have for the first time returned to the levels of 2008. Furthermore, the unemployment rate has consistently hovered around 25%. Problems such as high duration of unemployment and chronic youth unemployment still persist. As a result, the view held in this thesis is that the gain in using LFS 2005 to set the context outweighs the loss of not utilising a more recent data set, as will be apparent in Chapter 2 and Chapter 3 especially.

2. Demand side factors that influence labour market success

The focus of this thesis is on supply side influences on labour market dynamics; however, recognition of the importance of the demand side is given here. A major influence on youth employment is the extent of job availability while another related influence is the nature of that employment. Economic conditions and the structure of the labour market have an important bearing on the probability of securing employment. Chief among the macroeconomic determinants of youth unemployment is aggregate demand (O'Higgins, 1994). When an economy is in a slump or is not growing at a fast enough pace, employment creation tends to be dampened. Under such circumstances, any attempts to increase the extent of youth labour market preparedness and employability would fail to significantly increase overall youth employment in the short term.

One could argue that inadequate aggregate demand is as much an obstacle to non-youth employment as it is to youth employment because a fall in aggregate demand would lead to a general increase in the number of lay-offs and a fall in new hires. However, to the extent that the nature of the employer-employee relationship is different for youth and non-youth, the influence of aggregate demand on employment would be different for youth and adults. The opportunity cost to employers of firing youth is lower than that of firing adults partly because

youth are less likely to be unionised or protected by legislation (Rees 1986) and past investment in them by the employer is likely to have been less. This discussion will be expanded upon in Chapter 2, however.

3. Supply side factors that influence labour market success

3.1. Education

Global evidence confirms that generally the higher the level of educational attainment of youth, the higher the probability of them finding employment (World Development Report, 2007). In the case of South Africa, the strongest effects are observed post matric though. As the discussion below reveals, even youth who have completed secondary schooling do not fare well in terms of finding employment. This should send a signal to youth that they should aim to acquire as much education as possible in order to improve their chances of employment. Furthermore, education plays an important role not just in finding employment but also in the ability to create employment. The 2006 Global Entrepreneurship Monitor reported that in South Africa the potential of tertiary educated adults to create employment was 2.5 times greater than those who only completed secondary education, and 11 times greater than those who have not completed secondary education. However, as will be discussed below, many youth quit their studies and enter the labour market prematurely for various reasons. This premature labour market entry is a cause for concern especially given that unemployment plagues even some youth with post matric tertiary qualifications. These findings suggest that there is a problem with the youth's work-readiness upon entering the labour and that close attention needs to be paid to education and training policies in order to address this problem. The rate of completion of secondary schooling is a cause for concern, so are the grades achieved in matric and also the limited success achieved by training initiatives.

A young man from a background of relative deprivation in South Africa, faced with a decision of either continuing studies or dropping out, would be influenced by a number of factors in making his decision. According to the literature, three theories are thought to play a part in

such decision-making. The first is the status attainment theory, which posits that the amount of education a young individual aspires towards is a function of status-specific values as well as the influence of significant others in the individual's life (Sewell et al., 1970; Spaeth, 1968). The second theory is known as the resource constraint theory and it suggests that educational aspirations depend on perceptions of opportunity structures, evaluated according to relative direct costs (Kerckhoff, 1974). Human capital theory as espoused by Becker (1964) and Mincer (1974) is a third theory explaining the choice between continuing studies and opting for work. The premise of this theory is that educational attainment is the result of individual choice, which is informed by perceptions of the future wage returns on investment in education. While the human capital theory has its origins in economics, the other theories emanate from sociology.

In the South African context, many youth see the value of education but are faced with limited resources to pursue post-secondary schooling qualifications. Even those individuals who could find means to finance further education may opt for earlier entry into the labour market and thus a low pay, mediocre job in order to supplement family income, more especially when there are younger siblings in need of support.

This premature labour market entry is a serious labour market challenge for youth in many developing countries (ILO, 2006). Working while at school can be beneficial when done in moderation and is to be distinguished from premature labour market entry, which is quitting school in order to look for work. Working while at school can foster such positive traits as dependability, self-confidence, punctuality, an increased understanding of consumer and money matters, and generally ease the transition from school to work (Meyer & Wise, 1982). It may also help finance secondary and tertiary education. However, the danger with working while at school is that if it is not carefully managed it can lead to premature dropping out of studies. In the South African context, premature exit out of schooling does not happen on a large scale, however, failure to satisfactorily complete secondary schooling and to advance to further studies does. This failure affects later productivity while the forgone earnings and lack of skill accumulation may make it difficult to escape poverty. The benefits of schooling are

recognised worldwide, as international evidence suggests that across 61 developing countries the average return per year of schooling is 7.3% for men and 9.8% for women (World Development Report, 2007).

As an indication of the relationship between levels of education and employment in the South African context, Table 1.a and Table 1.b display the education profile of the labour force for youth and adults in 2005. These statistics provide a rough guide to the employment prospects youth are likely to face depending on their education levels. It is quite apparent that at each education level a higher proportion of youth versus adults are unemployed. More than half of the youth who have less than a matric level qualification are unemployed compared to less than a third of adults with the same level of qualification. This finding supports the notion of a job queue espoused by Standing et al. (1996) especially when one considers that youth are thought to be better educated and more adaptable to current times than their non-youth counterparts. Possibly the nature of the labour market is that jobs are allocated on a "first come first served" basis where most of the employed adults have held that employment for most of their working lives.

Furthermore, the incidence of unemployment generally decreases as education levels increase, as reflected in Table 1a. It is worth noting though that in terms of unemployment rates there is not much difference between zero, primary and secondary education, more so for youth labour force participants. The unemployment rate for youth with matric is not much better either, with close to half of them unemployed. It is interesting that individuals who have not completed matric but who have a diploma or certificate instead seem to fare better in the job market, perhaps an indication of the value of a specialised certificate in the job market. Individuals with degrees and higher levels of education have the lowest unemployment rate. However, with around 95% of the unemployed (both youth and adults) having grade 12 qualifications at the most, the scope for increasing the skills levels of the labour force is huge.

Table 1a: Unemployment rates by level of education, for non-studying youth and older labour force participants

Level of education	Unemployment rates within levels of education Age 15-35		Unemployment rates within levels of education Age 36-65	
	Strict	Broad	Strict	Broad
None	36%	60%	13%	30%
Grade 0 – 7	38%	58%	16%	31%
Grade 8 – 11	46%	60%	17%	27%
Grade 12	35%	48%	12%	17%
NTC 1 – 3	25%	37%	8%	9%
Diploma/certificate with grade 11 or lower	23%	26%	8%	11%
Diploma/certificate with grade 12	19%	24%	3%	6%
Degree/higher	7%	9%	1%	3%
Total	37%	52%	13%	24%

Source: Labour Force Survey, March 2005
Notes: Own calculations using survey weights.

Table 1b: Distribution of unemployment by age and unemployment category

Level of education	Unemployment rates across levels of education Age 15-35		Unemployment rates across levels of education Age 36-65	
	Strict	Broad	Strict	Broad
None	1%	2%	8%	12%
Grade 0 - 7	14%	16%	33%	38%
Grade 8 - 11	47%	46%	38%	33%
Grade 12	32%	30%	16%	12%
NTC 1 – 3	1%	1%	1%	1%
Diploma/certificate with grade 11 or lower	1%	1%	1%	1%
Diploma/certificate with grade 12	3%	3%	2%	2%
Degree/higher	1%	1%	1%	1%
Total	100%	100%	100%	100%

Source: Labour Force Survey, March 2005
Notes: Own calculations using survey weights.

On the one hand, when looking at the youth labour force as a whole, tertiary qualification holders have the best employment outcomes but on the other hand large numbers of graduates (in absolute terms) are unemployed. It therefore seems logical to delve into the

employment of tertiary award holders in more depth to get a more accurate sense of their employment prospects. Table 2 displays the unemployment rate for tertiary award holders, by field of study as of 2005.

Table 2: Unemployment rate of youth and non-youth labour force participants with tertiary qualifications, by field of study, 2005

Field of Study	Unemployment rate Age 25-35		Unemployment rate Age 36-65		As a proportion of total tertiary unemployment Age 15-65
	Strict	**Broad**	**Strict**	**Broad**	**Strict**
Communications studies and language	6%	6%	4%	4%	2%
Education and training	10%	15%	2%	4%	14%
Manufacturing, engineering and development	6%	7%	3%	3%	11%
Human and social studies	11%	17%	6%	14%	5%
Law, military science and security	10%	10%	6%	9%	4%
Health sciences and social services	6%	10%	1%	1%	5%
Agriculture and nature conservation	16%	21%	0%	0%	2%
Culture and arts	26%	28%	1%	7%	7%
Business, commerce and management studies	19%	22%	4%	6%	34%
Physical, mathematical, computer, and life sciences	12%	14%	4%	11%	12%
Services	36%	36%	0%	0%	3%
Physical planning and construction	21%	21%	0%	6%	1%
Total	13%	16%	3%	5%	100%

Source: LFS, March 2005
Notes: Own calculations using survey weights.

The most 'employed' tertiary awards (figures not reflected in Table 2) are, in descending order, education and training (27% of total tertiary qualification employment), business, commerce and management studies (20%), health sciences and social services (14%), manufacturing, engineering and development (12%), physical, mathematical, computer and life sciences (9%), and human and social studies (5%). Incidentally, these are the only categories that can be reported on with any level of reliability, the others have sample sizes that are too small. In

comparing the unemployment rates of youth and non-youth within these categories, it is evident that the incidence of unemployment is once more relatively worse for youth. For youth, unemployment is highest amongst commerce qualification holders at 22% whereas for non-youth it is 6%. With respect to youth, this is a somewhat surprising finding given the purported marketability of commerce qualifications. Also surprising is that a similar proportion of youth are unemployed in education and training as in physical, mathematical, computer and life sciences. Manufacturing reflects the lowest unemployment rates for youth. Table 2 also reflects that of the unemployed individuals (age 16-65) with tertiary qualifications, most are in business, commerce and management studies (22%), followed by education and training (17%), and physical, mathematical, computer and life sciences (14%). Perhaps with the exception of education and training, the expectation would be that unemployment in these fields would be lowest of all. The problem may be in how respondents classify their qualifications or in their perceived quality by employers.

The discussion above highlights the importance of skills acquisition to favourable employment outcomes for youth. Failure to acquire appropriate human capital can jeopardise the probability of finding decent and stable employment and can result in lengthy bouts of unemployment. The 2005 Labour Force Survey indicates that 40% of unemployed individuals (by the strict definition) have unemployment durations exceeding three years, while 59% of the unemployed have never had a job at all. Similar outcomes are also found in other countries as evidence from 60 developing countries suggests that youth spend on average 1.4 years in temporary jobs and intermittent spells of unemployment before finding stable employment, but there are wide variations across countries ranging up to four years (World Development Report, 2007).

The high unemployment duration as in the case of South Africa often leads to youth becoming discouraged such that a portion of them are neither in school nor work, the NEETs. In more developed countries such as the US and Canada, youth in times of increased joblessness increase uptake of training, they stay longer in school and they extend the period living with

parents. These options are not always available in the developing country context such as that of South Africa. The lack of viable options often encourages criminal activity even in developed countries. In France, crime rates increase and in the US the probability of incarceration increases as joblessness increases (Topel & Ward, 1992).

Nevertheless, indications from South African official labour market statistics are that by the mid-2000s the economy had been reversing the employment losses that were associated with the 1990s restructuring of the economy and, as argued above, the expectation was that a greater pool of skilled labour would perpetuate economic growth and resist future downturn.

4. Job search: networks, geographical isolation and perceptions of opportunity

In the absence of a formalised system of facilitating the transition from schooling to work, the issue of employment search becomes very important. In the developed world context of relatively low rates of joblessness, a lack of active job search is almost exclusively viewed as being voluntary and underpinned by reservation wage considerations. In the South African context of mass unemployment, inactive job search may be due to financial constraints that are brought about by high costs of active job search accompanied by low probability of finding employment. These considerations bring to the fore the issue of the availability and use of networks in finding employment. Youth who work while at school are likely to have a better-developed system of networks when they enter the labour market fully.

Findings are that networks are the most popular and effective ways of obtaining jobs, however, the networks possessed by Black youth are likely to be less productive in securing them employment. Indeed, there is some international evidence that Blacks achieve greater success with formal methods than with informal ones because informal methods involve fewer explicit or objective criteria of judgement (Rees, 1986). In this instance, informal job search methods are those that involve friends and relatives and direct applications to firms through walk-ins without referral. Methods that are more formal include employment agencies, responding to newspaper ads, and government employment facilitating initiatives. Given that

entrepreneurship is not the first choice of most youth (they would rather find a job and be guaranteed wages), policy should also focus on facilitating job search. For this to take place effectively there needs to be an understanding of youth job search strategies and experiences as spelt out below.

4.1. Networks and social capital

The importance of networks in securing employment cannot be overemphasised. Evidence from a range of surveys conducted in the early 2000s indicates that most people get jobs through friends and relatives. The Khayelitsha/Mitchell's Plain Survey (KMPS) conducted in Cape Town in 2000, for example, reveals that more than 55% of the respondents obtained their current job through friends and relatives. The Cape Area Panel Survey also indicates that by far the most common way of obtaining employment for youth is through networks in the form of friends and relatives.

An interesting finding is that even though most young individuals obtain employment through networks, relatively few claim to use this as the main method when searching for work. The March 2005 LFS, for example, indicates that only 10% of non-schooling unemployed youth (between 16 and 30 years of age) used networking in searching for work, whereas the majority preferred to enquire directly at workplaces. This finding does make some sense, given that 75% of the youth in this sample are Black and that the contacts available to them are likely to be less influential in getting them jobs. Indeed, Black youth mainly cite family and relatives as references when applying for jobs, in contrast to White youth who often have strong networks of people in business. However, it is difficult to gauge how popular a search method network search is based on the Labour Force Surveys because the question asks for the main search method only. It is possible that those individuals who mainly search through networks classify themselves as discouraged workers. Therefore, if discouraged workers were asked whether they had used networks to find work the finding may be that most answer in the affirmative.

Table 3: Main search method used by non-studying unemployed youth

In the past four weeks, what has been done to look for work?	Frequency	Percentage	Cumulative percentage
Waited/registered at an employment agency or trade union	134,885	8.06	8.06
Enquired at workplaces/farms/factories	894,935	53.45	61.5
Placed/answered advertisements	272,969	16.3	77.81
Sought assistance from relatives or friends	173,051	10.34	88.14
Looked for land/building/equipment/applied for permit to start own business	7,657	0.46	88.6
Waited at the roadside	184,676	11.03	99.63
Other	6,234	0.37	100
Total	1,674,407	100	

Source: LFS, March 2005
Notes: Own calculations using survey weights.

4.2. Geographical isolation from employment

Another reason why many youths do not actively search for work is the inability to access areas that could potentially provide employment. This factor predominantly affects Black youth, as townships are often situated far from business centres. The formal exposition of the effects of distance on labour market outcomes was first given by Kain (1968) as the "spatial mismatch hypothesis". In the US context, the location of jobs was becoming increasingly decentralised and poor minority households (mainly Black) were being left behind in central cities through constraints in housing choices. These developments decreased the employment prospects of the individuals concerned through lesser job access and earnings.

The South African situation is similar in as far as individuals from poor households (mainly Black) being far from where jobs are located. However, the difference in South Africa is that it is the jobs that have historically been concentrated in the cities while location of poor households has been on the outskirts. A single trip from a township to seek work in a city or industrial centre would easily cost R10–R20, a great deal to an unemployed person. Indeed, data from the March 2005 Labour Force Survey (LFS) in Table 4 reveals that of those individuals (aged between 16 and 30 years) who did not seek employment or start their own business, 49% said it was because there were no jobs in their area, while 23% said that they lacked the money

necessary to look for work. Taken together, over 70% of non-searchers indicated that their location constrained them from looking for work, as lack of money to search is brought about by lack of proximity to employment sources.

Table 4: **Main reasons for youth not looking for work**

What was the main reason why ___ did not try to find work or start a business?	Frequency	Percentage	Cumulative percentage
Temporarily laid off work	2,423	0.17	0.17
Ill health/injury/physical disability	16,249	1.17	1.34
Pregnancy	35,584	2.56	3.9
Family considerations/child care	98,993	7.11	11.01
Undergoing training to help find work	25,589	1.84	12.85
No jobs available in the area	684,539	49.17	62.02
Lack of money for transport to look for work	314,076	22.56	84.58
Unable to find work requiring his/her skills	47,232	3.39	87.98
Lost hope of finding work	97,205	6.98	94.96
No transport available	10,583	0.76	95.72
Other reason	59,575	4.28	100
Total	1,392,048	100	

Source: LFS, March 2005
Notes: Own calculations using survey weights.

The "spatial mismatch hypothesis" has continued to receive attention within the international literature (Kain, 1992; Holzer, 1991). In the South African context part of the solution would be to move jobs closer to labour sources, a feature that is already taking place in certain areas. In the US context, it would be difficult to move poor minority households from the central cities towards the decentralised jobs and it would thus be a useful exercise to see how the US has approached this problem.

4.3. Perceptions of opportunity

It is logical that youth perceptions of the labour market have a strong effect on the effort they make to find employment. International evidence reflects that such perceptions are formed in part by the characteristics of the neighbourhoods in which the youth reside (Case & Katz, 1991). In a study of poor neighbourhoods in Boston, Case and Katz (1991) find that neighbourhood peers significantly influence youth behaviour, including the propensity to work. Furthermore, a

neighbourhood can negatively influence labour market outcomes through absence of positive role models, lack of informal job contacts and the presence of disruptive forces. There exists evidence of negative effects of perceptions on job search in the South African literature as well (Wittenberg, 2002). Wittenberg (2002), using a number of household data sets, finds that the proportion of unemployed engaged in active search hardly ever reaches 50%, a factor which suggests that very often discouragement is based on perceptions of opportunity rather than personal experience. In addition, the depression that often accompanies failure to find employment would manifest as a type of paralysis that prevents any structured active job search. It follows from the abovementioned literature that where perceptions of the labour market are overly pessimistic, the inadequate search attempt that results then feeds back and contributes to further entrenching youth unemployment.

Judging by the results of the Cape Area Panel Survey (CAPS) conducted in 2002, youth perceptions of the labour market are rather gloomy. Of the 1282 respondents between the ages of 16 and 22 who were unemployed and had indicated that they wanted work, 61% had never looked for work. When involvement in studies is controlled for, the figure is still significantly high at 41% of unemployed non-studying youth having never searched for work. Comparison with the LFS is not possible, as this question was not asked.

Table 5: When youth last looked for work - unemployed youth, ages 16-22

When did you last look for work?	Studying and non-studying	Non-studying only
	Percentage	Percentage
1-2 months ago	18.49	31.39
3-6 months ago	10.06	14.08
7-12 months ago	5.3	5.43
1-3 years ago	4.52	6.84
Over 3 years ago	0.94	1.01
Never looked for work	60.69	41.25
Total	100	100

Source: Cape Area Panel Survey, 2002
Notes: Own calculations using survey weights.

Table 6: Likelihood of finding work within a few months

Likelihood of working in a few months time	Frequency	Percentage	Cumulative percentage
Very low	194	21.92	21.92
Low	171	19.32	41.24
About 50/50	297	33.56	74.8
High	111	12.54	87.34
Very high	51	5.76	93.11
Don't know	61	6.89	100
Total	885	100	

Source: Cape Area Panel Survey, 2002
Notes: Own calculations using survey weights.

Table 7: Likelihood of finding work in 3 years time

Likelihood of working in 3 years time?	Frequency	Percentage	Cumulative percentage
Very low	64	7.25	7.25
Low	60	6.8	14.04
About 50/50	230	26.05	40.09
High	279	31.6	71.69
Very high	208	23.56	95.24
Don't know	42	4.76	100
Total	883	100	

Source: Cape Area Panel Survey, 2002
Notes: Own calculations using survey weights.

When asked what they thought the chances were that they would be working within a few months, 75% said 50-50 or less. When asked the same question with a reference period of three years, 40% still said 50-50 or less. Clearly, youth perceptions of the labour market are poor, though to a considerable extent realistically so.

This discouragement is a serious concern, as duration of unemployment has negative consequences on the self-esteem of jobseekers as well as on the likelihood of an employer hiring them. The negative consequences of long-term unemployment are well-documented (Winefield et al., 1993). Depression can result from direct negative labour market experience. Hammarstrom and Janlert (1997) found that amongst Swedish youth, unemployment correlated positively with changes in nervous complaints and depressive symptoms, even after controlling for initial psychological health and background factors. In a study of Australian youth Morrell et al (1998) found youth unemployment and youth suicide to be strongly associated

and so too youth unemployment and psychological symptoms such as depression and loss of confidence.

These findings are echoed by Dooley et al. (2000) who found that amongst American youth, changes from what the respondents regard as adequate employment to what they regard as inadequate employment as well as from employment to unemployment, resulted in significant increases in depression. With the high duration of unemployment experienced in the South African labour market, it is probable that the accompanying link with depression cited in the above studies is present. This could lead to negative spill-over effects for society in general. Youth in this situation tend to feel a lack of self-esteem coupled with the need to feel a sense of control and competence, which in turn encourages criminal activity and gang association. Indeed the presence of gangs within the relatively poverty-stricken areas of Cape Town is rife. The way to break this vicious cycle is argued to be through the engaging of idle youth in activities such as training, community projects and peace education (World Development Report, 2007).

Furthermore, the duration of unemployment has an effect on the perceived productivity of an individual by prospective employers. Thus, individuals who have been unemployed for much of their youth may also remain unemployed for much of their non-youth life. It is imperative therefore that the connection between youth (especially non-studying) and the labour market be maintained so that discouragement is kept low or at least its effects are mitigated.

5. Conclusion

The introductory discussion above has highlighted a number of key barriers in the functioning of labour markets in regard to the youth. Furthermore, the importance of education to labour market outcomes was discussed. Premature labour market entry was raised as a factor that negatively impacts success in the labour market. Of concern are the particularly vulnerable youth who are neither employed, studying or in any training initiatives, the NEETs.

The discussion above also raised obstacles in job search as contributing factors to youth joblessness. In particular, geographical isolation from potential employers increases the monetary cost of search and, with the passing of time, increases the likelihood of discouragement. Costs of searching actively also increase the likelihood of searching passively through family and friends. The success of these passive search strategies depends on the labour-market-related usefulness of the networks of family and friends in use as a factor contributing to unemployment.

Also discussed above was the role that perceptions of the labour market play in job search intensity. To the extent that youth perceptions of the labour market are overly pessimistic, search intensity will be depressed. Furthermore, the negative effects of lengthy duration of unemployment were also discussed above, serving as a backdrop to the survival analysis conducted in Chapter 3. Long duration of unemployment leads to labour market discouragement and possible psychological depression.

It is key to bring to the fore the realities of youth and the labour market from their perspective as a way of enhancing the impact of the statistical analysis that follows. In this vein, the above discussion has pointed out that youth firstly have to survive the challenges that the teen years can pose.

Chapter 2: The Nature of the Disparities in Youth Unemployment in South Africa

1. Introduction

This chapter and those that follow will highlight the fact that some youth find jobs while others do not and that some find jobs very quickly compared to others. Reviews of active labour market policies and other labour related interventions suggest that targeted interventions are most effective in affecting the plight of youth experiencing labour market disadvantage. It is therefore useful to know who amongst the youth are successful in getting jobs and why. In the case of South Africa, it is well known that the outcomes in schooling, the labour market and a range of other socio-economic markers are delineated by race. With respect to the labour market, it is useful to know and understand the source of labour market advantage. This chapter investigates this very issue, that is, why disparities exist in the abilities of youth to find jobs. The role that key characteristics such as race, gender, and age play in youth finding jobs is analysed. An application of the residual difference method of decomposing group wage differences to discrete choice models enables one to investigate whether the racial, gender and age employment gaps reflect heterogeneous "productive" characteristics (such as education, duration of labour market participation, location etc.) between two groups or, alternatively, result from differences in the way these characteristics are rewarded in the market (Oaxaca, 1973). The analysis is also extended to youth self-employment, though not thoroughly given the broader focus of the chapter.

The chosen period of study for this analysis is 2005, utilising the 2005 Labour Force Survey (LFS, 2005). The analysis in the following chapters utilises the Cape Area Panel Survey (CAPS), which spans the period 2002 to 2006. CAPS data is ideal for the analyses of school to work transitions that are carried out in these subsequent chapters. As discussed earlier, the choice of LFS 2005 for the analysis in this chapter allows matching with the CAPS data and coincides with a period of relatively good growth in South Africa.

The layout of the chapter is as follows: Section 2 introduces the issue of youth unemployment in the light of the international literature and presents its nature in South Africa with a particular focus on the microeconomic determinants of youth employment. Then, an attempt is made to shed light on the differences in the access to employment observed between youth and adults, Africans and Whites, and males and females. Differences between youth and adults are considered in section 3. An investigation is carried out into whether the youth/adult employment gap reflects heterogeneous "productive" characteristics (such as education, experience, family background, location etc.) between the two groups or, alternatively, results from differences in the way these characteristics are rewarded in the labour market. Next, the extent to which racial and gender differences reflect disparities in individual productive characteristics is analysed. One particular feature of youth unemployment in South Africa is that it is unequally spread between segments of the population. For instance, African youth experience unemployment to a much higher degree than White youth – the unemployment rates in 2005 were 70% and 12% respectively. The lack of employment is also more severe for women than for men as 63% of economically active women were unemployed compared to 53% of economically active men. Section 5 concludes and presents some policy implications of the findings in this chapter.

2. The issue of youth unemployment.

2.1. A short review of the causes of youth unemployment.

The main causes of youth unemployment have been widely studied in the economic literature and can be classified as either macroeconomic or microeconomic in origin. The more commonly cited macroeconomic determinants of youth unemployment are aggregate demand, youth wages, the size of the youth labour force and the lack of skills among youth (O'Higgins, 2001). Indeed, the unemployment of young people seems to be more sensitive than adult unemployment to changes in aggregate demand as young people are more likely than older workers to leave their jobs voluntarily and to do so, albeit to a lesser extent, during a recession. On the demand side, it is likely that the first reaction of firms to a recession is to stop

recruitment, and this affects young people more strongly. Furthermore, when firms start redundancy procedures, it is cheaper for them to fire young workers than older workers. Turning to the argument of wages, the evidence seems to suggest that the young are not being priced out of jobs by wages that are too high, at least in industrialised countries (Blanchflower, 1999). However, the effect of minimum wages on youth employment is often found to be significant (Neumark & Wascher, 1999).

Microeconomic theory offers other explanations for youth unemployment that are not necessarily specific to youth however. Human capital theory (Becker, 1964; Mincer, 1974; Schultz, 1961) differentiates individuals by their schooling and training investment and provides a justification for some of the differences in productivities between young people and more generally between cohorts. Youth with low education and experience are expected to experience more difficulties in finding employment. Unemployment may also result from imperfect information about the labour market. Indeed, the theory of job search (MacCall, 1970; Stigler, 1962) cites youth preferences and constraints (reflected in the reservation wage) as some of the explanations for the different strategies of job search and variations in duration of unemployment. The theory of job shopping (Johnson, 1978) stipulates that a young work seeker typically first tries out a job before deciding whether he is going to keep this employment or start a new search. Models of job matching on the other hand (Jovanovic, 1979) ascribe youth joblessness to decisions by both the employee and the employer, based on the individual's productivity.

This chapter concentrates on the microeconomic causes of youth unemployment in South Africa, addressing the issue of the individual determinants of wage-employment and self-employment.

2.2 Labour force participation in South Africa

An analysis of the issue of youth unemployment requires firstly a definition of both the notion of youth and the concept of unemployment. According to the standard United Nations definition, "youth" comprises young people from 15 to 24 years of age inclusive. However, in practice, the operational definition of youth varies from country to country depending on cultural, institutional and political factors (O'Higgins, 2001)[1]. In this chapter the age category [15-30] is used, as the majority of African youth seem to be involved in education until relatively late. Hence, lengthening the age category probably better captures the behaviour of the young economically active Africans (see below). Defining unemployment is also a difficult issue. According to the ILO definition, which is the most widely used, the unemployed are described as those people who have not worked for more than one hour during the short reference period (generally the previous week or day) but who are available for and actively seeking work. In South Africa, the definition which includes discouraged job seekers (those people who wish to work but are not actively looking for a job) is often perceived as the more relevant (for instance, see Kingdon & Knight, 2000a). It is the definition used in this chapter.

Table 1 displays the figures for the labour market status of youth and adults in South Africa in 2005. More recent figures for comparison can be found in Table A1.4 in Appendix 1. The top row in Table 1, labelled 'Broad labour force' represents the total number of individuals participating in the labour market within each specified age category. Therefore, the labour force status categories labelled 'Broad unemployment', 'Employment' and 'Self-employment' sum up to the 'Broad labour force'. Youth who are 15 to 24 years old represent around 20% of the economically active population (EAP) (4,031,689 as a percentage of 19,872,611), which is closer to the figure observed in developed countries (20.7%) than in developing countries (29.5%) or in Africa (36.4%)[2]. This statistic has not changed much since 2005 as the corresponding figure for 2012 is 19%.

[1] For instance, in Italy, the term "youth" designates (for policy purpose) people aged between 14-29 (in the North) and 14-32 (in the South) (O'Higgins, 2001).
[2] Blanchflower (1999).

A relatively low share of youth in the EAP is likely to reflect a large enrolment in education. However, in the case of South Africa, the relatively high percentage of youth engaged in studies arises because of delayed progression through school and tertiary-level studies. Indeed, in South Africa, it seems that African youth obtain their tertiary qualifications quite late when compared to White youth. Working with the 15-30 age category will probably give a more accurate reflection of the relationship between the characteristics of African youth and their labour market outcomes and is therefore the option that has been adopted in this chapter. Looking row-wise at the number of the broad unemployed, it is apparent that youth from 15 to 30 years old (8,586,377) amount to 43% of the EAP (19,872,611). However, unemployed youth (5,012,970) represent a higher share of the total unemployed (8,106,412) in the economy, as 62% of the jobless are 15 to 30 years old. In other words, the young are disproportionately hit by unemployment, as their unemployment rate is as high as 58% whereas it is 27% for adults who are in the 31-65 age bracket.

Table 1: Labour force participation, by age group

	Youth		**Adult**	**Whole EAP**
	15-24	**15-30**	**31-65**	**15-65**
Broad labour force	403,1689	8,586,377	11,286,235	19,872,611
Participation rate [1]	**42.7%**	**59.2%**	**75.9%**	**67.7%**
Broad unemployment	2,797,460	5,012,970	3,093,442	8,106,412
	69.4%	**58.4%**	**27.4%**	**40.8%**
Employment [2]	1,033,561	3,052,549	6,493,475	9,546,024
	25.6%	**35.6%**	**57.5%**	**48.0%**
Self-employment	200,668	520,857	1,699,318	2,220,175
	5.0%	**6.1%**	**15.1%**	**11.2%**

Source: LFS 2005

Notes: Own calculations using survey weights.

[1] Unpaid family workers have been excluded from the labour force. Bold numbers represent the participation rate.

[2] Employment can be full time, part time or casual. Employment and self-employment can be either formal or informal.

The rest of the EAP is divided between the wage employed and the self-employed. Table 1 shows that young workers are relatively less involved in self-employment than adult workers,

as around 6% of young workers are self-employed whereas this proportion is more than doubled for adults at 15%. The international literature points to lack of capital as the primary constraint to enterprise development and it limits even more severely youth entrepreneurship as adults may have accumulated more capital than youth (Blanchflower, 1999; O'Higgins, 2001). Indeed, this literature also stresses the support of youth self-employment as a means to reduce the level of youth joblessness.

Table 2 below gives more details on the breakdown of labour force participation by gender and race.

Table 2: Labour force participation, by gender and race

Young (15-30)	Whole	African	Coloured	Indian	White	Male	Female
Broad labour force	8,586,377	6,935,661	827,923	242,846	570,137	4,295,715	4,285,554
Participation rate[1]	**59.2%**	**58.0%**	**69.5%**	**66.2%**	**59.0%**	**59.8%**	**58.6%**
Broad	5,012,970	4,473,939	360,394	94,216	80,962	2,158,968	2,850,497
Unemployment	**58.4%**	**64.5%**	**43.5%**	**38.8%**	**14.2%**	**50.3%**	**66.5%**
Employment [2]	3,052,549	2,035,000	438,861	137,226	437,008	1,844,692	1,206,254
	35.6%	**29.3%**	**53.0%**	**56.5%**	**76.6%**	**42.9%**	**28.1%**
Self-employment	520,857	426,722	28,668	11,403	52,167	292,054	228,803
	6.1%	**6.2%**	**3.5%**	**4.7%**	**9.1%**	**6.8%**	**5.3%**

Source: LFS 2005

Notes: Own calculations using survey weights.

[1] Unpaid family workers have been excluded from the labour force. Bold numbers represent the participation rate.

[2] Employment can be full time, part time or casual and captures individuals who are not self-employed. Employment and self-employment can be either formal or informal.

Participation in the labour force takes the form of unemployment, employment and self-employment. There are striking differences by race and gender in all of these.

First, Table 2 shows that the incidence of unemployment is unequally distributed among races and between males and females. Young economically active Africans experience very low access to employment as 65% of them are unemployed, which is 1.48 times the unemployment rate of Coloureds and 1.66 times that of Indians. White youth appear to be relatively less affected by unemployment as less than 14% of them are jobless. Young women experience greater incidence of unemployment than men, as 67% of the female youth labour force is unemployed as opposed to 50% of their male counterparts. However, some authors underline that this differential is likely to be somewhat overestimated, as female employment in the subsistence farming sector is not efficiently captured in the current national statistics (see Klasen & Woolard, 1999; Posel & Casale, 2001; Standing et al., 1996).

The other part of the labour force is divided between employment and self-employment. These two categories cover a very wide variety of situations, as employed and self-employed individuals can work in micro-enterprises, in formal or informal activities and can be badly or highly remunerated. Again, high discrepancies among races and genders are observed. As displayed in Table 2, only 36% of African youth are employed whereas the corresponding figure for White youth is 77%. Turning to self-employment, the percentage of workers in this category is also lower for Africans (6%) than for Whites (9%), but to a smaller extent than under the case of wage-employment. Thus, the White/African gap in employment appears to be higher for the employed than the self-employed. Note that only a very small percentage of young Coloured (less than 4%) are established as self-employed. With regard to gender differences in employment the most notable feature is that females appear to be less disadvantaged in self-employment than in wage-employment.

Regarding these observations, one is likely to question the reasons underlying such racial and gender differences in the employment and self-employment rates. Do they reflect disparities in individual productive abilities, differences in preferences or unobservable factors such as discrimination? These are the questions that this chapter aims to address. However, education

as a proxy for individual productive abilities has traditionally been accorded a high ranking (Appleton 1999; Knight & Sabot 1991; Psacharopolous, 1994) and the following brief profile of the educational attainment of South African youth thus seems warranted, after which the modelling will be discussed.

2.3. An analysis of the determinants of youth employment.

In order to shed some light on the causes of youth unemployment in South Africa in recent times, this section investigates the microeconomic determinants of youth employment. Finding out which individual characteristics have the greatest influence on the probability of youth finding employment is a decisive step in the understanding of the youth joblessness issue. The contributions of this analysis are twofold. First, youth employment is analysed from two different angles, employment by someone else and self-employment. Although this approach has its limitations in that self-employment is a wide-ranging category in itself, it is still an improvement on the common practice of not distinguishing between the two categories of employment when running regressions. As encouraging youth entrepreneurship is often cited as a way of coping with youth unemployment, an investigation of its determinants could be useful. Secondly, the regression analysis sets the stage for a deeper interrogation of the nature of the observed age, race and gender disparities in following sections.

The methodology

The first step consists in making a choice between the different econometric tools that allow estimating the probability of employment. The common method is to run a probit of participation (employed or not), however, in this case, the availability of detailed survey data favours the adoption of a multiple-choice model (such as a multinomial logit) in order to keep the highest amount of information. Individuals declare themselves to be unemployed (u), employed (e) or self-employed (s). The employment status depends on the individual's characteristics and on the employer's hiring policy.

If employment statuses are indexed by *m* (*m* = *u, e, s*), the probability that an individual *i* (*i* = 1, …, N) with a vector a characteristics Z_i = (1, Z_{2i}, Z_{3i}…) will be assigned to employment status *k* is:

$$p_{ki} = \frac{\exp(a_k Z_i)}{\sum_{m=u,e,s} \exp(a_m Z_i)} \qquad (k = u, e, s) \qquad (1)$$

where α_k is the vector of coefficients corresponding to the *k*th employment status.

The average predicted probability of assignment in employment status *k* is then:

$$\bar{p}_k = \frac{1}{N} \sum_i p_{ki} \qquad (2)$$

The results in the regression output below are expressed in terms of the odds of being in one state of employment relative to the reference category, also known as relative risk ratios (rrr). Coefficients in logistic regressions are ordinarily expressed in terms of log odds (log(p/q) = a + bX), that is, the coefficient of an explanatory variable implies that a one unit change in that variable results in a change in the log of the odds by the amount of the coefficient. However, the coefficients can be transformed to odds for ease of interpretation by raising e to the power of both sides of the equation (exp(log(p/q) = (exp(a + bX)). Therefore, when comparing the odds of being in a state of wage-employment over being in a state of unemployment, an odds ratio of 1.2 suggests that the odds of being in wage-employment are 20% higher, whereas an odds ratio of 0.8 suggests that the odds are 20% lower.

The data

The data is from the LFS 2005, which covers approximately 69 000 adults in over 30 000 households. The sample in this analysis is limited to youth between the age of 15 and 30 for which employment attributes are available, thus restricting the sample size to 18 198 observations.

In order to produce efficient statistics and econometric estimates, the analysis takes into consideration the features involved in the sample design. These features include clustering and sampling weights[3].

The variables.

The dependent variables

The dependent variable is a discrete variable, which for the purposes of uniquely identifying the various employment states, is labelled as equal to 1 if the individual is unemployed (broad definition), 2 if he (she) is employed by someone else and 3 if he (she) is self-employed. Each youth is classified into one of these three mutually exclusive employment states. The dependent variable therefore takes on the value of 1 for the state that applies to the individual and 0 for each of the two states that do not apply.

The independent variables

Gender is controlled for in light of its expected effect on employment probability. Race is also expected to have a strong influence. These variables, together with age, will form the basis of the decomposition analysis that is to follow.

A dummy variable youth (=1 if the individual is from 15 to 24 years old) is introduced to assess if there is an age effect (15-24) within the 15-30 category.

Educational attainment has also been included in the analysis. It has been divided into three categories; incomplete secondary, completed secondary (matric) and tertiary qualifications. Matric is a milestone within the South African education system and ordering the education variables in this manner allows isolation of the effect of achieving matric over not completing

[3] A two-stage sampling procedure was applied in which the first stage units are Enumerated Areas (the clusters) and the second stage, households. The sampling procedure involved stratification by province and area type (urban/rural). The 2001 population census (adjusted for growth) was used as a basis for the weighting.

secondary schooling. Most youth in South Africa reach secondary school-level, therefore it was deemed unnecessary to further divide education into primary education as well.

Years of participation in the labour market have also been controlled for. This variable is conventionally constructed as (age - years of schooling – 6) and is often labelled years of experience. Note that it might be a weak proxy for real work experience, as one cannot distinguish between the years that the individual spent in unemployment (a long period of unemployment could decrease the probability of finding a job) and his (her) years of work experience. However, it is expected that the employer's hiring choice and the worker's decision to enter the labour market will be positively affected by the individual's level of education and experience. The effect of these variables on the probability of being self-employed is more blurred. Nevertheless, it is expected that individuals who have been in the labour market for a relatively longer period of time will be more likely to find employment, all else constant. This assumption of duration dependence is tested formally in Chapter 3.

A set of regional dummies (provinces) aims to capture the effects of regional economic differences. Gauteng together with the Western Cape are the economic hubs in South Africa, while some provinces, like the Eastern Cape, have traditionally struggled to create an environment of economic vibrancy.

A variable capturing the presence of an employee in the household is introduced as a proxy for the household network effect (see Wittenberg & Pearce, 1996). It is assumed that if there are other people in the household in employment, they might act as informants about potential employers and work opportunities (insider-outsider theory of job recruitment).

A note on the missing variables

A few other variables could influence the probability of employment but are either unobservable or not available in the LFS 2005. One could think in particular of reservation wage

in order to investigate the assumption of voluntary unemployment. The introduction of parental background variables (such as father's education, labour market status or occupation) could also be introduced to test for intergenerational transmission of inequalities (see O'Neill & Sweetman, 1998). It would also have been interesting to assess the impact of neighbourhood effects and peer effects on the probability of employment. Finally, one should also consider the introduction of credit availability and the interest rate as important determinants of self-employment.

Furthermore, two available independent variables were carefully considered for the models but not included in the end. First, marital status was considered. On the supply side, it is expected that greater family responsibilities induce entry into the labour market and lower the reservation wages. On the demand side, employers may exhibit preferences for workers with higher probabilities of staying in their firm, as proxied by being married. The variable marital status should be considered cautiously as it might be endogenous if the link with the dependent variable is the other way around because getting a job can also influence the decision to get married. This endogeneity coupled with the fact that for youth the probability of marriage would be positively correlated with age, it was decided not to use this variable.

Second, housing ownership was also considered, which can have two opposing effects on the probability of getting a job (Kingdon & Knight, 2000a). It may have a negative effect as firstly, housing tenure has often been shown to impede labour mobility and migration (and thus employment) because of higher transactions costs of moving than in renting (Cameron & Muellbauer, 1998; McCormick, 1997). Secondly, housing ownership may also impede employment if it acts as a proxy for wealth and the level of the reservation wage (Kingdon & Knight, 2000a). It can also have a positive effect if stability (proxied by ownership of a house) is sought by the employer (to reduce labour turnover) or if the worker still has to pay for his (her) accommodation. However, in comparing African and White youth, housing ownership may well have differing implications. White youth are likely to own a house after acquiring the financial

resources to do so while African youth could own a shack in an informal settlement without any financial resources of note. This variable was therefore omitted from the analysis.

The results

Table 3 displays the results of the multinomial logit estimates of the determinants of employment, taking into account the survey design, for the youth, from 15 to 30 years old in 2005. For comparison, Table A1.5 in Appendix 1 presents the same specification but using the 2012 Quarterly Labour Force Data. As discussed earlier, the results are presented in the form of relative risk ratios (rrr), also known as odds ratios. The base category in each case is "unemployed".

Table 3. The determinants of employment for youth.

Variables	Employed	Self-employed
	Rrr	rrr
Male	2.228***	1.792***
	(0.116)	(0.176)
African	0.105***	0.133***
	(0.015)	(0.031)
Colour	0.249***	0.127***
	(0.043)	(0.050)
Indian	0.309***	0.193***
	(0.073)	(0.075)
Youth 15_24_30	0.656***	0.596***
	(0.051)	(0.078)
Incomplete secondary	0.503***	1.246*
	(0.033)	(0.156)
Tertiary	3.159***	2.922***
	(0.363)	(0.652)
Participation duration	1.087***	1.037**
	(0.010)	(0.017)
Eastern Cape	0.411***	2.549***
	(0.049)	(0.732)
Northern Cape	0.401***	0.531
	(0.048)	(0.223)
Free-state	0.589***	1.481
	(0.078)	(0.464)
Kwazulu-Natal	0.458***	1.123
	(0.054)	(0.355)
Northwest	0.427***	0.792
	(0.058)	(0.266)
Gauteng	0.658***	1.454
	(0.079)	(0.448)
Mpumalanga	0.579***	1.399
	(0.074)	(0.464)
Northern Province	0.244***	0.889
	(0.033)	(0.277)
Other employed	0.799***	1.138
	(0.043)	(0.118)
Constant	4.942***	0.315***
	(0.998)	(0.120)
N	18042	
chi2	1466.493***	

Source: LFS 2005
Notes: Reference category: unemployed.
* significant at 10%; ** significant at 5%; *** significant at 1%
Location reference category: Western Province

As expected, being male increases both the probabilities of being employed and self-employed (compared to unemployed). More precisely, the odds of young males getting a job from an employer rather than being unemployed are more than double those of female youth. The odds for males over females are 77% higher when self-employment is considered. These results suggest that some gender bias exists in youth access to employment. Whether there is some discrimination present cannot be determined from this result. The introduction of a dummy variable is not a satisfactory tool to estimate the extent of discrimination, as it does not allow the impact of all the other determinants of employment to vary between males and females. Section 4 takes this point into account and presents an estimate of possible gender discrimination in youth unemployment.

Table 3 further indicates that African, Indian and Coloured youth have lower access to employment than White youth. The inequality is the most severe for Africans as the odds of being employed (self-employed) are reduced by 89% (87%) if one is a young African as opposed to being a White youth. These racial employment gaps will be analysed further in Section 4, which attempts to investigate whether these gaps can be explained by differences in individual "productive characteristics" between race groups or can be attributed to discrimination.

Being 15 to 24 years old (compared to 24 to 30 years old) decreases the probability of finding a job by 35%, meaning that youth unemployment problem is stronger among the youngest youth. The odds of self-employment over unemployment are 30% lower for youth who are 15 to 24 compared to 24 to 30 year olds.

The impact of human capital endowment on the probability of finding employment is very much as expected. Youth who have not completed secondary education have odds of finding employment that are 49% lower than youth who have the grade 12 qualification (matric). Youth who have post matric qualifications have odds of employment that are more than double those of youth with grade 12 qualifications. With regard to self-employment, it is interesting that youth with incomplete secondary schooling have higher odds of being self-employed versus

unemployed (24%), when compared to youth with a matric qualification. This result is significant at the 10% level of significance though. A possible explanation for this finding is that youth who have completed matric probably look towards further study even if they are not yet engaged in them whereas some youth with incomplete secondary education may realise that they need to create their own opportunities given the lack of marketable qualifications. This finding is also in line with the notion that entrepreneurial drive and aptitude are likely to be overriding factors where adoption of self-employment is concerned.

Longer participation duration increases the odds of accessing both wage-employment and self-employment. Each year in potential participation in the labour market increases the odds of employment by 9% while the odds of self-employment are increased by 4%, significant at the 5% level. This result hints at positive duration dependence which will be investigated in Chapter 3 with relation to the Cape Town labour market.

Living in a province other than the Western Cape significantly decreases the chance of getting a job from someone else. The closest province to the Western Cape in terms of probability of being employed is Gauteng where the odds of working for an employer are 34% lower. The province where the young have the lowest opportunities of work (compared to the Western Cape) is Limpopo, followed by the Northern Cape and Eastern Cape. The odds of being hired in Limpopo are 74% lower than in the Western Cape. With regard to self-employment, the only statistically significant result is for the Eastern Cape where odds of being self-employed over unemployed are more than double those of the Western Cape.

Finally, the presence of an employee within the household, introduced as a proxy for the social networks, significantly decreases the odds of employment over unemployment by 20%. It is possible that the presence of an income source within the household could lead other members of that household to not seek employment in earnest. It is also possible that the unemployed locate in households that have an income source. Both of these factors could explain this negative relationship between the presence of an employee and the negative

likelihood of employment of other household members. The effect of this variable on the odds of being self-employed over unemployed is positive but not statistically significant.

The results of these estimates lead to a number of observations. First, all the variables included in this model have a very significant effect statistically on the odds of being employed as opposed to unemployed. With the exception of provincial location, most of the variables also have a statistically significant effect on self-employment. It is an interesting finding that youth with incomplete secondary education are more likely than youth who possess matric to be in self-employment. These are the individuals who would probably excel as a result of receiving some support with their ventures. However, they would probably also be the most marginalised, by virtue of their limited education, in terms of accessing information about opportunities and qualifying for support with their business ventures.

In addition, the provincial inequities in the likelihood of finding employment point to scope for the reduction of unemployment through concerted development in the provinces where employment opportunities fall significantly below those of the Western Cape.

The fact that youth who are 25 to 30 years old have better employment prospects than younger youth is promising as it implies that the dramatically high youth unemployment at early stages is a phase. The transition out of this phase is not to low unemployment though, as unemployment of 31 to 65 year olds as of 2005 is 27%, as reflected in Table 1. The positive effect of the participation duration variable is in line with the analysis of the effect of age. That employment prospects improve with age suggests a queuing effect in the labour market, however, this result is puzzling given that participation duration has been controlled for, albeit loosely.

The next section seeks to shed light on why there is this apparent queuing effect in the labour market that is, the reasons for the higher level of joblessness among youth when compared to

adults. Section 4 will then look at explaining employment and self-employment differences by race and gender.

3. Explaining why youth are harder hit by unemployment than adults

As seen previously, throughout the world, evidence shows that youth unemployment rates are around twice as high as adult unemployment rates. Though the literature often raises the macroeconomic and demographic factors underlying this observation (like the aggregate demand and the level of youth wages or the size of the youth cohort), the value of a microeconomic analysis may very well be high. South Africa is not an exception to this "two times rule" as around 50 to 58% (depending on the age category considered) of young people suffer from unemployment whereas the adult unemployment rate is around 26% (see Table 2 above). Setting aside the macroeconomic side of the analysis, the aim of this section is to investigate how the microeconomic determinants of the access to the labour market account for the employment gap observed between youth and adults. Does the observed employment gap result from different "productive" characteristics between the two population groups? Alternatively, does the way these characteristics are rewarded on the market also play a role in explaining the differences in employment?

These issues are tackled using a decomposition analysis of the youth/adult employment gap in order to evaluate which part of it is explained by productive individual characteristics and which part remains unexplained. First, the methodology used to decompose the employment gap between two groups of population is presented followed by the results of its application to youth and adults.

3.1. Methodology

The methodology employed to estimate the nature of the employment gap is inspired by Oaxaca's method of analysing group wage differences (Oaxaca, 1973) based on linear regressions. This residual difference methodology has been previously adapted to discrete

choice models by Gomulka and Stern (1990) and Altonji and Blank (1999) in their decomposition of gender labour force differentials.

It consists in decomposing the average employment gap under consideration (either wage-employment or self-employment) into some "characteristics" and "returns" components in the following way:

$$\bar{L}_1 - \bar{L}_2 = \beta(\bar{X}_1 - \bar{X}_2) + (\beta_1 - \beta)\bar{X}_1 + (\beta - \beta_2)\bar{X}_2$$

Where $\bar{L}$ is the average probability of employment, X is the vector of individual productive characteristics introduced in the respective equations and β_i is the associated vector of coefficients.[4] β is the non-discriminatory set of coefficients. The main difficulty here is to determine β, the structure that would prevail in the absence of discrimination. If $\beta=\Omega\beta_1 + (I-\Omega)\beta_2$ where Ω is a weighting matrix and, I is the identity matrix, any assumption regarding β reduces to an assumption about Ω.

So far, several specifications have been made in the literature, applied mainly for wages. Oaxaca (1973) and Blinder (1973) propose two "reference wage structures", depending on whether one estimates what an individual of group2 would receive if she faced the group1 wage structure ($\Omega = 1$) or one assesses how much an individual of group1 would earn if she was paid according to the group2 wage structure ($\Omega = 0$). The decomposition can be quite sensitive to which wage structure is used but neither is preferable a priori to the other. The Oaxaca approach hints that the reference structure should instead lie somewhere between the group1 structure and the group2 structure. Hence, Reimers (1983) and Cotton (1988) assume that the reference wage structure should be a weighted average of the observed structures of group1 and group2. Reimers chooses $\Omega=0.5.I$, whereas Cotton proposes $\Omega=n_1/n.I$, where n_1/n is the fraction of the sample which is belonging to group1. Neumark (1988) develops an alternative procedure, from the Becker model of discriminatory tastes (Becker, 1971). Given the restriction

[4] In this chapter, group1 and group2 will respectively be 1) adults and youth; 2) Whites and Africans; 3) Males and females.

that employer preferences are homogeneous of degree zero within each type of labour, he shows that β can be obtained by estimates on the pooled sample (that is, both group1 and group2). As demonstrated later by Oaxaca and Ransom (1994), such a result is equivalent to assuming $\Omega=(X'X)^{-1}(X_1'X_1)$ where X is the observation matrix for the pooled sample and X_1 is the observation matrix for the group1 sample.

In this chapter, the results are presented for the choice of three assumptions regarding Ω:
$\Omega = 1$ and $\Omega = 0$ (Oaxaca's index) and $\Omega=(X'X)^{-1}(X_1'X_1)$ (Oaxaca and Ransom's index).

The first term of the equation above represents the part of the gap explained by the differing productive characteristics between group1 and group2. It is the predicted gap that would be observed within a non-discriminatory labour market. The second term is the component of the differential not explained on the basis of personal characteristics – the residual part. The classic literature on this area ascribes it to discrimination (Oaxaca, 1973; Neumark, 1988; Oaxaca & Ransom, 1994). However, some authors moderate this assumption and stipulate that on the supply side, this gap can reflect differences in preferences between two groups of people (Altonji & Blank, 1999). Indeed, the two groups might differ in their preferences for market versus non-market work or leisure and in their choices of particular types of work. On the demand side, the residual can be cautiously attributed to discrimination, relying on a few more important assumptions. Firstly, other forms of discrimination, such as pre-entry discrimination — for instance in schooling (quality of education in particular) or in housing — are not controlled for owing to the lack of data. These omissions could result in over-estimating the level of labour market discrimination. Secondly, because discrimination is estimated as a residual, misspecification of the estimated equations, measurement errors in data, omission of relevant unobservable, unquantifiable or unavailable characteristics (as neighbourhood and family effects) can induce bias into the discrimination estimates. Thirdly, it is assumed that the presence of discrimination has only distributional effects. In other words, the volume of employment and the level of wages are regarded as constant whether discrimination is present or not.

3.2. Decomposition of the age gap in employment

Table 4 below reports the results obtained from the decomposition of differentials in the employment of young and adult people[5].

Table 4. Decomposition of the age employment gap

	Employee		Self-employed	
Results	Coefficient	Percentage	Coefficient	Percentage
Omega = 1				
Characteristics	.1480508	49.41238%	.2101979	81.88911%
Coefficient	.1515721	50.58762%	.0464881	18.11089%
Omega = 0				
Characteristics	.4199032	140.1439%	.2540382	98.96845%
Coefficient	-.1202803	-40.14387%	.0026478	1.031551%
Omega = weighted				
Productive	.2598628	86.72995%	.2331724	90.83954%
Advantage	.0182414	6.088127%	.0126606	4.932319%
Disadvantage	.0215187	7.181924%	.0108531	4.228146%
Raw	.299623	100%	.256686	100%

Source: LFS 2005
Notes: Reference category - Omega = 1 for adults 31 to 65 years old

As already noted in Table 1, the youth/adult employment gap is significant among both the wage-employed and the self-employed. Table 1 indicates that the average probability of a 15 to 30 year old youth (an adult) finding a job from an employer amounts to 36% (58%) and among the self-employed the corresponding figures are 6.1% for youth and 15.1% for adults.

Under section 3.1 above the sensitivity of the results to the choice of the non-discriminatory set of coefficients was discussed. Hence the results are presented for three assumptions regarding omega: $\Omega = 1$; $\Omega = 0$ (Oaxaca's index) and $\Omega=(X'X)^{-1}(X_1'X_1)$ (Oaxaca and Ransom's index). The discussion below focuses mainly on the third of these, relating to the pooled sample with the

[5] See Appendix 1 for the results of the multinomial logit estimates for youth and adults.

weighted Ω as choosing either extreme is not easily justifiable given the current information set, while the other two categories are presented for the sake of comparison. The results of the age decomposition in Table 4 indicate that 87% of the employment gap between adults and youth is explained by observable "productive" characteristics. By way of comparison, if the non-discriminatory wage-employment structure is assumed to be that of the older workers ($\Omega = 1$) then the portion of the wage-employment gap is reduced to 49%. If omega is assumed to be zero then all of the wage-employment gap is attributable to worker characteristics.

The most likely difference in individual characteristics between youth and adults lies in the level of work experience which is sometimes proxied in econometric analysis by age minus years of schooling minus 6. It is a weak proxy for experience and has therefore not been used in that manner in this chapter. Instead, this variable has been used to signify participation duration. Capturing this experience element is difficult without more detailed data.

As is evident from the results of the weighted omega structure in Table 4, only 13% of the wage-employment gap remains unexplained by the characteristics introduced in the analysis. The model attributes 6% of the wage-employment gap to some unobserved adult advantage while 7% is attributed to youth disadvantage, making up the 13% total unexplained portion of the employment gap. Ideally, the introduction of other variables (unavailable in the survey, like parental effect, real networks etc.) would enable better definition of the precise part of the employment gap imputed to the unobserved behaviour of employers. Even in this case, the belief that one age group of workers can be perfectly substituted for another is not likely to be widespread. Employers are unlikely to regard younger and older workers in the same way. Some types of work may require "youthful" qualities, such as adaptability, while other jobs may call for more "mature" qualities, such as responsibility or reliability (O'Higgins, 2001). However, in his theory of signalling, Spence (1974) shows that in an imperfect information setting, when the employer does not know the individuals' productivity, youth can be subject to discrimination based on stereotypes from employers, which may self-confirm in some signalling equilibria. The theory of statistical discrimination (Phelps, 1972) also leads to the same

conclusions. In the case of South Africa, employers have at times voiced concerns about hiring youth in an environment of labour regulations that limit the freedom to fire workers. Discussion of labour regulations in relation to youth unemployment will be returned to in more detail in the conclusion of this thesis.

Table 4 further reveals that the gap between youth and adult self-employment is even more strongly explained by differences in the "productive" characteristics. Looking at the results of the weighted omega assumption first, the portion of the self-employment gap attributable to productive characteristics is 91%, while 5% is attributable to adult advantage and 4% to youth disadvantage. Under the assumption that the adult self-employment structure is the non-discriminatory one, the finding is that 82% of the self-employment gap is as a result of individual characteristics. When assuming the youth self-employment structure to be non-discriminatory 99% of the self-employment gap is explained by worker characteristics. As underlined before, access to capital is likely to be one of the most important determinants of self-employment. However, the available data set does not allow for an estimation of the individual's access to the credit market. The fact that youth may face a lower probability of loan approval than adults could further explain the self-employment gap observed between youth and adults. Furthermore, adults have an added option that the youth do not have, which is to turn to resources accumulated during their life that enable them to set up small businesses later on.

This section has shown that the employment gaps (wage-employment or self-employment) are largely explained by differences in "productive" characteristics between youth and adults, which could be because of differences in work experience not captured in this model. A relatively small portion of the gap (13%) amongst the wage-employed remains unexplained, while 9% of the self-employment gap remains unexplained, by the weighted omega assumption. Given the factors that could make adults more attractive than youth to employers, mentioned above, one cannot confidently ascribe the unexplained portion of employment gap to discrimination. The self-employment gap may be largely driven by the fact that youth

experience difficulty accessing credit in order to set up and sustain businesses. However, there is not enough information to be able to ascribe the self-employment gap to discrimination. In the next section, similar analysis is conducted by race and gender so as to investigate the extent of racial and gender inequalities in youth employment.

4. Racial and gender inequalities in youth employment.

As underlined previously, it appears that treating youth as a homogenous group when dealing with youth unemployment could lead to inaccurate generalisations as unemployment is not spread homogenously among the different population groups in South Africa. Indeed, Black and female youths seem to have lesser access to employment than White and male youths, suggesting a need to consider each population group separately. The aim of this section is to analyse the nature of these racial and the gender gaps in employment. Do they reflect mainly differences in characteristics (education, experience, geographical location etc.) between the races and between the genders or do they reveal differences in the way individual productive characteristics are rewarded by the labour market? Among the demand and supply factors that affect the rewarding of these characteristics might be some racial and gender discrimination in employment. However, reaching any definitive conclusion on this is not possible with the data at hand, as discussed earlier.

This section investigates the nature of the racial and gender gaps in the probabilities of being employed and self-employed. Table 5 and Table 6 below report the results obtained from the decomposition of the racial and gender differentials in the employment of young workers[6] respectively.

[6] See Appendix 1 for the results of the multinomial logit estimates for African, white, males and females.

Table 5. Decomposition of the racial employment gap of young workers.

	Employee		Self-employed	
Results	Coefficient	Percentage	Coefficient	Percentage
Omega = 1				
Characteristics	.0503825	9.435988%	.1024156	32.6563%
Coefficient	.4835577	90.56401%	.2112011	67.3437%
Omega = 0				
Characteristics	.1212572	22.70989%	-.0039677	-1.265129%
Coefficient	.412683	77.29011%	.3175844	101.2651%
Omega = weighted				
Productive	.1671706	31.30885%	.028956	9.23291%
Advantage	.3267364	61.19344%	.2779391	88.62381%
Disadvantage	.0400333	7.497706%	.0067217	2.143277%
Raw	.5339402	100%	.3136167	100%

Source: LFS 2005
Notes: Reference category - Omega =1 for White youth

Consider the result of the decomposition for the African and White youth, with the weighted omega assumption first, Table 5 shows that less than a third (31%) of the African/White gap in the probability of wage-employment is accounted for by differences in observed characteristics between the two racial groups. The unexplained portion of the racial gap in the probability of wage-employment is 69%, of which 61% is ascribed to White advantage while 7% is due to African disadvantage. Similarly, when the White wage-employment structure is assumed to be non-discriminatory ($\Omega = 1$), only 9% of the wage-employment gap is explained by observable characteristics. When the African wage-employment structure is assumed to be non-discriminatory, 22% of the employment wage gap is explained by characteristics.

These unexplained portions cannot be attributed to discrimination unless there is high confidence about the specification of the model and the absence of omitted variables. One should note though that these unexplained portions could be a reflection, in some respects, of pre-labour discrimination. Indeed, the segregation of the educational system under Apartheid fuelled disparity in the quality of education, the effects of which are still present. With time,

this inequality in schooling should be less of a concern though. Furthermore, the policies of "influx control" and "Homelands" hindered the mobility of Africans and confined them to living in areas with low employment opportunities. The effects of this geographical segregation may still be hampering access of some young Africans to the labour market.

Turning to self-employment, the decomposition of the racial gap leads to the conclusion that only 9% of the gap in self-employment is explained by differences in individual productive characteristics. In other words, the lower rate of self-employment among Africans than Whites is largely unexplained by differences in the observed self-employment enhancing characteristics of these races. The model ascribes 91% of the self-employment gap between White and African youth to unexplained causes. Specifically, 89% of the gap as ascribed to White youth advantage and 2% to African youth disadvantage. Furthermore, when the self-employment structure of White youth is assumed to be non-discriminatory, 32% of the self-employment gap is explained by observable characteristics. When the non-discriminatory self-employment structure is assumed to be that of African youth, all of the gap is explained by unobservable factors.

The most important factor in this instance is likely to be access to finance. It may be that White youth are able to access credit through secondary sources who can stand surety on their behalf whereas African youth are less likely to have people who could vouch for them when one considers the amount of finance that may be required in order to set up a business venture. Indeed, the international literature also points to the existence of racial inequity in the small business credit market (Blanchflower et al., 1998).

Table 6. The decomposition of the gender employment gap.

	Employee		Self-employed	
Results	Coefficient	Percentage	Coefficient	Percentage
Omega = 1				
Characteristics	.0086023	5.193928%	.0039288	8.892457%
Coefficient	.1570195	94.80607%	.040252	91.10754%
Omega = 0				
Characteristics	.0043934	2.65265%	.0003069	.6947148%
Coefficient	.1612284	97.34735%	.0438738	99.30529%
Omega = weighted				
Productive	.0077317	4.66831%	.0027657	6.259899%
Advantage	.0798002	48.18221%	.0231799	52.46606%
Disadvantage	.0780898	47.14948%	.0182352	41.27404%
Raw	.1656218	100%	.0441807	100%

Source: LFS 2005
Notes: Reference category – Omega = 1 for Male

Turning to the gender gap in youth employment, Table 6 indicates that only 5% of the gender employment gap is explained by observable characteristics, assuming the weighted omega structure. Of the unexplained portion of the gender employment gap, 95% is unexplained by individual characteristics and reflects differences in the coefficients of male and female employment equations. The model ascribes an almost equal share of this gender gap in wage-employment to male advantage and female disadvantage, 48% and 47% respectively. When the non-discriminatory wage-employment structure is assumed to be that of males, 5% of the employment gap is explained by observable characteristics. When the non-discriminatory wage-employment structure is assumed to be that of females, 3% of the employment gap is explained by observable characteristics.

The results for the decomposition of the gender self-employment gap are rather similar to those of the wage-employment gap. Assuming a weighted omega, 6% of the gender gap in self-employment is explained by observable characteristics. In addition, 52% of the total gender gap in self-employment remains unexplained and is attributed to male advantage while 41% of the total gender gap in self-employment is estimated to be due to female disadvantage. When

assuming that the non-discriminatory self-employment structure is that of males, 9% of the gender gap is explained by characteristics. When assuming that the non-discriminatory self-employment structure is that of females, 1% of the gender gap is explained by characteristics.

On the supply side, the gender employment gap could be a reflection of differences in the preferences of young men and young women (Altonji & Blank, 1999). Youth may differ in their preferences for market versus non-market work or leisure. Altonji and Blank (1999) consider pre-market gender discrimination in child-rearing practices or in the educational system as one source of gender differences in preferences. Furthermore, the differential treatment of boys and girls may be a rational response by parents to inequality that is prevalent in the labour market. The findings above suggest that, on the demand side, the employer's recruitment procedure could possibly be only partly objective, such that hiring discrimination hampers female entry into the labour market. It would, however, be difficult to provide conclusive support for such an assertion.

One step that the government has taken in an attempt to address the racial and gender inequalities discussed above is the *Employment Equity Act 1998* which implements a policy of affirmative action "designed to ensure that suitably qualified people from designated groups have equal employment opportunities", through preferential treatment and numerical goals. Even if this law does not mention any specific measures for youth, it should implicitly affect them. However, it would be highly optimistic to expect that the Act will uproot the long entrenched problem of labour market inequality, though it is a step in the right direction.

It is also likely that the development and improvement of schooling and training will not only improve the rate of employment of young people in general but also affect racial and gender inequalities in securing employment. The *Skills and Development Act 1998* together with the *Employment Equity Act 1998* are aimed to work in this direction as they compel employers to implement appropriate training measures for people from disadvantaged groups.

5. Conclusion.

This chapter studies some aspects of youth unemployment in South Africa, attempting to analyse its main determinants and the reasons why it is so unequally spread among different population groups, notably age, race and gender groups. First, in order to better understand the particularities of youth joblessness, the paper studies the differences in opportunities for both wage-employment and self-employment between the youth and older age cohorts. The decomposition analysis indicates that large amounts of the differences in employment of youth and older participants are attributable to disparities in observable characteristics such as experience and education in the case of wage-employment and family characteristics in the case of self-employment. The latter is also likely to be greatly influenced by differences in access to credit.

Second, the chapter focuses on differences in the incidence of unemployment amongst youth, considering specifically race and gender. With regard to racial differences in wage-employment, it is found that a significant proportion (69%) of the difference in African and White youth employment is unexplained by observable characteristics and, in the case of a perfectly specified model, this would most likely reflect some hiring discrimination from the employers. Where self-employment is concerned, even more of the racial gap is unexplained by the observable characteristics of the two races. The gender analysis revealed strong evidence of labour market disadvantage experienced by women in both wage-employment and self-employment. One should note that in both the race and gender cases pre-labour market discrimination is likely to have played a part in the outcomes.

Youth unemployment has been shown to have detrimental effects for the individual as unemployment early in someone's career may permanently impair their future productive capacity (Blanchflower, 1999). On a broader respect, the whole society may suffer from a high level of youth unemployment, as there is a link between youth joblessness and serious social problems such as drug abuse, vandalism and crime (Freeman, 1999). Thus, implementing

policies aimed at reducing youth unemployment might have a significant impact on society as a whole.

Leaving aside the influence that higher economic growth and lower wages could have on the reduction of the level youth unemployment, some labour market and education policies could help in coping with this huge issue. First, the results of the modelling imply that the nurturing of a vibrant informal sector and encouragement of SMMEs would go a long way towards alleviating the problem of high youth unemployment. In particular, African youth need guidance and better access to capital in order to create successful ventures. This is one facet of the *Black Economic Empowerment* policy.

Furthermore, the education system should be better aligned to the labour market so that employers will have confidence in the qualifications held by youths. This could be achieved through further encouragement of students being offered internships at private companies, government bureaus and non-government organisations. Earlier analysis also revealed that the youth participants at the younger end of the scale (ages 16-19) are severely disadvantaged in the job market by their poor educational attainment, more should be done to ensure that these youths refrain from early exit from studies. The main consideration in this instance should be setting up of links between secondary and higher levels of education so that secondary school leavers are better prepared to enter into higher learning. This would most likely lead to higher numbers of graduates in the required fields. Chapter 3 analyses the preparedness of school leavers for the labour market through an analysis of search behaviour and employment patterns immediately before leaving school and for a few years after leaving school.

Chapter 3: Duration of unemployment in Youth Transitions from Schooling to Work in Cape Town

1. Introduction

The transition from school to work marks the beginning of the labour market experience of youth. If smooth and successful, it can be a springboard to a successful career. However, it often is not a smooth transition and youth can be trapped in unemployment for relatively long periods. Chapter 2 highlighted significant racial differences in securing employment among youth at a national level. This chapter makes use of a youth panel data set, the Cape Area Panel Survey (CAPS), which is rich in information about job search and timing of employment to illuminate the issue of youth transition to the labour market. Utilising month-by-month calendar entries, one is able to chart detailed labour market activity of youth in Cape Town. Following this, the nature and degree of duration dependence in the Cape Town labour market is examined using survival analysis. Specifically what will be examined is whether the hazard of exiting the unemployment state is positive, negative or constant. Economic theory suggests that duration dependence should be negative meaning that the likelihood of exiting a state of unemployment decreases with the length of the unemployment spell. The reasoning behind the theory is that in an environment of high unemployment, the discouraged worker effect is prevalent, and it is likely that workers will decrease their search intensity, or resort to a more passive means of job search. These factors could serve to decrease the exit probability of the unemployed.

Surveying the CAPS data, it is established that White youth make a relatively smooth transition from schooling to work while African and Coloured youth are clearly much less successful, though to differing degrees. Indeed, the analysis in Chapter 2 revealed that White youth have by far the best labour market outcomes. Therefore the differences in employment outcomes between Africans and Coloureds are viewed to be of particular interest as these two groups are

alike in many respects related to their socioeconomic profiles., yet they are very different in terms of labour market outcomes.

In order to position this study of Cape Town within the broader context of South Africa as a whole, the analysis begins by comparing Cape Town and South Africa as a whole using the micro sample of the 2001 census. The 2001 census data is a good choice because it lies closer to the period when the CAPS respondents were first surveyed in 2002. Following this exercise, the month-by-month calendar data is used to reflect diagrammatically the job search and employment activities of African and Coloured youth in Cape Town. The analysis then proceeds to an examination of duration dependence within this labour market. After careful interrogation of the shape of the hazard function, the conclusion reached is that the proportional hazards assumption does hold, following which the Weibull model is fitted to the data, controlling for heterogeneity. A key conclusion reached in this analysis is that there is positive duration dependence in the Cape Town labour market.

2. Youth unemployment in Cape Town in a national perspective

By way of introducing the sections using CAPS, attention is now directed at a comparison of Cape Town and the rest of South Africa using the 2001 census 10% micro-data set. This is the largest data set available for a post-2000 analysis. The comparison is restricted to the age ranges 14-22 years old because this coincides with the age ranges of the youth that were included in the first wave of CAPS. According to the 2001 census, Cape Town makes up just over 6% of South Africa's population and 11.3% of the urban population in the 14 to 22 age group.

Table 1 compares a population breakdown by race for this age cohort in Cape Town and the rest of South Africa. It shows that Africans make up the overwhelming majority (82%) of the South African population while the shares of Coloureds and Whites are almost equal at 8% and 7% respectively. The composition of the Cape Town population is very different, however. Almost half of the population of Cape Town is Coloured, while 35% is African and 14% is White.

Comparison of Cape Town's racial composition with that of the rest of the urban areas indicates that Cape Town's unique history has resulted in something of a reshuffling of the African and Coloured race groups. The racial profile of the rest of urban South Africa is similar to the profile of the country as a whole but the shares of Africans and Whites are affected by the overrepresentation of Africans in rural areas.

Table 1. Population Percentages of Youth Aged 14-22, Cape Town versus the Rest of South Africa

Population Group	Cape Town	Rest of South Africa		Total South Africa
		Urban	All	
Black African	35%	74%	85%	82%
Coloured	49%	10%	6%	8%
Indian or Asian	2%	5%	2%	2%
White	14%	12%	7%	7%
Total	100%	100%	100%	100%

Source: 10% Microsample of the 2001 Census
Notes: Own calculation using survey weights

Table 2. Levels of Education of 14-22 Year Olds, Cape Town and the Rest of South Africa

Education Level	Cape Town	Rest of South Africa	
		All	Urban
No schooling	1.4%	4.0%	2.1%
Some primary	9.4%	17.1%	11.9%
Complete primary	9.5%	11.3%	9.5%
Some secondary	55.0%	51.7%	53.1%
Grade 12 / Std 10	21.5%	13.9%	20.2%
Higher	3.2%	2.0%	3.2%
Total	100%	100%	100%

Source: 10% Microsample of the 2001 Census

Table 2 shows that the education profile of youth aged 14-22 in Cape Town is very similar to that of the rest of urban South Africa. The main difference is that there is a lesser share of the Cape Town population with no schooling or some primary schooling and a slightly higher share with incomplete secondary and complete secondary schooling. The effect of including the rural

areas of South Africa in the comparison is to increase the shares of the lower education groups. Many of the youth in this age range are still in school.

Table 3 shows the distribution of activity status of youth in Cape Town compared to the rest of South Africa. The majority of youth in the 15-22 age group are at school. Furthermore, 19% of youth in Cape Town are employed compared to 8% in all of South Africa and 10% in urban parts of South Africa. The proportion of youth unemployed in Cape Town is similar to that of urban South Africa at 21%. The importance of race in the youth labour market outcomes in Cape Town is evident from this census data as 23% of Coloured youth are employed compared to only 10% African youth.

Table 3. Employment Status of 15-22 Year-Old Youth in Cape Town and the Rest of South Africa, 2001 census

	Cape Town				Rest of the Country	
Employment Status	African	Coloured	White	Total	All	Urban
Employed	10%	23%	26%	19%	8%	10%
Unemployed	28%	22%	4%	21%	17%	21%
Scholar or student	52%	43%	65%	49%	59%	57%
Home-maker or housewife	1%	2%	1%	1%	1%	1%
Pensioner or retired	0%	0%	0%	0%	0%	0%
Unable to work	1%	1%	1%	1%	1%	1%
Seasonal worker not working	0%	1%	0%	1%	1%	1%
Does not choose to work	3%	4%	2%	3%	6%	5%
Could not find work	5%	5%	1%	4%	7%	5%
Total	100%	100%	100%	100%	100%	100%

Source: 10% Microsample of the 2001 Census
Notes: Own calculation using survey weights
This table covers ages 15-22 because employment status is captured for those 15 years and older in the 2001 census.

The key points from these tables are the following: while youth unemployment in Cape Town may be lower than in other parts of South Africa, it follows the same patterns. Most importantly, the role of education in a successful move into employment seems to be very similar in the urban Cape Town labour market as it is elsewhere in the country. Moreover, the

racial marker is as strong in Cape Town as it is elsewhere. At the same time, the presence of a substantial Coloured population occupying an intermediate position between Africans and Whites allows for additional subtlety in exploring the interactions between race and education. Thus, there is real interest in what can be learned from the school/labour market transitions and the unemployment/employment transitions of Cape Town's youth. It is to this that attention is now focused.

3. Transitions between school and the labour market in the Cape Area Panel Study

While much can be learned from analysis of large cross-sectional data sets such as the census, these data sets provide only a limited picture of the experience of young people when they first enter the labour market. In this section, advantage is taken of the Cape Area Panel Study (CAPS), to get a richer picture of the dynamics of transitions from school to work. Wave 1 of CAPS, which was collected in 2002, included 4,752 young people aged 14-22, living in 3,304 households. CAPS was designed as a stratified two-stage clustered sample with stratification on the predominant population group living in each sample cluster. CAPS oversampled areas classified as predominantly African and White in order to produce larger samples of African and White respondents than would be present in a simple random sample. As discussed above, Cape Town is the only major city in South Africa to have substantial numbers of White, Coloured, and African residents, providing unique opportunities for the study of the changing nature of inequality after the abolition of apartheid.[7]

Wave 1 of CAPS contains two major sources of data. First, the survey includes a household questionnaire, in which demographic data on the entire household is collected. Second, the survey includes a detailed young adult questionnaire, which collects data on schooling, employment, and fertility of household members between the ages of 14 and 22. It also includes a basic numeracy and literacy skills test administered to each youth respondent in

[7] As in most South African household surveys, CAPS response rates were high in African and Coloured areas and low in White areas. Household response rates were 89% in African areas, 83% in Coloured areas, and 46% in White areas. Young adult response rates, conditional on participation of the household, were quite high, even in White areas. Given household participation, response rates for young adults were 93% in African areas, 88% in Coloured areas, and 86% in White areas (Lam et al 2008).

Wave 1. This was about a 20-minute self-administered written test with 45 questions covering basic reading and mathematics skills. Respondents could choose to take the test in English or Afrikaans. There was no version in Xhosa, the home language of most African respondents. The English test was taken by 99% of African respondents, 43% of Coloured respondents, and 64% of White respondents. Although most Africans took the test in a second language, it is worth noting that English is the official language of instruction in African schools and is used for many tests such as the grade 12 matriculation exam. The results of this test will be used in the analysis below.

CAPS youth respondents were interviewed a second time in either 2002 or 2003, a third time in 2005, and a fourth time in 2006. The analysis below uses data from all these waves, taking advantage of the retrospective reports on monthly employment and job search provided in each wave. Overall attrition between Wave 1 and Wave 4 was about 20%, with lower attrition among younger respondents and among the Coloured sample, which has strong roots in Cape Town. The African attrition rate was about 25%, with most of the attrition resulting from migration back to the Eastern Cape, a predominantly rural province that serves as the main sending region for Africans living in Cape Town.

A major focus of this section is the comparison of transitions from school to work for African and Coloured youths. All three main population groups present in Cape Town were subject to very different treatment under apartheid. Many of these apartheid-era differences are likely to continue affecting young people in the post-apartheid period. Whites had advantages in a wide range of areas, including significantly higher expenditures on schooling, privileged access to the labour market, unrestricted residential mobility, and better access to most social services. Africans had the least access to services and the most restrictions on work and migration, with a large gap in expenditures on schooling. The Coloured population, which is heavily concentrated in Cape Town, occupied an intermediate status under apartheid, with higher expenditures on schooling, fewer restrictions on residential mobility, and better access to jobs. It is the view in this analysis that there is some value that can be gathered from an analysis of

the two population groups that share disadvantage, namely Africans and Coloureds, albeit relative.

Figure 1 looks at transitions from school to work using both the retrospective histories from Wave 1 and the longitudinal data on work and school reported in 2003, 2004, and 2005. For each single year of age from 12 to 23. the sample is divided into four possible activities – (1) enrolled but not working; (2) enrolled and working; (3) working but not enrolled; (4) not working and not enrolled. Enrolment includes post-secondary schooling and formal training programs, in addition to primary and secondary school. Work is defined broadly, and includes any work done during the year. This includes work during school vacations, so it is important to keep in mind that the work/school combination does not necessarily imply that work was being combined with school. The sample used in Figure 1 is respondents who were age 23-25 in 2005.

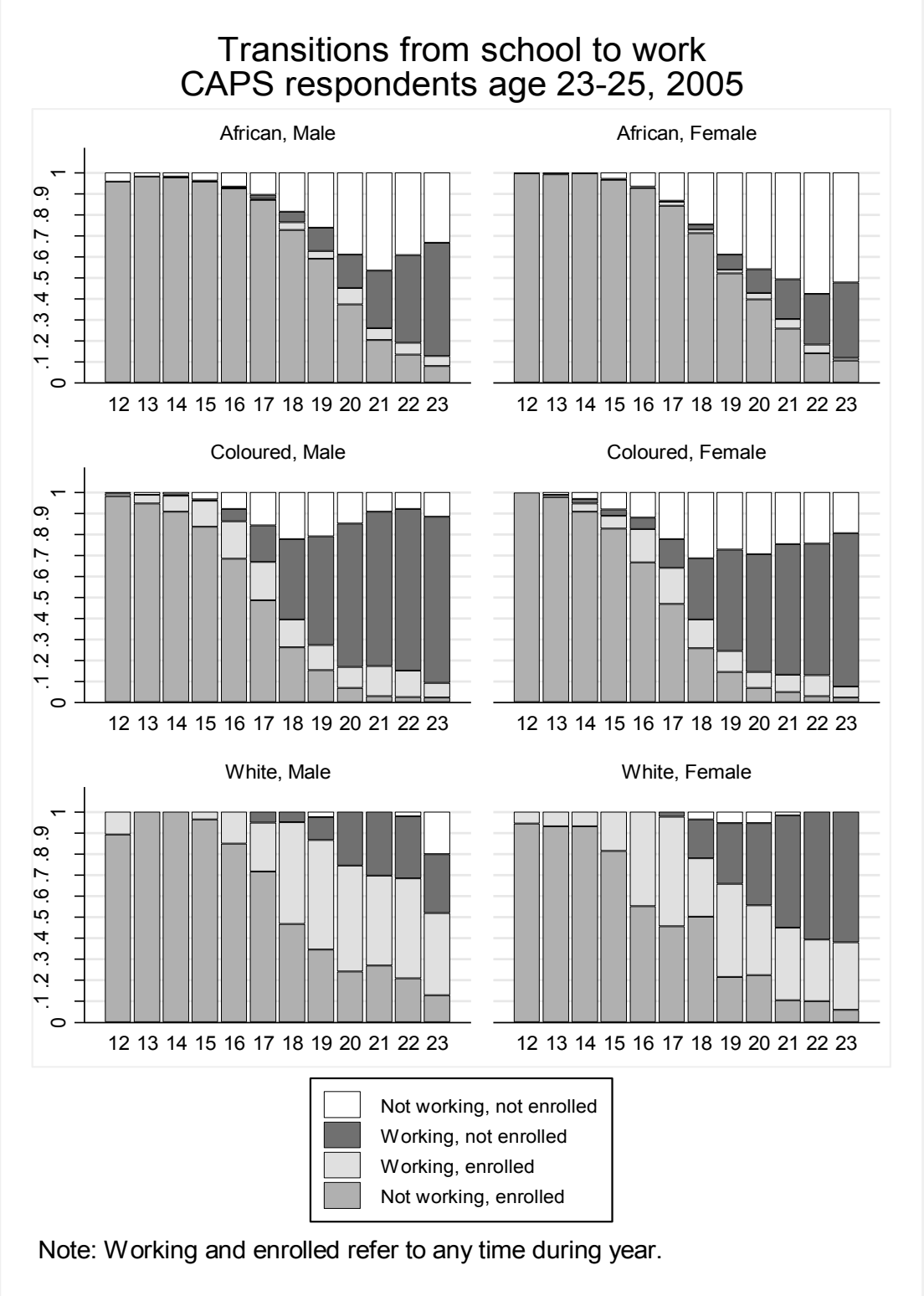

Figure 1: Transitions from school to work, CAPS respondents age 23-25, 2005

Source: Lam et al. (2008)

Looking at the results for males in Figure 1, it is clear that there are large differences in the transitions from school to work across population groups. While being in school without working is by far the predominant activity for all three groups at age 14, by age 17 some sharp differences have emerged. Significant proportions of White males are working during years when they are still in school, with 45% of White males in the work and school category at age 17. In contrast, African males have extremely low rates of work. The percentage of African males who work during years when they are still in school is negligible, never exceeding 5%. The transition from school to work for Coloured males is characterised more by a sharper transition than it is for either White or African males. Relatively small proportions of Coloured males work during the years they are in school, with the proportion working exceeding the proportion enrolled at age 18. The proportion of Coloured males enrolled in school drops below that of both Africans and Whites by age 16.

4. Job search in the school to work transition

As mentioned above, one of the unique features of the CAPS data is that monthly data has been collected on school, work, and job search covering the period from August 2002 through the time of the Wave 4 interview in 2006. The following analysis uses this data to further portray the situation in Cape Town. Starting with job search, Figure 2 shows how patterns of job search provide useful information about how much individuals engage in search and how this changes over time. Figure 2, for example, shows the proportions of African and Coloured males searching in each month after the end of studies. Data for four months before the end of studies are also included to give an indication of search activity immediately before the end of schooling.

It can be seen that a higher proportion of Coloured males search for work just prior to and just after stopping school. The proportions are then quite similar up to a year after ending schooling, after which a higher proportion of Coloured males searches for work in every month up to just beyond two and a half years since leaving school. Generally, the proportion of individuals of both races searching for work does not exceed 25% in each month. The reason for

this pattern could either be that as some individuals find jobs others lose their jobs and begin searching while others become discouraged and stop searching. It is interesting, however, that the proportions searching do not start out relatively high (around 40% for example) and then decline with time.

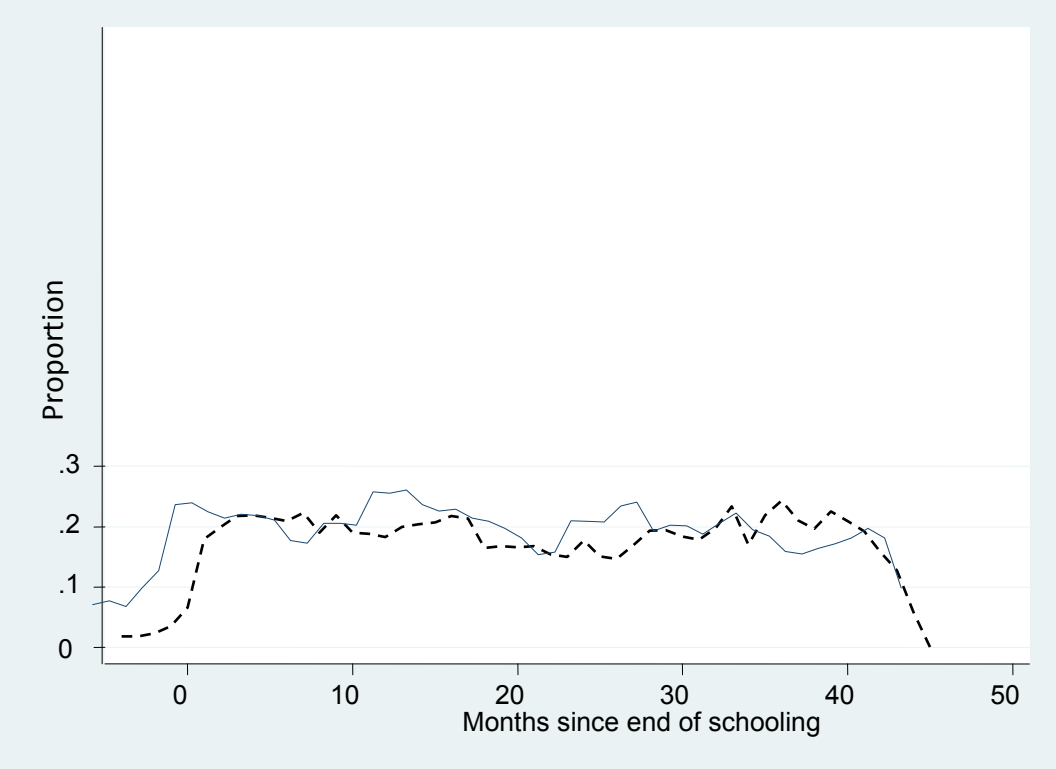

Figure 2: Proportion of males searching since end of schooling - African (dashed) and Coloured (solid)

Figure 3 reflects that amongst females a similar pattern of higher search by Coloured youth initially is observed, although in this case the higher proportion of Coloured females searching is observed up to 10 months after leaving school only. A higher proportion of African women search between 18 months since leaving school and about three years after leaving school. As is the case with the men, the proportion of each race searching generally does not exceed 25%.

What is evident from this analysis is that there is not a great divergence in search activity by race or by gender amongst Coloured and African youth in Cape Town. The employment

outcomes are a lot more divergent, however. If this similarity in the Coloured and African search activity does not translate into similarity in employment outcomes this would suggest that Coloured youth find employment more readily and without additional search necessarily. Such a finding would be in line with the earlier finding that Coloured youth end schooling earlier than African youth probably because of the higher opportunity cost of being in school given relatively favourable labour market outcomes.

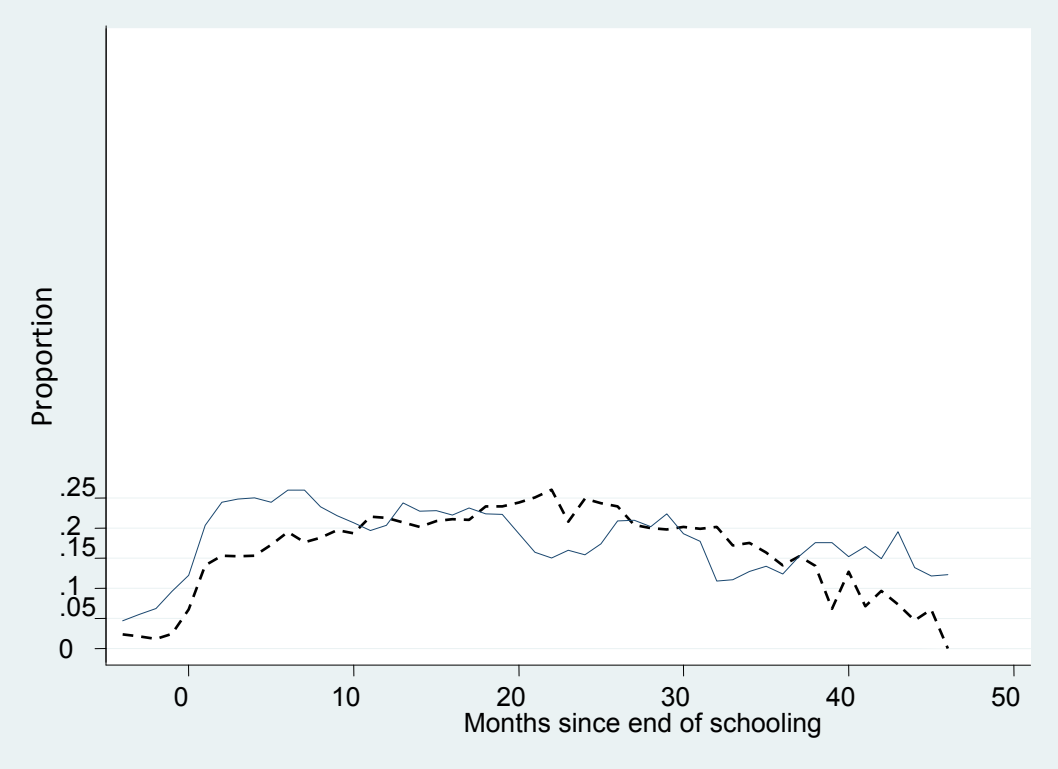

Figure 3: Proportion of females searching since end of schooling - African (dashed) and Coloured (solid)

5. Work patterns in the school to work transition

As discussed above, looking at the trends in search activity does not clarify whether joblessness decreases over time or whether discouragement increases. However, this question can be answered directly by looking at the employment trends garnered from the CAPS calendar. Figure 4 shows that there is a positive relationship between length of time since leaving school

and proportion of the sample employed amongst African and Coloured males. The rate of employment acquisition seems to be higher prior to about 18 months after school as it decreases slightly after that. Furthermore, the racial differences are particularly striking. Six months after leaving school, 20% of Africans are working compared to 35% of Coloured males. These figures increase to 32% and 48% respectively after a year since leaving school and 50% and 65% respectively after three years. A similar trend is observed amongst females in Figure 5 although the increase in proportion employed occurs at a slightly slower pace amongst the females. Also amongst females, the gap between the races increases significantly after about a year since ending school.

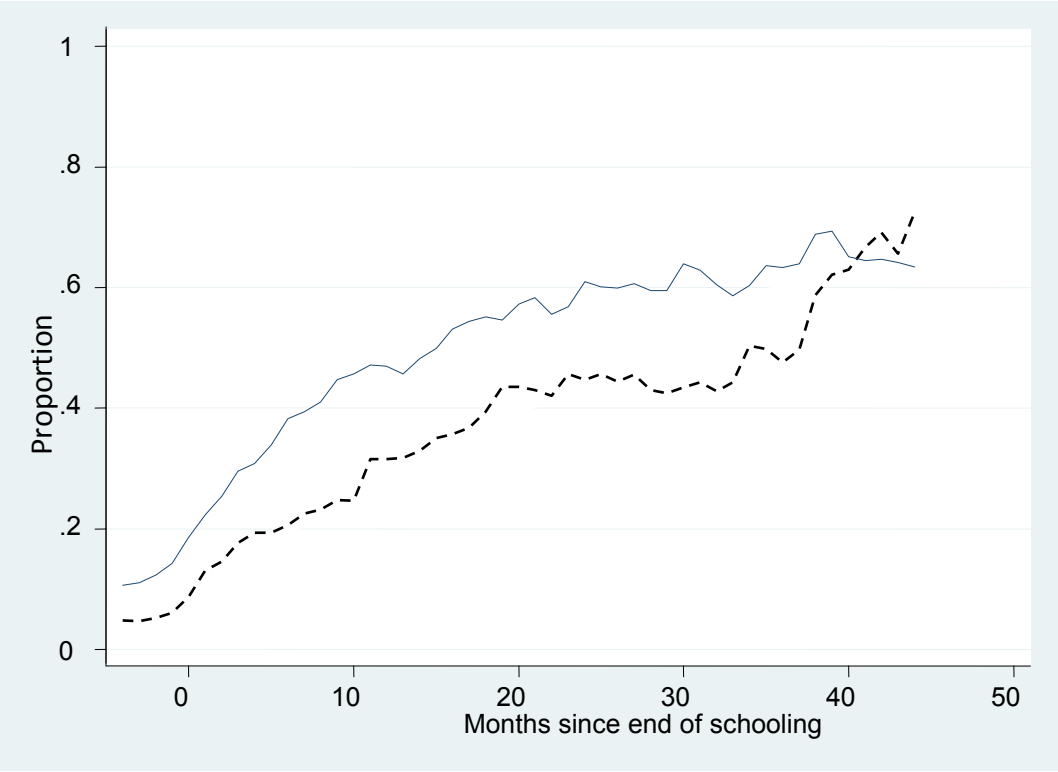

Figure 4: Proportion of males working since end of schooling - African(dashed) and Coloured (solid)

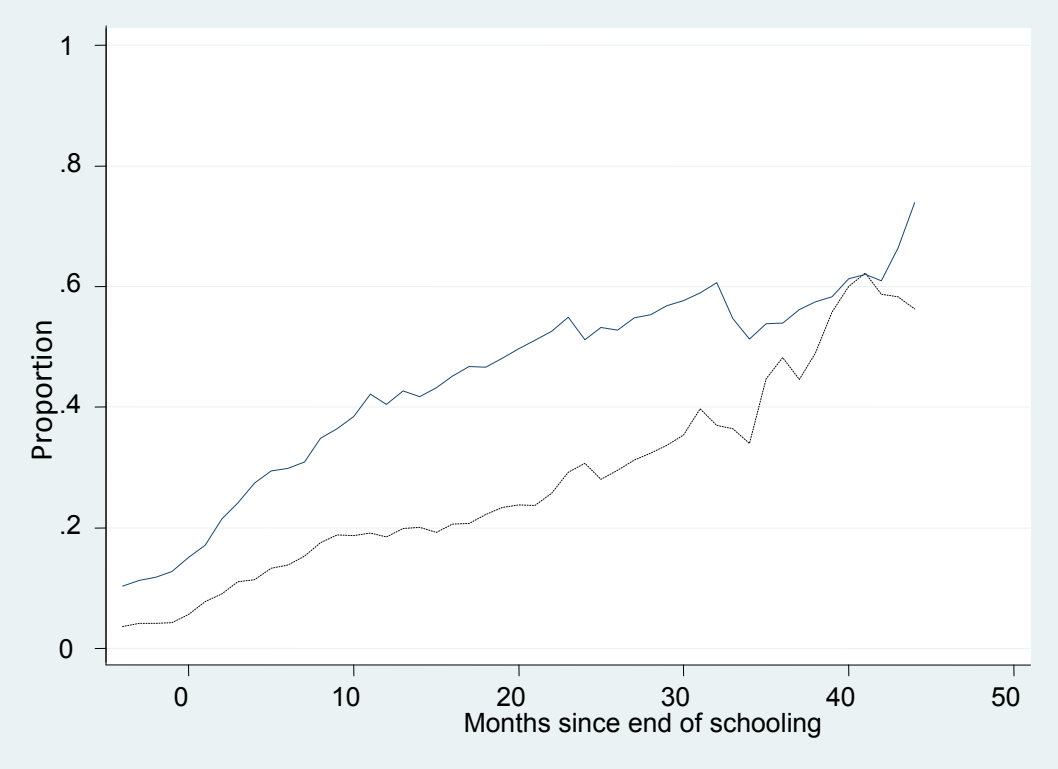

Figure 5: Proportion of females working since end of schooling – African (dashed) and Coloured (solid)

6. The role of education

It is clear that in the Cape Town labour market, the outcomes of Coloured youth are better than those of African youth, however, a question that naturally arises is whether education mitigates the observed racial disparities. Figure 6 displays the proportion of males with grade 12 and higher qualification who are working, by race. Evident from this diagram is that racial differences in employment are present even after the milestone of complete secondary education (matric) is reached by the youth in Cape Town.

Another way to tease out the education, work and race dynamics is to compare the employment outcomes of African youth with grade 12 to those of Coloured youth with less than grade 12 qualification as shown in Figure 7. The rationale here is that in so doing one can get a sense of the persistence of the labour market advantage of Coloured youth. Indeed, it

appears that a higher proportion of Coloured males with less than grade 12 qualifications find jobs up to 22 months after leaving school after which African youth with matric catch up.

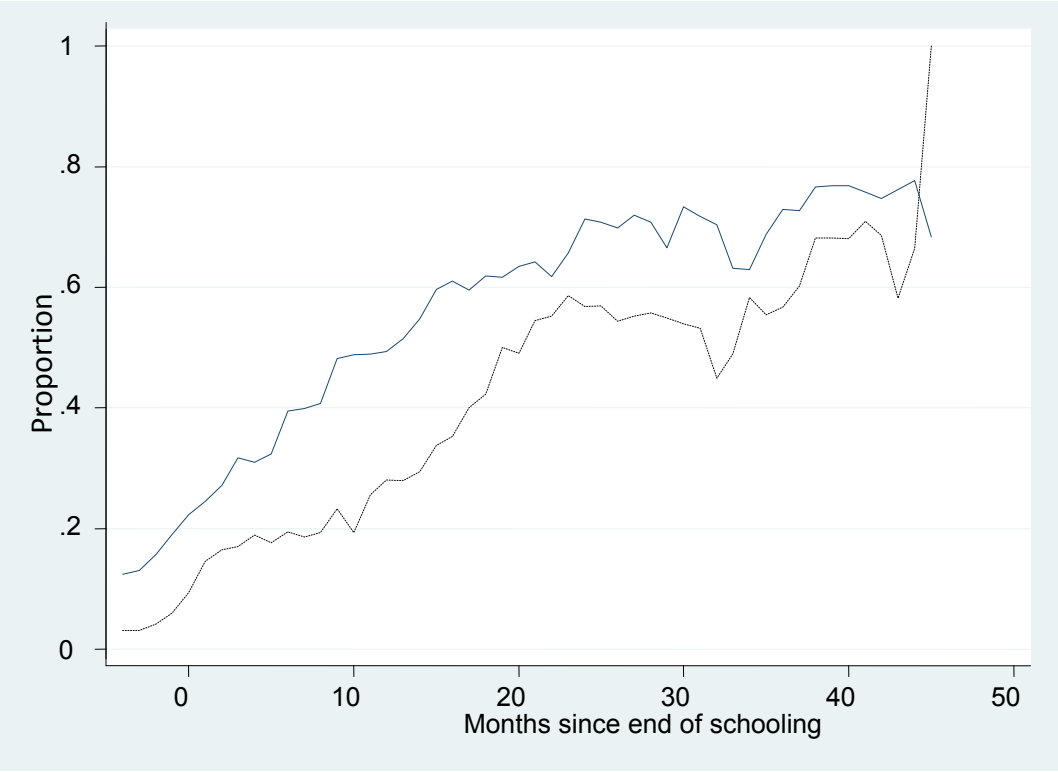

Figure 6: Proportion of African and Coloured males with grade 12 or more, working since end of schooling - African (dashed) and Coloured (solid)

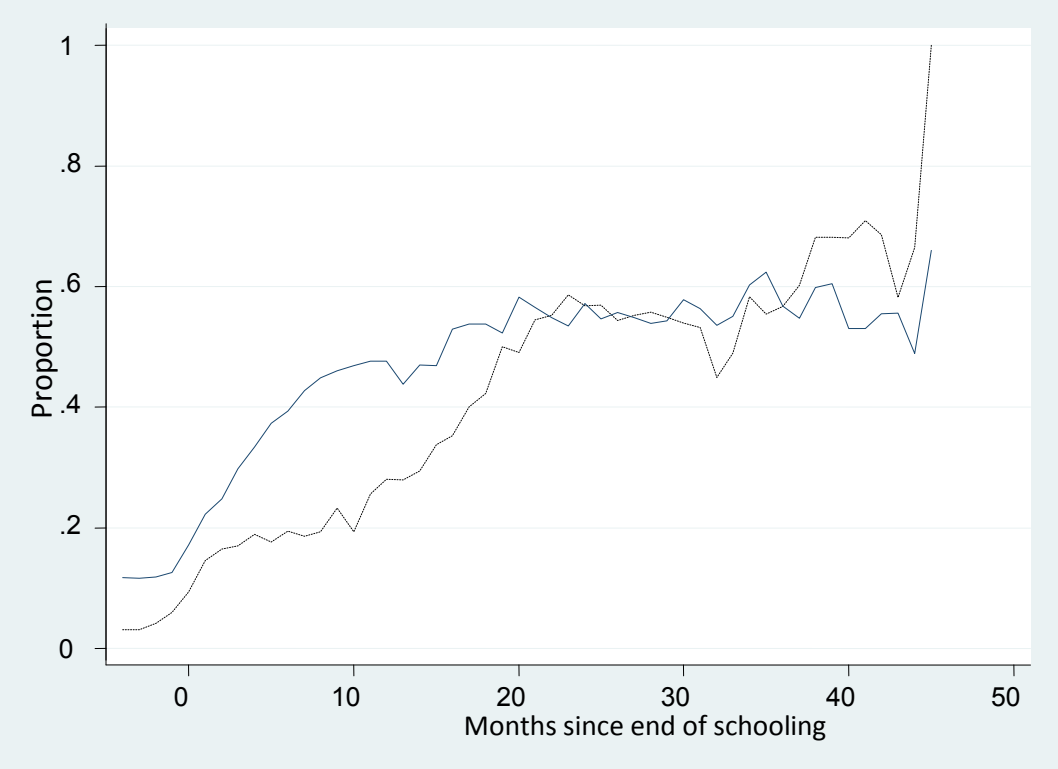

Figure 7: Proportion of African males with grade 12 or more (dashed) and Coloured males with grade 8 to 11 (solid) working since end of schooling

7. Gender and employment trends

Lastly, attention is shifted to differences in employment outcomes by gender. Figure 8 indicates that amongst African youth with grade 12 qualifications and higher, a higher proportion of males are employed throughout the months since leaving school. Differences in proportions of youth employed by gender actually widens after about 12 months since leaving schooling. Amongst Coloured youth the gender outcomes are much closer (Figure 9) although the outcomes of males are still generally better than those of females. Figure 10 takes this analysis further by comparing Coloured females with matric and Coloured males with less than matric qualifications. The benefits of having grade 12 qualifications exceed those of being male only after two years after leaving school.

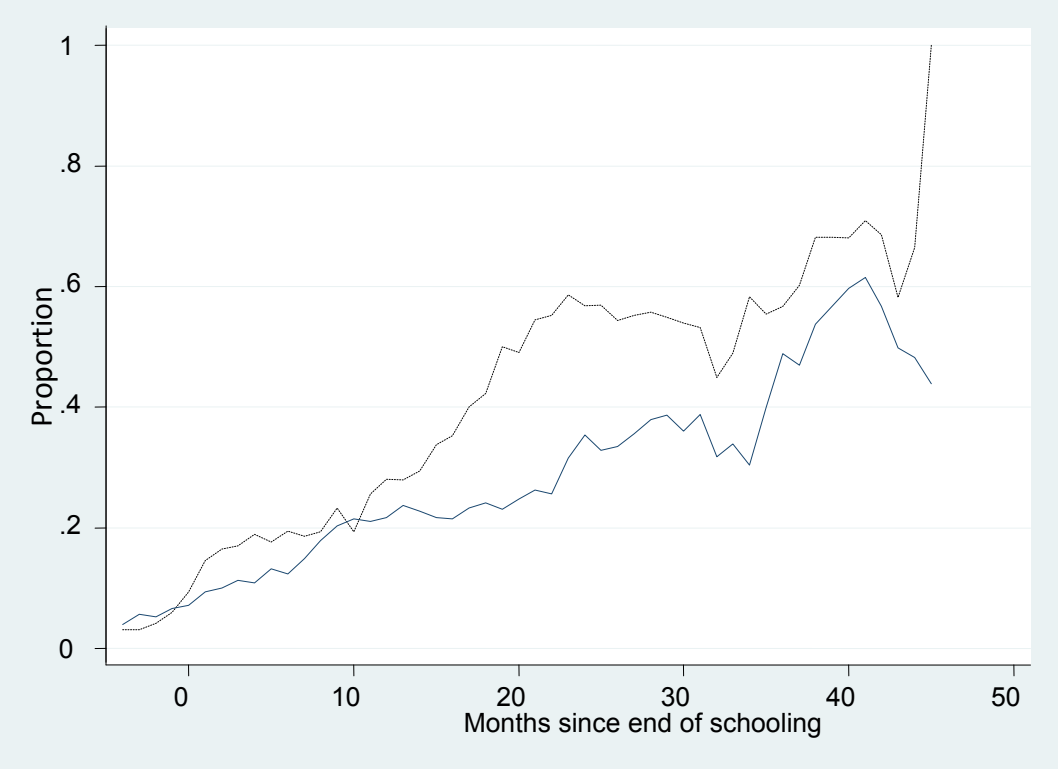

Figure 8: Proportion of African males (dashed) and African females (solid) with grade 12 working since end of schooling

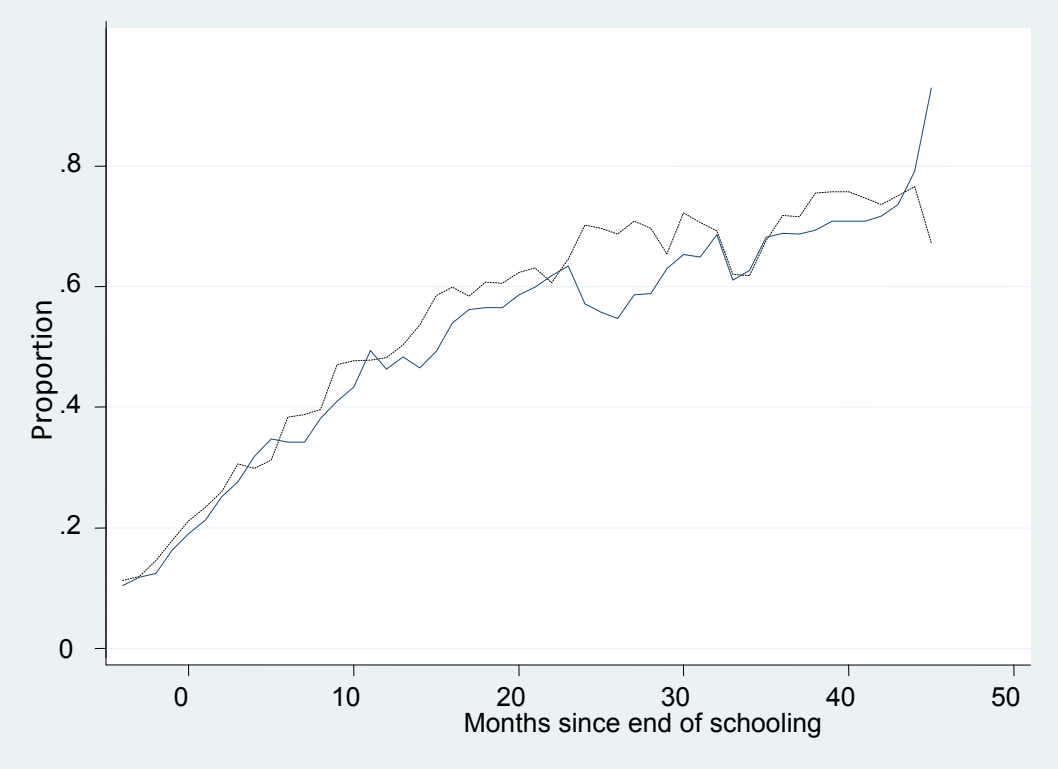

Figure 9: Proportion of Coloured males (dashed) and Coloured females (solid) with grade 12 working since end of schooling

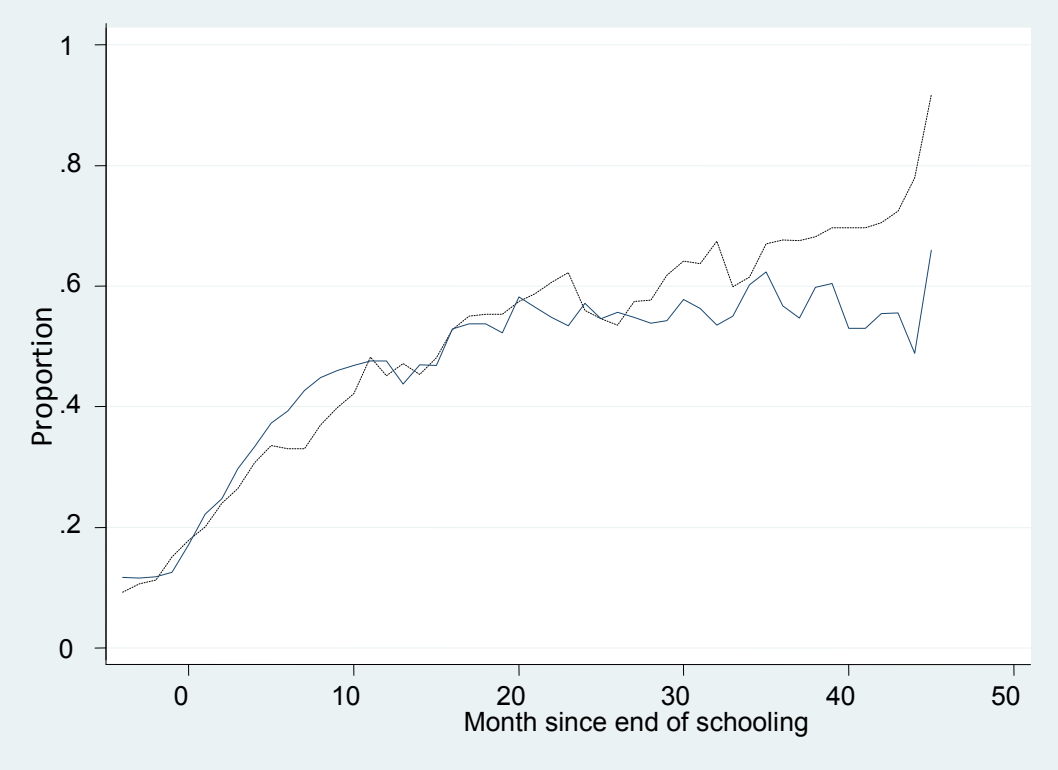

Figure 10: Proportion of Coloured females with grade 12 (dashed) and Coloured males with grade 8 to 11 (solid) working since end of schooling

This section has revealed that search activity by African and Coloured youth is rather similar but that there are greater differences in work outcomes in the months after leaving school. No more than 25% of youth of either race or gender search for work in any given month after leaving school. Coloured youth find jobs at a faster pace than African youth and this gap is wider amongst females although a lower proportion of females than males are working each month after school. The persistence of the better outcomes for Coloured youth is evident from the fact that Coloured males without matric qualifications do better than African males who have matric over the first 22 months after leaving school. The gender effect is also persistent in that Coloured females with grade 12 qualifications do not fair better than Coloured males with less than grade 12 qualification for up to about two years after schooling.

8. Duration analysis

Having analysed the general trends in job search and work activity after leaving school amongst youth in Cape Town, this section looks at the duration dependence of unemployed youth using survival analysis. The models that will be considered are hazard-based models as they are appropriate for situations where the focus is an end of duration occurrence, in this case the end of an unemployment spell. The hazard is therefore the exit rate from unemployment. Ordinarily survival data is censored but this is a feature that duration models can cope with. The data in this analysis is right censored. The analysis will begin with non-parametric estimation as this gives a clear summary of the data and it does not require any assumptions to be made about the functional form of the hazard. However, non-parametric analysis is limited by the fact that it does not allow for modelling of the effects of covariates on the hazard. Parametric analysis is necessary for this and it is conducted later in the chapter, after the preliminary non-parametric and semi-parametric analysis is carried out.

8.1 The Hazard Rate

To begin, it is useful to discuss the main concepts and notation relevant for the analysis carried out in this section. If T represents survival time, then T is regarded as a random variable with cumulative distribution function,

$P(t) = \Pr(T \leq t)$ and probability density function $p(t) = dP(t)/dt$.

The survival function $S(t)$ is the complement of the distribution function,

$S(t) = \Pr(T > t) = 1 - P(t)$.

Modelling of survival data often employs a hazard function, as is the case in this chapter. The hazard rate is defined as:

$$h(t/x) = \lim_{dt \to 0} \frac{P(t \leq T < t + dt \mid T \geq t, x)}{dt}$$

where, in the case of the labour market analysis carried out here, T is the duration of an unemployment spell and x is a vector of observed explanatory variables. The hazard rate is the probability that an individual will make a transition out of unemployment in the interval [t, $t+dt$], conditional on being unemployed at t (Cleves et al., 2004). More specifically, the hazard rate is the probability that a certain event will occur i.e. a transition into employment, given that the event has not yet occurred. Duration dependence is observed if the value of the hazard rate $h(t/x)$ changes over time t. Positive duration dependence occurs when the hazard function or the exit rate increases with time, whilst negative duration dependence occurs when the hazard function decreases with time.

8.2 The explanatory variables

The predictor variables chosen for this analysis are gender, race, age, education and the combined numeracy and literacy scores. It is expected that gender, race and education will have a positive effect on exiting unemployment. I have chosen to categorise education into complete secondary education or higher and incomplete secondary education. In addition, incomplete secondary education has been further split into grade 10 or grade 11 to see whether being close to finishing secondary education has any advantage over dropping out earlier. Furthermore, the results of the literacy and numeracy test scores have been included as a measure of productive ability useful to securing employment. Preliminary investigation of the data has led to the inclusion of a race and education interaction variable. The inclusion of search strategy variables was considered and investigated but these variables created too much noise and were not in any way useful to the analysis.

8.3 Non-parametric analysis

In order to gain insight into the shape of the survival function the analysis begins with a univariate analysis before moving onto the more complex modelling. To start, Kaplan-Meier curves are plotted for most of the categorical predictors. The Kaplan Meier function is a non-parametric estimate of the survivor function s(t), or the probability of survival beyond time t. The survival function starts with 100% of the respondents unemployed (at analysis time zero), and drops towards zero as respondents make the transition to employment. Whenever a failure occurs, the survival curve drops to a new level, and to accommodate this, it is plotted as a step function.

Log rank tests were conducted for these Kaplan-Meier plots and they show all these estimates to be statistically significant. Figure 11 indicates that around 50% of the sample move out of a state of unemployment into a state of employment at about 12 months. Figure 12 confirms that Coloured youth leave unemployment at a faster rate than for African youth. Fifty percent of Coloured youth have had their first job by 10 months after school whereas African youth reach this point after 20 months since leaving school. At 10 months after leaving school, only 25% of Africans have had their first job.

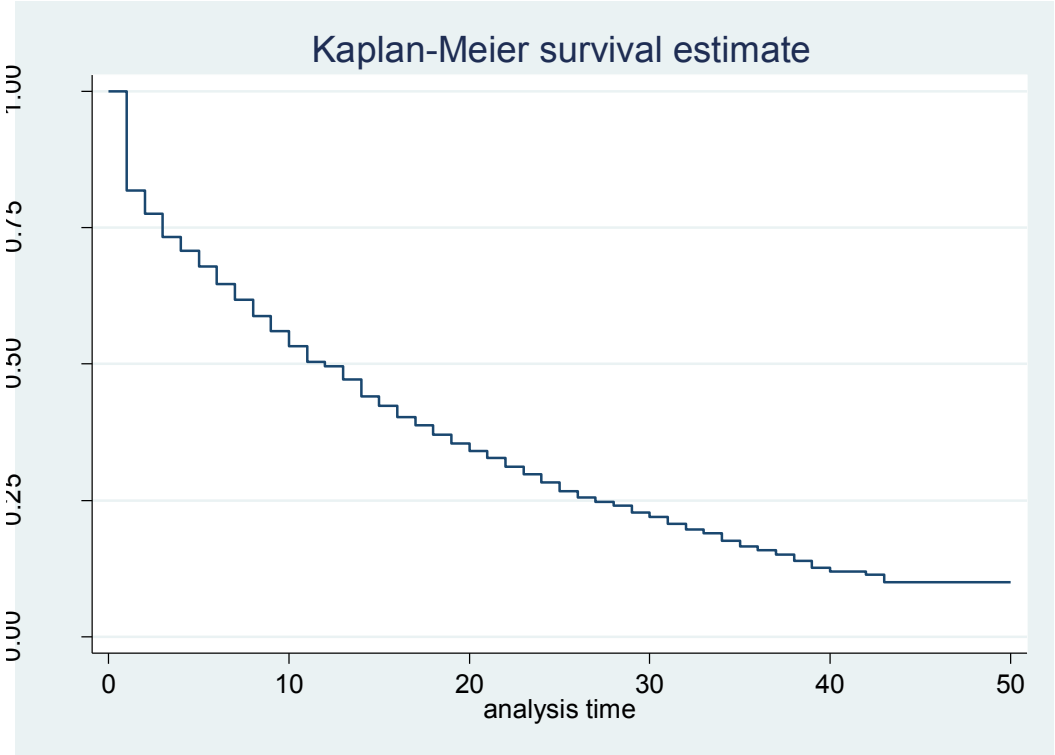

Figure 11: Kaplan-Meier function
Source: CAPS own calculations

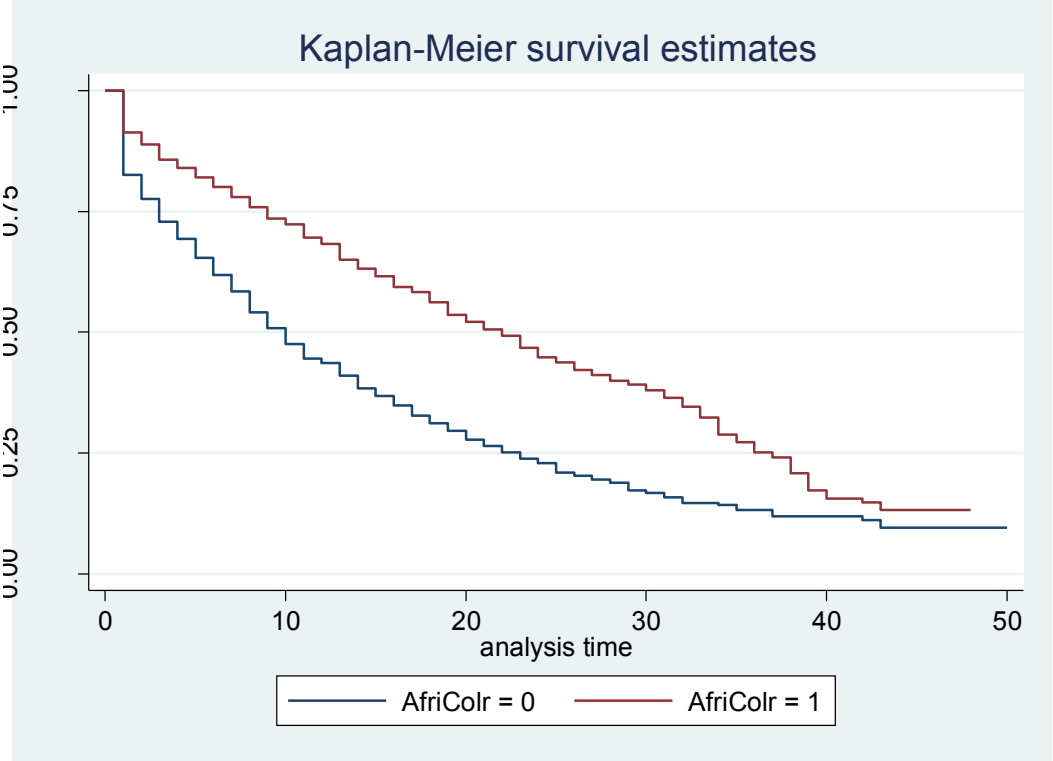

Figure 12: Kaplan Meier Function by race
Source: CAPS own calculations

Furthermore, Figure 13 confirms that the hazard of failure (that is finding employment) for males exceeds that of females. Roughly 50% of males have had a job by 12 months after leaving school whereas females reach this point only at 16 months after leaving school. Education also influences the hazard of leaving unemployment as reflected in Figure 14. Individuals with less than grade 12 level of schooling take slightly longer to find their first jobs.

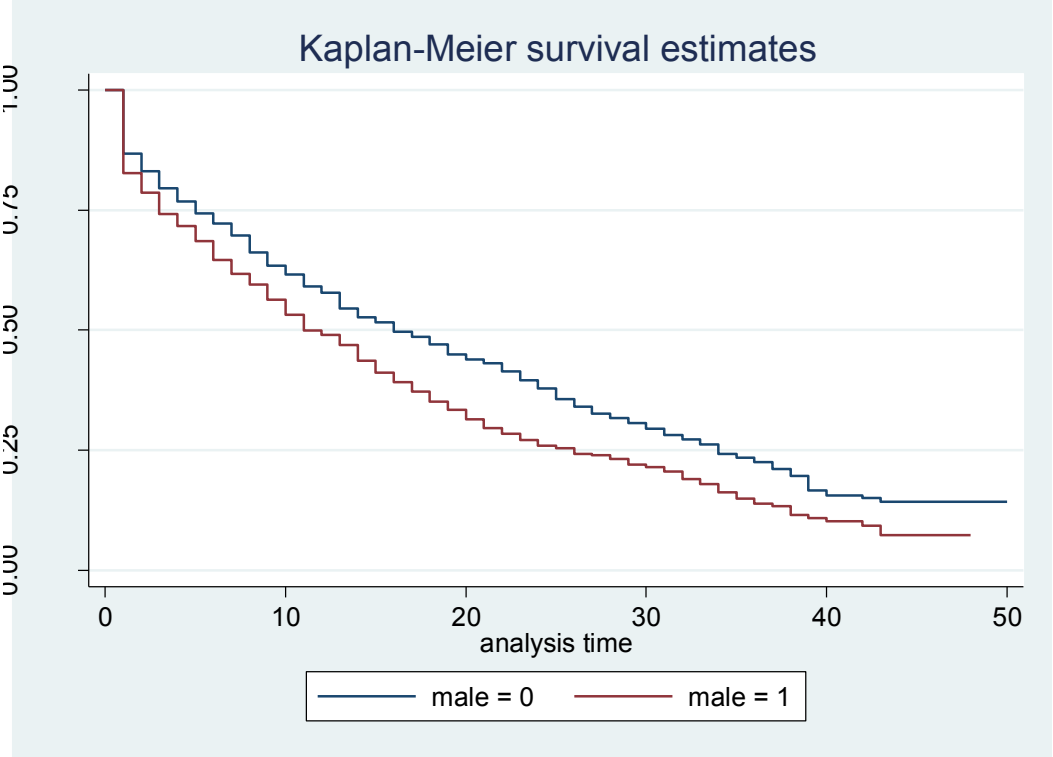

Figure 13: Kaplan Meier Function by gender
Source: CAPS own calculations

While the Kaplan-Meier estimates provide an indication of the general shape of the hazard as well as an estimate of the probability of survival beyond months after schooling, a more precise estimate of the effects of the variables discussed above on the hazard is obtainable from regression analysis, where covariates are controlled for. This will be discussed in more detail in the next section.

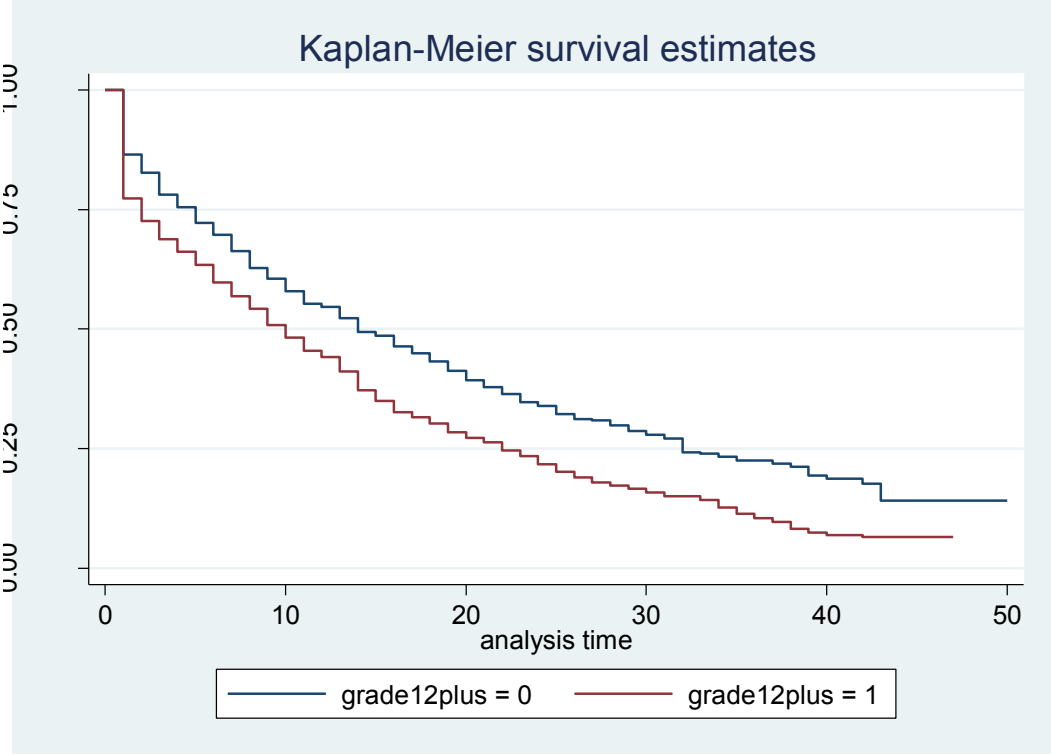

Figure 14: Kaplan Meier Function by education
Source: CAPS own calculations

Figure 15 depicts the Nelson-Aalen cumulative estimator. It is a non-parametric estimator of the cumulative hazard function based on samples that are subject to right censoring, as in this sample. It is the integral of the continuous time hazard rate and could therefore be used to estimate the hazard. The cumulative hazard function is a staircase function with the location of the steps placed at each observed failure time and the vertical size of the steps is 1/(number at risk). It depicts the number of people exiting from unemployment, divided by the total number unemployed, at each point of the unemployment spell (Cleves et al., 2004). Given that the continuous time hazard is the derivative of the cumulative hazard function, one could estimate the hazard from the slope of the cumulative hazard function. However, as the cumulative hazard is a step function, one would have to smooth the steps of the Nelson-Aalen cumulative hazard function using a kernel smoother.

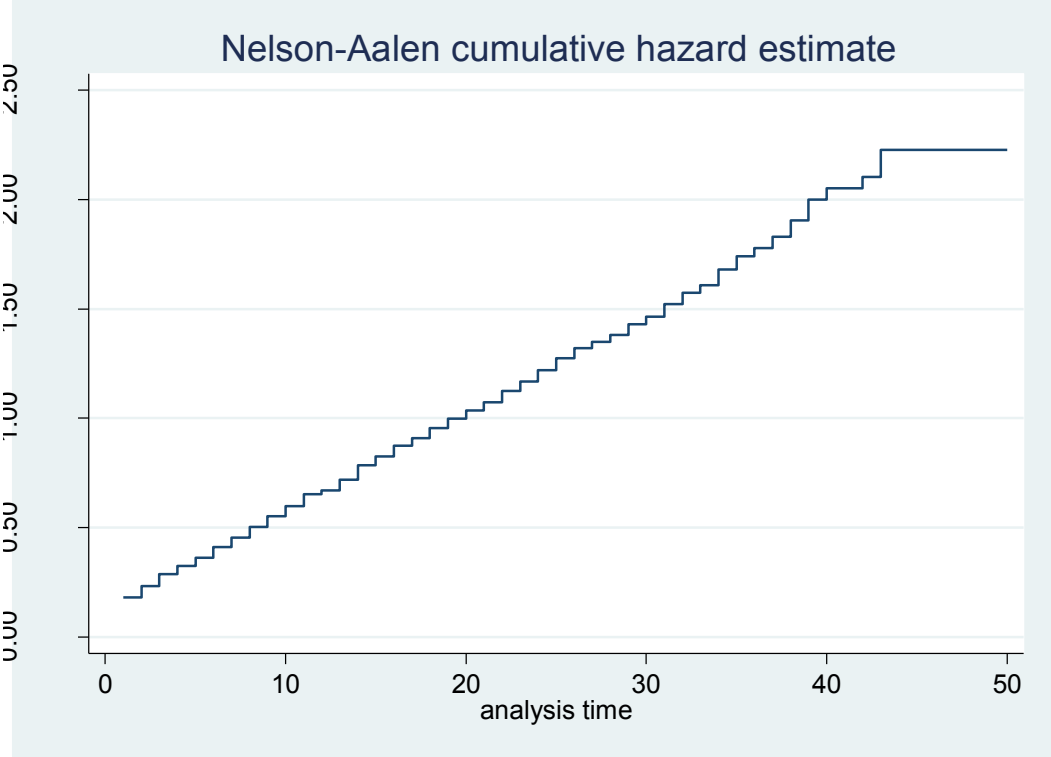

Figure 15: Nelson-Aalen cumulative hazard estimate
Source: CAPS own calculations

There are various estimators that can be used in survival analysis, however, the Weibull parametric estimator is the most commonly used in relation to labour market analysis. It is therefore desirable to use it in this analysis in order to leave open opportunity for future comparisons with other studies. However, use of the Weibull estimator will depend on whether the data used in this analysis satisfies the assumptions that need to be made when using it. Specifically, the main assumption is that of a proportional hazard (PH) where the effects of covariates do not change the shape of the hazard but influence just its position instead, as described below. The next section then begins with a detailed test of the data in order to confirm that the PH assumption holds.

8.4 Semi-parametric analysis

8.4.1 The Proportionality Assumption

The proportionality assumption states that differences in the explanatory variables imply proportional differences in the hazard at each survival time *t*. It specifies the effect of external covariates to be multiplicative on an underlying hazard function. In the proportional hazards (PH) model, the effect of external covariates is to shift the entire hazard function profile up or down; the hazard function profile itself remains the same for every individual. The implication is that a matric qualification, for example, has the same impact on the hazard after any number of years of unemployment as it did after one year. Serneels (2002a) argues that youth living in households with low levels of welfare will have high discount rates and will (by virtue of being young) exhibit myopic behaviour, both conditions that support the proportionality assumption.

To begin, a Cox proportional hazards model is estimated, Table 4, and the analysis proceeds to test the validity of the proportionality assumption, Table 5. An advantage of the Cox proportional hazard model, often classified as semi-parametric, is that one can leave the baseline hazard unparamatised, that is, one need not make an assumption about the shape of the hazard over time. The Cox proportional hazards model will not be an end in itself in this analysis as the goal is to obtain an estimate of the hazard distribution while the Cox model only estimates the covariate effects. It is established below that the proportionality assumption has not been violated and the analysis then proceeds with the use of the Weibull parametric estimator.

Survival analysis typically examines the relationship of the survival distribution to covariates. Most commonly, this examination entails the specification of a linear-like model for the log hazard. For example, a parametric model based on the exponential distribution may be written as,

$$h_i(t) = \exp(\alpha + \beta 1 x_{i1} + \beta_2 x_{ik} + \ldots\ldots + \beta_k x_{ik})$$

or equivalently,

$$\log h_i(t) = \alpha + \beta 1 x_{i1} + \beta_2 x_{ik} + \ldots\ldots + \beta_k x_{ik}$$

where log is the natural log.

In this case, i is a subscript for observation, and the x's are the covariates. The constant α in this model represents a log-baseline hazard, since $\log h_i(t) = \alpha$ [or alternatively, $h_i(t) = e^{\alpha}$] when all of the x's are zero. As mentioned above, the Cox model in contrast, leaves the baseline hazard function $\alpha(t) = \log h_0(t)$ unspecified:

$$\log h_i(t) = \alpha(t) + \beta 1 x_{i1} + \beta_2 x_{ik} + \ldots\ldots + \beta_k x_{ik}$$

Table 4: Cox proportional hazards regression

Male	1.343***
	[0.093]
African	0.534***
	[0.053]
Age	2.124***
	[0.590]
AgeSquared	0.982**
	[0.008]
Grade10to11	1.129
	[0.115]
Grade12plus	1.287**
	[0.152]
MatricAfrican	0.860
	[0.112]
Lit-num test scores	1.022
	[0.053]
Observations	19726

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Source: CAPS own calculations

One empirical test of whether the proportional hazards assumption holds is through an analysis of the Schoenfeld residuals derived from the Cox proportional hazards regression. After estimating both the Schoenfeld and scaled Schoenfeld residuals, and performing the variable-by-variable test, it emerges that there is little evidence to indicate that the proportional hazards assumption has been violated. The results of the global test and the variable-by-variable test are displayed in Table 5 and they indicate that the proportionality assumption has not been violated.

Table 5: Test of proportional-hazards assumption

	rho	chi2	df	Prob>chi2
Male	-0.02912	0.83	1	0.3622
African	0.02854	0.87	1	0.3514
Age	0.04173	1.71	1	0.1916
AgeSquared	-0.03974	1.56	1	0.2112
Grade10to11	-0.00193	0.00	1	0.9541
Grade12plus	0.01292	0.15	1	0.7014
MatricAfrican	0.01055	0.12	1	0.7309
Lit-num test scores	-0.02184	0.35	1	0.5553
Global test		13.42	8	0.0981

Source: CAPS own calculations

The Schoenfeld residuals are based on the contributions of each of the predictor variables to the log partial likelihood. In theory, the scaled Schoenfeld residuals are Schoenfeld residuals adjusted by the inverse of the covariance matrix of the Schoenfeld residuals. Under the assumption that the distribution of the predictor variables is similar in the various risk sets, the adjustment can be performed using the variance-covariance matrix of the parameter estimates divided by the number of events in the sample. The null hypothesis for the test on proportional hazards based on the scaled Schoenfeld residuals is that the slope of Schoenfeld residuals against a function of time is zero for each predictor variable. Plots of the scaled Schoenfeld residuals should reveal a horizontal line if the proportionality assumption holds. Indeed, it is evident from Figure 16 that the plots of the scaled Schoenfeld residuals of all of the predictors indicate that the proportionality assumption has not been violated.

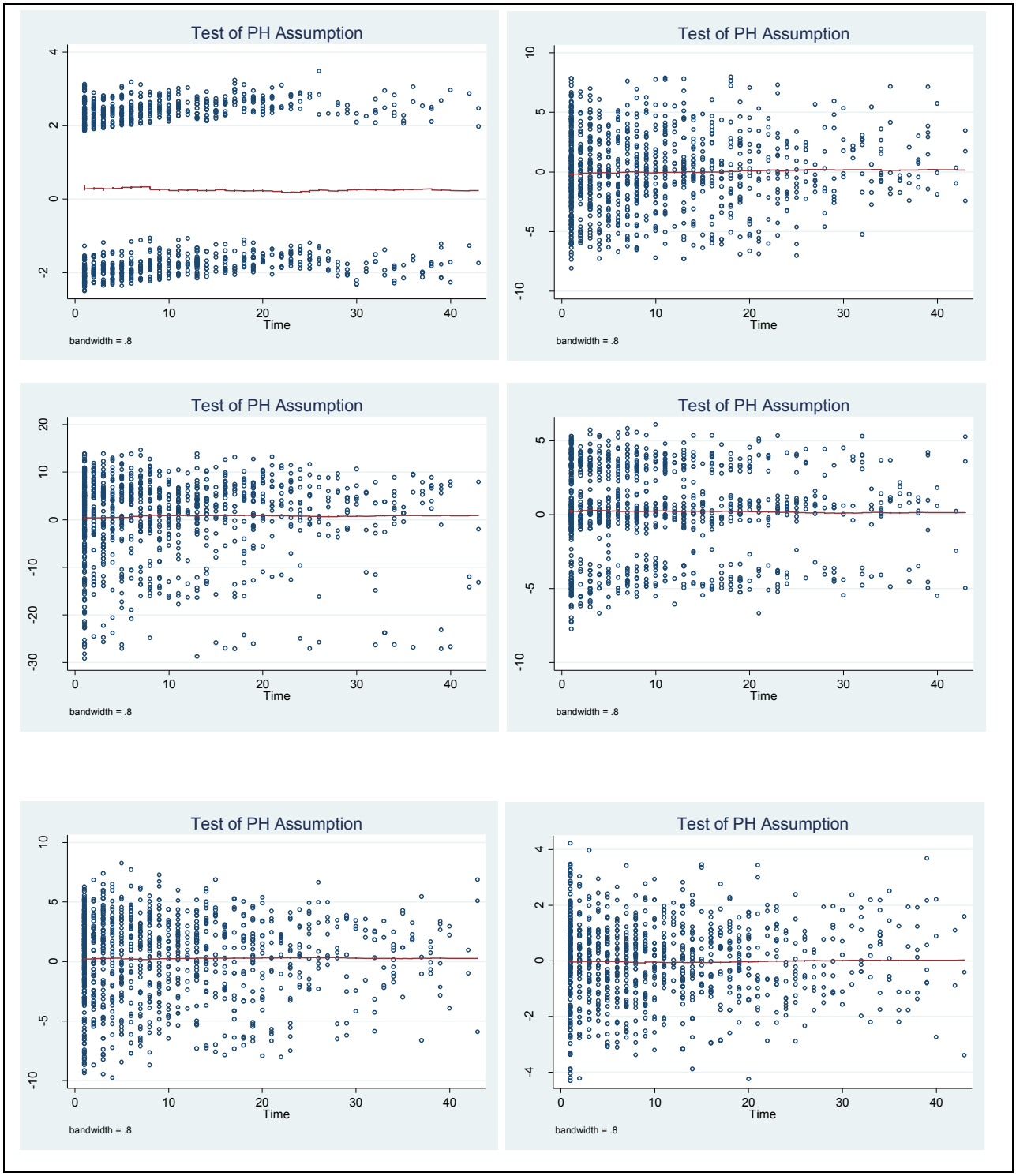

Figure 16: Plots of Schoenfeld residuals as a test of the PH assumption
Source: CAPS own calculations

Furthermore, the fit of the model is then evaluated through the use of the Cox-Snell residuals. The true cumulative hazard function conditional on the covariate vector has an exponential distribution with a hazard rate of one if the model fits the data well. In Figure 17, if the hazard function follows the 45° line this implies that it approximately has an exponential distribution with a hazard rate of one and that the model fits the data well. The fit is very good early on and even though it is more variable later, it is clearly centred around the 45° line. Furthermore, it is common to find more variability in this hazard function with time.

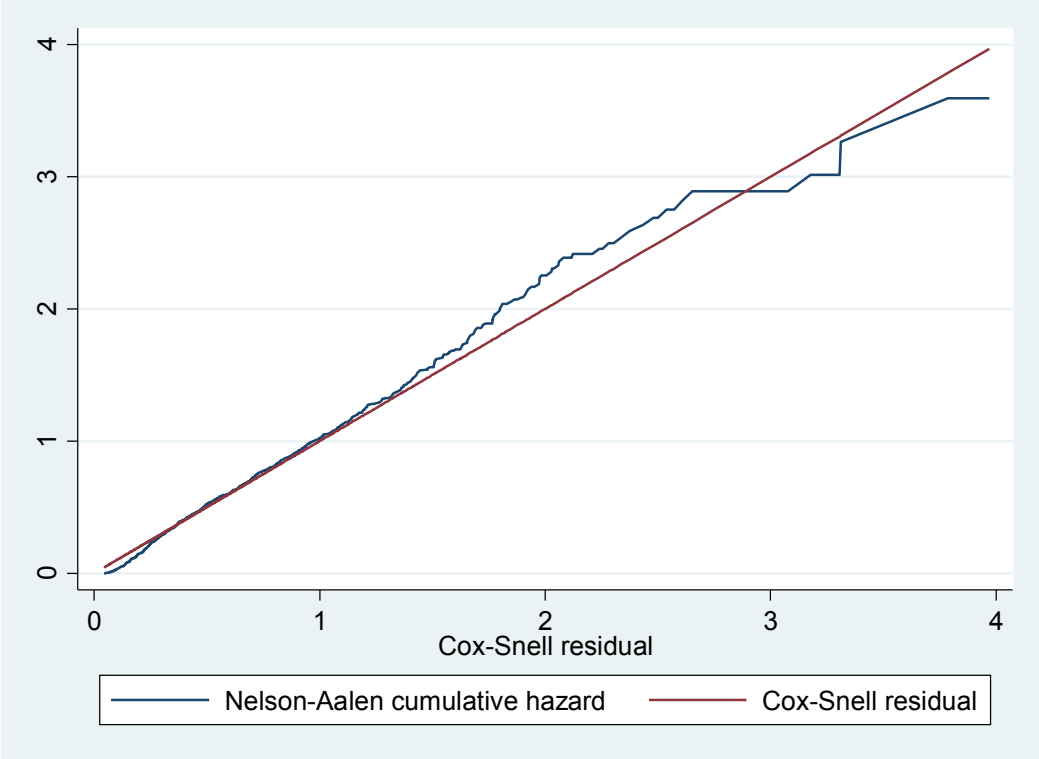

Figure 17: Goodness of fit test of Cox proportional hazard model
Source: CAPS own calculations

8.5 Parametric analysis

8.5.1 Weibull regression analysis

As discussed earlier, the non-parametric analysis carried out above is limited by the fact that it does not allow for modelling of the effects of covariates on the hazard. Parametric proportional hazards models on the other hand allow such modelling but they require that the shape of the

baseline be specified. Possible specifications of the baseline hazard are Exponential, Generalised gamma, Gompertz, Log-logistic, Log-normal, and Weibull. Weibull hazard models have been used to analyse a wide variety of issues in economics, including duration of unemployment, duration of labour strikes, duration of litigation in legal disputes, and even traffic congestion. They have also been widely used to model duration dependence in OECD countries. The Weibull specification is popular because of its relative flexibility and simplicity. Indeed, using the Weibull baseline hazard is the only circumstance under which the model satisfies both the proportional hazards, and accelerated failure time models. The Weibull is also the simplest parametric form that directly estimates duration dependence.

Having confirmed above that the proportionality assumption has not been violated, the Weibull proportional hazards model has been chosen to model unemployment duration in the analysis that follows.

The baseline hazard, $h_0(t)$, is specified as

$$h_0(t) = pt^{p-1}.$$

Thus the hazard is defined as

$$\begin{aligned} h(t \mid X_j) &= h_0(t)\exp(X_j\beta_x) \\ &= pt^{p-1}\exp(X_j\beta_x) \end{aligned}$$

The shape parameter, p, provides information about the shape of the hazard function and indicates the direction of duration dependence. If p > 1, the hazard is monotonically rising with time, indicating positive duration dependence; conversely if p < 1, the hazard is monotonically falling with time, thereby indicating negative duration dependence. Finally, if p = 1, the hazard is flat, thus implying an exponential distribution and no duration dependence (Cleves et al., 2004).

An important issue in survival analysis is the distinction between duration dependence of the hazard rate and unobserved heterogeneity (Jenkins, 2004). Unobserved heterogeneity may occur because of omitted variables and/or measurement errors. If unobserved heterogeneity is ignored, there is a tendency for the duration dependence estimate to be biased downwards (Heckman & Singer, 1984). Specifically, failure to incorporate heterogeneity appears to lead to a downward biased estimate of duration dependence and a bias toward zero for the effect of external covariates. For example, assume that a group of individuals with differing personal characteristics are in the preliminary stages of an unemployment spell. Those individuals who possess the characteristics most favoured by employers will leave unemployment in the early stages of the unemployment spell, leaving behind those with less favourable characteristics and lower employment prospects. Thus, it would appear that exit probabilities are negatively related to unemployment duration, and that hazard rates decline throughout the unemployment spell. However, this effect actually "represents changes in the distribution of unobserved characteristics in the population yet to exit from unemployment", and does not exhibit true duration dependence (Kalb 2001).

The heterogeneity term has a multiplicative effect in the hazard. In this case, the hazard is defined as

$$h(t / X_j, \alpha_j) = \alpha_j h(t / X_j)$$

where α_j represents an unobserved heterogeneity term indicating that "individuals in the population are heterogeneous due to factors that remain unobserved" (Cleves et al., 2004, p.279).

In order to estimate the unconditional hazard function, whereby the hazard is not conditional on the value of α_j, the unobservable heterogeneity term is integrated out of the hazard function (Cleves et al., 2004). In order to integrate out α_j, a distribution for the unobserved

heterogeneity term must be specified. (Cleves et al., 2004). The inverse Gaussian distribution has been chosen here to control for unobserved heterogeneity. Furthermore, sampling weights have been used and standard errors have been adjusted for clustering.

Table 6: Weibull proportional hazards regression

Male	1.780***
	[0.227]
African	0.323***
	[0.059]
Age	3.351**
	[1.720]
AgeSquared	0.972**
	[0.014]
Grade10to11	1.234
	[0.229]
Grade12plus	1.614**
	[0.348]
MatricAfrican	0.753
	[0.182]
Lit-num test scores	1.058
	[0.101]
/ln_p	0.500***
	[0.037]
P	1.649***
	[0.061]
Theta	15.695***
	[2.980]
Observations	19726

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Source: CAPS own calculations

A goodness of fit test was conducted earlier with respect to the Cox proportional hazard model and that test is repeated here with regard to the Weibull model. Again, the finding is that the model fits the data well early on and less well later but it is centred around the 45° line, which suggests a good fit overall. As mentioned earlier, it is common for the fit of this function to be more variable at higher durations.

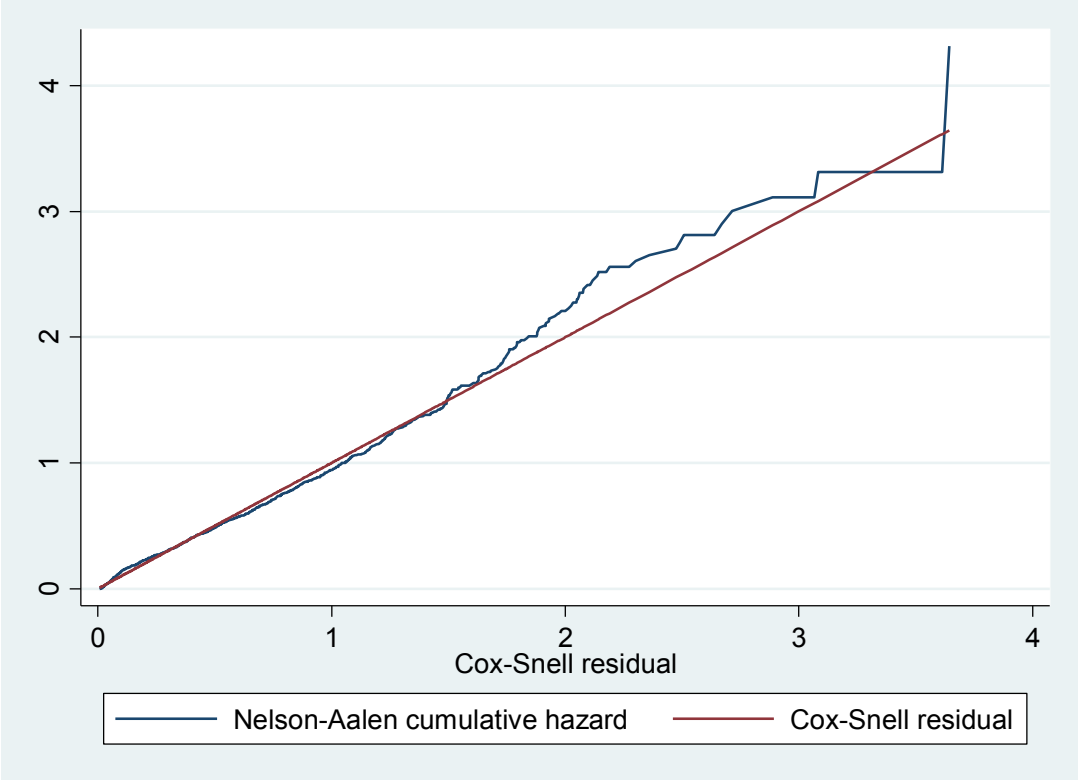

Figure 18: Goodness of fit test for the Weibull model
Source: CAPS own calculations

The statistic for the shape parameter, p, is the same as α in the model specification above. The /ln_p statistic is the estimate derived from maximum likelihood estimation and p = exp(/ln_p). The p statistic being greater than 1 in the Weibull regression output, suggests that the hazard is monotonically increasing. The test of the null hypothesis that the log of p is equal to zero (which is equivalent to testing for p = 1) is clearly rejected. This result implies positive duration dependence, which means that the longer youth are in a state of unemployment, the more likely they are to exit unemployment and find employment. This finding is in line with the general finding that unemployment rates decrease significantly with age, as discussed in Chapter 2. The regression results suggest that race and gender have a highly significant effect on the duration of unemployment. Being African reduces the hazard of moving into a state of employment by close to 70%. In terms of gender, being a male youth increases the hazard of exiting unemployment by 78%. Each year in age increases the hazard by more than 100%, significant at the 10% level of significance however. The reported hazard ratio for the age-

squared variable suggests that the positive effect of age on the hazard decreases beyond a certain age.

The effect of education is interesting as it suggests that almost completing secondary schooling (achieving grade 10 or grade 11) does not have a significantly different effect on the hazard than attaining less than grade 10. However, achieving secondary schooling or higher increases the hazard of exiting unemployment by 61%, holding other factors constant. The findings with regard to education confirm the assumptions made in Chapter 2 that because the large majority of South Africans proceed to secondary schooling, there would be little effect on labour market outcomes when comparing primary schooling and incomplete secondary schooling. The race and education interaction variable does not have a significant effect on the hazard. The insignificant effect of the interaction variable is surprising given the background of the findings earlier in this chapter, that African youth with matric have less favourable outcomes than Coloured youth without matric. The direction of the estimated effect is as expected though. It is useful then to see whether this effect is evident in the plots below, based on the Weibull regression. Similarly literacy and numeracy test scores do not impact significantly on the hazard of exiting unemployment although the positive effect is as expected.

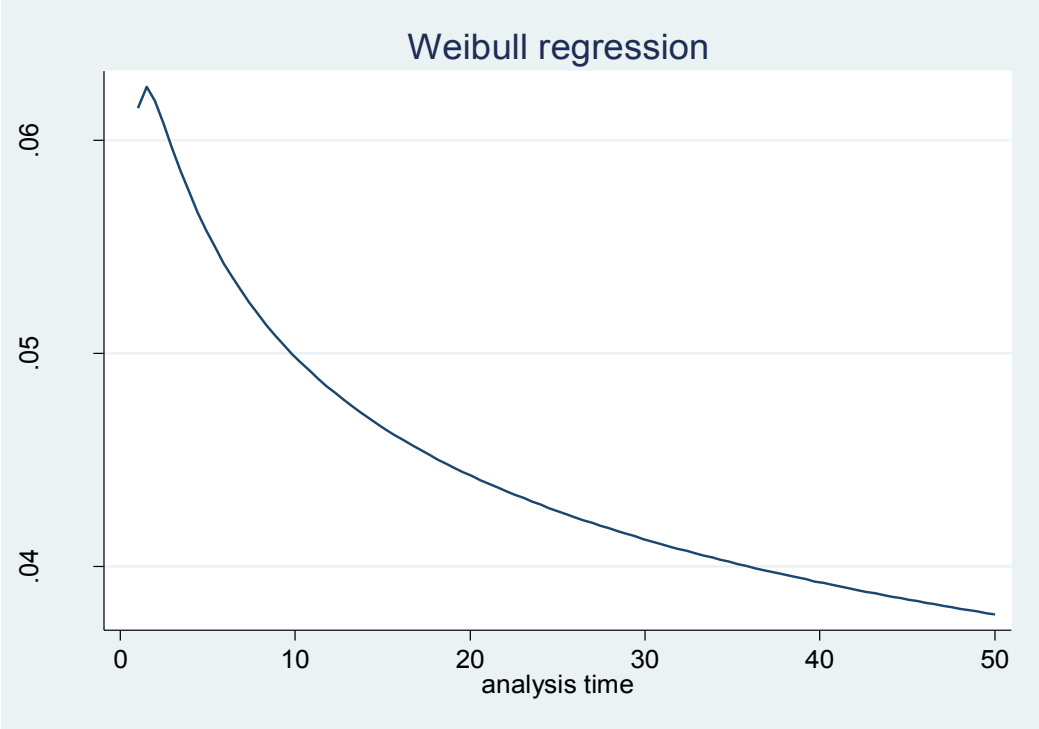

Figure 19: Hazard function
Source: CAPS own calculations

The Weibull hazard function plotted in Figure 19 is derived from the Weibull regression that was rune earlier and it reflects the percentage of unemployed youth who make the transition into employment each month. The function reaches a peak at just above 6%. This peak is reached at between zero and six months after entering the labour market. For the ensuing months more youth move into employment.

More detail is obtained by looking at the hazard function by race and education, as in Figure 20. Figure 20 plots the hazard function for Africans and Coloureds with and without matric, based on the Weibull regression. The beneficial effects of having more education are evident within race, in that Africans who possess matric find jobs at a faster rate than Africans without matric and similarly for Coloureds with matric compared to Coloureds without matric. What is striking though about the functions reflected in Figure 20 is that Coloured youth who do not have matric have a higher hazard rate than African youth with matric.

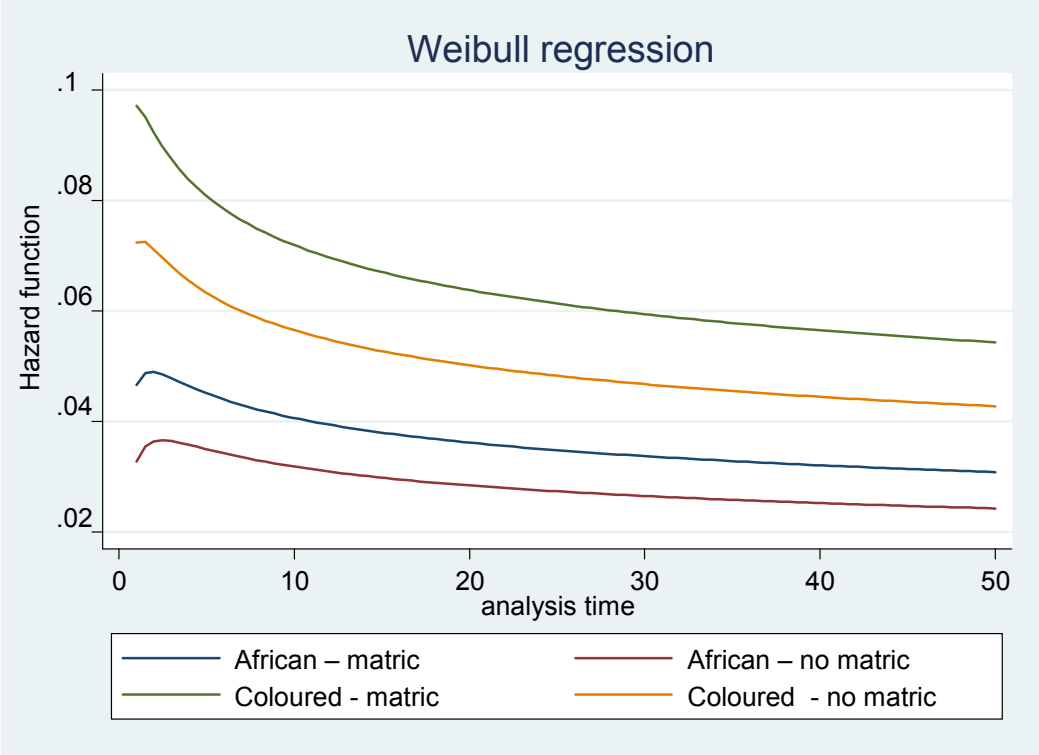

Figure 20: Hazard function by race and education
Source: CAPS own calculations

The survival function in Figure 21 depicts the same pattern as above but from a different perspective. It begins with 100% of individuals unemployed at the time of entering the labour market. The survival function then reflects the percentage that is still unemployed for each month that youth are in the labour market. As above, the plots contrast race and education once more. The higher the position of the survival function of one group relative to another, the slower the progression of that group from unemployment to employment. The effect of education is apparent once more as reflected in Figure 21. Within each race, fewer individuals with matric survive in the state of unemployment relative to individuals without matric. Furthermore, the survival functions of Coloured youth lie below those of African youth regardless of educational attainment, suggesting that race overrides education in determining progression to employment.

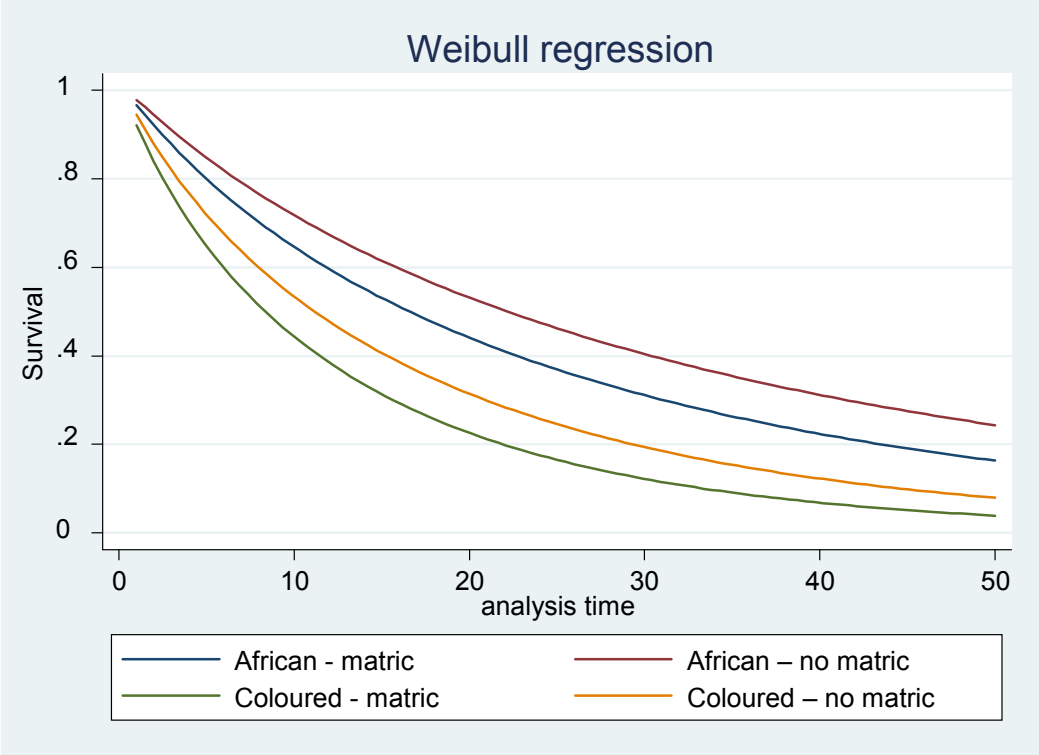

Figure 21: Survival function
Source: CAPS own calculations

Figure 22 provides an education-and-gender based depiction of the hazard function. The group with the highest percentage of individuals exiting unemployment is males with matric, while the slowest exit rate is by women without matric. Similar to the relationship between education and race analysed above, Figure 22 indicates a clear male advantage that overrides the benefit of educational attainment. Males who do not possess matric have slightly higher hazard rates than females with at least matric level of educational attainment.

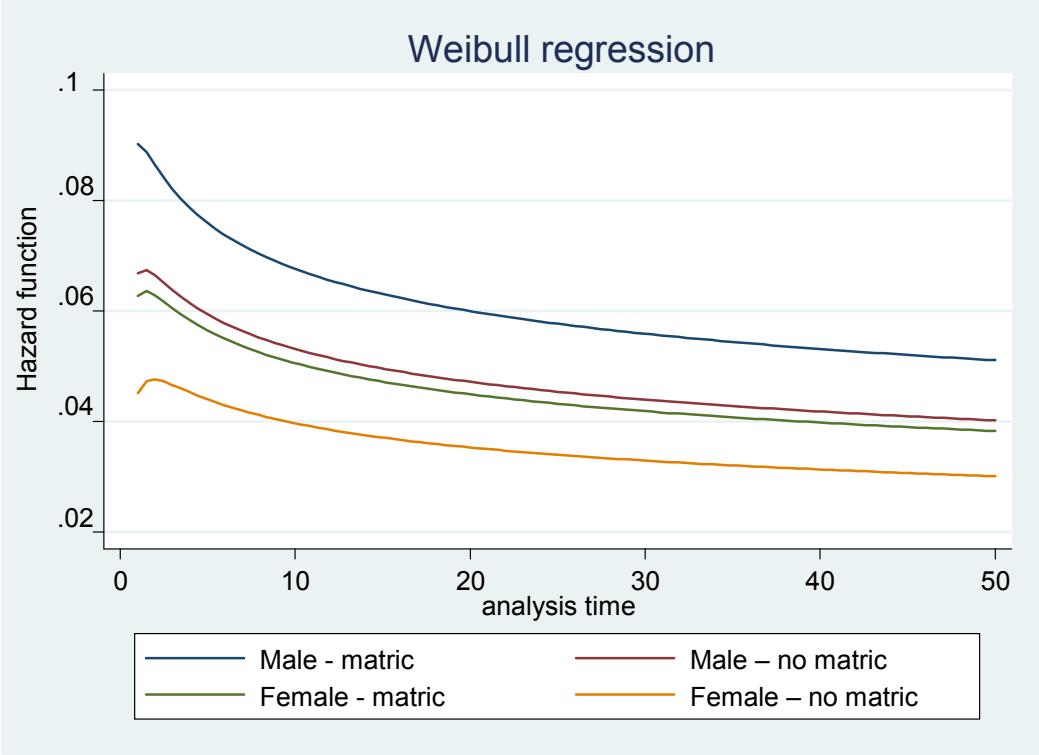

Figure 22: Hazard function by gender and education
Source: CAPS own calculations

9. Conclusion

The discussion in this chapter has highlighted a number of interesting features of the labour market in Cape Town. First, the demography of Cape Town differs from that of other areas of South Africa, rural or urban. Africans dominate in numbers in other regions of South Africa but in Cape Town around half the population comprises Coloureds, followed by Africans at around 35% and then Whites at around 14%. Employment prospects for youth appear to be higher in Cape Town than the rest of South Africa as the 2001 Census 10% Microsample data indicates that 19% of 15 to 22 year old youth are employed in Cape Town compared to 10% for the rest of South Africa. The proportion of youth who are unemployed is similar to the rest of South Africa though. With the proportion of White youth unemployed being only 4% it is clear that the unemployment in Cape Town is mainly driven by African and Coloured youth. However, African youth appear to be hardest hit with only 10% of them employed compared to 23% of

Coloured youth. This implication was tested formally with an analysis that utilised non-parametric, semi-parametric and parametric tools.

The findings are that race and gender effects are evident with regard to labour market outcomes in the Cape Town. Job search patterns and proportions by race are very similar between African and Coloured youth, however, that similarity does not translate into similar employment outcomes. Coloured youth exit schooling far quicker than African youth and this could be because of the higher opportunity cost of remaining in school given relatively favourable employment prospects. The transition rate from school to work happens at a slower rate for Africans. Africans tend to move from schooling to a long period of unemployment while Coloureds make a smoother transition to work. Females within each race have more schooling than males, however, the employment outcomes do not reflect this. The descriptive analysis and the regression analysis confirm that race has a big influence on labour market outcomes, with Coloured youth without matric having greater success at finding employment than African youth with Matric. It seems that Coloured males have a dominant advantage within the labour market in Cape Town because Coloured females with matric have worse employment outcomes than males without matric for about two years after leaving school. The effect of education within race, however, is consistent with our expectations.

The nature of duration dependence was analysed for the youth labour market in Cape Town. Before adopting the Weibull parametric estimator for the analysis, a detailed test of the applicability of the proportional hazard assumption was carried out. A Weibull model was then set up as a result. The results confirm that Coloured youth have a clear labour market advantage over African youth in Cape Town. This advantage probably stems from network effects that are likely more effective among Coloured youth. In addition to this, the legacy of past job reservation policies may feed into these network effects. Indeed, historically the Coloured race received higher expenditures on schooling, fewer restrictions on residential mobility and better access to jobs relative to the African race.

Furthermore, the analysis in this chapter also reflects that males, older youth and youth who have completed secondary schooling enjoy relatively good labour market outcomes. Parametric analysis revealed positive duration dependence in the Cape Town labour market, meaning that the longer an individual is in a state of unemployment, the greater the likelihood of moving out of it and into a state of employment. This result bodes well for youth in that it implies a queuing effect in the labour market and that youth will ultimately find jobs. Indeed, the findings of labour market advantage of even 25-30 year old youth compared to 15 to 24-year-old youth support the notion of a job queue. Positive duration dependence is not a given in all labour markets, however. In fact economic theorising suggests that duration dependence should ordinarily be negative, as the longer one is in state of unemployment the more one loses touch with the labour market and experiences erosion of human capital, factors which make one less attractive to employers. Fortunately these dynamics do not seem to be binding in the labour market in Cape Town and probably in the rest of South Africa, given the relative employments outcomes of adults and youth.

Chapter 4: An Analysis of the First Wage of Youth in Cape Town

1. Introduction

In the context of high youth unemployment in South Africa, alluded to in the previous chapters, youth who have jobs can be considered to have surmounted a prevalent obstacle. Long duration of unemployment is a serious concern for youth in South Africa, as analysed in the previous chapter. It was found that there is significant racial inequality in securing the first job and in the duration of unemployment prior to obtaining the job. Such was the inequality that Coloured youth with educational achievement that is less than matric found jobs quicker than African youth with matric. Having modelled the process of obtaining the first job, the next step is to ascertain the implications of these job acquisition dynamics on the first wage. In this chapter, the determinants of wages of the first job and differences in wages of the first job that youth hold are considered. The chapter begins with a descriptive analysis followed by a multivariate analysis.

In the multivariate analysis, duration of unemployment is included as an explanatory variable. The aim of this is to determine whether or not the time taken to find the first job has an effect on the wages of that job. A positive relationship between time taken to secure the first job and wages of the first job would support a reservation wage hypothesis; those individuals who spend a longer period searching, do so by choice in order to find a higher paying job. A negative relationship between duration of unemployment and wages would on the other hand lend credence to the argument that unemployment is involuntary and that those individuals who take long to find employment are either less productive or unlucky, such that after a long search spell they accept whatever wages they are offered. The inclusion of the duration of unemployment variable therefore has bearing on the notion that the issue of selection bias is possibly insignificant in this labour market, discussed below.

The multivariate analysis investigates the factors that lead to differences in the first wage and then proceeds to determining how much of the observed disparities in the first wages of youth are explained by these productive factors and how much remain unexplained. The

latter analysis is carried out via decompositions by race. For the sake of completeness, a gender decomposition is also carried out and the results thereof are included in the Table A2.1 and Table A2.2 in Appendix 2. Having looked in the previous chapters at access to employment and specifically the dynamics around the length of time it takes youth to find jobs, this chapter investigates the dynamics around the wages of the first job, which could also be considered a proxy for job worth. It is therefore an investigation of whether the patterns of inequality in job access between African and Coloured youth carry over to remuneration once a job is secured. It is clear that White youth achieve the best results by far in terms of all aspects of the transition from schooling to work and they have been excluded from this analysis in order to focus the discussion on the more interesting comparison of two races that are not obviously socioeconomically that different to each other; namely Africans and Coloureds.

2. Empirical research on the first wages and wage discrimination

There has not been an analysis of the wages of the first job in South Africa. However, useful insights can be gathered from such an analysis. It will provide information on the situation at the point of transition from schooling to work, that is, before post-labour-market-entry factors influence the situation of youth. It can shed light on whether or not there is labour market inequality at the point of entry, as it is known that there is definitely inequality further down the employment track of individuals. Researchers in the United States have conducted research in this area over a number of decades and as such, this research can be informative for the purposes of the analysis carried out below.

A study that is most related to the analysis in this chapter, in as far as focusing on the first wage, is that of Eckstein and Wolpin (1999). They conduct a study of the effect of racial discrimination on the first job wage offers, with a focus on White and Black youth. They use the 1979 youth cohort of the National Longitudinal Surveys of Labor Market Experience in the United States and control for schooling, gender, age and race. The study finds significant racial differences in wages of both high-school dropouts and high-school graduates. In terms of race decompositions carried out, Eckstein and Wolpin (1999) find that discrimination could account for the entire racial wage differential for both high-school dropouts and high-

school graduates, concluding that the bound on the extent of discrimination is therefore not informative. One useful caution raised in this paper is that an individual's wage is determined by two unobservables, namely the skill bundle and its per-unit valuation. Therefore, measuring wage discrimination as the wage differential at a point in time, controlling for a small set of observable characteristics that are a priori related to skill bundles (e.g. schooling, work experience) will misstate the extent of discrimination if measured characteristics explain only part of the racial skills differentials. However, the paper acknowledges that although there have been strides in expanding the presumed correlates of skills, it is unlikely that we will ever be able to directly measure skill bundles or collect significantly more-convincing proxies. Another note of caution arising from Eckstein and Wolpin (1999) is that observed wages often do not correspond with offered wages, a factor which makes it difficult to measure wage discrimination accurately. They argue that if Blacks face higher job search costs they will accept lower-wage jobs even if wage offers are not discriminatory and Blacks are equally productive.

Neal and Johnson (1996) conduct a study of the role of premarket factors in wage differences between Blacks and Whites using the National Longitudinal Survey of youth in the United States. However, their study is not of wages of youth at the point of transition from schooling to work but that of wages of individuals in their late twenties. They use premarket factors to explain wages at a latter part of the employment path of youth. The study controls for race, age, Armed Forces Qualifying Test (AFQT) scores, and schooling (in some specifications). The main findings of this study are that (1) there are large returns to measured skills, (2) there is a strong relationship between wages and test score measures of achievement or aptitude, (3) there is evidence of a Black-White wage gap that the authors attribute more to skill gaps between Blacks and Whites even though they do observe some evidence of labour market discrimination. A central point of discussion in Neal and Johnson (1996) is the use of test scores to capture individual skill.

Like Eckstein and Wolpin (1999), this study also highlights the difficulty in measuring worker skill and uses test scores as a measure to overcome this problem. Neal and Johnson (1996) argue that some of the controls used in wage studies, such as occupation, postsecondary schooling, part-time work, marital status, geographic location, and actual labour market

experience are subject to worker choice and could be contaminated by current labour market discrimination. Therefore controlling for them could misstate the wage effects of current discrimination. Blau and Kahn (2005) echo this view in as far as controlling for occupation is concerned. They argue that explanatory variables such as test scores and education may affect wages both directly, holding occupation and industry constant, and indirectly, through their effect on representation in higher-paying industries and occupations. They conclude then that coefficients from regressions which exclude industry and occupation variables thus shed light on the total effect of these variables. Returning to Neal and Johnson (1999), the study criticises the use of years of schooling as a sole measure of worker skill as it is a measure of an input rather than an outcome. Years of schooling as a measure may systematically overstate the relative skills of Blacks. Neal and Johnson (1996) cite evidence from standardised tests that Black children exhibit lower levels of achievement than White children in the same grade do. Very importantly then the implications they draw from this are that studies that rely on schooling only as a measure of skill will likely overstate the effect of current labour market discrimination on wages and confuse barriers in acquiring human capital with barriers when entering the labour market.

Mason (1998) reports on studies which raise controversial views on the causes of the racial wage gap in the United States. There are proponents of the labour quality hypothesis, that racial discrimination in the labour market is not a major issue if one properly controls for interracial differences in labour quality. The argument is that discriminatory behaviour may affect premarket accumulation of skills, but once individuals enter the labour market they are paid based on their productive attributes (e.g. schooling, ability, experience, tenure on the job). Preferences for discrimination in primary institutions that produce skills (schools, families, and neighbourhoods), however, can lead to interracial differences in skill accumulation. Mason (1998) argues that premarket discrimination is not viewed by proponents of the labour quality hypothesis as a major source of interracial differences in skill accumulation. He goes on to cite studies that point to the alleged inferiority of African Americans in cognitive ability, family structure, and the market functionality of community culture as sources of premarket discrimination. The postulation goes on to say that the inferior labour quality that results is not captured by traditional explanatory variables and that there are skills which are not observed by statistical analysts but are easily observed by

employers and which are in larger supply among Whites than African Americans. Therefore, premarket discrimination in the non-competitive areas mentioned above may lower African-American test scores. Regardless of the ultimate source of interracial differences in premarket skills, whether biology, discrimination, or culture, labour quality theorists claim that after adjusting for differences in test scores, interracial differences in wages become inconsequential. However, Mason (1998) cites other studies that find race to be important even after controlling for test scores which would suggest the presence of some discrimination.

The review above highlights some of the debates around first wages and interracial wage discrimination from the United States, a country which has grappled with these issues for decades. These debates influence to some extent the choice of variables in the analysis below.

3. Data and methodology

The Cape Area Panel Survey (CAPS) is used to estimate a wage equation for a sample that consists of African and Coloured youth. The wage variable is adjusted for inflation to set all wages at a 2002 real equivalent. A unique aspect of this analysis is that the wages used are not wages at the time of the survey but at the time of obtaining the first job.

Often when analysing wages, sample selection bias is an important consideration. However, it is under conditions where unemployment is largely voluntary that sample selection bias is most likely to arise. In the South African context of Black youth in an environment of mass unemployment and socio-economic deprivation, it is fair to assume that the bulk of unemployment in this sample is involuntary, at least from the perspective of supply side factors. In the case of voluntary unemployment, the effect of individual characteristics on wages would be distorted if individuals with similar characteristics chose not to work but were not accounted for. In the case of predominantly involuntary unemployment, it follows that if jobs were available then unemployed individuals would take them up. There is therefore no strong justification for assuming that analysing only the sample of individuals for which wages are observed necessarily biases the results. The relationship between

duration of unemployment and wages of the first job observed in the descriptive analysis and the modelled relationship later sheds further light into the accuracy of the above postulation. The negative relationship between duration of unemployment and wages observed in the analysis below is more indicative of involuntary unemployment rather than voluntary unemployment.

Caution should be added though, that sample selection bias could emanate from the demand side as well, if employers select those individuals who possess positive unobservable characteristics. Given these views, the presence of selection bias is investigated via a Heckman sample selection model at the beginning of the multivariate analysis later. It should be noted, however, that the variable capturing age at the time of the first job (which has a statistically significant coefficient in the regression that follows) is a credible control for ability in the wage equation, since the first wage is unaffected by experience. This specification neatly handles the endogeneity problem associated with unobserved ability in the ordinary least squares regressions.

However, a challenge that arises in this sample selection modelling is that the wages observed in this study are at the time of the first job (which could be anytime between 2002 and 2006), do not necessarily relate to the observation, in 2006, of those who have never worked. This means that some of those whose first wages are in 2002, 2003, or 2004 may no longer be employed at the time of the 4th wave, the period of observation of those who have never worked. This feature of the study suggests that the results of the Heckman sample selection model should be treated with caution.

The Heckman correction for sample selection bias model:

$y_i = x_i\beta + u \rightarrow$ outcome equation

$z_i^* = w_i' \alpha + e_i;$

$z_i = 1 \; if \; z_i^* > 0;$ 0 otherwise

$\Pr(z_i = 1) = \phi(\alpha_i w_i) \rightarrow$ selection equation

In the selection equation, z_i^* is a dependent variable signifying whether an individual has ever worked or not, w_i' is a vector of covariates for unit i, α is a vector of coefficients, and e_i is a random disturbance term. Individuals who have ever had a job are selected. The fact that individuals may have entered the labour market under different economic conditions is controlled for by a variable capturing the unemployment rate in Cape Town at the time of labour market entry.

Similarly in the outcome equation, y_i is a dependent variable signifying wages, while x_i, β and u represent vectors of covariates, coefficient and the error term respectively.

Given the limitations in the specification of the Heckman model discussed above and added complexity that would arise when trying to include duration of unemployment in this modelling, further analysis is carried out using ordinary least squares regression. This modelling allows for the direct inclusion of duration of unemployment in the wage equation, thus forming a link with the analysis in Chapter 3. It was also argued above that unobserved ability, which could be the main source of sample selection bias in this case, could be captured by the variable for age at the time of the first job, given that the first wage is unaffected by experience. It is also comforting to observe that the coefficients of most of the explanatory variables in the ordinary least squares model do not change much both in terms of magnitude and significance when compared with the outcome equation of the Heckman model. The wage equation is specified as follows:

$$\log w_i = \beta_0 + \beta_i x_i + \eta_i$$

X_i is a vector of the following individual characteristics used in both the Heckman model and the ordinary least squares model:

race,

gender,

age at the time of first job,

combined literacy and numeracy scores,

education,

time to first job

As is common in many wage studies, race, gender and age are expected to have a significant influence on wages. Education is an obvious characteristic to control for. However, education does not necessarily capture ability accurately (Neal & Johnson, 1996) especially for those individuals who do not have tertiary qualifications. Therefore, literacy and numeracy test scores are also included in the model in order to capture another dimension of individual ability. This is not to say that education is not useful as a predictor of wage differences but rather that it does not capture the full range of skills sets. Students leaving school with grade 12 qualifications for example, would have markedly different labour market related skills sets, depending on which schools they attended. The wages these individuals would ordinarily be expected to command would also differ according to their productivity. Literacy and numeracy test scores contribute toward capturing these differences in individual ability and their inclusion results in a better specified model, especially given that the individuals in this survey were given the same tests. It is also true that type of industry and occupation are important influences on wages, however, these variables have been omitted from this analysis in order to obtain the full effect of education and test scores. Besides affecting wages directly, when controlling for industry and occupation, educational attainment and test scores also have an indirect affect through their effect on representation in industry and occupation (Blau & Kahn, 2005). Omitting industry and occupation variables therefore results in coefficients that shed light on the total effect of education and test scores (Blau & Kahn, 2005).

4. A descriptive analysis of wages of the first job

Level of education is expected to have an impact on the wages that first-time jobholders can obtain. When looking at the educational attainment of Africans and Coloureds at the time of securing the first job (Table 1) it is notable that the differences by race are not very large. The figures in Table 1 indicate column-wise percentages of educational attainment of youth. Amongst the combined sample of Coloured and African youth, 52% had achieved matric at the time of their first job. Amongst Africans, 54% had matric at the time of their first job

while the corresponding figure for Coloureds is 51%. That Coloured youth gain exposure to the labour market relatively earlier than African youth is evidenced by the finding that 20% of Coloured youth have grade 1-9 by the time of their first job compared to only 15% of African youth.

Table 1. Average education level at the onset of the first job

	African	Coloured	Total
Grade 1-9	15.07	20.25	18.06
Grade 10-11	21.14	19.01	19.91
Grade 12	54.43	50.71	52.28
Diploma	6.44	7.82	7.23
Degree	2.92	2.22	2.51
Total	100	100	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

An analysis of age reinforces the notion that more Coloured youth obtain their first jobs at younger ages than African youth. Table 2 reflects column-wise percentages of age at the time of obtaining the first job.

Table 2. Age at the time of obtaining the first job

Age	African	Coloured	Total
16	0.64	2.04	1.45
17	2.8	5.74	4.5
18	3.68	10.92	7.87
19	6.61	20.54	14.67
20	13.09	16.28	14.94
21	15.76	16.1	15.95
22	16.14	10.45	12.85
23	16.14	7.68	11.24
24	10.93	6.29	8.24
25	10.55	3.33	6.37
26	3.05	0.65	1.66
27	0.51	0	0.21
28	0.13	0	0.05
Total	100	100	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

In Table 2, of those youth who have secured a first job, only 14% of African youth obtain their first job by age 19 while in contrast ,39% of Coloured youth secure their first job by this age. Stated differently, only 4% of those Coloured youth who have found a first job obtain their first job beyond age 24 while the corresponding figure for Africans is 14%. Overall, in the sample of 16 to 28 year olds, most youth (70%) who have found a first job do so between the ages of 19 and 23.

An analysis of wages of the first job provides useful information in that these wages relate to reward prior to any labour market experience. It is reasonable to assume that any variation in wages if not caused by work experience should then be the result of differences in productive characteristics acquired prior to labour market entry, whether through schooling and/or community. There are indeed marked differences in wages of the first job by race, gender and education as can be seen in Table 3. The mean wage of the first job of Coloured youth is 50% higher than that of African youth. Similarly, the median wage of Coloured youth is 43% higher than that of African youth.

Table 3. Mean and median monthly wages for the first job

	Mean wage - job 1	Median wage - job 1
African	1568	1400
Coloured	2344	2000
Female	1976	1500
Male	2178	2000
Grade 1-9	1634	1500
Grade 10-11	1713	1500
Grade 12	2271	2000
Diploma	3679	2800
Degree	4339	3800

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

An analysis of the gender wage gap reveals that the mean first job wage for males is 10% higher than that of females while the median wage is 33% higher. With respect to the relationship between educational achievement at the time of the first job and wages of the first job, mean starting wages increase with educational attainment. Achieving matric as

opposed to just grade 10 or 11 is associated with a 33% higher mean wage and median wage.

Table 4. Distribution of monthly wages of the first job by race

	Quintiles of the wage of the first job					
Race	1	2	3	4	5	Total
African	31.56	29.23	20.22	11.48	7.51	100
Coloured	10.58	18.08	25.58	20.73	25.03	100
Total	19.95	23.06	23.18	16.6	17.21	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

As mentioned above, there are differences in first wage by race. In fact, the distribution of the first wage by race reflects a skewed pattern. Table 4 shows that amongst Coloured youth, 46% of them have first wages that are in the top two quintiles whereas only 19% of African youth locate in the top two quintiles. Furthermore, for Coloured youth the distribution of wages is fairly even in the across the top three quintiles whereas it is heavily skewed towards the lowest two quintiles for Africans. Around 60% of African youth locate in the lowest two quintiles of first wages.

Table 5: Months unemployed leading up to the first job by race and gender

Months to first job	African	Coloured	Female	Male	Total Gender
6	38.86	56.16	46.99	55.17	51.07
12	19.33	19.13	21.6	16.77	19.19
18	14.96	13.07	12.26	15	13.63
24	10.49	7.03	9.95	6.14	8.05
30	5.55	2.85	4.71	2.58	3.64
36	6.29	1.4	2.81	2.87	2.84
42	4.52	0.35	1.68	1.47	1.58
Total	100	100	100	100	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

Following on from the theme of the previous chapter, the analysis now turns to the relationship between duration of unemployment and the wage of the first job. To begin, Table 5 indicates that most Coloured youth who find jobs do so within a year, 56% within 6

months. In contrast, only 39% of African youth who secure a first job do so within 6 months. The gender difference is less stark with 55% of males finding the first job within 6 months compared to 47% of females. In total, 72% of males who find a first job do so within a year compared to 69% of females.

Table 6 reflects a comparison of first wage, split into quintiles, with duration of unemployment prior to the first job. The last column indicates that most individuals (47%) who get a job do so within 6 months. Another 20% get a job within 7 months to a year. Looking at the distribution of unemployment duration within wage quintiles, a similar proportion of individuals (around 46%) get a job within 6 months and around 65% get a job within a year across the first four quintiles. For individuals in the highest quintiles, a slightly higher proportion of them (58%) get a job within 6 months. Looking at these statistics, one may be tempted into thinking that the unemployment situation is not that bad given the proportion of individuals who secure jobs quickly. However, this analysis is of those individuals who secure jobs, which are 43% of the total for non-studying Coloureds and Africans.

Table 6: Distribution of wages according to months unemployed leading up to the first job

Months to first job	Quintiles of wages of the first job					Total
	1	2	3	4	5	
6	45.83	46.67	44.57	46.38	58.33	47.38
12	20.83	20.51	22.28	23.19	11.46	20.36
18	10.12	13.85	16.85	14.49	11.46	13.57
24	8.93	7.18	9.24	7.25	10.42	8.45
30	5.36	3.59	3.8	2.9	2.08	3.71
36	5.36	5.13	2.17	2.9	5.21	4.1
42	3.57	3.08	1.09	2.9	1.04	2.43
Total	100	100	100	100	100	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

Table 7 presents a different angle on these statistics. It indicates that of those individuals who secure jobs within 6 months or 7 to 12 months, the wages they command are more or less evenly distributed for the lowest three quintiles. There does not seem to be a clear pattern of wage advantage for individuals who secure jobs quickly. For individuals who get

jobs within 6 months, 32% of them are in the top two quintiles, compared to 27% for 7 to 12 months, 29% for 13 to 18 months, and 30% for 19 to 24 months. Taken together with the results of the table above, the picture that emerges is that even though most high paying jobs are found relatively quickly, the jobs that are found quickly are distributed across the wage spectrum. Duration of unemployment may not necessarily be an important determinant of the first wage, instead productive qualities as reflected by literacy and numeracy test scores, for example, may be more important. The multivariate analysis that follows sheds light on these relationships.

Table 7: Quintiles of wages by months unemployed leading up to the first job

Months to first job	Quintiles of wages of the first job					Total
	1	2	3	4	5	
6	20.81	24.59	22.16	17.3	15.14	100
12	22.01	25.16	25.79	20.13	6.92	100
18	16.04	25.47	29.25	18.87	10.38	100
24	22.73	21.21	25.76	15.15	15.15	100
30	31.03	24.14	24.14	13.79	6.9	100
36	28.13	31.25	12.5	12.5	15.63	100
42	31.58	31.58	10.53	21.05	5.26	100
Total	21.51	24.97	23.56	17.67	12.29	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

Looking at the distribution of test scores achieved by race, not reflected here, reveals that Coloured youth achieve higher results than African youth. Sixty percent of Coloured youth score positive standardised combined literacy and numeracy scores compared to only 30% of African youth. An interesting question that follows from this finding is whether better able individuals, as reflected by higher test scores, have an advantage in terms of finding employment quicker. Table 8 indicates that 62% of the highest scoring individuals find their first job within 6 months, compared to 50% for individuals in the 4th quintile, and around 48% in each of the lowest three quintiles. These statistics reflect a clear advantage for the top test score quintile but not much of a difference across the other quintiles. Overall, there seems to be a weak relationship between test scores and duration of unemployment.

Table 8: Distribution of literacy and numeracy test scores across months of the first job

Time to first job	Quintiles of combined literacy and numeracy scores					Total
	1	2	3	4	5	
6	48.74	46.88	47.81	49.64	62.3	49.86
12	16.58	21.48	22.37	22.1	15.57	20.26
18	13.07	14.84	12.28	12.68	10.66	12.95
24	9.05	8.2	6.58	7.25	7.38	7.68
30	5.03	4.3	4.39	4.35	1.64	4.16
36	4.02	3.13	4.39	2.54	1.64	3.24
42	3.52	1.17	2.19	1.45	0.82	1.85
Total	100	100	100	100	100	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

Table 9: Distribution of literacy and numeracy test scores across months of the first job

Time to first job	Quintiles of combined literacy and numeracy scores					Total
	1	2	3	4	5	
6	18	22.26	20.22	25.42	14.1	100
12	15.07	25.11	23.29	27.85	8.68	100
18	18.57	27.14	20	25	9.29	100
24	21.69	25.3	18.07	24.1	10.84	100
30	22.22	24.44	22.22	26.67	4.44	100
36	22.86	22.86	28.57	20	5.71	100
42	35	15	25	20	5	100
Total	18.41	23.68	21.09	25.53	11.29	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

However, there does seem to be clear relationship between test score achievement and the first wage as reflected in Table 10. The expectation is that individuals who score higher obtain better paying jobs. Indeed, looking at the 5^{th} quintile of test score achievement this notion is confirmed. Of the individuals in the highest quintile of test score achievement, 44% have the highest paying first jobs. In contrast, of the individuals who achieve the lowest test scores, only 7% work in the highest paying first jobs.

Table 10: Relationship between literacy and numeracy test scores and wages of the first job

Quintiles of test scores	Quintiles of wages of the first job					Total
	1	2	3	4	5	
1	28.97	29.91	23.36	10.9	6.85	100
2	24.37	28.39	25.13	12.81	9.3	100
3	18.15	23.51	23.21	20.24	14.88	100
4	14.25	17.5	23	21	24.25	100
5	9.3	9.3	18.02	19.19	44.19	100
Total	19.91	22.99	23.11	16.66	17.33	100

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

The descriptive analysis above has revealed a number of useful points. Around 50% of youth have matric at the time of the first job. A relatively higher proportion of Coloured youth start work at a young age. In addition, mean and median wages are higher for Coloured youth and for males. Amongst African youth, the distribution of the first wage is skewed towards lower wage quintiles whereas for Coloured youth it is more balanced across wage quintiles. The finding of the previous chapter of racial inequality in duration of unemployment was reiterated in the analysis above. Furthermore, across wage quintiles most jobs are obtained within 6 months although a slightly higher proportion of the highest paying jobs are obtained within 6 months. That said, there is no clear wage advantage to securing jobs quickly. Therefore, duration of unemployment may not necessarily be an important determinant of the first wage, instead productive qualities as reflected by literacy and numeracy test scores, for example, may be more important. With regard to test scores, a higher proportion of the highest scoring individuals find jobs within 6 months. There is also a clear positive relationship between test scores and wages of the first job. Notwithstanding the value of the above descriptive analysis, the analysis proceeds to test the relationships between these variables more formally in a multivariate context.

5. Empirical modelling

It was discussed above that the problem of sample selection bias should be considered when modelling wages. However, it was also argued that this bias is unlikely to be a factor in the labour market in question, more so when dealing with the first job. South Africa is plagued by very high youth unemployment as well as high economic deprivation and as

such, voluntary unemployment is unlikely to be a major feature amongst non-White youth especially. South African data sets also reflect significant numbers of discouraged workers. Furthermore, the nature of the study (wages at the time of the first job rather than at the time of the survey) does not easily lend itself to controlling for selection in a manner that would give high assurance of accuracy of results, more so that the Heckman sample selection correction technique is sensitive to specification.

One drawback of the Heckman selection modelling in this instance is that some of the individuals whose first wages are in 2002, 2003, or 2004 may no longer be employed at the time of the 4th wave in 2006, the period of observation of those who have never worked, on which the selection equation is based. Nevertheless, the selection and outcome regressions have been specified as accurately as possible and the results are presented in Table 11.

Table 11. Heckman regression of first wage

	Outcome		Selection	
Variables	Coefficients	Marginal effects	Coefficients	Marginal effects
Coloured	0.309***	0.376***	0.343***	0.122***
	(0.053)		(0.101)	
Male	0.117**	0.202**	0.443***	0.155***
	(0.046)		(0.0987)	
Age at first job	0.031**	0.031**		
	(0.012)			
Lit-num test scores	0.006	0.037	0.162**	0.058**
	(0.030)		(0.0639)	
Incomplete secondary	-0.016	-0.016	-0.628***	-0.217***
	(0.050)		(0.106)	
Tertiary	0.263**	0.263**	0.423	0.135
	(0.120)		(0.305)	
Unemployment rate			0.296***	0.106***
			(0.0350)	
Lambda	-0.375***			
	(-0.057)			
Constant	6.817***		-6.004***	
	(0.271)		(0.771)	
Observations	539		836	
/athrho	-0.876***			
	(-0.162)			
/lnsigma	-0.631***			
	(-0.045)			
Rho	-0.705			
	(-0.081)			
Sigma	0.532			
	(-0.024)			

LR test of independence of equations (rho = 0): chi2(1) = 13.71 Prob > chi2 = 0.0002

Standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

The choice of explanatory variables was discussed earlier. The unemployment rate in Cape Town at the time of labour market entry is the exclusion restriction in the selection equation. This variable controls for the fact that at the various years of labour market entry by youth, the economy would be at different stages.

The result of the likelihood ratio test suggests that, the assumption that the errors of the wage equation are uncorrelated with those of the selection equation, can be rejected. It seems then that it is appropriate to correct for sample selection bias, notwithstanding the reservations expressed earlier about the specification of the model. The correlation coefficient of the unobservables that determine selection into waged employment and the unobservables that determine the wage is given by rho. The negative sign of rho indicates that the unobservables are negatively correlated with one another.

The reported marginal effects suggest that Coloured youth have wages that are 38% higher than African youth, holding all else constant. In addition, males have a 20% wage advantage over females. Each additional year in age results in a 3% wage advantage. Having a tertiary qualification as opposed to matric only, raises wages by 26%. All of these findings are in line with the results of analysis carried out in previous chapters. Furthermore, the literacy and numeracy test scores affect entry into wage employment but not wages. Similarly, obtaining matric gives one an advantage over non-matriculants in as far as employment is concerned but not in wages.

In the interest of maintaining a link with the analysis in Chapter 3, attention now turns to assessing the relationship between duration of unemployment and wages as well as decomposition of the racial wage gap and gender wage gap. For this more involved analysis, use of ordinary least squares regression will yield results that are more intelligible than under the Heckman model. Use of ordinary least squares for this analysis has been argued above. Specifically, it was argued that unobserved ability, which could be the main source of sample selection bias in this case, could be captured by the variable for age at the time of the first job, given that the first wage is unaffected by experience. On the supply side, it was argued that voluntary unemployment would probably not be a significant feature for youth

entering the labour market under conditions of mass unemployment and relative economic deprivation.

The role that duration of unemployment plays in the first wage of youth is of special interest. In Chapter 3, it was apparent that race has an effect on unemployment duration. The analysis here begins with an investigation of whether youth who are at a disadvantage in terms of unemployment duration, experience a further disadvantage in the form of lower wages. In regressing duration of unemployment on first wage, one also gains a sense of the likelihood of voluntary versus involuntary unemployment as discussed earlier, the findings of which have a bearing on the motivation given earlier of the possible absence of a significant sample selection issue for this labour market, on the labour supply side at least.

The analysis then moves on to report on the determinants of wages amongst Coloureds, Africans, males and females, using ordinary least squares regression. Certain variables are successively introduced in three specifications in order to highlight some interesting features. The full specification is then run by race in preparation for the decomposition analysis that follows.

A key interest in this analysis is the effect of duration of unemployment on the wages of the first job. The results reported in Table 12 indicate a negative relationship between wage of the first job and time taken to secure that job. The omitted comparison variable is time to first job of zero to 6 months. In comparison to duration of unemployment of zero to 6 months only 7 to 12 months is significant. The results suggest that individuals who obtain a job at some stage between 7 to 12 months of unemployment have wages that are 19% lower than those who obtain their first job between zero to 6 months of unemployment, significant at the 5% level. The negative relationship between first wages and duration of unemployment is interesting, however this will be discussed further when interpreting the full specification of the model.

Table 12: Regression of first wage and duration of unemployment

Time to job 7-12 months	-0.185**
	[0.075]
Time to job 13-18 months	-0.021
	[0.069]
Time to job 19-24 months	-0.12
	[0.104]
Time to job 25 months plus	-0.147*
	[0.088]
Constant	7.644***
	[0.038]
Observations	857
R-squared	0.016

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: Own calculations using survey weights

Looking at the first set of results in Table 13, regression one excludes education in order to compare the change in the effect of test scores that results when education is introduced into regression two. Similarly, the variables representing duration of unemployment are once more introduced in the last regression. Starting with race however, it is clear from all three specifications that race plays an important part in determining the first wage. Coloured youth earn first wages that are 33% higher than African youth.

Gender is also significant, being male associated with wages that are 13% higher. As discussed previously, controlling for age at the time of the first job rather than age at the time of the survey yields more accurate results of the effect of age on the first wage. Each additional year in age at the time of the first job results in first wages that are 4% higher. Having controlled for school-level skills, the significant effect of age is rather interesting. It may be capturing undocumented or unobservable abilities that youth acquire post school.

The combined literacy and numeracy scores also have a significant effect on the first wage of youth, however, the magnitude of the coefficient of this variable is reduced when controlling for education and duration as well. In the first specification, each standard deviation increase in the test scores results in a 15% increase in wages. This effect drops to 9% when controlling for education and drops further in magnitude to 6% and significance

level to 10% when introducing unemployment duration as well. It is interesting that the effect of the literacy and numeracy test scores is significant even after controlling for education. This result implies that the test scores reflect productive characteristics that are not captured by level of education attainment. Besides innate ability, quality of education is also a possible contributing factor.

Table 13: Determinants of the first wage using the full specification[8]

	I	II	III
Coloured	0.382***	0.379***	0.333***
	[0.030]	[0.033]	[0.055]
Male	0.145***	0.169***	0.134***
	[0.029]	[0.033]	[0.049]
Age at first job	0.043***	0.031***	0.035**
	[0.007]	[0.007]	[0.014]
Lit-Num test scores	0.152***	0.088***	0.055*
	[0.019]	[0.023]	[0.033]
Incomplete Secondary		-0.175***	-0.091*
		[0.035]	[0.051]
Tertiary		0.244***	0.408***
		[0.086]	[0.129]
Time to job 7-12 months			-0.132**
			[0.060]
Time to job 13-18 months			-0.154*
			[0.080]
Time to job 19-24 months			-0.136
			[0.096]
Time to job 25 months plus			-0.008
			[0.085]
Constant	6.376***	6.689***	6.644***
	[0.149]	[0.169]	[0.311]
Observations	1608	1271	556
R-squared	0.206	0.233	0.184

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: Own calculations using survey weights

[8] The decline in the number of observations when moving from specification I through III is as a result of missing observations. Table A2.3 in the Appendix uses the smallest subset of observations (556) for all three specifications in order to allow isolation of the effects of additional variables when moving from one specification to the next.

With respect to education, specification II reflects that individuals with incomplete secondary education earn wages that are 18% lower than individuals with matric only. On the other hand, individuals who have above matric educational qualifications earn wages that are 24% higher than individuals with matric only. When unemployment duration is introduced in specification III, the effect of education changes somewhat. The wages that individuals who do not attain matric can expect to obtain are 8% lower than those with matric and this result is significant at the 10% level of significance only. On the other hand, individuals with qualifications that exceed matric have predicted earnings that are 41% higher than matriculants.

The duration of unemployment leading up to the first job is significant at duration of up to 18 months. Individuals who were unemployed between 7 months and 12 months before obtaining their first jobs are predicted to receive wages that are 13% lower than individuals who secure a first job within 6 months. This result is significant at the 5% level of significance. Individuals who are unemployed for a period of between 13 and 18 months before obtaining the first job have wages that are 15% lower than individuals who are unemployed for 6 months or less, significant at the 10% level of significance only. The duration variable is not significant at unemployment duration exceeding 18 months. The results of the duration variable suggest that reservation wages do not play a significant role with respect to the first job. If individuals chose to wait for higher wage offers then longer unemployment duration would be associated with higher wages once the job is obtained. This result lends support to the notion that unemployment is involuntary with regard to the first job at least. Of course, behaviour related to the first job may be very different to that of subsequent jobs. Young school leavers wanting to get a foothold in the labour market are likely to be less choosy than those individuals who are already seeking their 2^{nd} or 3^{rd} jobs.
The full specification regression analysed above is now run by race for the purposes of the decomposition analysis that is to follow. Analysing race separately, reporting is on the results of both the model which excludes duration and the one that includes it. Looking at the specification which excludes the unemployment duration variable first, Table 14 reflects that gender is a significant determinant of the first wage. Amongst Coloured youth, males can expect to have first wages which are 14% than females, whereas amongst African youth the male advantage is larger at 25%. The effect of each additional year in age at which the

first job is obtained is 3% amongst Coloured youth and 4% amongst African youth, consistent with the full specification reported on earlier.

Table 14: Regression of the first wage by race excluding duration of unemployment

	Coloured	African	Pooled
Male	0.140***	0.247***	0.158***
	[0.042]	[0.046]	[0.040]
Age at first job	0.028***	0.039***	0.028***
	[0.009]	[0.012]	[0.008]
Incomplete Secondary	-0.168***	-0.198***	-0.101**
	[0.045]	[0.050]	[0.044]
Tertiary	0.257**	0.200**	0.372***
	[0.107]	[0.095]	[0.080]
Lit-Num test scores	0.098***	0.070**	0.143***
	[0.031]	[0.029]	[0.025]
Constant	7.144***	6.496***	7.008***
	[0.199]	[0.274]	[0.183]
Observations	750	521	1271
R-squared	0.15	0.156	0.168

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: Own calculations using survey weights

The effect of education within the two races is also similar although individuals with more than matric qualifications have a greater wage advantage amongst Coloured youth than African youth. Specifically Coloured youth who have greater than matric qualifications have wages that are estimated to be 26% higher than Coloured youth with matric, the corresponding figure for Africans is 20%.

Furthermore, the coefficients of the test scores are similar across the specifications. Within race, each standard deviation increase in test scores results in a 9% increase in wages amongst Coloured youth compared to a 7% increase amongst African youth, these are similar to the 10% effect found in the full specification.

Turning to the model specification that controls for duration of unemployment, Table 15 shows that amongst Coloured youth the effect of gender is statistically insignificant. Many of the other variables also become insignificant under this specification. However, Coloured

youth with greater than matric level of schooling are estimated to enjoy wages that are 48% higher than individuals with matric only. Furthermore, amongst Coloured youth, longer duration of unemployment prior to the first job is estimated to decrease the wage of the first job. Securing a job within 12 months or 18 months compared to within 6 months is estimated to decrease wages, significant at the 10% level. This finding implies that individuals who spend a longer time searching for the first job probably do not do so by choice as they end up with lower wages.

Table 15: Regression of the first wage by race including duration of unemployment

	Coloured	African	Pooled
Male	0.084	0.244***	0.123**
	[0.064]	[0.066]	[0.060]
Age at first job	0.029	0.042*	0.031*
	[0.019]	[0.022]	[0.016]
Incomplete Secondary	-0.085	-0.11	0.070
	[0.068]	[0.070]	[0.075]
Tertiary	0.476***	0.155	0.462***
	[0.153]	[0.182]	[0.122]
Lit-Num test scores	0.051	0.075*	0.122***
	[0.046]	[0.044]	[0.038]
Time to job 7-12 months	-0.148*	-0.085	-0.191***
	[0.078]	[0.087]	[0.070]
Time to job13-18 months	-0.194*	-0.07	-0.157**
	[0.109]	[0.104]	[0.078]
Time to job19-24 months	-0.19	0.009	-0.153
	[0.133]	[0.112]	[0.111]
Time to job-25 months plus	0.208**	-0.086	-0.145
	[0.096]	[0.116]	[0.114]
Constant	7.120***	6.433***	6.908***
	[0.390]	[0.484]	[0.331]
Observations	323	233	556
R-squared	0.129	0.13	0.128

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: Own calculations using survey weights

The discussion above highlights the importance of the selected explanatory variables in explaining differences in wages of youth in their first jobs. The results have been reported for specifications of the race regressions that exclude the duration variable and specifications that include it. The coefficients of the duration variable suggest that the

longer the duration of unemployment the lower the wage of the first job secured. This effect is significant up to 18 months duration. This result suggests that reservation wages is not the driving force behind the negative relationship between duration of unemployment and wages of the first job. Most likely, it is the less productive individuals that take longer to find a job. Productivity in the model above is captured by the schooling variable and the literacy and numeracy scores. If the duration variable is capturing the same thing, to an extent this would explain the loss of significance of some of the variables when it is included. This analysis will now be taken further to determine how much of the racial gap in wages is due to the observable characteristics discussed above and how much is unexplained by these characteristics.

6. Decomposition analysis

The methodology employed is the same as that used in Chapter 2, except in this instance the dependent variable is continuous. The analysis is inspired by Oaxaca's method of analysing group wage differences (Oaxaca, 1973) based on linear regressions. It consists in decomposing the average wage gap under into some "characteristics" and "returns" components in the following way:

$$\bar{W}_1 - \bar{W}_2 = \beta(\bar{X}_1 - \bar{X}_2) + (\beta_1 - \beta)\bar{X}_1 + (\beta - \beta_2)\bar{X}_2$$

Where $\overline{W}$ is the average wage, X is the vector of individual productive characteristics introduced in the respective equations and β_i is the associated vector of coefficients. β is the non-discriminatory set of coefficients. The main difficulty here is to determine β the structure that would prevail in the absence of discrimination.

If $\beta=\Omega\beta_1 + (I-\Omega)\beta_2$ where Ω is a weighting matrix and, I is the identity matrix, any assumption regarding β reduces to an assumption about Ω. As in Chapter 2, the results are presented for the choice of three assumptions regarding Ω: $\Omega = 1$, $\Omega = 0$ (Oaxaca's index) and $\Omega=(X'X)^{-1}(X_1'X_1)$ (Oaxaca and Ransom's index).

In addition to reporting on the results of three assumptions of omega (the weighting matrix), this section also reports on decompositions with the duration variable excluded from the regression and with the duration variable included. In looking at the race decomposition first (Table 16), the estimated racial wage gap in the model excluding duration is 0.41. With the assumption of a weighted omega, the results of the decomposition indicate that only 16% of the racial wage gap is due to differences in productive characteristics. Furthermore, Coloured advantage makes up 19% of the gap while 65% of the wage gap is due to African disadvantage. Therefore, the majority of the wage gap is due to labour market disadvantage faced by Africans.

Table 16: Race decomposition excluding duration variable

Results	Coefficient	Percentage
Omega = 1		
Characteristic	0.037811	9.31%
Coefficient	0.368232	90.69%
Omega = 0		
Characteristic	0.007231	1.78%
Coefficient	0.398811	98.22%
Omega = weighted		
Productive	0.064782	15.95%
Advantage	0.079079	19.48%
Disadvantage	0.262181	64.57%
Raw	0.406042	100%

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

Under the assumption that omega equals 1, that is, assuming that the non-discriminatory wage structure is that faced by Coloureds, the results indicate that 9% of the wage gap is due to differences in characteristics while 91% is due to some other unexplained factors. Similarly, when taking African wages as the non-discriminatory wage structure, omega equal to zero, 2% of the difference in wages is explained by characteristics while 98% remains unexplained. The clear message given by these statistics is that very little of the gap in first

wages between these two races is explained by the observed characteristics of these individuals.

Table 17: Race decomposition with duration of unemployment included

Results	Coefficient	Percentage
Omega = 1		
Characteristic	-0.00402	-1.21%
Coefficient	0.33734	101.21%
Omega = 0		
Characteristic	-0.00983	-2.95%
Coefficient	0.343149	102.95%
Omega = weighted		
Productive	0.061972	18.59%
Advantage	0.080944	24.28%
Disadvantage	0.1904	57.12%
Raw	0.333316	100%

Source: CAPS Wave 1-4
Notes: Own calculations using survey weights

In moving from the specification that excludes unemployment duration to the one that includes the duration variable, the racial wage gap drops to 0.33 as can be seen in Table 17. Under the assumption of weighted omega, 19% of the racial wage gap is as a result of productive characteristics, 24% is a result of Coloured advantage while 57% is due to African disadvantage. The decomposition results of the two specifications are similar in that both report African youth disadvantage making up more than half of the estimated racial wage gap. Furthermore, with omega assumed to be one and or omega assumed to be zero the results indicate racial wage gap is accounted for entirely by unobservable factors.

A gender decomposition was also conducted and the results, reported in Table A2.1 and Table A2.2 in Appendix 2, indicate that the total gender wage gap in the specification that excludes unemployment duration is .144 while in the specification that includes duration the gender gap is .116. The results indicate that with all three assumptions of omega, worker characteristics do not explain the wage differences between males and females.

Under the weighted omega assumption, 54% of the gender wage gap is explained by male advantage in both the specification with duration and the one without. Female disadvantage accounts for 55% and 61% of the gender wage gap under the model with duration and without duration respectively, again assuming weighted omega.

The analysis above reflects significant racial and gender differences in the level of the first wage of Coloured and African youth in Cape Town. Observing that race and gender inequality is present right at the outset of the employment history of youth is instructive of itself. These differences are evident even after controlling for educational attainment, literacy and numeracy test scores, gender and age. The race decomposition gives an estimate of this racial inequality in the wage of the first job. This strong result probably stems from historical influence, such as past job reservation policies, in the Cape Town labour market. The stronger gender effect is harder to explain even though finding male advantage is common across many studies.

The results of the outcome equation in the Heckman regression in as far as race and gender are concerned are very similar to those of the ordinary least squares regression above in that they have a statistically significant effect of a large magnitude. Considering the other explanatory variables as well, the conclusion reached is that the results of the regression that is corrected for sample selection bias are not very different from those of the OLS regression above. There is therefore confidence in the assumptions made above and the OLS analysis carried out above as being accurate.

7. Conclusion

This study has looked at the factors that affect the level of the first wage of African and Coloured youth in Cape Town. This is a unique study in that it provides a sense of the relative positions of the youth of these two races at the outset of their labour market participation. The extent of initial disadvantage experienced by African youth may be a precursor to persistent labour market inequity down the line. A Heckman model controlling for sample selection bias was presented as well as a number of specifications of ordinary least squares regressions. The two models yielded very similar results.

One particular object of interest in this study was the effect the duration of unemployment prior to the first job would have on the wage of the first job. The duration analysis of the previous chapter revealed significant racial inequality with African youth taking a longer time to find employment. The analysis in this chapter suggests that youth who take a longer time to find employment also tend to work for a lower wage. This effect is statistically significant for employment duration of up to 18 months.

Furthermore, a decomposition analysis was carried out in order to ascertain how much of the racial gap in first wages is explained by individual characteristics and how much is unexplained. A gender analysis was also included in Appendix 2. The period of the survey (2002 – 2006) is fortuitous as it coincides with the most admirable economic growth rates in South Africa in recent times. The analysis is therefore carried out for a period where the economy and labour market could be thought of as functioning relatively well as opposed to the crisis affected periods just prior to and after the time of the panel survey.

The study has revealed statistically significant findings in racial differences in the wages youth earn in their first jobs. Even after controlling for educational attainment and literacy and numeracy test scores, Coloured youth start out with higher wages than African youth. Similarly, young males start out with higher wages than young females. These results are robust as they hold up under OLS estimation and under correction for possible selection bias, which was included in Appendix 2. When decomposing the estimated race and gender differences it was found that very little of these were explained by individual characteristics and that most of the race and gender differences were unexplained.

A number of factors could possibly explain these findings. Around half of the population of Cape Town consists of Coloured individuals while the African population makes up less than a quarter. Network effects are likely then to be more synergistic among Coloured youth and this could explain their relative success in finding better paying jobs at the outset. In addition to this, the legacy of past job reservation policies may feed into these network effects. If the model above was near perfectly specified, one could look to discrimination as a possible cause of the observed findings. What is most striking is that even after controlling

for individual aptitude and ability via the literacy and numeracy tests, the race advantage remains. Quality of schooling is a factor that should be considered. It is not necessarily an obvious consideration because there are very poorly run and resourced schools in both African and Coloured communities. However, anecdotal evidence of African learners seeking places at Coloured schools indicates that generally quality of schooling may be better than in African schools on average.

Chapter 5: Conclusion

1. Introduction

The unemployment rate in South Africa has long been a humbling statistic. Over the past 20 years, the narrow unemployment rate has not dipped below 20% but has consistently hovered around 25%. Youth (15 to 34 year olds) make up the majority of the unemployed, 71% as of 2013. This thesis has conducted analysis at the entry point of youth into the labour market in the main. This concluding chapter begins with a brief recap of the substance of previous chapters and the main findings before engaging in a policy related synopsis.

The introductory chapter highlighted the challenges youth face when looking for work. It began by pointing out that the problem of high youth unemployment is not a new phenomenon in South Africa, in fact it goes as far back as the pre-democracy era. Emphasis was placed on the fact that the influence of macroeconomic considerations cannot be disregarded when thinking about unemployment because without adequate vibrancy of the economy, healthy labour demand will not be easy to sustain. However, a microeconomic investigation can yield useful results that have important implications for policy formulation. The importance of education to labour market outcomes was discussed and it was emphasised that individuals with tertiary qualifications have the best outcomes by far. For youth however, realising the importance of education and actually engaging in further studies are two factors that are not always aligned, as is evident from the relatively early exit from full-time education by many Coloured youth.

Furthermore, challenges around job search were pointed out in Chapter 1. Job search can be costly especially in South Africa where employment hubs are often situated far from job seekers. The dynamics of the use of networks as a cost effective search strategy were discussed as well as the role that perceptions of the labour market feed into search activity.

Chapter 2 sought to explain why some groups experience relatively good labour market outcomes in comparison with others. The analysis also took a rather cursory look into self-employment in order to provide a bit more information about the employed. It was

determined via decomposition analysis that the labour market advantage that older individuals (31 to 65 for example) enjoy over younger people can largely be explained by productive characteristics of these groups, for both employees and the self-employed. With respect to the labour market advantage of White youth over African youth, the model ascribed most of it to an unexplained advantage, although 31% of the gap amongst employees was explained by productive characteristics. In contrast, only 9% of the self-employment gap was explained by productive characteristics.

Chapter 3 utilised the Cape Area Panel Survey (CAPS) to detail the patterns of transition from school to work for youth of the relatively marginalised race groups in Cape Town. Survival analysis was carried out in order to determine the nature of duration dependence within the Cape Town labour market. The findings were that there is positive duration dependence for youth in this labour market. Thus, a message of hope emanated from this chapter that youth experiencing long bouts of employment are increasingly more likely to find employment as time passes. Economic theory suggests that long duration of unemployment could decrease the likelihood of ever finding employment as a result of erosion of human capital. The analysis also revealed a clear labour market advantage enjoyed by Coloured youth, especially Coloured males, such that Coloured males who had not completed secondary schooling had better employment prospects than both African males who had completed secondary schooling as well as Coloured females who had completed secondary schooling.

Chapter 4 analysed the wages of the first job that youth obtain. The analysis sought to determine whether wage disadvantage is present right at the start of youth labour market entry or whether it develops as youth gain experience in the labour market. One of the key questions in this chapter was whether duration of unemployment would influence the starting wage that youth earn. Indeed, it was found that individuals who found jobs within six months earned higher wages than individuals who found jobs later. Furthermore, the Coloured advantage that was apparent in employment prospects was also present in wage prospects even after controlling for educational attainment and literacy and numeracy test scores. The intriguing aspect of this finding is that large segments of the African and Coloured population are alike with respect to socio-economic markers and one would thus

expect less labour market dominance by one group over the other. The racial wage gap decomposition ascribed the gap to African disadvantage mainly, with only 16% ascribed to individual characteristics. The gender wage gap decomposition ascribed this gap entirely to unexplained causes and the unexplained position was almost evenly divided between male advantage and female disadvantage. To be useful, all of the above analysis has to be couched in a broader context of practical considerations around reducing youth unemployment. The discussion that follows argues for a concerted effort in policy direction to help youth in the transition from schooling to work.

2. Reasons for high unemployment in South Africa

The labour market is characterised by inequality by race, gender and age, amongst other factors. The Post-Apartheid Labour Market Data Series for 1994-2007 indicates that gender differences in unemployment rates have ranged between 5 and 10% for most of the 2000s, with men enjoying the advantage over women. Indeed, gender inequality featured prominently in the analyses of the previous chapters.

Racial inequality in unemployment is also stark. The unemployment rates of Africans in 1994 was 26%, it reached a peak of 37% in 2002 and was at 27% in 2007. In contrast, unemployment of Whites consistently remained below 10% at 4% in 1994 and 2007, with a peak of 6% in 2002. The preceding analyses also brought this aspect of labour market disadvantage to the fore.

Arguably, one of the more important markers of disadvantage is age. In 2010, the unemployment rate of youth 15 to 30 years old was 42% while the corresponding rate for adults over 30 years was 17%. As of 2013, youth are 71% of the unemployed. It is therefore safe to deduce that youth unemployment is driving the high unemployment rate in South Africa.

In addition, unemployment is often of long duration, which is a concern, given the well-documented ill effects of prolonged bouts of unemployment in the early working lives of individuals. From a hard labour economics point of view, the most useful way to

conceptualise youth unemployment is as an issue of labour market entry. However, this viewpoint grossly understates the social costs of youth unemployment. Some of these costs were discussed in the introductory chapter. To recap, there is a large literature linking youth joblessness and the inability to integrate youth into society to anti-social attitudes, delinquent and criminal activities as well as rebellious behaviour (Scarpetta et al., 2010 & Winefield et al., 1993,). On the other hand, youth may respond to long-term unemployment by becoming apathetic and helpless (Coleman & Hendry, 1990). Frustration builds because of financial anxiety, insecurity about the future and a failure to acquire social standing. In the South African context, African youth living in urban areas have been found to suffer financial and psychological deprivation (Fryer, 1997; Moller, 1992).

To a significant extent the issue of youth unemployment is an issue about entry into employment. The significant contribution of youth unemployment in the overall unemployment rate raises the question as to whether special policy focus should be given to youth or to facilitating labour market access and employment creation in general. Talk of youth-specific policies leads to concerns about giving preference to youth at the expense of non-youth or deflecting attention away from a central focus on an efficiently functioning labour market. In this concluding chapter it is argued that promoting labour market entry and reducing the overall unemployment rate should be overriding considerations and that some of the factors contributing to the high unemployment rate are youth-specific. Correspondingly, effective policy interventions to combat unemployment will be both general and youth specific. For example, facilitating labour market entry, through a youth specific policy, reduces unemployment, besides reducing the scarring effects of prolonged early unemployment -both in terms of future employment (beyond the youth stage) and social adjustment.

As discussed in the introductory chapters, one of the chief determinants of job creation is the growth of the economy. At the start of the post-apartheid period, it was estimated that the South African economy would have to grow at an annual rate in excess of 5% in order to significantly reduce the unemployment rate. The average GDP growth rate between 1990 and 2010 was 2.5% which is well short of this 5%. The lack of adequate economic growth contributes to high duration of unemployment. In the mid 1990s, findings were that nearly

two thirds of the unemployed had never worked for pay (Standing et al., 1996). This feature of the unemployed has persisted as the 2005 Labour Force Survey indicates that 40% of unemployed individuals (by the strict definition) have unemployment durations exceeding three years, while 59% of the unemployed have never had a job at all. Our strongest period of growth was between 2002 and 2007 and Bhorat and Oosthuizen (2008) and Hausman (2008) show that there was some employment response to this high growth. Current 2013 statistics however indicate that 44% of the unemployed have never worked before, 65% have been unemployed for more than a year and youth who are 15 to 34 years old make up 71% of the unemployed.

The fact remains though that this employment response to a given quantum of growth has been sluggish. This has led some analysts to characterise the nature of unemployment in South Africa as structural for the most part, with the notable feature of a mismatch between the skill endowments of the majority of the labour force and the nature of skills demanded by employers (Bhorat & Hodge, 1999; Kraak, 2003). However, the skills mismatch hypothesis has to be carefully justified because, as noted by Standing et al. (1996) a number of years ago, the apparent fact that most the unemployed are unskilled does not necessarily mean that unemployment is due to a lack of skills. A decade later, the Harvard group (Hausman, 2008) restate this point by arguing that the skills shortage is a consequence of, rather than a cause of, the structure of our growth. While support for the skills mismatch hypothesis is garnered from the fact that firms themselves have long cited a shortage of appropriately skilled personnel as a constraint on increased business activity within the economy (Chandra & Nganou, 2001), there is an important identification issue here.

An immediate conundrum in this regard is the fact that today's youth are emerging out of the school system with notably higher levels of schooling than older labour force participants. Nonetheless, perceptions of a skills shortage persist and this raises issues about the quality and appropriateness of the education embodied in our labour market entrants. Bringing this issue directly back to youth, controlling for years of schooling, there is evidence that youth who have work experience tend to have shorter spells of unemployment. The analysis using CAPS in Chapter 3 indicates that most African youth do not have any labour market experience by the time of leaving school and consequently have

a longer duration of unemployment prior to finding their first job relative to their White and Coloured counterparts. The issue of the lack of work-readiness is not exactly the same thing as the shortage of specific skills categories. However, there is no doubting the importance of constraints around work-readiness to youth unemployment in South Africa.

Countries that have traditionally been successful in integrating youth into the labour market have achieved success through ensuring youth contact with the workplace relatively early (Bowers et al., 1999). The system that prevails in most countries, however, is the sequential system where youth are first educated exclusively at school and then enter the labour market after schooling and with no tradition of vocational orientation within the secondary school education system. In contrast, a key component of the famed German dual system is the involvement of the private sector and community (in this caseworkers and unions) in the content and certification of vocational training as well as the content and conditions governing on-the-job training. This level of coordination is the ideal that countries battling with facilitating smooth transition from school to work should be aiming for. The Department of Higher Education and Training's (DHET) establishment of a unit tasked with work integrated learning partnerships and innovation is a step in this direction (DHET, 2012).

In Chapter 2, the results of the regression analysis and employment decomposition by age reflected a clear advantage enjoyed by older individuals over youth. Given widespread concerns over our education and training systems, employers experience the hiring of youth as a risky undertaking. They speak of a high variance in potential productivity, even within a given qualification such as complete secondary schooling and they express concerns about their discretion to manage this information risk. Often their concerns focus on labour regulations around hiring and firing (Bhorat et al., 2013; Benjamin et al., 2010). These concerns emerge too in debates over entry-level wages with firms arguing that these wages are too high relative to expected productivity. Empirically this is a difficult question to answer, especially given the broader South African history and context. Holding all other factors constant, higher real wages for unskilled or entry-level workers will narrow the gap between skilled and unskilled wages and promote poverty reduction. On the other hand,

unskilled wages that are not justified by productivity, shortage or occupational hazard contribute to a lower level of hiring and thus greater unemployment.

A rough indication of the substance of these arguments can be garnered through a comparison of the trends in earnings growth versus employment growth in major industries. The Quarterly Employment Statistics published by StatsSA indicate that between March 2008 and December 2011 employee numbers in the manufacturing industry fell by 12% whereas gross earnings rose by 45%. In mining and quarrying gross earnings increased by 83% compared to a mere 2% increase in employment. In electricity and gas gross earnings rose by 96% while employment increased by 3%. Overall, public and private sector employment, excluding agriculture, was down only 0.5% whereas earnings were up 55%. These are not entry-level wages specifically and precise conclusions about the disincentive effects of wage levels on employment cannot be drawn directly from these statistics. However, they show clearly a growth in real earnings alongside a tepid rate of employment growth. Given this, it is important to note that the voices of those trying to enter the labour market are not finding their way into the discussion of this situation with its complicated trade-offs and possibilities.

Some have asserted that, even if the labour market was more flexible, the reservation wages of the youth are too high to expect a downward wage adjustment and a large increase in entry-level employment. Earlier literature (Nattrass & Walker, 2005) disputes this. However, in a recent study, Rankin & Roberts, (2010) find that, controlling for firm size, between 73-81 % of males and 55-71% of females have desired wages that are above those they could expect to earn in a firm with 50 employees or less. Sometimes the claim is made that reservation wages must be too high, otherwise youth would start work as self-employed participants in the informal sector. However, as discussed below under entrepreneurship, this is way too glib and, in general, it is hard to see the reservation wage issue as the right place to focus attention, a point that has been argued repeatedly in Chapter 4.

3. Measures to combat high youth unemployment

It is clear from the previous section that the reasons for high unemployment and high youth unemployment in particular are too complicated for there to be a magic bullet or simple policy solution to this problem. Broader economic policies will determine economic growth and robust growth is a necessary condition for employment creation. The labour market is only one factor in this macro-framework. However, the functioning of the labour market becomes central in mediating the employment intensity of growth. At this micro level, our preceding discussion of the concerns over the rigidity of wages and entrance into the labour market give the context to understand why, over the past couple of years, the most topical policy initiative has been the youth wage subsidy. In 2011, National Treasury tabled a plan to spend five billion rands on a youth wage subsidy. The subsidy was meant to encourage employers to increase hiring of youth through subsidising employment costs with the goal being to subsidise 423 000 workers and create 133 000 permanent jobs in about three years (National Treasury, 2011).

However, the plan was not been implemented, largely because of opposition from the Congress of South African Trade Unions (COSATU). They believed that the proposed youth wage subsidy would not have a significant impact on unemployment and would potentially lead to the displacement of older workers by youth rather than the creation of additional jobs. Another objection was that corporations operating within South Africa have the financial resources to invest in the creation of jobs, however, they choose not to. It could therefore be regarded as ethically incorrect to compel taxpayers rather than employers to fund a subsidy that would benefit employers in any case.

After two years of debate, the 2013 Budget put a new version of the youth subsidy back on the agenda as official policy. The new proposal included a grant for job search assistance. The possible effectiveness of such an intervention was evaluated in a Randomised Control Trial (Rankin & Roberts, 2010) with inconclusive results. The study found that whilst employment of the youth with subsidies went up, the employers did not cash in their vouchers. So, the most likely mechanism is on the supply side; namely, the voucher encouraged vigorous and targeted job seeking. Nevertheless, a youth wage subsidy has

been implemented in 2014. It is formally known as the Employment Tax Incentive Act and employers can, in the first year of employment, claim back half of the salary of a young person (aged between 18 and 29) earning at least R2000 a month.

Promotion of entrepreneurship and especially small, medium and micro enterprises (SMMEs) has also been a focus area in South Africa. Youth entrepreneurial activity is relatively low at 6% for youth between 15 and 30 years of age compared to 15% for 31-to-65 year olds. Evidence from South African surveys indicates that most young people are motivated to start their own businesses because of the limited opportunities in the labour market but that sustainability is a major constraining factor (Mlatsheni & Leibbrandt., 2011). Furthermore, SMMEs are not the biggest generators of employment currently; however, with low rates of both necessity entrepreneurship (2.24%) and opportunity entrepreneurship (2.8%), there is immense potential for employment creation in this area (Xavier et al. 2013, Turton and Herrington 2013). The Global Entrepreneurship Monitor (2008) reports that only a small percentage of start-up entrepreneurs can expect to create 20 jobs in their first five years of business. The reason for this is that entrepreneurship in South Africa tends to be skewed towards low-impact, or low-expectation entrepreneurship. This is because it is driven by necessity or the absence of other viable sources of income rather than being driven by vision. It seems clear from this as well as the analysis of formal sector firm data (Kerr & Wittenberg, 2013) that entrepreneurship is hard and even when it happens it does not have large employment multipliers.

In addressing possible skill shortages and the misalignment of our training systems policy, attention has focussed on the provision of training in intermediate-level technical and vocational skills through the Further Education and Training (FET) colleges. However, these are functioning very poorly at the moment. They have been reported to be under resourced and often not situated where they are most needed and, as of 2013, more resources have been earmarked for improving the infrastructure and management of FETs (DHET, 2012). In addition, coordination between the vocational education strategy and on the job training has been very poor. Research by the South African Qualifications Authority (SAQA) reports that technical skills acquisition has declined since the introduction of the SETA system that bears primary responsibility for on-the-job training. Apprenticeships through the FET

institutions have declined because employers mistakenly believe that they have been replaced by learnerships through the SETAs. The decline in apprenticeships impacts on youth disproportionately. Furthermore, learnerships are more suited to workers employed in the formal economy whereas the most vulnerable youth are either unemployed or engaged in survivalist micro-enterprises. In addition, the learnership contract requires a willing employer but many employers are discouraged by the heavy administrative burden involved in the process.

The nature of employment in South Africa has changed over time, specifically through the growth of temporary employment facilitated by temporary employment agencies. Temporary employment services, more commonly known as labour brokers, can be viewed as either contributing to the problem of high unemployment or as helping to alleviate it. Research indicates that around 25% of jobs created in South Africa since 1994 have been created through labour brokers (Benjamin et al., 2010). However, Cosatu amongst others sees labour brokerage as a potentially destructive force in that it provides temporary and relatively less secure employment. Nevertheless, there is widespread recognition that doing away with labour brokers would lead to job losses at least in the short term, so a popular compromise is to better regulate the labour brokerage environment.

Another avenue for combating the high level of unemployment in South Africa is provision of temporary public sector jobs. Internationally, there has been a marked move away from public sector job creation programmes in favour of other active measures because of the disappointing results that are achieved in terms of helping unemployed people get permanent jobs in the labour market (Martin & Grubb, 2001). There is a South African literature that concludes similarly (McCord, 2012). However, there is still a great deal of debate around the use of these programmes as they can fulfil objectives other than just creation of permanent jobs. Public sector employment creation programmes can be used to help the most disadvantaged unemployed to maintain contact with the labour market especially in times of weak aggregate demand and scarcity of vacancies (Fay, 1996). In this regard and in the South African context, there has been serious piloting of a Community Works Programme. This is modelled on the Indian employment guarantee scheme (Stanwix & Van der Westhuizen, 2012). Given initially positive results, scalability is being assessed.

4. Conclusion

South Africa's high unemployment rate is driven in large part by the high youth unemployment rate. Some of the causes and consequences of the high general unemployment rate are youth-specific and as such, corresponding interventions would have to be youth specific. The goal should be to identify the main contributing factors to the high unemployment rate and to intervene accordingly. However, the nature of the political discourse surrounding youth-specific policies serves as a distraction and raises the time to action. Targeting youth should not be viewed just as a possible cost to non-youth but more importantly as an investment to ensure a more secure future labour force. Facilitation of labour market entry therefore has to be a key policy objective.

Young labour market entrants do not appear to have enough of a voice either in the operation of the labour market or in discussions over the reform of labour market policies. This is a tough structural issue in any environment. Self-employment is supposed to be an avenue for facilitating labour market entry, however, too few young people engage in it to have a significant impact. The lack of entrepreneurial activity is sometimes blamed on reservation wages, however, this fails to recognise that there are other significant challenges in setting up a business venture. Rather than being distracted by the reservation wage argument, policy should focus on addressing the challenge of school to work transitions. There has to be follow through on plans to improve the functioning of FET colleges and plans to forge work-integrated learning partnerships. Furthermore, temporary jobs provided through Community Works Programmes must continue as they help individuals maintain contact with the workplace but they have to be considered a stepping stone to more secure employment otherwise the benefits of this expensive form of intervention becomes diluted as the post-programme participation spell lengthens. In essence, policy should be concerned with promoting a demand for those entering the labour market out of the schooling and training system and ensuring that this education system is not failing those exiting it.

However, there needs to be a concerted effort by all stakeholders (i.e. government, employers and employees) to ensure training and retraining that will make labour market participants technologically literate and up to date in order to foster adaptability to an increasingly technology driven world. Coordination by all stakeholders is a necessary condition for maximising labour market outcomes (Harhoff & Kane, 1997; Soskice, 1994). Many countries suffer from the weakness of applying policies in isolation. In the case of South Africa and the country's approach to youth unemployment, ideally there should be coordination between the national youth bodies, the Department of Labour, the Department of Education and other relevant government departments together with the private sector and the community (workers and unions). With regard to education, for example, the national youth bodies should be actively engaged with the Department of Education on what the curriculum should comprise based on their experiences in facilitating youth employment.

References

Altman, M. & Lee, D. (2004). *Meeting equity targets: Are there enough graduates?* Pretoria: Human Sciences Research Council.

Altonji, J. & Blank, R. (1999). Race and gender in the labor market. In *Handbook of labor economics, volume 3.* O. Ashenfelter & D. Card, Eds. Amsterdam: Elsevier.

Anderson, K.G, Case, A. & D. Lam (2001). *Causes and consequences of schooling outcomes in South Africa: Evidence from survey data. Social Dynamics 27(1): 37-59.*

Appleton, S., Bigsten, A. & Manda, D. (1999). *Educational expansion and economic decline: returns to education in Kenya 1978-1995.* Oxford: Centre for Study of African Economies.

Arrow, K. J. (1973). Higher education as a filter. *Journal of Public Economics*, *2*(3): 193-216.

Barnet, B., Liu, J. & DeVoe, M. (2008). Double jeopardy: Depressive symptoms and rapid subsequent pregnancy in adolescent mothers. *Archives of Pediatrics & Adolescent Medicine*. 162(3): 246-252.

Becker, G. (1964). *Human capital*. New York: Columbia University Press.

Becker, G. (1971). *The Economics of Discrimination*. Chicago, University of Chicago Press.

Bekker, S. (2000). Internal migration and infrastructural provision: challenges to inter-provincial planning in South Africa. *Symposium on "Challenges for Integrated Rural Development".* Port Elizabeth.

Benjamin, P., Bhorat, H. & Cheadle, H. (2010). The cost of 'doing business' and labour regulation: The case of South Africa. *International Labour Review.* 149(1): 73-91.

Benjamin, P., Bhorat, H. & Van der Westhuizen, C. (2010). *The regulatory impact assessment of selected provisions of the Labour Relations Amendment Bill 2010, Basic Conditions of Emplyment Amendment Bill 2010, Employment Equity Amendment Bill 2010, Employment services Bill 2010.* Report prepared for National Treasury and the Presidency.

Bhorat, H. & Hodge, J. (1999). Decomposing shifts in labour demand in South Africa. *South African Journal of Economics* 67(3): 348-380.

Bhorat, H., Kanbur, R. & Mayet, N. (2013). The impact of sectoral minimum wage laws on employment, wages, and hours of work in South Africa. *IZA Journal of Labor & Development.* 2:1.

Bhorat, H. & Leibbrandt, M. (2001). Modelling vulnerability and low earnings in the South African labour market. In *Fighting poverty. Labour markets and inequalities in South Africa.* Cape Town: UCT Press.

Bhorat H. & *Oosthuizen*, M. (2005). 'The Post-Apartheid South African Labour Market', *Development Policy Research Unit Working Paper*, No. 05/93 .

Bhorat, H. & Oosthuizen, M. (2008) Employment shifts and the "Jobless Growth" debate in South Africa. In: A. Kraak & K. Press (eds), Human Resources Development Review: 50-68. Cape Town: HSRC Press. 2008.

Blanchflower, D. (1999). *What can be done to reduce the high levels of youth joblessness in the world?* Report commissioned by the ILO.

Blanchflower D. & Freeman, R. (1999). *Youth employment and joblessness in advanced countries*, Chicago: University of Chicago Press and NBER.

Blanchflower D., Levine P. & Zimmerman, D. (1998). Discrimination in the small business credit market, *NBER Working Paper* No. 6840.

Blau, F. & Kahn, L. (2005). Do cognitive test scores explain higher US wage inequality? *The Review of Economics and Statistics*. 87(1): 184-193.

Blinder, S. (1973). Wage Discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8 (4): 436–455.

Bowers, N., Sonnet, A & Bardone, L. (1999), "Giving young people a good start: The experience of OECD Countries, OECD Report.

Bowles, S. & Gintis, H. (1976). *Schooling in capitalist America.* New York: Basic Center for Human Resource Research.

Brooks-Gunn, J., Duncan, G., Klebanov, P. & Sealand, N. (1993). Do Neighborhoods Influence Child and Adolescent Development? *American Journal of Sociology*. 102(2): 353-95.

Budlender, D. (1995). "Available information on women and the labour market". Cape Town, CASE Law, Race and Gender Project, mimeo, 1995.

Cameron, G. & Muellbauer, J. (1998). The housing market and regional commuting and migration choices. *Scottish Journal of Political Economy.* 45: 420-446.

Case, A. & Deaton, A. (1999). School inputs and educational outcomes in South Africa. *Quarterly Journal of Economics.* 114(3): 1047-1084.

Case, A. & Katz, L. (1991). 'The company you keep: The effects of family and neighborhood on disadvantaged youths.' *National Bureau of Economic Research Working Paper,* No. 3705.

Chandra, V. & Nganou, J. (2001). 'Obstacles to formal employment creation in South Africa: Evidence from recent firm surveys', paper presented at the *Development Policy Research Unit Conference.* Johannesburg.

Cleves M., Gould W. & Gutierrez R. (2004). An Introduction to Survival Analysis Using Stata. Rev. ed. Stata Press

Coleman, J. & Hendry, L. (1990). *The nature of adolescence.* London: Routledge.

Cotton, J. (1988). On the decomposition of wage differentials. *The Review of Economics and Statistics*. 70(2): 236-243.

Curtain, R. (2004). 'Indicators and measures of youth unemployment: Major limitations and alternatives', Expert *Group Meeting Working Paper.*

D'Amico, R. (1984). Does employment during high school impair academic progress? *Sociology of Education*. 57:3.

Dawkins, M. & Kinloch, G. (1981). Black students and the labour market: An analysis of occupational expectations. *Journal of Black Studies*. 12: 107-116.

DATAFIRST Unit. Cape Area Panel Survey Wave 1-4 data.

DATAFIRST Unit. PALMS 1 and PALMS 2 data.

Department of Higher Education and Training. (2012). *Strategic Plan, Revised Version.*

Dinkelman, T (2004). How household context affects search outcomes of the unemployed in KwaZulu-Natal, South Africa: A panel data analysis. South African Journal of Economics, 72:3.

Dolgan, J. (1990). Depression in children. *Pediatric Annals.* 19(1): 45-50.

Dolton P., Makepeace G. & Treble, J. (1994). The youth training scheme and the school to work transition. *Oxford Economic Paper.* 46(4): 629-657.

Dooley, D, Prause, J. & Ham-Rowbottom, K. (2000). Underemployment and Depression: Longitudinal Relationships*. Journal of Health and Social Behavior*, 41(4): 421-436

Eckstein, Z. & Wolpin, I. (1999). Estimating the effect of racial discrimination on first Job wage offers. *The Review of Economics and Statistics*. 81(3): 384-392.

Everatt, D. & Sisulu, E. (1992). *Black youth in crisis.* Braamfontein, South Africa: Ravan Press.

Fay, R. (1996). 'Enhancing the effectiveness of active labour market policies: evidence from programme evaluations in OECD countries', *OECD Labour Market and Social Policy Occasional Papers*, No. 18.

Freeman, R. (1999). Disadvantaged young men and crime. In *Youth employment and joblessness in advanced countries*. D. Blanchflower & R. Freeman, Eds. Chigago: University of Chicago Press and NBER.

Freeman R. & Wise, D. (1982). *The youth labor market problem: Causes and consequences*, Chicago: University of Chicago Press and NBER.

Fryer, D. (1997). International perspectives on youth unemployment and mental health: some central issues. *Journal of Adolescence.* 20: 333–342.

Garces, E., Thomas, D. & Currie, J. (2000). 'Longer-term effects of Head Start', *NBER Working Paper,* No. 8054.

Gomulka J. & Stern, N. (1990). The employment of married women in the United Kingdom 1970-1983. *Economica*, 57: 171-199.

Grant, M. & Hallman, K. (2006). 'Pregnancy-related school dropout and prior school performance in South Africa', *Population Council*, *Working Paper,* No. 212.

Greene, W. H. (1997). *Econometric analysis*. New Jersey: Prentice Hall.

Grubb, W. (1995). 'Evaluating job training programmes in the United States : Evidence and explanations'. *ILO Training Policy Studies,* No. 17.

Hallman, K. & J. Diers. (2004). 'Social isolation and economic vulnerability: Adolescent HIV risk factors in South Africa', paper presented at the *Global Health Council's Annual Conference*, Washington DC.

Hammarstrom, A. (1994). Health consequences of youth unemployment. *Public Health.* 108: 403-412.

Hammarstrom, A. & Janlert, U. (1997). Nervous and depressive symptoms in a longitudinal study of youth unemployment – selection r exposure? *Journal of Adolescence.* 20(3): 293-305.

Harhof, D. & Kane, T.J. (1997). Is the German apprenticeship system a panacea for the US labour markert? *Journal of Population Economics*. 10: 171-196.

Hausman, R. (2008). 'Final recommendations of the International Panel on ASGISA', *CID Working Paper*, No. 161.

Heckman, J. R. & Lochner, L. (2000). Rethinking education and training policy: Understanding the sources of skill formation in a modern economy. In *Securing the future: Investing in children from birth to adulthood*. S. Danzinger & J. Waldforgel, Eds. New York: Russel Sage Foundation.

Heckman, J. & Singer, B. (1984). A method for minimizing the distributional assumptions in econometric models for duration data. *Econometrica*. 52: 271-320.

Helgerson, J. (2002). *The national security implications of global demographic change*. April. [www.au.af.mil/au/awc/awcgate/cia/helgerson2.htm]

Hendrixson, A. (2003). The youth bulge, *ZNET Daily Commentaries*. 14 March. [www.zmag.org/sustainers/content/2003-03/14hendrixson.cfm]

Herrington, M, Kew, J. & Kew, P. (2008). 'Global Entrepreneurship Monitor: South Africa Report 2008', available at http://www.gemconsortium.org/docs/download/603 (accessed 14 May 2013).

Holloway, S & Mulherin, S. (2004). The effect of adolescent neighborhood poverty on adult employment. *Journal of Urban Affairs*. 26(4): 427-454.

Holzer, H. (1991). "The Spatial Mismatch Hypothesis: What Has the Evidence Shown?" *Urban Studies*.

International Labour Office. (2004). Global Employment Trends for Youth, 2004, , Geneva, International Labour Office.

International Labour Office. (2004). Key Indicators of the labour market. Geneva: International Labour Office database.

International Labour Office. (2006). *The end of child labour: Within reach.* Geneva: International Labour Office.

International Monetary Fund. *South Africa (1995) – Selected Economic Issues.* (Staff country report; no. 95/21). Washington. International Monetary Fund. (2011). *South Africa: 2011 Article IV Consultation.* (IMF country report; no. 11/258).

Jenkins S. (2004). Survival Analysis, Unpublished Manuscript, Institute for Social and Economic Research, University of Essex, Colchester, UK. Available at http://www.iser.essex.ac.uk/teaching/degree/stephenj/ec968/pdfs/ec968lnotesv6.pdf

Johnson, W. (1978). A theory of job shopping. *Quarterly Journal of Economics*. 112(2): 261-276.

Jovanovic, B. (1979). Job matching and the theory of turn-over. *Journal of Political Economy*. 87(5): 972-990.

Kain, J. (1968). Housing segregation, negro employment, and metropolitan decentralization. *Quarterly Journal of Economics*. 82: 175-197.

Kalb, G. (2001). *The impact of social policy initiatives on labour supply incentives: A review of the literature*, Policy Research Paper No. 18, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne. Available at the following website: http://www.facs.gov.au/research/prp18/PRP_No_18.pdf.

Kerr, A, Wittenberg, M & Arrow, J. (2013). Job Creation and Destruction in South Africa. SALDRU Working Paper No. 92.

Kerckhoff, A. (1974). *Ambition and attainment: A study of four samples of American boys*. Washington, DC: American Sociological Association.

Kingdon G. & Knight, J. (2000)a. 'The incidence of unemployment in South Africa', paper presented at the *2000 TIPS conference*, Johannesburg.

Kingdon, G. & Knight, J. (2000)b. *Are searching and non-searching unemployment distinct states when unemployment is high? The case of South Africa.* Centre for the Study of African Economies, University of Oxford.

Klasen, S. & Woolard, I. (1999). Levels, trends and consistency of measured employment and unemployment in South Africa. *Development Southern Africa*. 16: 3-35.

Knight, J. B. & Sabot, R. H. (1991). Labor market discrimination in a poor urban economy. *Unfair advantage: Labor discrimination in developing countries. World Bank regional and sectoral studies.* N. Birdshall & R. H. Sabot, Eds. Washington, D.C.: The World Bank.

Kraak, A. (2003). *HRD and the skills crisis*. Human Resources Development Review 2003: Education, Employment, and Skills in South Africa. Human Sciences Research Council and East Lansing: Michigan State University Press.

Lam, D, Ardington, C., Branson, N., Case, A., Leibbrandt, M., Menendez, A., Seekings, J. & parks, M. (2008). *The Cape Area Panel Study: A Very Short Introduction to the Integrated Waves 1-2-3-4 Data.* The University of Cape Town.

Lam, D, Ardington, C & Leibbrandt, M. (2007) Schooling as a Lottery: Racial Differences in Schooling Advancement in Urban South Africa. ERSA Working Paper No. 56. July.

Lam, D., Leibbrandt, M. & Mlatsheni, C. (2008). Education and Youth Unemployment in South Africa. A Southern Africa Labour and Development Research Unit Working Paper Number 22. Cape Town: SALDRU, University of Cape Town

Lam, D., Leibbrandt, M. & Mlatsheni, C. (2009). Education and youth unemployment in South Africa. In *Labour Markets and Economic Development*. Routledge.

Leibbrandt, M., Woolard, I., Finn, A. & Argent J. (2010). 'Trends in South Africa Income Distribution and Poverty since the Fall of Apartheid', *OECD Social, Employment and Migration Working Papers* No. 101.

Levine, S. (1999). Youth in terrorist groups, gangs, and cults: The allure, the animus, and the alienation. *Psychiatric Annals.* 29(6): 342-349.

Ligthelm, A & Kritzinger-Van Niekerk, L. (1990). Unemployment: The role of the public sector in increasing the labour absorption capacity of the South African economy. *Development Southern Africa*. Vol. 7, No. 4, November.

Loots, A. (1996). 'Unemployment in South Africa: a case of jobless growth?' paper presented at the *EBM conference,* Port Elizabeth.

MacCall, J. (1970). Economics information and job search. *Quarterly Journal of Economics*. 84: 113-126.

Maclure, R. & Sotelo, M. (2004). Youth gangs in Nicaragua: Gang membership as structured individualization. *Journal of Youth Studies.* 7(4): 417-432.

Martin, J. & Grubb, D. (2001). What Works and for Whom: A Review of OECD Countries Experiences with Active Labour Market Policies", *Swedish Economic Policy Review*, Vol. 8, No. 2.

Mason, P. (1998). Race, cognitive ability, and wage inequality. *Challenge*. 41(3): 63-84.

McCord, A. (2012). *Public works and social protection in Southern Africa: Do public works work for the poor?* United Nations University.

McCornick, B. (1997). Regional unemployment and labour mobility in the UK. *European Economic Review*. 41: 581-589.

Meyer, R. H. & Wise, D. A. (1982). The transition from school to work: The experience of Blacks and Whites. In R*esearch in Labour Economics*. Greenwich.

Mincer, J (1974). *Schooling, experience and earnings*. New York: National Bureau of Economic Research.

Mhone, G. C. Z. (2000). 'Promoting youth employment in South Africa', *NIEP Occasional Paper Series,* No. 19.

Michael, R.T. & Tuma, N.B. (1984). Youth employment: Does life begin at 16? *Journal of Labour Economics*, 2:4.

Miller, P. W. (1998). Youth unemployment: does the family matter? *The Journal of Industrial Relations*. 40(2): 247-276.

Mincer, J. (1974). *Schooling, experience and earnings*. New York: National Bureau of Economic Research.

Mlatsheni, C. & Leibbrandt, M. (2011). Youth unemployment in South Africa: concepts, challenges and opportunities. *Journal of International Research and Development*. 14: 118-126.

Mlatsheni, C & Rospabe, S. (2002). Why is youth unemployment so high and unequally spread in South Africa?, *DPRU Working Paper* No. 02/65.

Moller, V. (1992). *Quality of life in unemployment.* Human Sciences Research Council, South Africa.

National Government of South Africa. (1995). *White paper on the national strategy for the development and promotion of small business in South Africa.* Pretoria: Government Gazette

Morrell, S., Taylor, R. & Kerr, C. (1998). Unemployment and young people's health. *Medical Journal of Australia.* 168: 263-240.

National Planning Commission (2012). National Development Plan 2030 Our Future-make it work. Policy Report.

National Treasury (2013). *Budget Review.* Pretoria: National Treasury.

National Treasury (2011). Confronting Youth unemployment: Policy Options for South Africa. Discussion Paper.

Nattrass, N. & Walker, R. (2005). Unemployment and reservation wages in working-class Cape Town. *Development Southern Africa* Vol. 73, No. 3.

Neal, D. & Johnson, R. (1996). The role of premarket factors in black-white wage differences. *Journal of Political Economy*. 104(5): 869-895.

Neumark, D. (1988). Employers' discrimination behavior and the estimation of wage discrimination. *The Journal of Human Resources*. 23(3): 279-295.

Neumark D. & Wascher, W. (1999). 'A cross-national analysis of the effects of minimum wages on youth unemployment', *NBER Working Paper,* No.7299.

Oaxaca, R. (1973). Male-female wage differentials in urban labor market. *International Economic Review*. 14(3): 693-709.

Oaxaca, R. & Ransom, M. (1994). On discrimination and the decomposition of wage differentials. *Journal of Econometrics*. 61(2): 5-21.

O'Higgins, N. (1994). "YTS, employment and sample bias". *Oxford Economic Papers*, vol.46, 605-628.

O'Higgins, N. (2001). *Youth unemployment and employment policy. A global perspective*, Geneva: International Labour Organisation.

O'Neill, D. & Sweetman, O. (1998). Intergenerational mobility in Britain: Evidence from unemployment patterns. *Oxford Bulletin of Economics and Statistics.* 60(4): 431-447.

Orkin, M. (1994). *CASE national youth survey*. Johannesburg.

Peden, M., Donson, H., Maziko, M. & Smith, P. (2000). 'Substance abuse trends among trauma patients: The South African experience', -paper presented at the *5th World Injury Prevention Control Congress.* New Delhi.

Phelps, E. (1972). The statistical theory of racism and sexism. *The American Economic Review*. 62(4): 659-661.

Posel, D. & Casale, D. (2001). “Gender aggregates: women subsistence farmers affect the unemployment count”, *Agenda*, 49, 82-88.

Post Apartheid Labour Market Series 1994-2007 Data set, DATAFIRST, University of Cape Town.

Psacharopoulous, G. (1994). Returns to investment in education: A global update. *World Development*. 22: 1325-1344.

Rankin, N. & Roberts, G. (2010). *Youth unemployment, firm size and reservation wages in South Africa.* African Micro-Economics Research Unit.

Rector, R., Johnson, K. & Noyes, L. 2003. ‘Sexually active teenagers are more likely to be depressed and to attempt suicide.’ *Center for Data Analysis Report.* No. 03-04

Rees, A. (1986). An essay on youth joblessness. *Journal of Economic Literature.* 34: 613-628.

Reimers, W. (1983). Labor market discrimination against hispanic and black men. *The Review of Economics and Statistics*. 65(4): 570–579.

Ryan, P. (2001). The school-to-work transition: a cross-national perspective. *Journal of Economic Literature*, 39(1): 34-92.

Saget, C. (2001). Is the minimum wage an effective tool to promote decent work and reduce poverty? The experiences of selected developing countries. ILO employment paper. ISBN 92-2-112459-2. Geneva: International Labour Office.

Scarpetta, S., Sonnet, A. & Manfredi, T. (2010). ‘Rising youth unemployment during the crisis: How to prevent negative long-term consequences on a generation?’, *OECD Social Employment and Migration Papers*, No. 106.

Schultz, T. (1961). Investment in human capital. *American Economic Review*. 51(1): 1-17.

Serneels, P. (2002)a. The nature of unemployment in urban Ethiopia, Centre for the Study of African Economies, Oxford University.

Serneels P. (2002)b. Explaining Non-Negative Duration Dependence Among the Unemployed, The Centre for the Study of African Economies Working Paper Series, Centre for the Study of African Economies, Oxford University, Paper 172.

Sewell, W., Archibold, H. & Ohlendorf, G. 1970. The educational and early occupational attainment process: replication and revision. *American Sociological Review*. 35: 1014-1027.

Shaw, M. (2001). *Investing in youth: International appoaches to preventing crime and victimization.* Canada: International Center for the Prevention of Crime.

Smith, M. (1985). Early labor market experiences of youth and subsequent wages. *American Journal of Economics and Sociology*. 44(4): 391-400

Soskice, D. (1994). Reconciling markets and institutions: The German apprenticeship system. In *Training and the private sector: International comparisons.* L. M. Lynch, Ed. Chicago: University of Chicago Press.

Spaeth, J. (1968). Occupational prestige expectations among male college graduates. *The American Journal of Sociology*. 73(5).

Spence, M. (1974). *Market signaling: Information transfer in hiring and related screening processes.* Harvard University Press.

Standing, G., Sender, J. & Weeks, J. (1996). *Restructuring the labour market: the South African challenge*. An ILO Country Review. International Labour Office, Geneva.

Stanwix, B. & Van der Westhuizen, C. (2012). *Predicted poverty impacts of expanding the community work programme in South Africa: An analysis of income poverty and inequality, trade and industrial policy strategies, DPRU* Working paper.

Statistics South Africa. Labour Force Survey 2005 data.

Statistics South Africa. Quarterly Labour Force 2012 data.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology.* 52: 83–110.

Stigler, G. (1962). Information in the labor markets. *Journal of Political Economy*. 70(5): 94-105.

The World Bank. (2007). *World development report 2007: Development and the next generation*. Washington: The World Bank.

Topel, R. & Ward, M. (1992). Job mobility and the careers of young men. *Quarterly Journal of Economics*. 107(2): 439-479.

Truscott, K. (1993). *Youth education and work: The need for an integrated policy and action approach.* CASE, University of Witwatersrand, South Africa.

Turton, N. & Herrington, M. (2013). 'Global Entrepreneurship Monitor: South Africa Report 2012', available at http://www.gemconsortium.org/docs/2801/gem-south-africa-2012-report (accessed 8 October 2013)

Van der Velden, R. & Wolbers, M. (2001). 'The integration of young people into the labour market within the European Union: the role of institutional settings', *TSER Project, Research Centre for Education and the Labour Market (ROA), Maastricht University Working Paper*.

Van Zyl Slabbert, F. (1994). *Youth in the new South Africa.* Pretoria: HSRC Press.

Varga, C. (2003). How gender roles influence sexual and reproductive health among South African adolescents. *Studies in Family Planning.* 34(3): 160-172.

Winefield, A., Tiggemann, M., Winefield, H. & Goldney, R. (1993). *Growing up with unemployment: A longitudinal study of its psychological impact*. London: Routledge.

Wittenberg, M. (2001). Spatial dimensions of unemployment*,* paper presented at the *DPRU/FES Conference: Labour Markets and Poverty in South Africa*, Johannesburg.

Wittenberg, M. (2002). Job Search in South Africa: A nonparametric analysis. *South African Journal of Economics*. 70(8): 1163-1197.

Wittenberg M. & Pearce, C. (1996). Youth unemployment: Some perspectives from the South African Living Standards and Development Survey. In L. Chisholm et al., *Out-of-School Youth Report: Policy and Provision for Out-of-School and Out-of-Work Youth*, Education Policy Unit, University of the Witwatersrand, 1996.

Wolpin K. (1987). Estimating a structural search model: the transition from school to work". *Econometrica*. 55(4): 801-817.

Xavier, S., D. Kelley, J. Kew, M. Herrington, A. Vorderwülbecke (2013). 'Global Entrepreneurship Monitor: 2012 Global Report', available at http://www.gemconsortium.org/docs/2645/gem-2012-global-report (accessed 8 October 2013).

Appendices

Appendix 1: Chapter 2

Table A1.1. The determinants of employment among youth and adults

	Adults 31-65		Youth 15-30	
Variables	Employee	Self-employed	Employee	Self-employed
	rrr	rrr	Rrr	rrr
Male	1.975***	1.647***	2.203***	1.759***
	(0.087)	(0.099)	(0.114)	(0.172)
African	0.313***	0.173***	0.105***	0.131***
	(0.044)	(0.026)	(0.015)	(0.030)
Colour	0.667**	0.152***	0.248***	0.126***
	(0.107)	(0.031)	(0.042)	(0.049)
Indian	0.801	0.558**	0.313***	0.195***
	(0.193)	(0.150)	(0.073)	(0.076)
Incomplete secondary	0.518***	0.595***	0.443***	1.076
	(0.035)	(0.058)	(0.026)	(0.126)
Tertiary	4.852***	3.884***	3.401***	3.206***
	(0.564)	(0.549)	(0.387)	(0.710)
Participation duration	1.033***	1.067***	1.129***	1.086***
	(0.003)	(0.004)	(0.007)	(0.012)
Eastern Cape	0.451***	0.892	0.399***	2.460***
	(0.051)	(0.135)	(0.047)	(0.709)
Northern Cape	0.512***	0.360***	0.395***	0.520
	(0.059)	(0.060)	(0.048)	(0.218)
Free-state	0.704***	0.558***	0.595***	1.501
	(0.085)	(0.094)	(0.078)	(0.470)
Kwazulu-Natal	0.521***	0.648***	0.461***	1.134
	(0.061)	(0.102)	(0.054)	(0.359)
Northwest	0.543***	0.445***	0.425***	0.790
	(0.066)	(0.075)	(0.058)	(0.266)
Gauteng	0.787**	0.688**	0.670***	1.492
	(0.092)	(0.111)	(0.080)	(0.460)
Mpumalanga	0.601***	0.715**	0.582***	1.411
	(0.074)	(0.119)	(0.074)	(0.470)
Limpopo	0.312***	0.442***	0.246***	0.899
	(0.038)	(0.073)	(0.033)	(0.281)
Other employed	0.908**	1.101	0.795***	1.133
	(0.041)	(0.070)	(0.042)	(0.118)
Constant	**4.071*** **	**0.607** **	**3.156*** **	**0.162*** **
	(0.693)	**(0.122)**	**(0.580)**	**(0.057)**
N	25425		18042	
chi2	1570.262***		1460.574***	

Source: LFS 2005

Notes: Reference category: unemployed.

* significant at 10%; ** significant at 5%; *** significant at 1%

Location reference category: Western Province

Table A1.2 The determinants of employment among Africans and Whites

Variables	White youth 15-30		African youth 15-30	
	Employee	Self-employed	Employee	Self-employed
	rrr	rrr	rrr	rrr
Male	**1.538***	**3.584****	**2.579*****	**1.614*****
	(0.401)	**(1.801)**	**(0.149)**	**(0.157)**
Youth15_24_30	1.736	1.322	0.575***	0.577***
	(0.841)	(0.889)	(0.049)	(0.081)
Incomplete secondary	**0.244*****	**0.192****	**0.577*****	**1.486*****
	(0.084)	**(0.155)**	**(0.042)**	**(0.194)**
Tertiary	2.852**	6.099***	3.650***	1.880**
	(1.324)	(3.832)	(0.432)	(0.504)
Participation duration	**1.316*****	**1.474*****	**1.076*****	**1.003**
	(0.093)	**(0.145)**	**(0.011)**	**(0.017)**
Eastern Cape	2.037*	0.680	0.381***	5.657***
	(0.861)	(0.567)	(0.062)	(2.573)
Northern Cape	**0.485**	**1.026**	**0.559*****	**1.076**
	(0.254)	**(0.913)**	**(0.119)**	**(0.776)**
Free-state	0.680	0.367	0.627***	2.864**
	(0.376)	(0.323)	(0.104)	(1.340)
Kwazulu-Natal	**1.520**	**1.099**	**0.496*****	**1.939**
	(0.666)	**(0.875)**	**(0.076)**	**(0.881)**
Northwest	0.945	0.993	0.445***	1.481
	(0.740)	(1.052)	(0.074)	(0.723)
Gauteng	**1.184**	**1.358**	**0.724****	**2.894****
	(0.472)	**(0.926)**	**(0.112)**	**(1.340)**
Mpumalanga	1.226	1.391	0.613***	2.655**
	(0.712)	(1.228)	(0.098)	(1.276)
Limpopo	**0.560**	**0.485**	**0.247*****	**1.773**
	(0.346)	**(0.424)**	**(0.041)**	**(0.823)**
Other employed	0.573	1.810	0.770***	1.153
	(0.222)	(1.237)	(0.044)	(0.117)
Constant	**0.928**	**0.010*****	**0.482*****	**0.025*****
	(0.757)	**(0.013)**	**(0.089)**	**(0.012)**
N	770		14301	
chi2	103.631***		1076.724***	

Source: LFS 2005

Notes: Reference category: unemployed.

* significant at 10%; ** significant at 5%; *** significant at 1%

Location reference category: Western Province

Table A1.3. The determinants of employment among males and females

	Male youth 15-30		Female youth 15-30	
Variables	Employee	Self-employed	Employee	Self-employed
	rrr	rrr	rrr	rrr
African	**0.127*** **	**0.122*** **	**0.087*** **	**0.164*** **
	(0.026)	**(0.037)**	**(0.018)**	**(0.062)**
Colour	0.228***	0.095***	0.275***	0.200**
	(0.055)	(0.044)	(0.064)	(0.134)
Indian	**0.329*** **	**0.281*** **	**0.319*** **	**0.034*** **
	(0.107)	**(0.138)**	**(0.101)**	**(0.029)**
Youth15_24_30	0.580***	0.625**	0.763**	0.559***
	(0.059)	(0.118)	(0.093)	(0.101)
Incomplete secondary	**0.597*** **	**1.361***	**0.409*** **	**1.140**
	(0.053)	**(0.237)**	**(0.040)**	**(0.207)**
Tertiary	2.711***	4.407***	3.551***	1.613
	(0.511)	(1.401)	(0.505)	(0.513)
Participation duration	**1.074*** **	**1.049** **	**1.102*** **	**1.022**
	(0.013)	**(0.024)**	**(0.016)**	**(0.022)**
Eastern Cape	0.375***	1.732*	0.469***	6.049***
	(0.061)	(0.560)	(0.080)	(3.429)
Northern Cape	**0.519*** **	**0.304*** **	**0.290*** **	**1.459**
	(0.088)	**(0.140)**	**(0.050)**	**(1.009)**
Free-state	0.696**	1.264	0.480***	2.780*
	(0.125)	(0.458)	(0.094)	(1.684)
Kwazulu-Natal	**0.427*** **	**0.569**	**0.504*** **	**3.569** **
	(0.070)	**(0.196)**	**(0.085)**	**(2.231)**
Northwest	0.464***	0.721	0.381***	1.203
	(0.084)	(0.278)	(0.080)	(0.776)
Gauteng	**0.689** **	**1.056**	**0.624*** **	**3.103***
	(0.113)	**(0.371)**	**(0.109)**	**(1.876)**
Mpumalanga	0.766	0.895	0.379***	3.718**
	(0.134)	(0.390)	(0.073)	(2.252)
Limpopo	**0.278*** **	**0.469** **	**0.206*** **	**2.581**
	(0.051)	**(0.179)**	**(0.041)**	**(1.553)**
Other employed	0.703***	1.141	0.973	1.128
	(0.051)	(0.164)	(0.079)	(0.160)
Constant	**10.415*** **	**0.620**	**4.703*** **	**0.129*** **
	(2.926)	**(0.296)**	**(1.353)**	**(0.099)**
N	8660		9382	
chi2	679.653***		851.745***	

Source: LFS 2005

Notes: Reference category: unemployed.

* significant at 10%; ** significant at 5%; *** significant at 1%

Location reference category: Western Province

Table A1.4. Labour force participation by age group

Status	Youth		Adult	Whole EAP
	15-24	15-30	31-65	15-65
Proportion of labour force	19%	39%	61%	100%
Participation rate	35%	50%	71%	61%
Broad unemployment rate	63%	53%	25%	36%

Source: QLFS 2012

Notes: Own calculations using survey weights

Table A1.5. Determinants of employment for youth

Variables	Employed	Self-employed
	rrr	rrr
Male	**2.327*** **	**3.460*** **
	(0.133)	**(0.431)**
African	0.620***	0.651*
	(0.066)	(0.152)
Coloured	**1.351** **	**0.216*** **
	(0.180)	**(0.089)**
Indian	0.755	0.407*
	(0.166)	(0.196)
Youth15_24_30	**0.631*** **	**0.476*** **
	(0.061)	**(0.089)**
Incomplete secondary	0.233***	0.426***
	(0.014)	(0.061)
Tertiary	**4.252*** **	**2.636*** **
	(0.559)	**(0.690)**
Participation duration	1.320***	1.347***
	(0.015)	(0.026)
Eastern Cape	**0.779** **	**1.055**
	(0.083)	**(0.228)**
Northern Cape	1.141	0.491
	(0.154)	(0.252)
Free-state	**1.064**	**1.112**
	(0.110)	**(0.240)**
Kwazulu-Natal	0.950	0.759
	(0.087)	(0.143)
Northwest	**0.861**	**0.509** **
	(0.107)	**(0.135)**
Gauteng	1.462***	1.350
	(0.133)	(0.259)
Mpumalanga	**1.557*** **	**1.531** **
	(0.156)	**(0.316)**
Limpopo		
Other employed	**3.626*** **	**3.946*** **
	(0.262)	**(0.614)**
Constant	0.073***	0.004***
	(0.013)	(0.002)
N	17569	
chi2	3247.795***	

Source: Quarterly Labour Force Survey 2012
Notes: Reference category: unemployed.
* significant at 10%; ** significant at 5%; *** significant at 1%
Location reference category: Western Province
Limpopo dropped due to co-linearity

Appendix 2: Chapter 4

Table A2.1. Gender decomposition without duration of unemployment

Variables	Coefficient Estimates	Percentage
Omega = 1		
Characteristics	-0.01869	-12.99%
Coefficient	0.162638	112.99%
Omega = 0		
Characteristics	-0.03294	-22.88%
Coefficient	0.176882	122.88%
Omega = weighted		
Productive	-0.02257	-15.68%
Advantage	0.078338	54.42%
Disadvantage	0.08818	61.26%
Raw	0.143944	100%

Source: CAPS 2002-2006
Notes: Own calculations using survey weights
Omega = 1 for Male

Table A2.2. Gender decomposition with duration of unemployment

Variables	Coefficient Estimates	Percentage
Omega = 1		
Characteristics	-0.00776	-6.67%
Coefficient	0.124047	106.67%
Omega = 0		
Characteristics	-0.02778	-23.89%
Coefficient	0.144068	123.89%
Omega = weighted		
Productive	-0.01063	-9.14%
Advantage	0.062805	54.01%
Disadvantage	0.064113	55.13%
Raw	0.11629	100%

Source: CAPS 2002-2006
Notes: Own calculations using survey weights
Omega =1 for Male

Table A2.3. Determinants of the first wage using the smallest subset of observations

	I	II	III
Coloured	0.368***	0.347***	0.333***
	(0.058)	(0.055)	(0.055)
Male	0.132***	0.140***	0.134***
	(0.048)	(0.047)	(0.049)
Age at 1st job	0.052***	0.033**	0.035**
	(0.015)	(0.014)	(0.014)
Lit Num test scores	0.089***	0.054	0.055*
	(0.034)	(0.034)	(0.033)
Incomplete Secondary		-0.086*	-0.091*
		(0.051)	(0.051)
Tertiary		0.414***	0.408***
		(0.131)	(0.129)
Time to job 7-12 months			-0.132**
			(0.060)
Time to job 13-18 months			-0.154*
			(0.080)
Time to job 19-24 months			-0.136
			(0.096)
Time to job 25 months plus			-0.008
			(0.085)
Constant	6.196***	6.626***	6.644***
	(0.321)	(0.319)	(0.311)
Observations	556	556	556
R-squared	0.137	0.168	0.184

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Source: CAPS 2002-2006

Notes: Own calculations using survey weights