

Graduate Unemployment in the Face of Skills Shortages: A Labour Market Paradox

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Abstract

There is consensus among analysts that South Africa's unemployment is structural in the sense that the unemployed generally possess lower skills than what is required in the marketplace. In the context of increasing demand for skilled workers due to technical progress and the need to become more competitive globally, graduate unemployment would be expected to fall. This paper investigates the nature of graduate unemployment in South Africa since 1995, finding that labour force and employment growth has been concentrated in higher educational categories. However, against expectations unemployment has risen amongst young and better educated people. The paper suggests that the education sector urgently requires continued emphasis and monitoring to ensure that learners are adequately prepared for entry into the labour force; that greater efforts be made to encourage learners to choose directions of study with superior employment prospects; and that investment in young people's soft skills is required.

Acknowledgement

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1. Introduction

The nature and severity of the unemployment problem in South Africa is well documented (see for example Kingdon and Knight, 2000, Oosthuizen, 2005, Pauw and Edwards, 2005 and others). There is a general consensus that unemployment is 'structural' in the sense that there is a mismatch between the types of workers supplied and those demanded by the economy. The majority of unemployed individuals are poorly educated and possess limited skills, while firms increasingly demand high-skilled workers. This mismatch has developed over many years. Past policies have done little, if anything, to close the skills deficit in the economy through the provision of high quality education. At the same time, structural shifts have been taking place in the economy, with production shifting towards more skill- and capital-intensive industries. Pressure to become technologically more advanced have further increased the demand for high-skilled workers at the expense of low-skilled workers.

A natural outcome of this is a severe shortage of skills in the economy. In fact, the Accelerated and Shared Growth Initiative for South Africa (ASGISA) identified skills shortages as one of the most important obstacles to growth in South Africa (ASGISA, 2006). Within this context of skills shortages one would expect graduates, broadly defined here as individuals with any form of post-matric qualification such as a diploma, technical qualification or degree, to be in high demand. However, as we show in this document, a worrying trend is emerging whereby the graduate unemployment rate, although low in comparison to overall the unemployment rate,¹ has been growing the fastest of all the education cohorts since 1995. Young South Africans have become better educated over the last decade as enrolment rates at tertiary educational institutions have increased dramatically. This has resulted in strong growth in the graduate labour force. However, many of these young labour market entrants struggle to find employment. Consequently, the graduate unemployment problem has become an important policy concern.

This paper aims to explore the graduate unemployment problem, drawing on various labour and household surveys conducted by Statistics South Africa, as well as recent literature on the issue. In section 2 the general labour market trends in South Africa relevant to this study are explored in more detail, drawing mostly on the various Labour Force Surveys (LFS) and October Household Surveys (OHS) conducted by Statistics South Africa. Sections 3 and 4 aim to arrive at a clearer understanding of and explanation for the graduate unemployment problem. Finally, Section 5 draws general conclusions.

1 As is shown later, graduates make up only about 2.6 per cent of the unemployed (broad definition of unemployment). This represents approximately 200 000 individuals out of 7.8 million unemployed people in South Africa.

2. Labour Market Trends In South Africa

a. Labour Supply, Employment and Unemployment

The high level of poverty that persists in South Africa is closely linked to the unemployment problem. The fact that many households are not directly linked to the formal economy via the labour market, as well as the poor employment growth performance in past decades, have long been matters of great concern for policymakers. Shortly after coming into power, the ANC government committed itself to various specific goals, including that of lowering unemployment. Various policy documents came to the fore, most notably the Reconstruction and Development Programme (RDP) in 1994, followed by the Growth, Employment and Redistribution programme (GEAR) in 1996 (Department of Finance, 1996).

GEAR, which in many ways still embodies the current macroeconomic policy approach, envisaged “*sustained growth on a higher plane*” as its main point of departure and the solution to the low rate of job creation. The authors of GEAR projected that a 6 per cent economic growth rate would create an average of 270 000 jobs per annum between 1996 and 2000, which translates into an average annual increase of 2.7 per cent in formal non-agricultural employment (Department of Finance, 1996:7). These optimistic predictions never materialised and formal employment continued to fall, or at best stagnate, during the latter half of the 1990s.²

In an analysis of the period 1995 to 2004, Oosthuizen remarks that “*employment growth ... should be seen in a more positive light than is generally the case*” (2005:3). Although employment growth has been slightly lower than economic growth, it exceeded growth in both the general and working age populations, suggesting that the country has, strictly speaking, not experienced jobless growth over the last decade. However, the economy has not been able to absorb the rapidly growing labour force into employment at a rate high enough to have a significant impact on unemployment.³ The ‘narrowly defined’ labour force grew by 45 per cent from 11.5 million in 1995 to 16.8 million in 2005, while the ‘broadly defined’ labour force increased by 46 per cent from 13.8 million in 1995 to 20.1

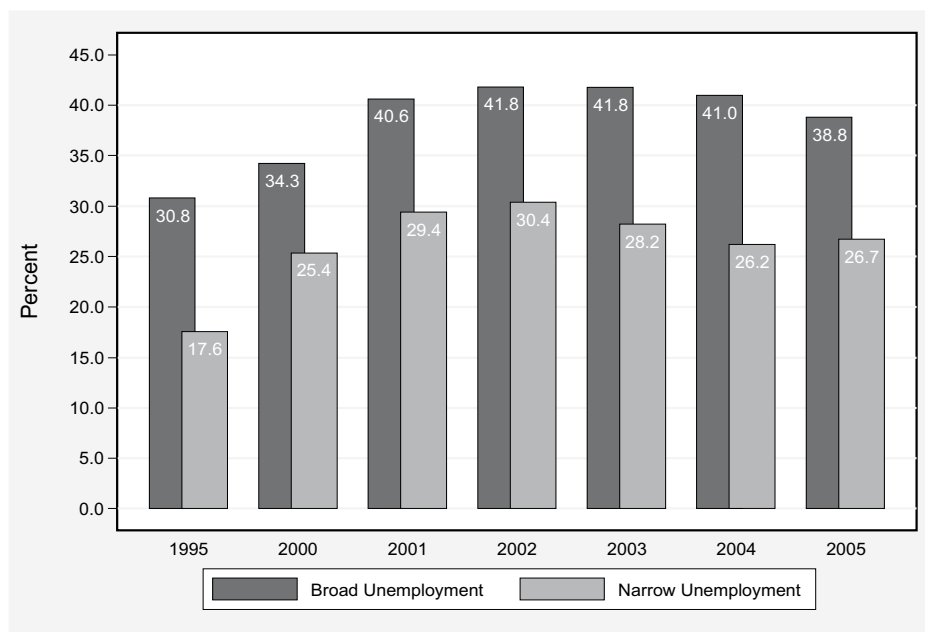
2 Much controversy exists about the employment growth performance leading up to 2000. As outlined in Pauw and Edwards (2005) Statistics South Africa’s *Survey of Total Employment and Earnings* (STEE) shows a decline in formal sector (excluding agriculture) employment during the late 1990s. The *October Household Surveys* show a small rise in employment once agriculture and the informal sector are included.

3 The labour force is defined as all people aged 15 to 65 years that are willing and able to work.

million in 2005.⁴ As we show later, much of the growth in the labour force can be attributed to the large number of young adults entering the labour force.

Over this period, narrow unemployment levels more than doubled from just over 2 million in 1995 to 4.5 million in 2005, while broad unemployment increased by 84 per cent from 4.2 million to 7.8 million. The latter constitutes an average annual increase of about 6.3 per cent per annum. The related unemployment rates for 1995 and the period 2000 to 2005 are shown in Figure 1. The narrow unemployment rate increased from 17.6 per cent in 1995 to a peak of 30.4 per cent in 2002. Thereafter, it declined and seems to have stabilised between 26 and 27 per cent in 2004/2005. Broad unemployment increased from 30.8 per cent to 41.8 per cent between 1995 and 2002, and subsequently fell to 38.8 per cent in 2005.

Figure 1: Unemployment Rates, 1995 and 2000 to 2005



Source: Own Calculations, OHS 1995 and LFS 2005(2) (Statistics South Africa).

4 Statistics South Africa uses two definitions of unemployment, namely a strict (official) and broad definition. The strictly unemployed are those people within the economically active population who (a) did not work during the seven days prior to the interview, (b) want to work and are available to start work within a week of the interview, and (c) have taken active steps to look for work or to start some form of self-employment in the four weeks prior to the interview. The broad or expanded unemployment definition excludes criterion (c). Since mid-2004, the reference period in criterion (b) has been increased to two weeks.

b. Structural Change and Labour Demand Patterns

Some important structural shifts have taken place in the South African economy and consequently the labour market during the last decade. Most apparent has been the shift in output away from primary and secondary sectors towards services or tertiary sectors (Bhorat and Oosthuizen, 2005), a trend natural to any developing economy. This has brought about a change in the demand patterns for different types of labour due to differences in sectors' skills composition. Most notably, there has been the increase in demand for skilled labour at the cost of unskilled workers (Burger and Woolard, 2005).

The observed changes in labour demand patterns have not only been due to the structural changes taking place in the economy. South African firms have in the past decade or more been forced to adopt improved production techniques in order to remain competitive in the face of globalisation, trade liberalisation, and more recently, the strengthening of the currency. Production efficiency gains enable producers to produce a unit of output using fewer inputs than before, thus, depending on the demand-side effect of the resulting lower commodity prices, often leading to a decrease in demand for factors of production (Pauw et al., 2004). Such gains have been especially prevalent in the primary sectors agriculture and mining, both of which employ a large share of low-skilled workers. This has resulted in a decline in employment in these industries (Burger and Woolard, 2005, Vink, 2000). The technical change experienced has been mostly capital deepening in nature, that is, capital-labour ratios have increased as production processes have become more capital intensive. Bhorat and Oosthuizen suggest that, in general, such technical change is "*viewed in a relatively negative light due to [its] dampening on the employment-increasing effect of output expansion*" (2005:12). Intuitively speaking, however, one would expect greater capital intensity to actually increase the demand for high-skilled workers, albeit at the expense of low-skilled workers. This is due to the fact that firms demand more skilled labour who are "*required to operate and maintain the new capital equipment*" (Bhorat and Hodge, 1999:352).⁵

Alternative studies in the past have focused more directly on the effects of trade liberalisation on the structure of employment. Bell and Cattaneo (1997) find that "*trade flows have shifted production away from Black intensive sectors towards White intensive (or skill intensive) sectors*" (as cited in Edwards, 2001a). A more recent study by Dunne and Edwards (2005) finds that tariffs fell relatively sharply in labour intensive sectors, particularly those with high shares of low-skilled workers, and as a result the

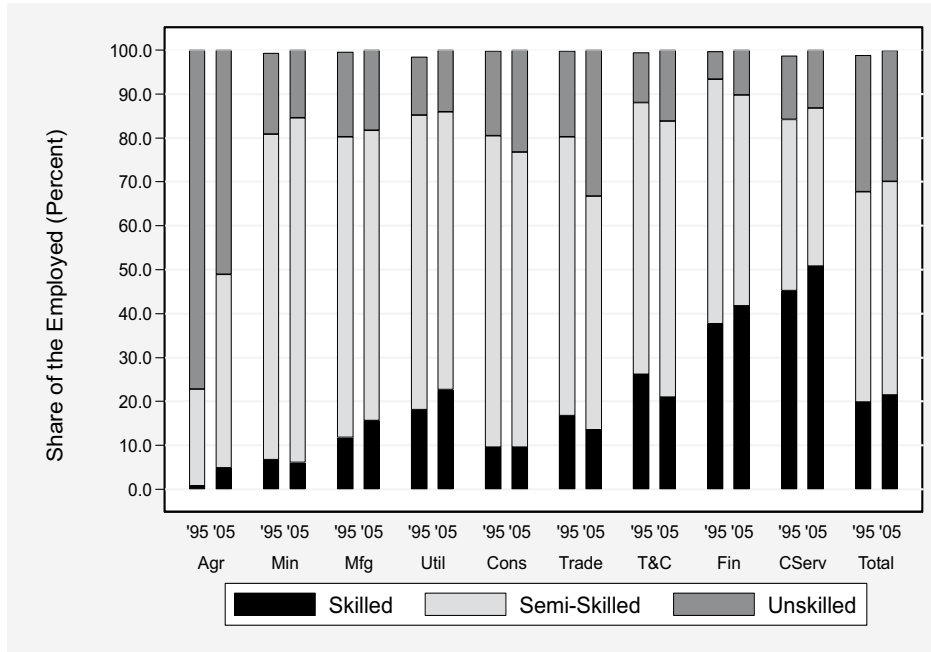
5 These authors further decompose the changing labour demand patterns in order to gauge the relative importance of technical change versus structural change in the overall employment change and find that although both had been important the former had a greater impact in terms of the demands for different types of labour (skilled versus unskilled and low-skilled).

direct employment effect of liberalisation has been biased against low-skilled workers. Their analysis further shows that, in addition to the negative impact in labour intensive sectors, metal products sectors also experienced a decline in labour demand, while the capital-intensive resource-based and chemical products sectors experienced positive employment effects.

Factor costs have also undoubtedly had an important impact on the structure and levels of employment in South Africa. The capital intensification of the economy was partly due to the reduction of the cost of capital relative to other factors of production through subsidisation of capital intensive industries (tax breaks and preferential interest rates) (Pauw and Edwards, 2005). According to Edwards (2001b), financial support for certain capital-intensive industries, such as chemicals and iron and steel, continued during the 1990s. Real wage increases and changes in relative wages have further put pressure on employment levels, particularly for low-skilled workers. Although comparisons over such a long period in South Africa's history is slightly problematic, Lewis (2001) estimates that the real wage of semi- and unskilled workers increased by 150 per cent between 1970 and 1999. In stark comparison wages of highly skilled workers declined while those of skilled workers rose by approximately 10 per cent over this period. At the same time, Nattras (2000) argues that the post-1994 period has seen increases in non-wage costs of employment due to stricter labour market legislation. Evidence such as this leads Burger and Woolard (2005) to conclude that wage levels for some low-skilled workers are above their market clearing levels, which make them relatively less attractive than skilled workers.

It is impossible to disentangle the relative importance of economic development, technical progress, trade liberalisation, and increases in real wage and non-wage costs of labour in altering the labour demand patterns in South Africa. However, all these effects have probably contributed to the economy's skills-biased labour demand trajectory. Figure 2 clearly illustrates how output growth continues to be skills-biased by comparing the employment composition in various sectors between 1995 and 2005. For the economy as a whole, there appears to have been a definite shift away from low-skilled employment towards employment of higher skilled individuals. In 1995, skilled workers accounted for 19.8 per cent of employment, compared to the 47.9 per cent share for semi-skilled workers and the 31.1 per cent share for unskilled workers. By 2005, the share in total employment of skilled workers had risen by almost two percentage points to 21.5 per cent, while that of semi-skilled workers had risen to 48.5 per cent. Conversely, unskilled employment as a share of total employment contracted to 29.8 per cent in 2005 (see Bhorat and Oosthuizen, 2005 for a more detailed discussion).

Figure 2: Skills Distribution of Employment by Sector, 1995 and 2005



Source: Updated from Borhat and Oosthuizen (2005).

- Notes:**
1. Skilled refers to ISOC codes 1 and 2; Semi-Skilled refers to ISOC codes 3-8 and Unskilled refers to ISOC code 9, excluding code 9999.
 2. Agr = Agriculture, Hunting, Forestry and Fishing; Min = Mining & Quarrying; Mfg = Manufacturing; Util = Utilities; Cons = Construction; Trade = Wholesale and Retail Trade; T&C = Transport & Communication; Fin = Finance, Real Estate & Business Services; CServ = Community Services; PrivHH = Private Households; Unspecified categories excluded.
 3. For 1995 and 2002, elementary occupations includes domestic workers.
 4. Private households in 2002 and domestic services in 1995 were treated as synonymous.

c. Age and Education Profiles of the Labour Force

The South African labour force (broadly defined) grew by about 46 per cent from 13.8 million in 1995 to 20.1 million in 2005. Table 1 compares the composition of the labour force for the years 1995 and 2005. The age profile of the labour force has not changed dramatically over the period, although it does appear as if the labour force is becoming younger. Labour market participants between the ages of 15 and 34 accounted for more than 60 per cent of the growth in the labour force between 1995 and 2000, despite making up less than 54 per cent of the labour force in 1995. The labour force also appears to have become better educated over the period. The share of the labour force that has not completed the compulsory minimum of Grade 9 has decreased over the period, while

almost two-thirds (66.3 per cent) of the growth in the labour force is accounted for by participants who have completed Grades 10, 11 or 12. The number of tertiary graduates has expanded in line with average labour force growth, although the bulk of tertiary educated labour force expansion has occurred amongst individuals with degrees. In 2005, there were approximately 820 000 degreed labour force members, up by 356 000 over the decade.

Table 1: Characteristics of the Broad South African Labour Force, 1995 and 2005

		1995		2005		Change	
		000s	Share (Per cent)	000s	Share (Per cent)	000s	Share in Change (Per cent)
Age Group	15-24 years	2 403	17.5	4 069	20.2	1 666	26.3
	25-34 years	4 977	36.2	7 171	35.7	2 193	34.6
	35-44 years	3 670	26.7	4 547	22.6	878	13.8
	45-54 years	1 941	14.1	3 022	15.0	1 081	17.0
	55-65 years	762	5.5	1 291	6.4	529	8.3
	Total	13 754	100.0	20 100	100.0	6 347	100.0
Education Level	No education	1 182	8.6	1 054	5.2	-127	-2.0
	Grades 0 through 9	5 705	41.5	7 252	36.1	1 547	24.4
	Grades 10 through 11	2 326	16.9	4 021	20.0	1 694	26.7
	Grade 12 / Matric	2 873	20.9	5 385	26.8	2 512	39.6
	Tertiary	1 430	10.4	2 066	10.3	636	10.0
	- Diplomas/Certificates	966	7.0	1 247	6.2	280	4.4
	- Degrees	464	3.4	820	4.1	356	5.6
	Other/Unknown	237	1.7	321	1.6	84	1.3
	Total	13 754	100.0	20 100	100.0	6 347	100.0

Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

Notes: 1. Diplomas/Certificates excludes individuals who have not completed Grade 12. These individuals are grouped in the Other/Unknown category.

Table 2 turns to the employed and compares the composition of employment for the years 1995 and 2005. Total employment increased by 29 per cent from 9.5 million in 1995 to 12.3 million in 2005. The employed population appears to have become slightly older over the period. Almost 45 per cent of the change in employment accrued to the older age groups (45 to 65 years), far in excess of this group's share of employment in 1995 of 23.6 per cent. As a consequence, all the age groups between 15 and 44 years saw their shares of employment decline over the decade. Job creation also seems to have disproportionately benefited those with secondary or tertiary education, with almost two-thirds (64.0 per cent) of the increase in employment accruing to these groups. This is consistent with the evidence presented earlier of skills-biased structural and technical change in the South African economy. Within tertiary education, it is apparent that the bulk of job creation has accrued to individuals with degrees. The employment of degreed individuals has increased by around three-quarters over the decade, equivalent to 338 000 new jobs.

Table 2: Characteristics of the Employed, 1995 and 2005

		1995		2005		Change	
		000s	Share (Per cent)	000s	Share (Per cent)	000s	Share in Change (Per cent)
Age Group	15-24 years	1 126	11.8	1 416	11.5	290	10.4
	25-34 years	3 281	34.5	4 153	33.8	872	31.3
	35-44 years	2 863	30.1	3 253	26.4	390	14.0
	45-54 years	1 590	16.7	2 376	19.3	786	28.2
	55-65 years	656	6.9	1 103	9.0	447	16.1
	Total	9 515	100.0	12 301	100.0	2 786	100.0
Education Level	No education	772	8.1	691	5.6	-81	-2.9
	Grades 0 through 9	3 605	37.9	4 063	33.0	458	16.4
	Grades 10 through 11	1 523	16.0	2 071	16.8	548	19.7
	Grade 12 / Matric	2 097	22.0	3 351	27.2	1 254	45.0
	Tertiary	1 336	14.0	1 865	15.2	529	19.0
	- Diplomas/Certificates	890	9.4	1 081	8.8	191	6.9
	- Degrees	446	4.7	784	6.4	338	12.1
	Other/Unknown	182	1.9	259	2.1	78	2.8
Total	9 515	100.0	12 301	100.0	2 786	100.0	

Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

Notes: 1. Diplomas/Certificates excludes individuals who have not completed Grade 12. These individuals are grouped in the Other/Unknown category.

The numbers and composition of the unemployed (broadly defined) are presented in Table 3, i.e. the figures in this table represent the difference between those in Table 1 and those in Table 2. The related unemployment rates are shown in Figure 3. As far as the age composition of the unemployed is concerned, the combination of more young adults entering the labour force and more middle-aged people getting the jobs has caused the unemployed to become younger. Young adults under the age of 35 years account for more than three-quarters (75.7 per cent) of the change in unemployment. As shown in Figure 3, these young adults (the 15 to 24 years and 25 to 34 years age groups) continue to experience the highest unemployment rates of all age cohorts in 2005, while the (absolute) changes in their unemployment rates have also been the highest of all the age groups.

Table 3: Characteristics of the Broadly Unemployed, 1995 and 2005

		1995		2005		Change	
		000s	Share (Per cent)	000s	Share (Per cent)	000s	Share in Change (Per cent)
Age Group	15-24 years	1 277	30.1	2 653	34.0	1 376	38.6
	25-34 years	1 696	40.0	3 018	38.7	1 321	37.1
	35-44 years	807	19.0	1 295	16.6	488	13.7
	45-54 years	351	8.3	646	8.3	295	8.3
	55-65 years	107	2.5	188	2.4	81	2.3
	Total	4 239	100.0	7 800	100.0	3 561	100.0
Education Level	No education	410	9.7	364	4.7	-46	-1.3
	Grades 0 through 9	2 100	49.5	3 189	40.9	1 090	30.6
	Grades 10 through 11	803	18.9	1 949	25.0	1 146	32.2
	Grade 12 / Matric	777	18.3	2 034	26.1	1 258	35.3
	Tertiary	94	2.2	201	2.6	107	3.0
	- Diplomas/Certificates	76	1.8	165	2.1	89	2.5
	- Degrees	18	0.4	36	0.5	18	0.5
	Other/Unknown	55	1.3	62	0.8	7	0.2
	Total	4 239	100.0	7 800	100.0	3 561	100.0

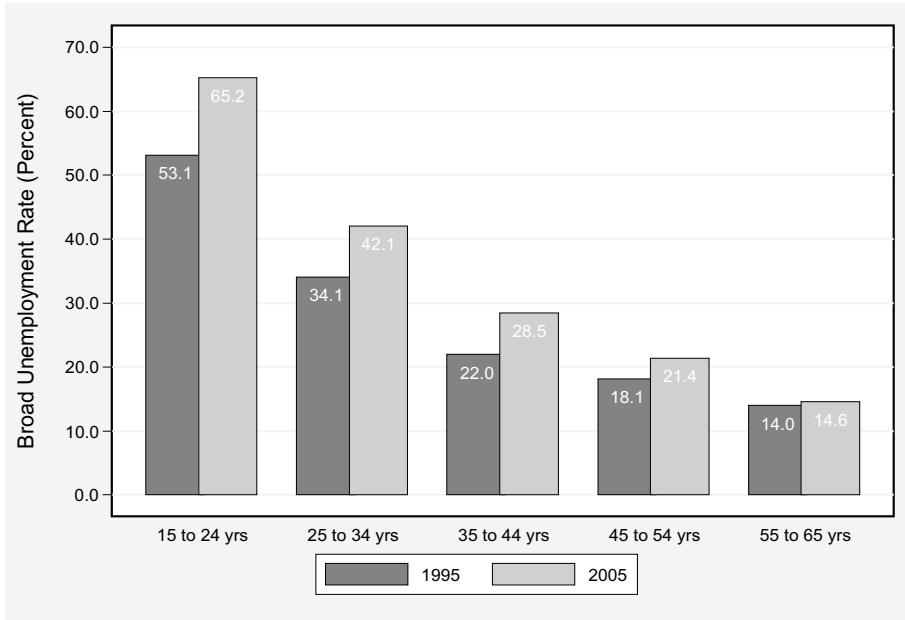
Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

Notes: 1. Diplomas/Certificates excludes individuals who have not completed Grade 12. These individuals are grouped in the Other/Unknown category.

Perhaps more worrying is the trend of rapidly rising unemployment rates among labour force participants with secondary and tertiary qualifications. Table 3 shows that individuals with Grade 10, 11 or 12 qualifications account for about two-thirds (67.5 per cent) of the change in unemployment between 1995 and 2005. Although tertiary unemployment only accounts for 3.0 per cent of the change in overall unemployment in this period, the actual unemployment rate for this education group has increased by almost fifty per cent, from 6.6 per cent in 1995 to 9.7 per cent in 2005, which represents the largest relative change for all education groups. The bulk of the unemployed with tertiary education are those with diplomas and certificates. In 2005, 165 000 holders of diplomas and certificates were unemployed compared to just 36 000 degreed individuals. The more favourable labour market position that degreed individuals find themselves in, relative to their counterparts with diplomas and certificates, is evidenced by the fact that their unemployment rate is only one third as high at 4.4 per cent in 2005 (Figure 4).

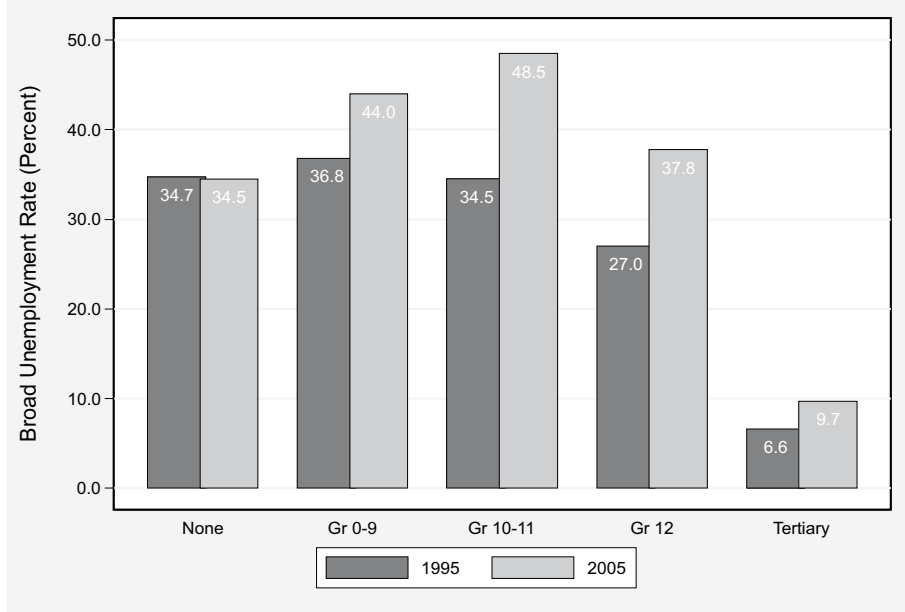
The fact that unemployment rates are generally higher for those with some education (such as incomplete or complete primary and secondary) as opposed to those with no education may appear strange. This, however, may be a reflection of the fact that those with no education are less likely to participate in the labour market since they have a very low probability of finding employment in any event. Many working-aged people with no education are therefore not included in the calculation of the unemployment rate.

Figure 3: Broad Unemployment Rates by Age, 1995 and 2005



Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

Figure 4: Broad Unemployment Rates by Level of Education, 1995 and 2005



Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

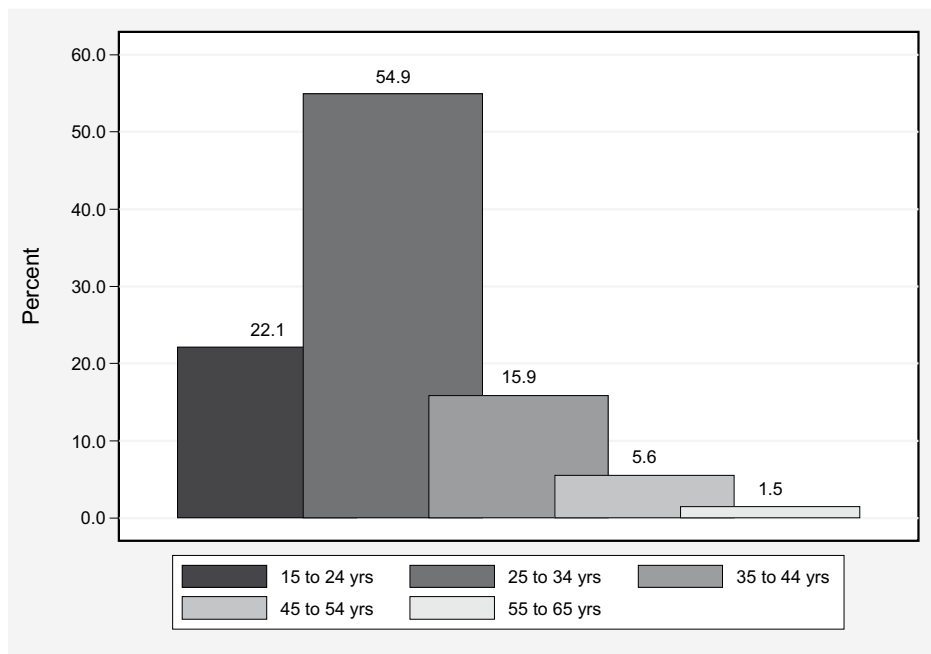
Notes: 1. Diplomas/Certificates excludes individuals who have not completed Grade 12.

Graduate unemployment remains small relative to overall unemployment. Graduates make up only 2.6 per cent of the unemployed in 2005 (Table 3), and the unemployment rate among graduates is significantly lower than among any of the other education cohorts (Figure 4).

The superior employment prospects of more highly educated labour force members has been established econometrically. For example, Bhorat and Leibbrandt (2001), using 1995 data, find that tertiary education improves the probability of securing employment for African males and females. Oosthuizen (2005) finds, using a *probit* model (Heckman two-step approach) of labour market participants' employment status in 1995 and 2004, that, in both years, the higher a participant's education level, the higher his or her probability of finding employment. Oosthuizen also finds that in 1995 a Grade 12 qualification raised a participant's probability of finding employment well above that of someone without it, but that this probability had dropped significantly by 2004. By 2004 a post-matriculation degree or a diploma had become much more important in determining an individual's employment status. As far as the difference in employment probabilities of graduates with diplomas versus degrees are concerned nothing can be concluded from the model since the coefficient of the relevant explanatory variable is statistically insignificant, probably due to the small sample size of people with degrees. Nevertheless, as was shown above, the unemployment rate for those with diplomas and certificates is three times higher than for individuals with degrees and this difference is statistically significant at the 95 per cent level of confidence, which to some extent would relate to differences in the mean characteristics of individuals in these two groups.

A final important matter relates to the age composition of unemployed graduates. About 77 per cent of unemployed graduates are youth, defined here as individuals between the ages of 15 and 34. This suggests that many of the graduate unemployed are recent graduates. Unemployment among educated youth is potentially damaging for the economy as it can lead to frustration and disillusionment among young people, while extended periods of unemployment may result in the erosion and outdatedness of young people's skills base.

Figure 5: Age Composition of Unemployed Graduates, 2005



Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

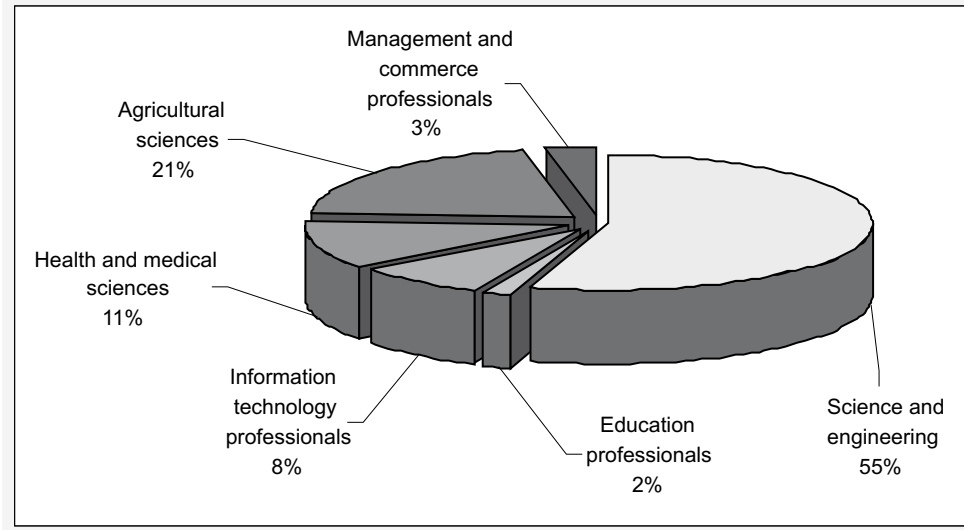
3. Scarce Skills, Vacancies and Graduates

Firms, policymakers and government all agree that skills shortages are probably the most important obstacle to accelerated growth in South Africa (see for example ASGISA, 2006, Chandra et al., 2001, and DPRU, 2006). A recent newspaper report suggested that the average shortfall in the public sector alone is about one in three senior managers (Robinson et al., 2005). Lawless (2006) estimates that a shortage of between 3 000 and 6 000 civil engineering professionals exists. This could have a severe impact on the construction sector, especially given the expected labour requirements of large projects such as Gautrain, the Soccer World Cup 2010, and expansion plans at Eskom and Transnet. Another survey estimates the shortage of engineers and artisans to reach 40 000 by 2009 (Philp, 2006). It is therefore crucial to understand the nature of skills shortages and to find both short and long run solutions to these problems.

The Joint Initiative for Priority Skills Acquisition (JIPSA), was established within ASGISA, with the main objective of identifying “*urgent skills needs*” and finding “*quick and effective solutions*” (ASGISA, 2006). Some of JIPSA’s preliminary proposals include the implementation of special training programmes, bringing retirees or expatriates back to work in South Africa and attracting new immigrants. Already the Department of Home Affairs has announced plans to revise the immigration policy that would make it possible for up to 46 500 immigrants with relevant skills and experience to have immediate access to the South African labour market as of February 2006 (Department of Home Affairs, 2006). Although this scarce skills list has received some criticism from the private sector, which feels that it was not properly consulted, it is an important first step towards identifying the needs of the economy.⁶ Figure 6 shows that 55 per cent of the 46 500 jobs are in the fields of science and engineering, reflecting the critical shortages in this broad occupational category. Agricultural scientists make up 21 per cent of the total, while occupations in the health and medical sciences account for 11 per cent. The rest is distributed between people with Information Communication Technologies (ICT) skills (8 per cent), management and commerce skills (3 per cent) and the educational profession (2 per cent). The quotas are only applicable to foreigners with at least five years relevant experience.

6 It appears as if only the Departments of Labour and Trade and Industry were consulted in the drawing up of the list.

Figure 6: Composition of Scarce Skills Quotas across Broad Occupation Categories



Source: Department of Home Affairs (2006).

The Development Policy Research Unit (DPRU) recently conducted a series of interviews with twenty of South Africa's largest companies across a range of different sectors (DPRU, 2006). The interviews, broadly on the graduate unemployment problem, traversed a range of issues relating, for example, to the schooling and higher education system, the learnership programme and SETA system and the nature of skills shortages. The survey was mostly qualitative in nature and the intention was to get a sense of the employers' (human resources representatives or managing directors) perceptions about these issues. Although only a handful of firms were interviewed in each of sectors, they collectively account for a sizeable share of employment in each sector, i.e. 18.1 per cent of mining and quarrying, 3.1 per cent of manufacturing, 2.7 per cent of construction, 5.9 per cent of transport, communication and storage and 3.4 per cent of financial and business services (DPRU, 2006). The survey should, however, not be seen as statistically representative of all large firms in South Africa.

Many of the firms interviewed have lost crucial skills in the last decade due to emigration, while poaching by competitors is widespread due to general shortages of managers and more experienced workers. As a result recruitment focuses heavily on attracting skills as well as experience. This is probably the main reason why skills shortages are unlikely to have a significant impact on graduate recruitment. The DPRU (2006) study distinguishes between two key types of skills shortages. These are, firstly, shortages of (experienced) technical workers, such as artisans and engineers, and secondly, shortages of general business managers at a middle-management level.

Technical skills shortages are partly explained by declining enrolment in engineering sciences at tertiary institutions during the 1990s. As Kraak notes, "*it is ironic that institutions of technology ... are currently witnessing a dramatic decline in a key 'hard' technology field (engineering), while graduations in 'softer' non-technical subjects (such as business studies) expand*" (2003). Related to this is the premium placed by students on obtaining university qualifications as opposed to more practical Further Education and Training (FET) college qualifications. Employers get the impression that students would much rather obtain (for example) a human science degree than a technical diploma, despite the lower employment prospects attached to the former. As a result enrolment is highly skewed towards universities. There are approximately two university students for every FET college student, the exact opposite ratio to that in the United Kingdom (DPRU, 2006). Workplace training at manufacturing firms has also been declining, partly due to the unfavourable economic conditions that existed during the 1980s and 1990s (Kraak, 2003), while an uncertain policy environment with respect to the future of workplace training programmes probably also contributed to this (see DPRU, 2006 for details). The result is a shortage of people with a combination of technical skills and some years of experience.

A harsh critic may observe that shortages at management level are simply a problem of insufficient firm-level training and ineffective talent management strategies within firms. Poaching and emigration (the so-called brain drain) also contribute to the problem. Looking at, for example, the age distribution of civil engineering professionals in South Africa, one finds that there is a large group of experienced engineers in their late forties and older, while in contrast there are insufficient numbers of mid-career staff to carry out the bulk of production (Lawless, 2006). This has severe implications not only for production levels, but also for entry-level recruitment, especially in industries where the ratio of management level to entry-level staff is high. As long as vacancies persist at management level, entry-level (graduate) recruitment will be restricted since there will be no one to train new staff members.

Clearly then the sourcing of skills from abroad should not be seen as an initiative that may damage the employment prospects of entry-level graduates. In fact, it may actually boost graduate recruitment, especially since one of the provisions attached to the initiative is that the foreign recruit should be employed in a position where he or she can act as a mentor or coach for young entry-level workers in the firm (ASGISA, 2006). Furthermore, since only people with five years working experience or more will be considered they are unlikely to be considered for the same positions as graduates.

A number of questions pertaining to graduates in particular arise. Firstly, are there vacancies for entry-level positions at firms? In answer to this question, most firms in the DPRU survey said no (DPRU, 2006). Secondly, is it a case of deficient demand that constrains the employment of graduates? Partly yes, if one considers the existence

of management-level vacancies: with vacancies at middle-management level firms are reluctant to recruit graduates who will, at least in the initial period, be unable to work independently. However, some firms felt that if more good quality graduates with appropriate qualifications applied for positions, they would probably consider increasing their intake, particularly in cases where it would improve the employment equity profile of the firm – a kind of ‘supply creates demand’ scenario. This clearly points at problems relating to the type and quality of graduates that are in supply. In the following section these and other explanations for the graduate unemployment problem are considered further.

4. Explaining Graduate Unemployment

Education is often used as a proxy for the skills level of a labour force participant. Given the structural change in the economy and the current skills shortages experienced by firms, the expectation is that unemployment among graduate labour market participants should be declining. However, as shown earlier, this has not been the case. In this section, we explore the possible reasons behind the graduate unemployment problem, drawing on, among other studies, two graduate tracer studies done by the Human Sciences Research Council (HSRC) (see Cosser et al., 2003, and Moleke, 2005), and the firm survey conducted by the DPRU (2006).

a. Types of Qualification Obtained and Field of Study

Although there appears to be an oversupply of graduates in general, there are clear differences in the employment prospects of graduates with different types of qualifications (degrees or diplomas) or graduates from different fields of study. Table 4 shows that the majority of the unemployed with a tertiary qualification has a diploma or a certificate coupled with a Grade 12 (matric) qualification. This category's share in total tertiary unemployment has increased from 80.9 per cent in 1995 to 82.0 per cent in 2005. Africans with a diploma or certificate accounted for close to three-quarters (73.2 per cent) of total tertiary unemployment in 2005, up from 63 per cent in 1995. In total, tertiary educated Africans accounted for 84.9 per cent of the tertiary unemployed in 2005. This rise in the African graduate unemployment share is partly explained by a massive increase in the enrolment of African students at tertiary institutions. In the case of technikons, for example, Africans made up four per cent and 19 per cent of all technikon students in 1985 and 1990 respectively. This rose to 73 per cent in 2000 (FRD, 1993 and SAIRD, 2001, as cited in Koen, 2003). By 2003, African students accounted for 76 per cent of all technikon students and 60 per cent of students in all state subsidised universities and technikons (Department of Education, 2006). Also, the fact that historically Black universities (HBUs) have "*disproportionate numbers of students graduating in fields with lower employment prospects*" also contributes to this (Moleke, 2005:5). These issues are explored further below.

Table 4: Breakdown of Tertiary Unemployment by Race and Type, 1995 and 2005

		<i>Percent of Total</i>				
		<i>African</i>	<i>Coloured</i>	<i>Asian</i>	<i>White</i>	<i>Total</i>
Diploma/Certificate with Matric	1995	63.0	5.3	3.4	9.2	80.9
	2005	73.2	1.7	1.2	6.0	82.0
Degree	1995	10.1	2.3	0.3	6.4	19.1
	2005	11.7	0.0	0.9	4.6	18.0
<i>Total</i>	1995	73.1	7.6	3.7	15.6	100.0
	2005	84.9	1.7	2.0	10.5	100.0

Source: Own Calculations, OHS 1995, LFS 2005(2) (Statistics South Africa).

Notes: In the OHS 1995 there is only a category for "degree", while the September 2005 LFS distinguishes between various levels of degrees. These categories from the September 2005 LFS were combined to allow comparison with 1995 figures.

Table 5 presents the breakdown of tertiary unemployment by field of study from 2000 to 2005. Individuals with a qualification in the field of business, commerce and management studies accounted for between 26 per cent and 31 per cent of total tertiary unemployment over the six years. However, these figures have to be seen in the right context. Commerce students typically make up a very large proportion of tertiary institutions. This is even true for technical institutions (Koen, 2003). Hence it is not surprising to see that they also represent a large share of the unemployed. As far as university graduates are concerned, Moleke (2005) notes that almost two-thirds of economic and management studies (EMS) students found work immediately after completing their studies, which compares favourably to the average of 60 per cent across all study areas. She further finds that EMS university graduates represent only 10 per cent of unemployed graduates.⁷ These results suggest that the bulk of graduate unemployment among commerce students is among non-university students (see Table 6).

⁷ It needs to be stressed that this result is based on a rather small sample size, and only includes university graduates.

Table 5: Breakdown of Tertiary Unemployment by Field of Study, 2000-2005

Field of Study	Share (Percent)					
	2000	2001	2002	2003	2004	2005
Business, Commerce and Management Studies	30.5	26.9	28.2	27.6	28.2	28.1
Education, Training and Development	25.6	26.5	23.2	19.0	21.1	14.1
Physical, Mathematical, Computer & Life Sciences	11.3	15.1	10.5	14.4	9.8	16.5
Manufacturing, Engineering and Technology	8.6	9.2	12.4	13.7	10.8	11.6
Health Sciences and Social Services	5.8	3.4	5.7	5.5	8.3	9.7
Human and Social Studies	2.7	3.8	6.8	4.4	4.9	4.9
Other/Unspecified	15.5	15.1	13.1	15.4	16.9	15.2
<i>Total</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>

Source: Own Calculations, LFS 2000(2), LFS 2001(2), LFS 2002(2), LFS 2003(2), LFS 2004(2), LFS 2005(2) (Statistics South Africa).

Table 5 further shows that individuals with a qualification in education, training and development constituted the second largest category with their share varying between 19 per cent and 27 per cent over the period, before falling to 14.1 per cent in 2005. Individuals with a qualification in physical, mathematical, computer and life sciences or manufacturing, engineering and technology also accounted for sizeable shares of tertiary unemployment, although these students do probably make up over 80 per cent of technical college enrolments (Cosser et al., 2003). This is, however, still surprising given the “*huge demand ... for information technologists, health professionals, managers, engineers, accountants and auditors*” (Koen, 2003:17), which perhaps points at issues surrounding the quality of these qualifications.

Without downplaying the problem of unemployment among labour market participants with degrees, it is clear from Table 4 that most of the increase in tertiary unemployment is explained by unemployment among people with diplomas or certificates. This may be related to problems in the FET system, with some service providers offering inappropriate courses that are not valued by potential employers. In this regard, Mlatsheni (2005) notes that many of the FET colleges are under-resourced and not located where they are most needed and they have a poor image with employers given the employment records of graduates from these colleges. The issues surrounding the quality of education offered at FET colleges are explored further in the following section.

Table 6 provides a breakdown of tertiary unemployment in 2005 by field of study and type of qualification. Individuals with a diploma or certificate in business, commerce and management studies were the largest contributing category, accounting for 24.9 per cent of tertiary unemployment. They were followed by individuals with a diploma/certificate in physical, mathematical, computer and life sciences, with a 12.9 per cent

share. Individuals with either a diploma/certificate in manufacturing, engineering and technology or education, training and development accounted for 10.8 per cent and 9.9 per cent respectively of total tertiary unemployment.

While labour demand for students with qualifications in social sciences and humanities is “*less acute*” (Koen, 2003:17), enrolments in these fields of study remain high. Moleke (2005) found that university graduates with qualifications in fields with a more professional focus, such as medical sciences and engineering, found employment faster than graduates with a more general degree. In the more general study fields, such as humanities and arts, which do not “*directly prepare graduates for a profession*”, graduates took longer to find a job than graduates in economic and management sciences and natural sciences (Moleke, 2005:40). In 2000, the government’s *National Plan for Higher Education* set the target of a 30:30:40 breakdown of enrolment between science/engineering, technology/business/commerce and humanities/social sciences to be reached within a five to ten year period in order to meet the labour market needs more effectively. This ratio was 26:24:50 for technikons and universities combined in 2000, with technikons at 35:31:34 and universities at 21:20:58 in 2000 (Kraak, 2005).

Table 6: Breakdown of Tertiary Unemployment by Type and Field of Study, 2005

Field of Study	Diploma/ Certificate	Degree	Total
Business, Commerce and Management Studies	24.9	3.1	28.1
Physical, Mathematical, Computer and Life Sciences	12.9	3.6	16.5
Education, Training and Development	9.9	4.1	14.1
Manufacturing, Engineering and Technology	10.8	0.8	11.6
Health Sciences and Social Services	8.8	0.9	9.7
Human and Social Studies	4.4	0.5	4.9
Law, Military Science and Security	2.4	1.9	4.3
Communication Studies and Language	3.4	0.4	3.8
Agriculture and Nature Conservation	1.2	2.2	3.4
Other/Unspecified	3.2	0.4	3.7
Total	82.0	18.0	100.0

Source: Own Calculations, LFS 2005(2) (Statistics South Africa).

This raises questions about how students make decisions about what to study, and whether they receive any assistance or guidance in making such decisions. One reason offered by Moleke is that students find these general fields of study with their less stringent entry requirements more accessible, while at times their decisions are “*purely arbitrary*” (2005:41). Cosser *et al.* (2003:34) find that over 60 percent of the respondents in the technical colleges survey gave as the reason for their choice of field of study that they were “*interested in it*” and only 23 percent chose their field of study because they

thought it would secure employment. This may point to deficiencies in career guidance both in schools and technical colleges. However, roughly half of the respondents indicated that they did in fact receive guidance before enrolling, while 60 percent received guidance during their enrolment, suggesting that both the scope and quality of career guidance are problems.

As far as job search is concerned, Cosser *et al.* found that 71 percent of graduates did not receive any assistance from their colleges to find employment. The general lack of adequate preparation for the labour market may be a contributing factor to the high unemployment rate amongst technical college graduates. Where graduates did receive assistance, the majority received assistance in the form of the college arranging for employers to interview students at the college (2003:46).

b. Quality of Education

The quality of education in South Africa is a concern at all levels. Poor student performance at tertiary level can often be traced back to quality issues in primary and secondary schooling in South Africa. Mlatsheni (2005) cites poor performance of primary school pupils in tests of language ability⁸ and the declining numbers of matric candidates who pass with exemption, which enables university entrance, as particularly worrying. He also cites a survey (South Africa Survey 2003/2004) in which it is suggested that 82 percent of students who are accepted into tertiary institutions in South Africa are functionally illiterate in the sense that they struggle to cope with the literacy requirements of their courses. Furthermore, 60 percent of students fail to cope with the level of mathematics and science offered at university. Kraak suggests that poor throughput statistics at universities and technikons in South Africa “*are yet another indication of the weaknesses of school education which should provide a more adequate preparation for entry and success in further higher learning*”, while the “*perceived poor quality of South African schooling (particularly in the former African school system) serves as a major disincentive on the demand-side for employing large numbers of first-time entrants to the labour market*” (2005:22, 31).

Most tertiary institutions in South Africa use English as the medium of instruction. Cosser *et al.* (2003) find that almost 95 percent of students are taught in English, yet only ten per cent speak English at home. Although most students arguably want to study in English, given the importance of English in the business world, the high degree of functional illiteracy perhaps explains poor academic performance and hence the poor quality of an individual's education. The solution to this is to improve the competencies of secondary

8 According to language experts, language ability of an average 7-year old pupil from disadvantaged backgrounds in South Africa is equivalent to that of a 3- to 4-year old (Mlatsheni, 2005: 2).

school students with regards to English, as this will also improve students' general social or soft skills (see following section). Virtually all the firms in the DPRU survey felt that improvements in school maths, science and English as a spoken and written language are crucial (DPRU, 2006).

Evidence of the disproportionately large share of African graduates in tertiary unemployment was presented previously. One possibility is that the high unemployment rates among African graduates in particular may be linked directly to actual or perceived differences in the quality of the institution attended. In this regard, Moleke's findings regarding the employment prospects of graduates from historically white universities (HWUs) and historically black universities (HBUs) are interesting (2005:4-5). This author notes that students from HWUs are found to have much better employment prospects than those who graduated from HBUs. As mentioned before, this may relate to the fact that HBUs enrol disproportionate numbers of students in fields of study with poor employment prospects. However, it can also be explained by employers' perception about the differences in the quality of education offered at different institutions. Evidence from the DPRU firm survey suggests that employers are biased against employing graduates from historically black institutions (DPRU, 2006). Some firms bluntly suggested that they do not approach historically black institutions during campus recruitment drives due to concerns about the quality of education at these institutions. Others avoided historically black institutions due to the low number of suitable candidates that they typically source from these institutions. Also, "*enough employment equity candidates [are recruited] by only visiting the historically white institutions*" (DPRU, 2006:28). Few firms would reject applicants merely because they are from historically black institutions. However, when asked what proportion of their recent recruits were from historically black institutions, the numbers reported by surveyed firms were generally extremely low.

Another concern raised by firms (DPRU, 2006) is the strong focus on enrolling large numbers of students rather than on the quality of education at tertiary institutions. Firms felt that educational subsidies at tertiary institutions should be based on a combination of student numbers and quality rating of the institution or the qualifications offered rather than the throughput rate as is presently the case. Tertiary education subsidisation should perhaps be more closely aligned to skills needs identified by the JIPSA initiative, thereby encouraging greater enrolment in these fields.

There is evidence that South African tertiary institutions are enrolling more students than in the past, especially students from formerly disadvantaged backgrounds. As noted many students struggle to cope with the academic workload at these institutions given poor preparation at secondary schools, leading to high failure rates. According to the HSRC (2005), a total of 120 000 students enrolled in the country's public higher education institutions in 2000. At the end of that year 36 000 (or 30 per cent) had dropped out. Another 24 000 (20 per cent) dropped out between their second and third years. Of the

remaining 50 percent less than half of the students failed to graduate within the prescribed course period. According to the study this amounts to a loss of about R4.5 billion in subsidies allocated to the higher education institutions (HSRC, 2005).⁹ Institutions may even find themselves under pressure, whether knowingly or not, to lower standards and maintain throughput rates in order to ensure that student attrition does not result in skyrocketing class sizes.

One of the important debates in educational circles is about the future of the FET college system. A major concern remains the issue of quality of education offered at these institutions. The FET recapitalisation process aims to improve the image of these institutions through large investments in infrastructure (R1.5 billion), while the curriculum at these institutions is also being reviewed. The intention was that firms would make use of FET colleges to provide training as part of learnership agreements. However, evidence suggests that many firms apply for accreditation as a training provider and subsequently provide training themselves due to either a lack of faith in the public education system, or simply because they felt that they could provide better quality and more appropriate training (DPRU, 2006, Smith et al., 2005).

There are also some concerns about the revision of the curriculum at FET colleges currently taking place. The system currently accommodates three types of FET colleges, namely the general academic FET, the vocational FET and the industry-based FET. The general academic FET's offer "a so-called 'whole' qualification consisting of exit level outcomes which schools will offer and which will no doubt form the basis for university entrance criteria" (Papier, 2006:6), while the vocational and industry-based FETs are more practically oriented. The new curriculum at the FET institutions appears to introduce an even broader type of education that, on the one hand, ensures inclusion into a modern knowledge society, but on the other hand perhaps comes at the cost of widening the technical skills deficit. As Papier further suggests, "... it may well be that FET qualifications will again neither satisfy the demands of the workplace, nor the requirements of Higher Education" (2006: 6).

9 The study further reveals that the vast majority of students who fail their courses or take longer than the prescribed time to graduate are Black. The HSRC is currently undertaking a research project together with the Association for Black Empowerment in Higher Education (ABEHE) on the underlying reasons for the high drop-out rates among Black students.

c. Continued Discrimination

Inter-racial variation in unemployment rates may be a result of continued discrimination favouring Whites in particular and to a lesser extent, Asian and Coloureds. Moleke (2005) suggests that there are signs that African graduates are still disadvantaged in the labour market. Although Africans are more likely to choose study areas with lower employment prospects, evidence suggests that there are also differences between races within particular study areas. Table 7 shows the percentages of university graduates that find immediate employment across various fields of study.¹⁰ Only in engineering did more Africans than all other racial groups find employment immediately. Very low proportions of Africans with humanities and arts, education and law degrees find employment immediately, which points to the oversupply and over-enrolment of African students in these fields of study. The fact that too many students graduate with inappropriate qualifications was frequently raised as one of the major problems faced by respondents in the DPRU (2006) survey. On average, a much greater proportion of Whites than all other racial groups found employment immediately.

Table 7: Percentage of University Graduates Employed Immediately, by Race

Field of Study	Asian	African	Coloured	White
Natural Sciences	30.0	45.9	52.2	59.9
Engineering	50.0	88.9	50.0	78.3
Agriculture		53.3	83.3	64.3
Medical Sciences	46.0	65.7	32.5	91.2
Humanities and Arts	53.6	38.7	33.3	56.4
Education	71.4	48.3	28.6	75.0
Law	36.4	26.8	51.6	69.6
Economic and Management Studies	53.5	37.5	42.2	74.8
Total	47.6	43.0	42.2	70.4

Source: Moleke (2005).

¹⁰ These results are based on a survey of 2 672 respondents who obtained their qualifications from South African universities between 1990 and 1998. The sample was drawn from a database, the Register of Graduates, held by the Human Sciences Research Council (HSRC), which contains the details of all graduates of South African universities.

As far as enrolment rates are concerned the majority of students at technical colleges are male (approximately 56 per cent, according to Cosser *et al.*, 2003). Although the authors find no evidence that the throughput rates are higher for males, they are concerned about the fact that technical education “is seen as a male preserve” while “job placement and enrolment patterns are a cause for concern” (Cosser *et al.*, 2003:55). As far as universities are concerned there were small differences between male and female graduates, with a slightly smaller proportion of males finding employment immediately after graduation (Moleke, 2005).

d. Lack of Soft Skills, Work Experience and Workplace Readiness

Soft skills or social skills, which include general communication skills, presentations skills, financial management skills, time management skills or creative thinking skills, play a very important role in the ability of young people to adapt to a professional working environment. Many graduates lack soft skills when they start their careers. Many of the respondents in the DPRU (2006) survey highlighted this as one of the main reasons why so many graduates are already unsuccessful in the recruitment phase. This was specifically a concern for students from historically Black institutions. For many, the transition from poor quality secondary schooling to tertiary education is a difficult one, and that from tertiary institutions to the workplace is even more challenging.

Given the nature of vacancies, firms require people with some form of work experience and the ability to, at least to some degree, work independently. As Mlatsheni (2005:1) highlights, work experience is an “*important factor that influences employability at all levels*”. Employers are also perhaps risk averse and prefer to employ older, more experienced workers who do not require as large an investment in training given the threat of headhunting in a scarce skills economy. In this regard, Kraak (2005) notes that South African youth face poor chances of receiving pre-employment training, which makes young people less attractive to employers. Vocational training is typically not part of university qualifications and, given the high level of unemployment and competition for entry-level positions, university students often struggle to find temporary employment positions within their fields of interest. Technikon students, on the other hand, have to complete an internship before they are able to graduate. However, it seems even these internships are hard to come by. Deputy President Mlambo Ngcuka recently remarked that “*four out of ten students could not graduate because they had been unable to find opportunities for practical experience*” (Hamlyn, 2006). This is another dimension of the graduate unemployment problem that deserves further attention. It is particularly worrying as it either points at a general lack of entry-level opportunities or an unwillingness of South African firms to invest in the education and training of students.

During the DPRU (2006) firm interviews, some respondents suggested that students from historically white institutions typically get better opportunities to gain some form of 'work' experience through representation on student bodies, administrative or academic assistant positions in university departments, and so on. However menial these tasks, they provide some form of basic experience to students in dealing with administrative issues and communicating optimally at the workplace. Firms find that, generally speaking, students who come from historically White institutions, both black and white, are better prepared for the workplace in terms of both soft skills and work experience, and are therefore better able to adapt to formal working environments.

e. Graduate Expectations

Many of the firms interviewed as part of the DPRU study indicated that the expectations of graduates, particularly university graduates, are too high. Graduates expect their qualifications to open doors at middle management level and are often unwilling or unhappy to start at entry-level. Employers feel that the return to employing a graduate is low, given that graduates require substantial on-the-job training before they provide any returns to the firm. These high expectations of graduates are unjustified, particularly because of the limited experiential training obtained prior to formally entering the labour market. As a result firms feel that it is necessary for graduates to have a more realistic view of what they can offer and what they can expect from their first jobs.

5. Concluding Remarks and Policy Suggestions

While the graduate unemployment problem in itself is not substantial in relative or absolute terms, it is a concern as it goes against expectations and points at serious problems in the South African education system. As enrolment at tertiary institutions has increased during the last decade, especially among Black students, more young graduates have become unemployed. This implies that the shift towards greater demand for skilled labour has either been insufficient to absorb new graduate labour market entrants, or that these graduates are not suitably qualified for the jobs that are available. Given the prevailing skills shortage in the economy, the latter is more likely to be the case – graduates do not possess the right qualifications and often these qualifications are not of a standard or quality that is required by employers. This affects the employment prospects of graduates even if employers' perceptions of quality are not objectively grounded.

A number of solutions present themselves, most importantly perhaps the almost clichéd suggestion that education needs to be improved. For years, more education was seen as the solution to the structural unemployment problem. However, as more students were enrolled and graduated from tertiary qualifications, so the unemployment rate among graduates has increased. The focus should now shift to better, more appropriate education. Government spending on education has increased at an average rate of 10.5 per cent per annum since 2002, and is set to grow further at 9.7 per cent per annum between 2006 and 2009 (National Treasury, 2006). In the latest budget R92.1 billion was allocated to education alone, accounting for 35.1 per cent of social services spending and 19.8 per cent of non-interest spending. Hopefully attention will be given to outcomes, measured in terms of quality and not quantity of students.

The areas of enrolment should also be governed to some extent as too many students are graduating in areas with low employment probabilities. This can be done implicitly through subsidisation and improved career guidance at schools. Improvements in school education, especially in the areas of maths and science, will also enable a larger proportion of students to gain access to technical and scientific fields of study. Career guidance and support for students about study and career decisions is also crucial in this regard.

The soft skills deficit of graduates is, of course, also important. Here policymakers need to consider where to locate the responsibility for providing soft skills training. In a perfect world soft skills will be learnt at home, and developed further at schools and tertiary institutions. Clearly this is not happening and, given that firms ultimately suffer as a result, they should perhaps consider taking on board soft skills training as part of their social responsibility. One of the recommendations by the DPRU (2006) is that firms make use of

the learnership framework, which has many benefits in the form of tax breaks and 'BEE points', to offer soft skills training as part of their recruitment processes rather than not appointing candidates at all.

In the final analysis, it is intolerable that highly skilled individuals suffer unemployment at a time when the broader economy so desperately needs their skills. While graduate unemployment may represent a small problem numerically speaking, its impact is undoubtedly far reaching and threatens to constrain government's ASGISA programme.

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