

The value of graduate destination survey data in understanding graduate unemployment: A focus on the universities of technology[†]

by Andre Kraak*

Abstract

This article contributes graduate destination survey (GDS) evidence to the debate about graduate unemployment in South Africa. There has been lively contestation on the topic for several years, including several contributions from the commercial press arguing that graduate unemployment is very high. In contrast, academic evidence (based on national labour force data for the period 1995–2011) has been presented suggesting that the unemployment of graduates in South Africa is minimal, on average only 4.9% in 2011.

New evidence has emerged from two recent GDSs – one comprehensive survey of all 2010 graduates across all qualification levels at all four universities in the Western Cape, and a second focusing only on the 2012 Bachelor of Technology (BTech) graduates at the Vaal University of Technology (VUT) in Vanderbijlpark, Gauteng. These two studies, using the same methodology and online questionnaire, provide a more accurate picture of the graduate unemployment problem in two important economic regions of the country.

The results show that although rates of unemployment are low at the elite University of Cape Town (UCT) and Stellenbosch University (SU) (graduate unemployment is between 3 and 6%), rates are much higher at the Cape Peninsula University of Technology (CPUT) – a former historically disadvantaged technikon – with 15.8% unemployment among CPUT students. African unemployment at CPUT reached 20.2% among all first-time entrants (as compared with 4% for whites), suggesting the continuation of a racially stratified labour market for highly skilled labour long after apartheid's demise.

Similarly, unemployment rates among the BTech VUT graduates of 2012 reached 18%. This is an extremely high rate for fourth-year graduates of a polytechnic-type institution whose primary mandate is to place qualified graduates in jobs in the mainstream economy.

Key words: *graduate unemployment, higher education, Graduate Destination Surveys (GDSs), intermediate skills*

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1 Introduction

The aim of this article is to present graduate destination survey (GDS) evidence in the debate about graduate unemployment in South Africa. Data currently available suggest highly divergent trends – for example, extremely high levels of graduate unemployment (32% in 2005) suggested by a research council (Letseka, Cosser, Brier & Visser 2010), and extremely low levels argued by a university-based econometrician – 4.8% in 2011 (Van der Berg & Van Broekhuizen 2012). Adding to the debate in 2013, the Cape Higher Education Consortium (CHEC) undertook a GDS of the entire 2010 cohort who graduated at the four public universities in the Western Cape. They concluded that graduate unemployment was 10.1% on average. And more recently, the VUT has determined through a GDS that 18% of its BTech graduates (third-year diploma students who do a fourth year to acquire a bachelor's degree) are unemployed.

Trying to make sense of the divergent trends indicated above is a huge challenge. A major part of the problem is that analyses based on labour force surveys and other Statistics South Africa data (see DPRU 2006; Van der Berg & Van Broekhuizen 2012) cannot be compared and contrasted with data generated by GDS surveys – which are done at the level of individual institutions or regional groupings of institutions. The former data sets are national in coverage; they are repeated regularly and are managed and quality assured by the national statistical service of the state. They do not reflect specific rates of unemployment for specific cohorts of graduates, but rather, they reflect the prevalence of unemployment among graduates at particular points in time irrespective of when they graduated. In contrast, the GDS studies are cohort studies of graduates in a particular year and in particular institutions or groupings of institutions. They reflect more accurately the extent to which specific cohorts are exposed to the risk of unemployment.

This article does not focus on Stats SA data. It argues in favour of using GDS results on a wider scale to determine the extent of graduate unemployment in the current period. The choice of GDS methodology is supported by the fact that it is widely utilised as part of the planning activities of higher education institutions globally that are seeking a better understanding of graduate pathways into employment.

The structure of this article is as follows. The analysis first examines the benefits of GDSs for university managers and planners. It then examines the extent of graduate unemployment across the globe. Thereafter, it summarises the results of two GDSs that have been undertaken in South Africa – the only GDSs to have been executed and publicised in the recent past. The author of this article was the principal researcher in both the Western Cape and the VUT studies. This article publishes the results of these surveys in an academic journal for the first time.

The concluding section provides a comparison of BTech graduate destinations across two universities of technology located in very different regions of the South African economy. It provides fresh insight into the differential treatment of graduates seeking employment in differing regions of the national economy. It also highlights the importance of two niche areas in the higher education system which do not get sufficient analytical attention in studies on South African higher education: (1) mature-age learners (those students who were employed while or prior to studying); and (2) continuing students who, after graduating in 2010 and 2012 respectively, have proceeded to study further towards higher degrees. Finally, the article examines the important role of social networks and “social capital” in assisting young graduates to obtain employment.

2 The importance of graduate destination surveys

GDSs are an important analytical tool in higher education for several reasons: most importantly, their primary results indicate the extent of graduate unemployment per province/region and institution. In combination with Higher Education Management Information Systems (HEMIS) data per institution, GDSs provide a rich tapestry of information about an entire higher education cohort, for example:

- 1 How many students were previously employed before studying, and how many are first-time entrants into the labour market after graduation.
- 2 How many students per institution are “first-generation” graduates – the first in their families to obtain a higher education qualification.
- 3 The social composition and stratification of graduates per region and institution – by race, class, gender, higher education institution, qualification type and field of study.
- 4 How many students continue with higher education after receiving their first degree?
- 5 The extent of geographic mobility in higher education per institution and region – before studies and after graduation, both locally and internationally.
- 6 The causal relationships between socio-economic variables such as “home” and “school background”, “parental education”, “ownership of secondary school – public or private”, “Grade 12 language”, “mathematics and science marks”, “participation in extramural activities”, “access to work experience” during their studies, and “employment after graduation”.

This kind of survey provides a formidable body of higher education data which add significantly to the more systems-oriented insights provided by the government’s HEMIS data – which focus largely on macro-level enrolment and graduation data as well as “qualification level” and “field of study” indicators.

3 International perspectives

South Africa, over the past decade, has witnessed a significant expansion in the numbers of unemployed youth, including matriculants and tertiary-level graduates. The problem of unemployed graduates is not unique to this country and is growing world-wide. There is a large body of literature on the issue, including several studies based on tracer and longitudinal surveys of young people as they pass through higher education into employment.

Perhaps the most consistent work in the area of tracer studies has been done by Ulrich Teichler and his colleague Harald Schomburg at the International Centre for Higher Education Research in Kassel, Germany. In 2006, they published a 12-country study on graduate employment, focusing on countries located largely in Europe but also including Japan. The survey was undertaken four years after graduation with a population consisting of the graduates of 1995 in 12 countries. Questionnaires were posted to 117 000 graduates and 40 000 eventually responded – an overall response rate of 39%. Response rates varied from 50% in Norway to 15% in Spain (Schomburg & Teichler 2006:22–23). The key results are highlighted in Table 1 below.

Although the unemployment rate after four years was only 4%, there were higher rates of unemployment in the southern regions. For example, in Spain unemployment reached 13%. Another negative feature of the European labour market identified in the Schomburg and Teichler survey is the high levels of job “churn” – 29% of graduates changed employers once, 22% were mobile twice in the four years surveyed, and 6% changed jobs three times or more. In addition, 22% of employed graduates were on temporary contracts with the highest measures recorded in Spain at 50%. Self-

employment was relatively low, at 6%, although high levels were recorded in Italy (19%), Spain (9%) and the Czech Republic (9%) (Schomburg & Teichler 2006:77, 81, 84, 89).

Table 1
Percentage distribution of “predominant activities”
since graduation in 1995

Further studies	21
Regular employment	61
Various temporary jobs	11
Had more than one job at a time	5
Home care	3
Unemployed	4
Other activities	8
TOTAL	113*

Source: Schomburg & Teichler (2006:77)

Note: Survey done in 1999 on 1995 graduate cohort; report published in 2006.

*The percentage total is larger than 100 because some respondents chose more than one of the options.

In Africa, Mugabushaka, Teichler and Schomburg (2003) report graduate unemployment rates and difficult transitions from higher education into work in six African countries in the period 1996–97. The study comprised 10 tracer surveys across several graduate cohorts. Unemployment rates varied from 5% for older cohorts (who graduated in the 1980s) to 10% for younger cohorts (who graduated in the mid-1990s) – indicating a growth in the trend towards graduate unemployment. Those respondents who indicated that they were employed in the surveys carried out in Africa were largely in public-sector employment – 73% of those surveyed (Mugabushaka et al 2003:67) – making the African problem of graduate employment and unemployment distinct and highly dependent on the state as an employer.

In Brazil, graduate unemployment reached a high of 16.4% in 2008, reflecting a severe mismatch between the demand and supply of skilled human resources (Rodriguez, Dahlman and Salmi 2008:208). The system of higher education in Brazil is strongly shaped by class, with the bulk of poor students going to private higher education, comprising 71% of all enrolments in 2004. The majority of enrolments are in “soft” subjects such as the social sciences. Few of the more costly academic programmes such as engineering are offered by private providers. Quality is generally very low. However, it is the only accessible form of higher education for low-income families in Brazil even though they are obliged to pay fees. In contrast, public higher education in Brazil is free, but academic entrance requirements are more stringent. It is unsurprising, therefore, that 41% of students in public higher education come from the wealthiest 10% of the population, and only 5% from the poorest 20% (Rodriguez et al 2008:208).

Apart from Teichler and Schomburg’s work in Germany and Africa, the next most significant work on tracer studies is done in Australia. Annual surveys are commissioned by government and done by two research councils, the Australian Council for Education Research (ACER) and the National Centre for Vocational Education Research (NCVER). The NCVER is responsible for the Longitudinal Surveys of Australian Youth (LSAY), which trace cohorts of students annually from the age of 15 years over time. These surveys provide a useful commentary on progression rates and success indicators once these young people reach the higher education level.

ACER was commissioned in 2008 to investigate the education and employment outcomes of the graduates of all Australian universities five years after completion of a bachelor's degree. The 2008 Graduate Pathways Survey (GPS) captured information on respondents' education and employment activities in their first (2003), third (2005) and fifth (2008) years after graduation. The survey achieved a 12% response rate in 2008, with 9 238 respondents. In measuring employment trends over a five-year period, the survey showed that participation rates in full-time employment rose from 84% to 91% during those five years. Part-time employment decreased from 24% to 16% (Coates & Edwards 2008: viii).

In 2009, Graduate Careers, a private Australian research and information agency, launched the *Beyond Graduation Survey*, which examines the outcomes and experiences of Australian graduates annually over a period of four years after completing their studies at Australian higher education institutions. A total of 6 797 graduates participated and the key results are summarised in Table 2:

Table 2
Percentage distribution of "predominant activities" of Australian graduates in their fourth year after graduating

Further studies	12.4
Full-time employment	71.6
Part-time employment	9.1
Unemployed	1.8
Other activities	5.1
Total	100.0

Source: Graduate Careers (2009:9)

What is significant in the *Beyond Graduation* report is its longitudinal approach, showing how full-time employment increased from about 64% in the first year after graduation to approximately 72% in the fourth year, as shown in Table 2. This improvement in full-time employment resulted in part-time employment decreasing from about 14 to 9% and unemployment decreasing from 4 to about 2% over the four-year period (Graduate Careers 2009:9).

Causal factors behind graduate unemployment in all of the studies cited above included: inappropriate institutional and subject choices; imperfect information flow, including poor career advice; poor academic grades; and in the case of students from African countries, a shrinking civil service. Overall, the percentage of those affected by graduate unemployment in all of these studies has not been large.

It is clear that graduate unemployment prior to the global recession of 2008 was a minor problem in the countries of Central and Northern Europe, Japan and Australia. However, unemployment levels in many European countries have risen dramatically as the recession worsened and dragged on through 2013 into the present period. For example, Maastricht University in the Netherlands did a three-cohort GDS in 2012. The first cohort graduated in the academic year 2009/2010 (surveyed in 2012), the second cohort graduated in the academic year 2005/2006 (six years prior to the 2012 survey), and the third cohort graduated in the academic year 2000/2001 (11 years prior to the 2012 survey). Table 3 shows the results – it highlights the impact of the global recession clearly, particularly for the youngest cohort, who are experiencing an 8% unemployment rate as compared with the two older cohorts who have rates of unemployment of 3% (6 years after graduation) and 2% (eleven years after graduation). The authors of the Maastricht GDS note that a substantial part of this unemployment

rate is frictional (temporary difficulties in the match between supply of new graduates and the immediate availability of jobs in their fields). However, one possible exception to this rule may be the “Arts and Social Sciences” graduates. Among the 2009/2010 cohort, Arts and Social Sciences graduates experienced a 24% unemployment rate and for the 2005/2006 cohort the unemployment rate was 10%. These are very high rates, suggesting more permanent difficulties in entering the labour market with qualifications in this specific field (ROA Fact Sheet 2012:2).

Table 3
Unemployment levels of three graduate cohorts at Maastricht University, 2012

Academic field	% unemployed		
	2009/2010 cohort	2005/2006 cohort	2000/2001 cohort
Business and Economics	5	2	1
Health, Medicine and Life Sciences	3	2	1
Arts and Social Sciences	24	10	1
Psychology and Neuroscience	11	4	4
Law	9	0	6
Average: Maastricht University	8	3	2

Source: ROA Fact Sheet (2012:2)

4 The neglect of GDSs in South Africa

Although GDSs are recognised as an important planning tool by the South African government, they have not been used, nor has government commissioned an outside agency to do the research. One exception was a cognate study done in 2007 by Scott, Yeld and Hendry (2007), who undertook a throughput study of a single cohort. Data for the entire 2000 cohort of first-time enrollees at 23 universities were obtained from the Higher Education Management Information System (HEMIS) and the Department of Education was given permission to do the study. The results are sobering. Only 30 percent of all students in all fields and all types of institutions managed to graduate in five years. Worse, 56% of the 2000 cohort had left higher education by 2007 without graduating, and 14% were still in the system, trying to “catch up” and graduate (Scott, Yeld & Hendry 2007).

Given their importance, it is problematic that GDS surveys are not done with any regularity by any South African higher education institution, or by government itself across the entire system. What currently exists are three GDSs done in 2005, 2012 and 2014 and a few econometric studies of graduate unemployment using data obtained from Statistics South Africa (Stats SA).

The HSRC undertook the first large-scale GDS in 2005 among graduates and “leavers” from seven higher education institutions in South Africa (Letseka et al 2010:100). The core of its study entailed a tracer survey of the 2002 cohort of tertiary “leavers” (drop-outs) and graduates three years after graduating (they were surveyed in 2005) at seven selected public higher education institutions, namely, the University of the Witwatersrand (Wits) in Johannesburg, the former Pretoria Technikon (now Tshwane University of Technology), the University of Stellenbosch (US), the former Peninsula Technikon (now Cape Peninsula University of Technology), the University of the Western Cape (UWC), the University of Fort Hare (UFH), and the former University of the North (now the University of Limpopo). This institutional selection was intended to capture a broad range of distinguishing features influencing South Africa’s

differentiated higher education sector, for example, the rural-urban divide and the distinction between historically advantaged (HAIs) and historically disadvantaged institutions (HDIs).

Between June and September 2005 a postal survey involving the administration of 34 548 questionnaires was conducted. The survey yielded 5 491 valid responses. One of the most striking sets of data arising from the study revealed the extent of drop-out and failure in higher education. Approximately 66% of whites graduate, exceeding by far the graduation rate for Africans of 39%. African females appear to be the most disadvantaged, with a graduation rate of only 34.2%. Hence, for every 100 enrolled female African students, approximately 66 drop out while only 34 graduate, whereas for every 100 enrolled white female students, 75 graduate and only 25 leave (Letseka et al 2010:100).

The employment data from the HSRC study were equally shocking. Firstly, the overall unemployment rate among the total sample population was 32% – a figure which is more than three times as high as the 10.1% reported by CHEC in its Western Cape GDS study (to be reported on in more detail in the next section). Secondly, racially differentiated pathways are very evident in the HSRC study. The total unemployment rates of African graduates and leavers (41% and 48% respectively) compared to the total unemployment rates of white graduates and leavers (9% and 5% respectively) highlight these stark differences (Letseka et al 2010:100).

The HSRC GDS study has its limitations, however. Juxtaposed against the data coming in from econometric sources – both the data from DPRU (2006), which indicate a 9.7% tertiary unemployment rate in 2005, and the data produced by Van der Berg and Van Broekhuizen (2012), which indicate a much lower rate of 4.9% in 2011 – the HSRC outcomes are alarming.¹ The HSRC study appears to exaggerate the case of graduate unemployment, particularly among the holders of bachelor's degrees. The most likely cause of this problem is an unrepresentative respondent database that is problematically skewed towards holders of certificates and diplomas from the former technikons (where unemployment rates reached 41% in the CHEC survey that is still to be discussed). Its respondent database may also have a bias towards unemployed graduates, pushing the overall unemployment rate up unrealistically high.

5 The CHEC GDS

The central focus of the CHEC GDS of the 2010 Western Cape cohort – undertaken two years after graduation in 2012 – was “graduate employment”. The survey attempted to determine the value of the qualification in terms of acquiring meaningful employment. Subsidiary questions also looked at the value of work placement and internships and the whole issue of migration of skilled graduates in and out of the Western Cape.

The 2010 CHEC GDS comprised all the graduates of that year from all four universities in the Western Cape. These four institutions are: the Cape Peninsula University of Technology (CPUT); the University of Cape Town (UCT); Stellenbosch University (SU) and the University of the Western Cape (UWC). The cohort included graduates who received certificates and diplomas as well as undergraduates and postgraduates. The total size of the 2010 cohort was 24 710 graduates.

The CHEC GDS survey received a total of 5 560 responses – a response rate of 22.5%. This is considered a good response rate given the difficulty faced by many universities in acquiring up-to-date contact details from former students. Roughly half

these responses were received online (2 873 or about 52%) while the other half were captured through telephonic interviews undertaken by a call centre based in Cape Town (2 687 or about 48%). The aggregate response rates for the four institutions were as follows: CPUT (21.8%), UCT (21.9%), SU (21.6%) and UWC (26.7%). Since the survey relied on voluntary responses, and since CHEC was able to link responses to details of graduates obtained from the various institutions' HEMIS submissions, all 5 560 responses were statistically weighted to reflect the actual socio-demographic profile of the 2010 cohort of graduates on the basis of gender, population group, qualification type and institution (for further details regarding GDS methodology, see CHEC 2013a:11-17).

5.1 Employment in the 2010 CHEC GDS

Table 4 highlights the core employment and unemployment details of the 2010 graduate cohort in the Western Cape. Most importantly, the data show that 10% of graduates were unemployed two years after graduating – with unemployment peaking among CPUT graduates at 15.8%. Unemployment rates among SU and UCT graduates were relatively low – at 5% and 6%.

Table 4
Total employment as at 1 Sept 2012, CHEC GDS

	Institution									
	CPUT		UCT		SU		UWC		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
Employed (part- or full-time) in the private sector	3129	45.8	2819	57.6	2670	46.4	1187	38.1	9805	47.6
Employed (part- or full-time) in the public sector	2351	34.4	1359	27.8	2428	42.2	1356	43.5	7494	36.4
Self-employed in the private sector	130	1.9	195	4.0	222	3.9	80	2.6	627	3.0
Employed in the informal sector	63	.9	79	1.6	32	.6	17	.5	191	.9
Unemployed and looking for work	1076	15.8	311	6.4	276	4.8	419	13.5	2082	10.1
Unemployed, but not looking for work	85	1.2	129	2.6	124	2.2	56	1.8	394	1.9
Total	6834	100.0	4892	100.0	5752	100.0	3115	100.0	20593	99.9

Source: CHEC (2013a); VUT (2014)

5.2 Employment by qualification type

Table 5 shows employment/unemployment status by differing qualification types. The majority of unemployed graduates hold certificates and diplomas (44%) followed by bachelor's degrees (37%). What are remarkable about the data in Table 5 are the high levels of unemployment among graduates holding certificates and diplomas – 44%. This figure is very close to Van der Berg and Van Broekhuizen's figure of 40.8% for the year 2002 for the same category of unemployed. There is clearly a national crisis of unemployment among the holders of these intermediate qualifications.

5.3 Employment by race

Graduate employment by race continues to reflect apartheid-era patterns of discrimination. Data from the CHEC survey show that, whereas 61% of whites and 58%

of Indians are employed in the private sector (as at 1 September 2012), only 35% of Africans and 44% of coloureds are employed in the same sector (see Table 6). Indeed, African and coloured graduate unemployment would be significantly higher if it were not for the public sector, which employs 42% of African and 45% of coloured graduates.

Table 5
Employment status by qualification type, 1 September 2012, CHEC GDS

	Certificate/ diploma		Post-graduate certificate/ diploma/ bachelor's degree		Bachelor's		Honours		Master's		Doctorate		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Employed (part- or full-time) in the private sector	2151	21.9	807	8.2	4475	45.6	1045	10.7	1235	12.6	93	0.9	9806	100.0
Self-employed in the private sector	80	12.8	74	11.8	219	34.9	64	10.2	186	29.7	4	0.6	627	100.0
Employed (part- or full-time) in the public sector	1716	22.9	1066	14.2	2736	36.5	761	10.2	974	13.0	240	3.2	7493	100.0
Employed in the informal sector	48	25.3	12	6.3	78	41.1	31	16.3	21	11.1	0	0.0	190	100.0
Unemployed and looking for work	907	43.6	70	3.4	768	36.9	187	9.0	115	5.5	34	1.6	2081	100.0
Unemployed but not looking for work	73	18.5	16	4.1	172	43.7	68	17.3	51	12.9	14	3.6	394	100.0
Total	4975	24.2	2045	9.9	8449	41.0	2156	10.5	2582	12.5	385	1.9	20591	100.0

Source: CHEC (2013a)

Table 6
Total employment as at 1 Sept 2012, by race, CHEC GDS

	African		Coloured		Indian		White		Total	
	Count	%	Count	%	Count	%	Count	%	Count	%
Employed (part- or full-time) in the private sector	2288	35.0	2523	44.0	414	57.7	4451	61.4	9676	47.8
Employed (part- or full-time) in the public sector	2762	42.2	2599	45.3	238	33.1	1751	24.2	7350	36.3
Self-employed in the private sector	97	1.5	125	2.2	16	2.2	375	5.2	613	3.0
Employed in the informal sector	54	.8	21	.4	7	1.0	104	1.4	186	.9
Unemployed and looking for work	1248	19.1	404	7.0	23	3.2	362	5.0	2037	10.1
Unemployed, but not looking for work	90	1.4	68	1.2	20	2.8	205	2.8	383	1.9
Total	6539	100.0	5740	100.0	718	100.0	7248	100.0	20245	100.0

Source: CHEC (2013a)

The public sector nationally is clearly playing a critical role in human capital formation, firstly, by employing a significant number of young graduates from the four institutions, and secondly, by employing more women than men, and thirdly, by employing larger numbers of Africans and coloureds than the private sector.

Notwithstanding the positive impact of public sector employment, African graduates still have the highest unemployment rate – at 19%, followed by coloured graduates at 7%. Indians have the lowest unemployment rate at about 3%.

6 The VUT GDS

The VUT GDS was undertaken between Monday 28 July and Friday 15 August 2014. It focused solely on degree students – those with the fourth year BTech qualification as well as post-graduate (honours, master's and doctoral) qualifications. For logistical reasons, an internal decision was made at VUT to survey only this subcohort of graduates, and to exclude all holders of 2012 certificates and diplomas. The next section provides the basic unemployment results for this subcohort of graduates (all are degreed students).

6.1 Employment status on 1 June 2014

The VUT GDS measured employment levels as at 1 June 2014. The results are reflected in Table 7 below. Unemployment stood at 18.4% overall, but was significantly higher for females at 26.7% and significantly lower for males at 9.5%. There is therefore a significant gender bias in the employment prospects of graduates from VUT.

The data in Table 7 reflect other important employment trends. For example, the biggest group of graduates (46.6%) are employed in the private sector (with a strong male lead at 55.4% versus women at 38.3%), whereas a smaller group (31%) are employed in the public sector, with women leading at 31.2% versus men at 30.8%. As the CHEC survey also revealed, the public service plays a major role in absorbing women into the labour force. Those employed in the informal economy or self-employed are few in number – amounting to 0.9% of the graduate cohort.

Table 7
Employment status as at 1 June 2014, by gender, VUT GDS

		Gender					
		Female		Male		Total	
		Count	Column N %	Count	Column N %	Count	Column N %
What was your employment status on the 1st of June 2014?	N/A - I am studying full-time, not working and not looking for work at all	10	1.9	13	2.6	23	2.3
	Employed (part- or full-time) in the private sector	201	38.3	273	55.4	474	46.6
	Self-employed in the private sector	5	1.0	4	.8	9	.9
	Employed (part- or full-time) in the public sector	164	31.2	152	30.8	316	31.0
	Employed in the informal sector	5	1.0	4	.8	9	.9
	Unemployed and looking for work	140	26.7	47	9.5	187	18.4
	Unemployed, but not looking for work	0	.0	0	.0	0	.0
	Total	525	100.0	493	100.0	1018	100.0

Source: VUT (2014)

Table 8 reveals the interesting contrast reflected in the data on the employment of VUT graduates in the private and public economies according to race. Whereas the private

economy absorbs 69.6% of white graduates, it only absorbs 45.5% of black graduates. In contrast, the public economy absorbs 31.3% of black graduates and only 26.1% of white graduates. The impact of affirmative action policies in the public service is clearly visible in these figures. However, it is also clear that skilled whites still dominate access to the private economy. The survey did not register any unemployed white graduates.

Table 8
Employment status as at 1 June 2014, by gender, VUT GDS

		Population group					
		Black		White		Total	
		Count	Column N %	Count	Column N %	Count	Column N %
What was your employment status on the 1st of June 2014?	N/A - I am studying full-time, not working and not looking for work at all	22	2.3	2	4.3	24	2.4
	Employed (part- or full-time) in the private sector	442	45.5	32	69.6	474	46.6
	Self-employed in the private sector	9	.9	0	.0	9	.9
	Employed (part- or full-time) in the public sector	304	31.3	12	26.1	316	31.0
	Employed in the informal sector	9	.9	0	.0	9	.9
	Unemployed and looking for work	186	19.1	0	.0	186	18.3
	Unemployed, but not looking for work	0	.0	0	.0	0	.0
	Total	972	100.0	46	100.0	1016	100.0

Source: VUT (2014)

7 Comparing VUT and CPUT graduate destinations

The final section of this article presents a comparison of graduate destinations emanating from two universities of technology in South Africa. This is a significant comparison as it is difficult to get comparable data across more than one university. In this case, the online survey used in both cases was identical and the survey was completed by the same research team. Additionally, although it only focuses on degreed graduates, this comparison between two of the six universities of technology in South Africa provides a unique insight into the extent to which these "polytechnic" mission-specific institutions live up to their mandate of placing graduates directly in employment.

7.1 A focus on degreed students

The following comparison is important because it focuses on high-level skills produced by the universities of technology – fourth-year graduates and higher. This would include all BTech degrees and post-graduate qualifications (honours, master's and doctorates) at both institutions.

7.2 Financing university studies

The first issue worthy of comparison is the financing of studies. The manner in which young people finance their studies in higher education is a major education policy issue globally. In South Africa, there is a National Student Financial Aid Scheme (NSFAS) set up specifically to assist students from poor backgrounds to access higher education. A surprise finding of the CHEC GDS (which surveyed all students at all qualification levels at four universities) was that the biggest source of funding for CPUT students did not come from NSFAS but came from own income – at 28% of the CPUT cohort (CHEC 2013b:15). This finding rises to 49.1% if the CPUT cohort is restricted to BTech students and all other postgraduate levels (honours, master's and doctoral graduates). This phenomenon is also evident in the VUT data – at 41% of the cohort. These findings illustrate an important factor that was previously passed over regarding the technically skilled labour force trained by universities of technology across South Africa. A large slice of these degreed graduates (41% and 49% in the VUT and CPUT cases) are working adults paying for their own continuing education. It is ironic, therefore, that to date South Africa has a weakly defined lifelong learning policy aimed at these working adults and their upskilling. They are doing it for themselves without state assistance.

Table 9
Sources of funding of graduates prior to studying at VUT in 2012 and CPUT in 2010

		VUT Graduates		CPUT Graduates	
		Count	Column N %	Count	Column N %
What means did you use to pay for the registration, tuition and book fees for the qualification you obtained in 2012?	My own funds	400	41.0	1146	49.1
	Funds or loans from my parents/guardians	275	28.2	474	20.3
	Funds or loans from other family members or acquaintances	36	3.7	47	2.0
	Funds or loans from my employer	76	7.8	216	9.2
	NSFAS bursary/loan	280	28.8	720	30.8
	NRF bursary	46	4.8	155	6.7
	A bursary or scholarship from my university	48	4.9	109	4.7
	A private bursary or scholarship	122	12.5	251	10.7
A bank loan	18	1.8	131	5.6	

Source: CHEC (2013a); VUT (2014)

A related finding to that in Table 9 is reflected in Table 10 – the fact that 69.9% of the CPUT cohort (only those with BTech degrees and higher) and 52.8% of the VUT cohort were previously employed in the public and private economies prior to studying for the qualification they achieved in 2010 (CPUT) and 2012 (VUT) respectively. This suggests that a significant number of working people wish to upgrade their qualifications, and are doing so through self-financing (Tables 9 and 10). This upskilling function is an important niche market for universities of technology.

The most significant finding of the two GDS studies is the extent of graduate unemployment. Here we are referring to graduate unemployment of students who have graduated with a four-year degree or higher (post-graduate qualification). We are not looking at the unemployment levels of certificate and diploma holders who have pre-

degree qualifications. The focus is on the degreed cohorts which emerge from the universities of technology. The unemployment levels obtained on the day on which the survey was conducted were recorded two years after the students graduated. These unemployment rates were 18.3% at VUT and 8.1% at CPUT (see Table 11). The latter unemployment rate (at CPUT), although lower than the rate at VUT, is highly problematic for an institution located in an urban metropolis with significantly higher employment opportunities than is the case for VUT. The data suggest that the technology- and career-oriented system of higher education in South Africa responsible for producing high-level technology skills is not operating optimally if such high unemployment rates affect its fourth-year and higher degree-level students.

Table 10
Employment status just before starting to study towards the qualification obtained in 2012, VUT and CPUT

		VUT graduates		CPUT graduates	
		Count	Column N %	Count	Column N %
What was your employment status just before you started studying towards the qualification you obtained in 2012?	I was studying full-time, not working and not looking for work at all	176	23.0	177	10.6
	Employed (part- or full-time) in the private sector	266	34.8	743	44.5
	Self-employed in the private sector	0	.0	28	1.7
	Employed (part- or full-time) in the public sector	138	18.0	423	25.4
	Employed in the informal sector	4	.5	40	2.4
	Unemployed and looking for work	142	18.6	155	9.3
	Unemployed, but not looking for work	39	5.1	102	6.1
	Total	765	100.0	1668	100.0

Source: CHEC (2013a); VUT (2014)

Table 11
Employment status as on day of survey, VUT and CPUT

		VUT employment as on 1 Jun 2014		CPUT employment as on 1 Sept 2012	
		Count	Column N %	Count	Column N %
What was your employment status?	N/A - I am studying full-time, not working and not looking for work at all	23	2.3	126	5.0
	Employed (part- or full-time) in the private sector	474	46.7	1043	41.1
	Self-employed in the private sector	9	.9	54	2.1
	Employed (part- or full-time) in the public sector	315	31.0	1072	42.2
	Employed in the informal sector	9	.9	18	.7
	Unemployed and looking for work	186	18.3	207	8.1
	Unemployed, but not looking for work	0	.0	21	.8
	Total	1016	100.0	2541	100.0

Source: CHEC (2013a); VUT (2014)

7.3 Employment by sector

Table 12 indicates how regional economies shape enrolments at higher education institutions. Although the biggest employer of degreed graduates in both institutions is the 'Community, social and personal services' sector (47,9% at CPUT and 28.2% at VUT), the second biggest employer for VUT graduates is manufacturing (at 20.4% of graduates). Manufacturing at CPUT is small in comparison - at 7.3%. This indicates a much larger manufacturing base absorbing graduates from VUT than is the case for CPUT. Whereas at CPUT, the second biggest employer is the 'Finances, insurance, real estate, IT, and business services' sector (15.2%) giving it a stronger financial services institutional character.

Table 12
Employment by sector, VUT and CPUT

		VUT employment as on 1 Jun 2014		CPUT employment as on 1 Sept 2012	
		Count	Column N %	Count	Column N %
In which sector did you work?	Agriculture, hunting, forestry and fishing	14	1.9	39	1.9
	Mining and quarrying	35	4.8	29	1.4
	Manufacturing	148	20.4	151	7.3
	Electricity, gas and water supply	74	10.2	99	4.8
	Construction	48	6.6	236	11.4
	Wholesale and retail trade	36	5.0	146	7.1
	Transport, storage and communication, tele-communications	56	7.7	74	3.6
	Finance, insurance, real estate, IT, and business services	110	15.2	303	14.7
	Community, social and personal services	205	28.2	989	47.9
	Total	726	100.0	2067	100.0

Source: CHEC (2013a); VUT (2014)

7.4 Employment by occupation

It is interesting to evaluate graduates' perceptions of their occupational status. In the two surveys – with graduates holding bachelor's degrees and postgraduate qualifications – 53.9% of CPUT graduates considered themselves to be professionals whereas only 40.4% of VUT graduates considered their occupational status "professional". VUT has a proportionally larger cohort of quasi-professionals (28.4% as against 21% for CPUT). As indicated in Table 13, VUT produces a smaller cohort of professional and quasi-professional skilled people (68,8% at VUT as against 74.9% at CPUT).

It is a matter for concern that so many degreed graduates from VUT consider their occupational status to be "elementary worker" or "machine operator" (7.8% of graduates as against 2.7% at CPUT, a much smaller cohort). Similarly, the number of degreed graduates at both institutions who see their work as clerical (13.5% at VUT versus 12.5% at CPUT) is a matter for concern. The "polytechnic" idea underpinning the mission of universities of technology is that they produce the intermediate to highly skilled graduates needed by the economy – and certainly not machinists and clerks. These data suggest some degree of underemployment of graduates.

Table 13
Employment by occupation, VUT and CPUT

		VUT employment as on 1 Jun 2014		CPUT employment as on 1 Sept 2012	
		Count	Column N %	Count	Column N %
What was your occupation in the job you had?	Elementary worker	28	3.9	42	2.0
	Plant or machinery operator and assembler	28	3.9	15	.7
	Craft or related trade worker	5	.7	9	.4
	Skilled agricultural or fishery worker	0	.0	13	.6
	Service worker or shop and sales worker	18	2.5	65	3.1
	Clerk	97	13.5	263	12.5
	Technician or associated professional	205	28.4	443	21.0
	Professional	291	40.4	1135	53.9
	Legislator, senior official or manager	49	6.8	101	4.8
	Armed forces	0	.0	20	1.0
	Total	721	100.0	2106	100.0

Source: CHEC (2013a); VUT (2014)

7.5 Job search behaviour

Table 14 investigates the many and varied techniques used to find a job. The biggest group at VUT (31%) indicated that prior internships led to their appointment in their current position. This is a significant indicator as we debate the need for the young and unemployed to be given greater exposure to the world of work through policy instruments such as internships and work placements. Both seek to provide young people who have left the education system with sufficient work experience to empower them to acquire their first job. VUT seems to do internships much more successfully than CPUT (which records a low 7.6%).

However, the most interesting differences in job search behaviour relate to what the CHEC report called "social capital" indicators – the three instruments highlighted in Table 14 in grey. The CHEC report argued that these three questions constituted the search methods most commonly used by graduates of the four Western Cape universities. Job referrals – either through family and friends, through social networks or through being asked to apply for a job – all signify prior knowledge of where to secure employment, qualities which derive from one's social connections or social capital.

The concept "social capital" signifies the social networks and family know-how that enable young family members to successfully navigate their way through the modern-day labour market into rewarding jobs and careers. Working class families, who generally have limited social capital (poor social networks and access to information about educational and employment opportunities) are therefore unable to support the decisions of their graduated children with regard to employment options. In contrast, middle-class families have access to information, and are often on friendly terms with or related to the managers and owners of firms, and they are more likely to influence the employment choices made by their children (Ball 2010). At UCT this social capital factor was significant – 12.5% of all graduates got their jobs through family and friends.

Table 14
Differing techniques of job search behavior as exercised by VUT
and CPUT graduates in finding a job

		Differing techniques of job search at VUT, 1 Jun 2014		Differing techniques of job search at CPUT, 1 Sept 2012	
		Count	Column N %	Count	Column N %
What was the primary method of finding the job you had on the 1st of June 2014?	WIL - Work Integrated Learning	36	5.0	-	-
	Internship	223	30.8	130	7.6
	I initially offered to work for free	8	1.1	10	.6
	I had to work off a bursary I got from my employer	2	.3	69	4.0
	I simply sent in my CV or asked for work	95	13.1	321	18.7
	I responded to a job ad in the printed media	92	12.7	333	19.4
	I responded to a job ad on an employment website	77	10.7	157	9.2
	I responded to a job ad on a company website	57	7.9	112	6.5
	I responded to a job ad in the <i>Government Gazette</i>	14	1.9	138	8.1
	I placed ads or flyers advertising my services on notice boards or in postboxes	7	1.0	0	.0
	I walked from door to door	9	1.2	22	1.3
	Through one of the Department of Labour's employment centres	0	.0	19	1.1
	Through a recruitment agency or labour broker	64	8.9	65	3.8
	Through family or friends	9	1.2	228	13.3
	Through a social network	14	1.9	4	0.2
	I was headhunted or asked to apply for the job	16	2.2	106	6.2
	Total	723	100.0	1714	100.0

Source: CHEC (2013a); VUT (2014)

When one looks at the results for degreed students and all postgraduates at CPUT and VUT, stark differences are observed. Whereas 13.3% of CPUT graduates got their jobs through family and friends, only 1.2% of VUT graduates achieved this outcome. Similarly, whereas 6.2% of CPUT graduates indicated that they were headhunted, only 2.2% of VUT graduates indicated this. This difference in social capital may reflect VUT's more marginal location in the national economy and society as compared with CPUT, which is based in a large urban metropolis with greater opportunities for finding employment through social networking.

7.6 Further study

As indicated earlier, a GDS is an important means of determining lifelong learning, that is, the extent to which the university's alumni continue to study at the university or other universities in the country or elsewhere in the world, in pursuance of higher degrees. In the case of the two studies and two cohorts examined here, the rates of further study

are similar – 21.6% for VUT and 26.5% for CPUT. That CPUT has a higher return rate is not surprising, given that VUT is urban and closer to multiple employers. In contrast, VUT is located in the “old” economy of the Vaal triangle, which comprises the declining towns of mining and manufacturing.

Table 15
Registered for and studying towards another qualification at a university, VUT and CPUT

		Enrolment in further studies at VUT on 1 Jun 2014		Enrolment in further studies at CPUT on 1 Sept 2012	
		Count	Column N %	Count	Column N %
Were you registered for and studying towards another qualification at a university on 1 June 2014 (excluding studies for non-degree purposes (NDP))?	Yes	211	21.6	1943	26.5
	No	767	78.4	5379	73.5
	Total	978	100.0	7322	100.0

Source: CHEC (2013a); VUT (2014)

Continuing education by qualification type suggests that CPUT is ahead in terms of developing a master's and doctoral cohort. CPUT had 188 candidates registered for M degrees from its 2010 cohort on 1 September 2012, whereas VUT had only 72 candidates. The position with PhDs was similar – 26 versus 9.

Table 16
Further qualification for which registered on 1 June 2014, VUT and CPUT

		Qualification type: Further studies at VUT on 1 Jun 2014		Qualification type: Further studies at CPUT on 1 Sept 2012	
		Count	Column N %	Count	Column N %
What qualification were you registered for on 1 June 2014?	A certificate or diploma	40	18.9	76	16.6
	A bachelor's degree	31	14.6	91	19.9
	An honours degree	60	28.3	76	16.6
	A master's degree	72	34.0	188	41.1
	A doctoral degree	9	4.2	26	5.7
	Total	212	100.0	457	100.0

Source: CHEC (2013a); VUT (2014)

7.7 Further studies by field of study

VUT appears to have a few comparative strengths in terms of areas of study which have interested past graduates who are continuing to study. For example, within the VUT cohort under investigation, 42% of graduates are studying further in the fields of Computer and Information Sciences and Engineering (as compared with 24% at CPUT), whereas CPUT appears to have the advantage in enrolling continuing students in the fields of Business Economics and Management Sciences at 46% as compared with 30.1% for VUT.

Table 17
Further studies by field of study, VUT and CPUT

		Field of study: Further studies at VUT on 1 Jun 2014		Field of study: Further studies at CPUT on 1 Sept 2012	
		Count	Column N %	Count	Column N %
In which field were you studying on the 1st of June 2014?	Business Economics and Management Sciences	62	30.1	119	45.9
	Education	16	7.6	40	15.4
	Computer Science, Information Sciences and Engineering	86	41.7	62	23.9
	Health Professions and Related Clinical Sciences	9	4.4	29	11.2
	Law	9	4.4	0	.0
	Social Sciences	7	3.4	4	1.5
	Other	17	8.3	5	1.9
	Total	206	100.0	259	100.0

Source: CHEC (2013a); VUT (2014)

8 Conclusion

A number of important findings have emerged from this comparison of two GDSs and two universities of technology in South Africa. This conclusion will focus on the comparison of graduate destinations of degreed students across the two higher education institutions. A first important observation is the high levels of self-funded continuing education – which bodes very well for the future. Over 40% of mature-age learners at two of our six universities of technology who are employed in the national economy are so committed to their own upskilling that they are prepared to finance their own continuing education. This has important implications for the evolution of a lifelong learning policy in South Africa – something missing from the plethora of education policies which are mostly youth-oriented.

This comparison has also revealed the continued importance of manufacturing (at VUT), although it is clear that the services economy (including the public service) is the beneficiary of the largest slice of new graduates. Twenty percent of VUT's graduates went into manufacturing whereas only 7.3% of CPUT graduates did. In sharp contrast, 47.9% of CPUT's graduates went into the services economy (including the public service), whereas only 28.2% of VUT's did. Understanding these sectoral employment differences is important in helping to identify the specific niche contributions of each university of technology to the national economy. VUT clearly has a strong foothold in the manufacturing sector.

However, in contrast to these positive findings, graduate unemployment levels are very high, especially given that these comparisons are of fourth-year graduates and higher. VUT's unemployment rate for graduates who received a BTech degree or a higher degree (18.4%) is too high and will need urgent attention. Government and industry will have to help find institutional solutions to these complex problems.

The role of social capital in finding jobs appears to vary according to location. At VUT it has played a minimal role in placing graduates in jobs, whereas in the Western Cape, social networks have played an important role in assisting graduates to look for and find employment after graduation. If access to social capital is weak in an institution such as

VUT, the institution itself may need to consider active measures to build substitute “bridges” into employment, by presenting a set of countervailing influences that help build links to employment opportunities. Structured work experience placements in partnership with industry, for example, can provide exposure to the world of work and its requirements, and in so doing, provide a substitute or proxy for those valuable social networks which are absent in the lives of graduates from poor backgrounds. The universities of technology need to consider such strategies to remedy the high unemployment rates suffered by their graduates. VUT already has a good return on its internship programmes in terms of employment – 31% of VUT graduates found their current jobs through an internship. These efforts need to be amplified to bring the overall graduate unemployment rate down.

Labour market stratification

Another aspect of the VUT and CHEC GDS findings is evidence of the continuance of racial stratification in the graduate labour market, with high levels of African graduate unemployment as compared with unemployment among white graduates. Other signs of labour market segmentation at VUT are evident, particularly around gender – unemployment is far higher among women graduates (26.7%) than among men (9.5%). Segmentation is also clear in terms of race as white graduates dominate access to employment in the private economy. As indicated in Table 8, the private economy absorbs 69.9% of VUT’s white graduates, but it only absorbs 45.5% of VUT’s black graduates. The CHEC survey confirms these racially stratified outcomes. It shows that whereas 61% of white graduates and 58% of Indian graduates are employed in the private sector, only 35% of Africans and 44% of coloureds are employed in the same sector. Indeed, African and coloured unemployment would be significantly higher if it were not for the public sector, which employs 42% of African and 45% of Coloured graduates. These employment outcomes arise from various structural, institutional, reputational and cultural divisions in society which will take a long time to overcome and eradicate. Their remediation will require active labour market policy interventions by the state.

Links to regional economies

The VUT data on home background and transition to university life suggest that many negative factors are present in this transition. The link between VUT and the Northern Free State economy is tangential. Only 5.7% of VUT graduates worked in the Free State province after graduation. In contrast, the “magnet” Gauteng economy absorbed 65.6% of the 2012 VUT graduate cohort. This imbalance may be insignificant, but it may reflect a brain drain from the Northern Free State. The VUT leadership will need to consider ways in which more of its graduates can find employment in the Northern Free State regional economy.

The comparison between VUT and CPUT has also revealed the continued importance of manufacturing (at VUT), although it is clear that the services economy (including the public service) is the beneficiary of the largest slice of new graduates. Understanding these sectoral employment differences is important in helping to identify the specific niche contributions of each university of technology to the national economy.

Mature age learners

A further observation of significance arising from these two studies is that, given the fact that so many working adults return to university study through self-finance to do a

BTech or higher degree, it is extremely disappointing to note that employers fund such a low level of lifelong learning – only 7.8% of VUT graduates were funded by their employers to study further. At CPUT the figure is equally low – 9.2%. A high percentage of learners fund their own continuing education. Indeed, employment *prior to studying for the qualification achieved in 2012* is an important indicator of the polytechnic's ability to recruit mature-age learners who are employed and self-funded while they study further and upskill themselves. In the case of VUT, this measure is high – 53% of the 2012 degreed cohort were employed prior to studying for the qualification achieved in 2012. At CPUT the figure was an extraordinary 70% of the degreed subcohort. This is a positive sign for both institutions, given the importance of lifelong learning and the continuing education of the workforce in a highly competitive global economy.

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Endnote

¹ Econometric and GDS data sets, strictly speaking, cannot be compared as they derive from different data sources. The former data sets utilise national labour force surveys and are produced in March and September each year by Stats SA, whereas GDSs are focused on fixed cohorts of young graduates, at one or a group of higher education institutions.