The National Student Financial Aid Scheme (NSFAS) and its impact:

Exploring the absorption into employment of NSFAS-funded graduates

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HSRC Human Sciences Research Council

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Project team

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Acronyms and Abbreviations

ESD	Education and Skills Development
CATI	Computer-Assisted Telephonic Interview
CDE	Centre for Development Enterprise
CESM	Classification of Educational Subject Matter
CHE	Council on Higher Education
CHET	Centre for Higher Education Transformation
CHEC	Cape Higher Education Consortium
CPUT	Cape Peninsula University of Technology
CREST	Centre for Research on Science and Technology
DHET	Department of Higher Education and Training
DOE	Department of Education
FET	Further Education and Training
HBUs	Historically Black Universities
HE	Higher Education
HSRC	Human Sciences Research Council
HWI	Historically White Universities
ICT	Information Communications Technology
LMIP	Labour Market Intelligence Partnership
NSF	National Skills Fund
NSFAS	National Student Financial Aid Scheme
PSET	Post-school Education and Training
QLFS	Quarterly Labour Force Survey
SASAS	South African Social Attitudes Survey
SAGDA	South African Graduate Development Association
SARS	South African Revenue Service
TOR	Terms of Reference
TEFSA	Tertiary Education Fund of South Africa
UCT	University of Cape Town
UFH	University of Fort Hare
UL	University of Limpopo
UNIVEN	University of Venda
UNIZULU	University of Zululand
UWC	University of the Western Cape

Executive summary

The context and rationale

The National Student Financial Aid Scheme (NSFAS) was formally established as an income contingent student loan and bursary scheme in 1999, focusing on: redressing past discrimination; promoting equal access and representivity in higher education participation; responding to the human resource development needs of the nation; and establishing a funding scheme that is affordable and sustainable.

Both in terms of the size of funding support (R12.4 billion in 2016/17) and the number of students reached (451 507 students in 2016/17), NSFAS is a core public funding mechanism. A growing body of literature also suggests that NSFAS funding has impacted positively on student access, progression and success in post-school education and training (PSET) (De Villiers et al, 2006, 2013; National Treasury PER Cohort Study, 2016; DHET, 2016). NSFAS is now concerned to assess and demonstrate beyond the academic outcomes, the patterns, of labour market participation of its beneficiaries. In early 2017 NSFAS thus commissioned the Education and Skills Development (ESD) research programme of the Human Sciences Research Council (HSRC) to analyse patterns of labour market absorption amongst NSFAS-funded graduates over a ten-year period (2005 – 2015).

The research design

The report starts by problematizing the terms 'labour market absorption' and 'graduate'. For the purposes of this study, the absorption of NSFAS graduates refers to the *percentage of NSFAS-funded higher education degree graduates in employment,* whereby having filed a tax return with the South African Revenue Service (SARS) by 22 February 2017 is taken as proxy for employment. The analysis is based on a unique dataset constructed through a matching methodology. This composite dataset contains student funding, graduation and employment outcome information for 11 distinct cohorts of NSFAS-funded students that graduated between 2005 and 2015 from a public higher education (HE) institution with a degree. It was thus possible to explore the labour market outcomes of different cohorts of graduates, distinguished by institution, demographics and field of study.

Key findings

The analysis starts off by describing the complete 2005 – 2015 NSFAS-funded student group, showing that during this period NSFAS facilitated access to HE for a large, diverse group of beneficiaries, with an emphasis on African and female beneficiaries. Individuals received on average between 3 to 6 years of funding from NSFAS, with much smaller proportions receiving awards over longer periods. The biggest

proportion of awards were loans (90%), and judging from the upward trend in the 100% conversion loan awards, the academic performance of NSFAS-funded students has been improving. However, the overall graduation rate remains quite low at 46%.

The analysis then moves to the main purpose of the report, which is the estimation of the labour market absorption of NSFAS-funded graduates. Our analysis finds that the number of NSFAS-funded graduates in employment has risen steadily since 2005 from 5 455 to 41 787. The employment proportion is highest for NSFAS-funded students that graduated in 2005 (98%) and by the time we get to the 2015 graduate cohort, the labour market absorption is 76%. The analysis shows that an individual's likelihood for finding formal employment increases over time as the period after graduation increases. It is very positive to find an overall high average employment proportion (91%) for NSFAS-funded graduates during the period, and full employment seven years after graduation (i.e. labour market absorption over 97%).

Furthermore, our expectations derived from the literature are borne out as we find gender, race, institution and field of study interplay to impact on the propensity for being in employment. In the main, women and African NSFAS-funded graduates have lower rates of employment than male, White, Indian and Coloured graduates. It is also true that NSFAS-funded graduates from particular institutions have higher employment rates. Graduates from historically advantaged institutions (HAIs) have generally higher employment rates than graduates from historically disadvantaged institutions (HDIs). There is also some indication that this may be changing, whereby location (especially rural versus urban) is starting to play a bigger role in terms of propensity to find employment.

Our findings also indicate that graduates from the fields of Engineering, Health Sciences, Education, and Architecture and the Built Environment, consistently have higher employment proportions than graduates from Public Management and Services, Psychology, Social Sciences and Life Sciences fields. For the Engineering, Health Sciences, Education, and Architecture and the Built Environment fields, there is also a much smaller difference between employment proportions for 2015, 2014 and 2013 graduates. For example, 96% of the 2015 NSFAS-funded Engineering graduates had found formal employment by 2017. This proportion rises to 99% for the 2014 and 2013 cohorts – only a 3% difference in employment proportion based on year of graduation. Conversely, for graduates in the Public Management and Services fields, for example, there are bigger differences in employment proportion by year of graduation (2015 graduating cohort – 60%, 2014 graduating cohort – 78% and 2013 graduating cohort – 87%). In other words, for some fields of study, the likelihood for employment is much more affected by the time since graduation than others.

Finally, the focus turns specifically on the 2015 graduating cohort where we investigate how a range of variables (demographic characteristics, university type and field of study) affects labour market absorption. The employment outcomes of this cohort are seen as a good indication of time to first job, as just over a year would have passed since their graduation. Firstly, with regard to the impact of demographic variables, the analysis finds that women are less likely to be employed than men, regardless of university type and field of study. Secondly, African graduates are less likely than graduates from other race groups to be in employment, regardless of university type and field of study. Thirdly, graduates from comprehensive universities are less likely to be in employment than those from universities of technology and traditional universities (controlling for race and gender). We have not yet tested differences in labour absorption based on other categorisations of universities (such as rural/urban or HAIs/HDIs) which could provide better information for policy intervention (for example, support for career placement programmes at affected institutions or institutional types). Finally, we consider the impact of broad field of study on likelihood for employment and we find that Humanities graduates remain significantly less likely to find employment than Education, Health Sciences and Science, Engineering and Technology (SET) graduates shortly after graduation.

We close by highlighting possible implications for policy from the key findings:

- **A high average absorption of NSFAS-funded HE graduates, but low graduation rates:** NSFAS-funded degree graduates have roughly a 90% chance of becoming employed; their labour absorption rises to full employment within about seven years of graduation. A continued policy challenge are graduation rates where policy solutions and interventions must be found to improve graduation rates.
- **Gender, race and university type continue to be significant predictors of the likelihood for labour absorption:** Our findings point to ongoing inequality in labour absorption affecting African and female graduates; they may reflect preferences/discrimination by employers in employment decisions regarding different societal groups or other factors that affect these graduates' success in gaining employment. While wider government policy and co-operation with firms would be critical in this regard, NSFAS must consider whether there is a role for them to play, possibly in assisting its beneficiaries in career placement, especially at institutions where employment likelihood is lower than in others.
- **Field of study plays a significant role as predictor of the likelihood for employment:** Humanities graduates are less likely to be employed than Education, Health Sciences and SET graduates, and there is also evidence suggesting a quicker rate of absorption in these professional fields in comparison to Humanities graduates. Should NSFAS funding steer students towards fields of study with better labour absorption? Due consideration will have to be given to how this would align with the transformative and redress objectives and overall mandate of the scheme.

1. Introduction and research problem

Recognising the growing problem of student debt and the inadequate access to higher education faced by disadvantaged students, the South African government created the National Student Financial Aid Scheme (NSFAS) as an income contingent funding arrangement in 1996, initially to be administered through the then Tertiary Education Fund of South Africa (TEFSA). NSFAS was formally established by statute in 1999, with the ratification of the *National Student Financial Aid Scheme Act No. 56 of 1999*, which then fully incorporated TEFSA into NSFAS. This Act provided for the management, governance and administration of the NSFAS; granting of loans and bursaries to eligible students at public higher education institutions; the administration of such loans and bursaries; the recovery of loans and the repeal of the Provision of Special Funds for Tertiary Education and Training Act, 1993 (NSFAS Act, 1999). Essentially, the focus of NSFAS is on redressing past discrimination; promoting equal access and representivity in higher education participation; responding to the human resource development needs of the nation; and establishing a funding scheme that is affordable, but equally important, sustainable. As noted by Cooper and Subotsky (2001), the core intent of establishing the scheme is to support those students who cannot afford higher education, to create more equitable opportunities and access, as well as shift the inherited skewed racial profile of higher education participation.

Some significant changes since the 1999 Act include the expansion of NSFAS funding to students at technical, vocational education and training (TVET) institutions in 2007. The most recent development (2016) is a centralised system of funding that will no longer be administered through post-school education and training (PSET) institutions, but awarded directly to students (the NSFAS student-centred model) (DHET, 2016).

Since its formal establishment, the scheme has grown significantly. Bhorat and Pillay (2017) indicate that between 1999 and 2013 NSFAS funding grew from R441 million to R8.5 billion. NSFAS's recent Annual Report confirms a significant increase in funding to financially eligible students since the establishment of the fund, also highlighting a great increase, especially since 2015. In the 2016/17 financial year, NSFAS disbursed R12.4 billion to both public universities and TVET institutions, representing an increase in funding of 34% from R9.2 billion in the 2015/16 academic year (NSFAS Annual Report, 2016/17). Possible drivers of this sharp increase could be the impact of the #FeesMustFall campaign and/or the greater policy and funding emphasis on the TVET subsystem.

NSFAS receives funding from a range of sources. The most significant contribution to student funding remains from the Department of Higher Education and Training (DHET) (R11 billion – 81%), followed by the Department of Basic Education (DBE) (R1 billion – 8%) and the National Skills Fund (NSF) (6%). While recovery of loans has been a consistent challenge for the scheme which has raised concerns of sustainability, the recent annual report asserts that collections/recovery of loans has seen a significant increase since 2015/16

(73%), from R226.7 million to R392.4 million (the target was R285 million)[1]. This impacts positively on the funding available to be re-injected to fund new students (up from R500 million in the previous year to R900 million in the 2016 academic year) (NSFAS Annual Report, 2016/17). This improvement is a very notable milestone as NSFAS has not met its collection target for a number of years and data between 2008/9 and 2013/14 indicate notable declines in the recovery of loans while all other sources of NSFAS funding were increasing over time (CHE, 2015). It is clear that both in terms of the size of funding support and the amount of students reached, NSFAS is a core public funding mechanism, or as Bhorat and Pillay assert (2017, 2) "one of the most significant interventions affecting access to higher education for the poor and disadvantaged".

There have also been increases in the total number of students funded per year. In 2016/17, 451 507 students were funded, up 9% from 414 949 students funded in the 2015/16 financial year. The extent of growth in funding over the last 25 years is illustrated by the fact that in 1991 NSFAS (then TEFSA) funded 7 240 students (NSFAS Annual Report, 2016/17). The university component of this funding in 2016/17 amounts to 225 950 students (funded at R10.3 billion) and 225 557 TVET college students (funded at R2.1 billion). The number of students funded in the TVET and university subsystems is thus roughly equal, but the TVET awards are 100% bursaries. Given this information, it thus appears that the growth in funding since 2015 is as a result of the inclusion of TVET students and the impact of #FeesMustFall.

The critical role and support provided by NSFAS to students, who would otherwise never have had access to PSET, is irrefutable. Moreover, a growing body of literature suggests that NSFAS funding has impacted positively not only on student access, but also on student progression and success in PSET (De Villiers et al., 2006, 2013; DHET, 2016; National Treasury PER Cohort Study, 2016). Equally important to fulfilling its mandate are the objectives of 1) responding to the human resource development needs of the nation, and 2) ensuring that the scheme is affordable and sustainable. In other words, it is becoming increasingly important for NSFAS to understand and demonstrate the labour market impact of its funding support. NSFAS is therefore very concerned to go beyond the academic outcomes of its beneficiaries, to assess patterns of labour market participation.

It is within this context that the Education and Skills Development (ESD) research programme of the Human Sciences Research Council (HSRC) was commissioned by NSFAS in early 2017, to analyse patterns of labour market absorption amongst NSFAS-funded graduates. The Terms of Reference (TOR) stipulate that the investigation should endeavour to 1) determine the labour absorption rate of NSFAS-funded graduates; 2) develop a longitudinal picture of their labour market outcomes and the factors that influence success; and, where possible, 3) identify particular labour market challenges facing such graduates over a ten-year period (2005 – 2015).

1 At the time of writing (November 2017) the announcements around free education with implication for NSFAS's role, were not yet made.

To address these objectives, the HSRC team developed a research plan proposing to conduct a literature review, as well as extensive data cleaning, standardisation and analysis of the data to be provided by NSFAS. Moreover, the latter would provide a way to inform a graduate tracer study approach in the future. This document forms the final part of this investigation and addresses the following aims:

1. Delineate key concepts related to this investigation
2. Provide a methodological overview sketching the assumptions and limitations of the approach and available data
3. Explore the absorption of NSFAS-funded graduates into employment

The report is divided into four sections. The next section offers a summarised version of a review of literature that can guide our conceptual approach, as well as our expectations and interpretations of the findings from this investigation. Section 3 outlines the research design and technical considerations. Here we discuss briefly the unique dataset that forms the basis of the analysis. Section 4 provides an analysis of the entire population of NSFAS-funded students between 2005 and 2015, to provide context for the employment estimates to follow in the next section. Section 5 then presents our analysis of the labour market outcomes of NSFAS-funded students who graduated between 2005 and 2015, along a range of demographic and institutional characteristics. The final section restates the main findings in relation to extant knowledge on the labour market absorption of graduates to assist in interpreting the significance of the findings. It also highlights the gaps in understanding opened up through the present analysis, and proposes areas for further investigation.

2. The labour market absorption of NSFAS-funded graduates

2.1 Labour market absorption as a concept

Most simply understood, *labour market absorption,* which is also referred to as *labour force absorption,* refers to the proportion of the working age population that has a job (Moleke, 2006) or is employed (Stats SA, 2015). Labour market absorption is viewed as an important indicator of the health of a labour market, alongside other indicators such as the unemployment rate. Based on Statistics South Africa data, the Institute for Race Relations (IRR) in a recent release shows that this proportion in the country has fallen from 45.8% in 2001 to 43.5% in 2015 (IRR, 2016). This is worrisome in that not only are proportions between 40 and 50 percentiles judged as very low by international norms, but the fact that labour market absorption seems to have stagnated in the 40 percentiles shows little life in South Africa's labour market. It is clear that we have overall low levels of labour market absorption in the country. This is an important context for the consideration of the labour market absorption of South African graduates, even if some recent research suggests that the impact of the economic situation on the employment of degree graduates, has not been that significant (Altbeker & Storme, 2013; Van Broekhuizen, 2016; Van Der Berg & Van Broekhuizen, 2012).

While overall levels of labour market absorption are low, we know that labour force participation in South Africa rises with an increase in number of years of study (Altbeker & Storme, 2013; Bhorat, 2004). Thus, people with less education will struggle more to find work than those with more years of education. In a 2013 analysis, Altbeker and Storme assert that only about 58% of those with up to 11 years of education participated in the labour market compared to 71% of those who had completed matric. This employment proportion increases to 84% for those who have non-degree tertiary education[2] and for those with a university degree, the employment proportion was over 96%. This already shows the stark gap between the labour market absorption of graduates and non-graduates, and that there is a further distinction in terms of qualification type. In sum then, while the labour market absorption of the SA population is around 44%, this rises to about 71% with a matric certificate, 84% with a post-matric qualification and about 96% for degree graduates.

It is also important to clarify how the focus on labour market absorption in this report is slightly different from looking at the labour market absorption rate. The rate of absorption is typically defined as "the speed with which graduates find employment after obtaining a degree or since starting to look for a job" (Moleke, 2010). This approach invariably involves a time delay analysis, usually measured between six to eighteen months after graduation. Since the employment outcomes of graduates are impacted by a set of diverse factors[3] – this approach aims to offer a simplified and standard measure that merely considers the rate at

2 In their definition this refers to any post-schooling qualification.

3 The likelihood of employment is affected just as much by the absorptive capacity, in particular labour market sectors, and the performance of the economy as a whole (Bhorat et al., 2015; Reddy et al., 2016) as it is affected by the characteristics (skills, attitudes and knowledge) of a graduate.

which different graduates gain employment. **In this study**, given the nature of the available data **we are concerned more with the labour market absorption/employment outcome of graduates** and less so with the amount of time it takes to become employed.

Contestation around the proportion of graduates that are absorbed into the South African labour market, raises the importance also of clarifying our use of the term graduate.

2.2 Labour market absorption of graduates

The term graduate has been defined differently in research globally and even in South Africa. While some studies consider graduates to include all those with some form of post-secondary or tertiary qualification, others have limited the definition to only those who have a university degree of a minimum of 3-4 years of study. In the South African context, the term tends to be used in the former conceptualisation, while internationally the latter conceptualisation is more prevalent. See Teichler (2011), for example. **In this study, graduates are defined as only those with a completed degree from a public higher education institution**; it does not include those with higher education diplomas and certificates. This is a decision influenced by the available data but is consistent with the approach of others (See Altbeker & Storme, 2013; Van Broekhuizen, 2016; Van der Berg & Van Broekhuizen, 2012). We thus define the absorption of NSFAS graduates, merely as the ***percentage of NSFAS-funded higher education degree graduates with employment***.

A lot of personal and public investment is made into the production of skilled graduates. Their labour market outcome is seen as a particularly critical policy issue and a lot of research has focused on outlining, for instance, the nature of this outcome and individual, social and institutional barriers faced by graduates in transition to the labour market. The next section will thus briefly consider the trends in graduate labour market outcome that contextualise the findings of this research investigation.

2.3 Considering trends in the unemployment of graduates, with a focus on South Africa

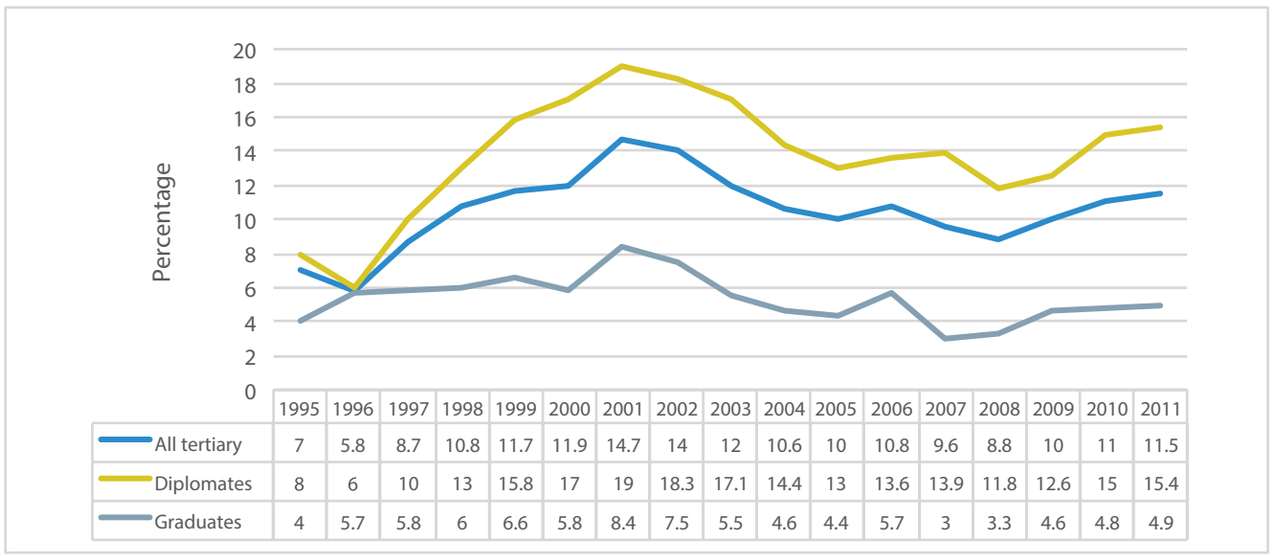
As mentioned earlier, the extent and nature of graduate unemployment in South Africa is contested. Several studies have suggested that graduate unemployment is increasing (Bhorat, 2004; DPRU, 2006; Kraak, 2010; Pauw et al., 2006), and some argue specifically that this has escalated since the global economic recession. However, more recent research (Van Broekhuizen, 2016; Van der Berg & Van Broekhuizen, 2012) has suggested that the problem of graduate unemployment in South Africa has been greatly exaggerated. Altbeker and Storme (2013) clarify that much of this perceived inconsistency derives from a different conceptualisation of the term graduate (as clarified in section 2.2), when they highlight that while unemployment for people with tertiary qualifications (diplomas and degrees) has increased since 2008, the unemployment 'rate' for people with university degrees has consistently been below five per cent (between 1995 and 2011).

Such contestation remains characteristic of the literature, but there are also quite a few points of consensus around the issue of graduate unemployment. While graduates are much more likely to find employment than non-graduates, not all graduates experience the labour market on equal terms. The literature reviewed briefly below outlines some further areas of difference with regards to graduate labour market outcome.

2.3.1 Type of qualification

We have already established that there is a notable difference in employment outcome between graduates from universities and those who have obtained tertiary qualifications from institutions with a vocational focus (TVET colleges). Studies by Van der Berg and Van Broekhuizen (2012), Altbeker and Storme (2013) and the South African Graduate Development Association (SAGDA) (2012) show that disaggregating the overall graduate unemployment rate confirms a consistently higher unemployment rate for diplomates in comparison to degree graduates. In line with earlier findings by Moleke (2005), their studies also suggest that the employment proportion among university graduates is about 95 per cent.

Figure 1: Broad graduate unemployment rates in South Africa



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
All tertiary	7	5.8	8.7	10.8	11.7	11.9	14.7	14	12	10.6	10	10.8	9.6	8.8	10	11	11.5
Diplomates	8	6	10	13	15.8	17	19	18.3	17.1	14.4	13	13.6	13.9	11.8	12.6	15	15.4
Graduates	4	5.7	5.8	6	6.6	5.8	8.4	7.5	5.5	4.6	4.4	5.7	3	3.3	4.6	4.8	4.9

Source: Van der Berg & Van Broekhuizen (2012)

Furthermore, comparing employment outcomes by type of qualification, there is also strong evidence that graduates with degrees enjoy better financial returns (Branson et al., 2009:12). Using earnings as a proxy, this study showed that, on average, graduates with degrees gain between 250% and 400% higher earnings when compared to those with certificates and diplomas. In sum then, while graduate unemployment has increased somewhat since 1995, this has not been substantial overall, and the rate of unemployment for degree graduates has remained largely unchanged. Degree graduates also enjoy much higher earnings in comparison to graduates with diplomas.

However, qualification type is not the only determinant of labour market outcome. In the South African context, the university type continues to play a significant role.

2.3.2 University type

The classification of universities into distinct types is not as simple as it might have seemed in the past. Recent mergers will surely challenge traditional categorisations, but in this report we refer to two classifications/groupings that are routinely used in research on graduate outcome. Ouma (2013) for example, grouped South African universities into three university types as illustrated in Figure 2 below: 1) traditional universities; 2) universities of technology; and 3) comprehensive universities[4]. This categorisation is also consistent with that used by the CHE (2013).

Table 1: A typology of university types

Traditional universities	Universities of Technology	Comprehensive Universities
University of Cape Town	Cape Peninsula University of Technology	Nelson Mandela University
University of KwaZulu-Natal	Durban University of Technology	University of Johannesburg
North West University	Central University of Technology	Walter Sisulu University
University of Limpopo	Mangosuthu University of Technology	University of South Africa
University of the Free State	Tshwane University of Technology	University of Zululand
University of Fort Hare	Vaal University of Technology	University of Venda
University of Pretoria		*Sol Plaatje University*
Rhodes University		*University of Mpumalanga*
Stellenbosch University		
University of the Western Cape		
University of the Witwatersrand		
Sefako Makgatho Health Sciences University		

Source: Ouma (2013); universities in italics inserted by authors[5]

Universities are also often differentiated in terms of historical legacy as historically White or advantaged universities (HWUs/HAUs) and historically Black or disadvantaged universities (HBUs/HDUs). The historically advantaged universities (e.g. University of Cape Town, University of Pretoria, University of Witwatersrand),

4 Bunting and Cloete (2010) describe traditional universities as those institutions that offer basic formative degrees such as a Bachelor of Arts (BA) and professional undergraduate degrees such as a BSc (Engineering). At postgraduate level such universities offer honours degrees, and a range of masters and doctoral degrees. Universities of technology, on the other hand, tend to offer mainly vocational or career-focused undergraduate diplomas, and the BTech, while also offering a limited number of masters and doctoral programmes. Lastly, comprehensive universities offer programmes typical of university, as well as programmes typical of a university of technology.

5 These institutions would not be included in this typology as they were established after 2013.

are well resourced and located in major urban metropoles. On the other hand, the HDUs (e.g. University of Fort Hare, University of Zululand, University of Venda), are found in poor rural areas, and are generally under resourced (Ouma, 2013).

In line with such a typology, Bhorat et al. (2010) found institutional variations in the unemployment rate by historically advantaged (HAU) and disadvantaged universities (HDU). They showed that these variations range from between 67% unemployment rates for Fort Hare (HDU) graduates, to 30% for the University of the Western Cape (HDU), 23% for the University of Witwatersrand (HAU) and 13% for Stellenbosch (HAU). Graduates from HAUs such as the University of Cape Town and Stellenbosch University reported very low rates of unemployment while students from HDUs (such as the University of the Western Cape and the Cape Peninsula University of Technology) had a higher risk of unemployment and took longer to find a first job. This has also been confirmed in a more recent study tracking graduates from two Eastern Cape universities. Here Rogan and Reynolds (2016) compared the labour market outcomes of graduates between University of Fort Hare (UFH) (HDU) and Rhodes University (HAU). They observe that Rhodes graduates have an unemployment rate of 6.8% while UFH graduates had a comparable rate of 21%. Similar findings have been observed by Walker and Fongwa (2017). This institutional difference in labour market outcomes is one of the key recurring findings in a number of South African graduate tracer studies.

One of the largest and most recent graduate studies was conducted by the Cape Higher Education Consortium (CHEC, 2013). The CHEC study attempted to trace all 2010 graduates from four Western Cape universities (i.e. University of Cape Town, Stellenbosch University, Cape Peninsula University of Technology and the University of the Western Cape). Similar to other studies they found that the burden of unemployment was on African graduates and that the institutional differences were significant. Recent work continues to show that there are large differences in the risk of graduate unemployment across South Africa's public universities and that this risk is particularly pronounced among graduates from HDUs (Van Broekhuizen, 2016).

The reason for the poorer employment prospects of graduates of HDUs is not clear but empirical work with firms has suggested that some employers perceive HDUs as having lower quality graduates (DPRU, 2006; Pauw et al., 2006). An earlier study asserted that employers identified competence in English, ICT skills and a general understanding of the world of work as the most important aspects of the basic skills that are missing or somewhat thin among South African graduates (Daniels, 2007). Altbeker and Storme (2013) acknowledge that currently there is not sufficient data available to resolve the question of whether institutional differences in employment outcome are the result of real differences in the quality of degrees.

In addition, while there is some contestation around the extent of the effect, most research suggests that the field of study has an impact on both the labour market outcome and the period it takes for a graduate to become employed.

2.3.3 Field of study

Earlier studies suggest a bigger effect of field of study on employment outcome. For example, Du Toit and Roodt (2008) found that graduates from humanities and education were less likely to find employment in comparison to graduates from engineering and medicine. Moleke (2010) also showed that graduates from the professional fields (engineers, nurses and accountants, for instance) easily get absorbed into the labour market, while graduates from the social sciences and humanities have a lower rate of employment and take longer in job search. Rasheed et al. (2009) in the Indian context found that engineering students had the least delay in getting absorbed into the labour market while general studies graduates spent more time. Similar findings have been observed in the South African context (Bhorat et al., 2010; Moleke, 2006).

A study around the same period however, refuted these assertions to some degree. It found that while humanities graduates tend to earn considerably less (between 30 and 35%) than graduates with more technical degrees (e.g. engineers), they do not face a higher risk of unemployment (Mouton et al., 2010)[6]. However, serious problems with representivity in this study (80% of respondents were White and a quarter over the age of 55) cast some doubt on the generalisability of its findings.

The CHEC (2013) study mentioned above also suggests that graduates from Humanities take longer to find a job, while those from science-related fields like Engineering are 'most employed' within a shorter time frame. Furthermore, there are also some claims that there is a higher propensity for 'mismatch' in employment for Humanities graduates. In this regard the study asserts that Bachelor of Arts (BA) and Humanities graduates find employment but this is in jobs 'unrelated' to their fields of study.

This is confirmed by a more recent study tracking graduates into employment which finds that graduates in SET fields have a higher propensity of employment and also a higher probability for their employment field matching their qualification field (Walker & Fongwa, 2017). However, Reddy et al. (2016) suggest that there could also be a significant mismatch in the employment of individuals with Engineering qualifications in the South African context, finding these individuals predominantly employed in the Financial Services sector, rather than in the more traditional engineering related sectors such as Manufacturing and Mining, for instance.

Other studies highlight the confluence of issues of institution, field of study and race when considering graduate labour market outcome.

6 This was one of the most comprehensive surveys of university graduates in South Africa conducted by the Centre for Research on Science and Technology (CREST) at Stellenbosch University in 2010 (Mouton et al., 2010). The study was wide ranging in scope (no parameters on the year of graduation were applied) and captured information on the largest number of respondents (12 064) of any graduate study in South Africa to date.

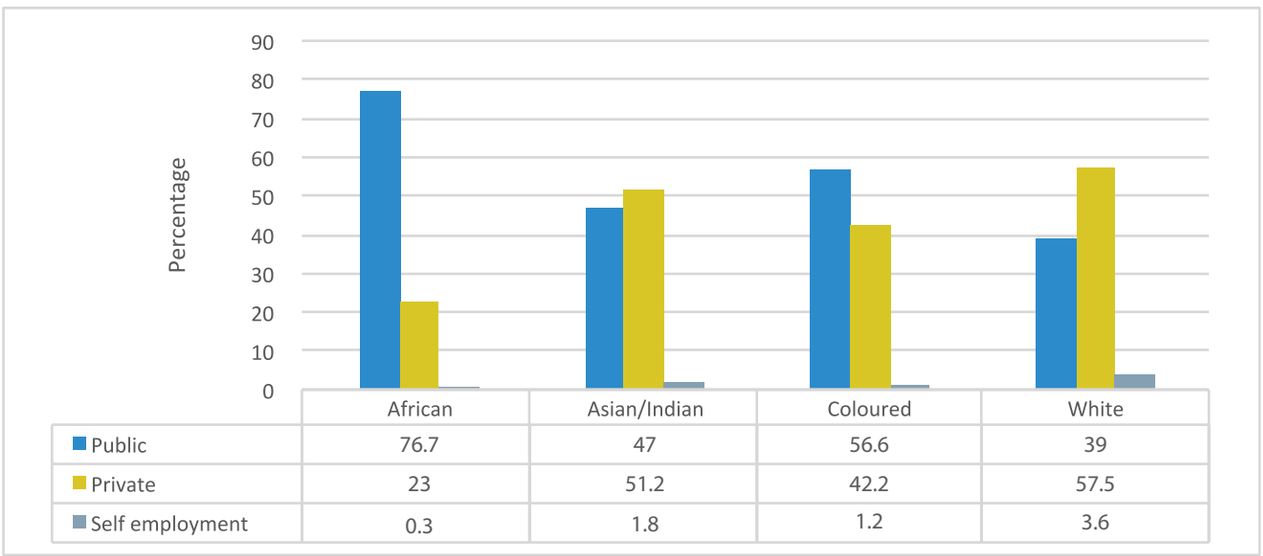
2.3.4 The confluence of race, social networks and capital

Graduate outcomes and pathways in the South African context continue to be affected by socio-historical and cultural factors, which are beyond the control of the graduates and to some extent the university itself (Kruss et al., 2012; Rogan et al., 2016). Bourdieu (1986, 1997), using his concept of cultural capital, draws attention to the role of social capital in securing social and economic mobility. For Bourdieu (1997) inclusion or exclusion from the labour market is less likely determined by academic performance or university experience, but more by background and social circumstances which interplay with current dynamics.

A number of studies on graduate employment in the post-apartheid period indeed suggest that a complex interplay between race, gender and type of institution (whether HA or HD) remain significant determinants of the nature of, and absolute, graduate labour market outcomes (Bhorat et al., 2010; Branson et al., 2009; Letseka et al., 2010; Moleke, 2005, 2010; Pauw et al., 2006; Rogan & Reynolds, 2016). This is also consistent with findings in the FET system where the probability of employment among diplomates is found to vary significantly by race and gender (Cosser, 2003).

Relatedly, Moleke in 2006 identified as one of the characteristics of graduate employment in South Africa, a divide between the public and private sector, with African graduates mainly employed in the public sector while White graduates resort to the private sector where they have more than a 50% chance of finding employment (see Figure 3).

Figure 2: Sector of first employment by population groups

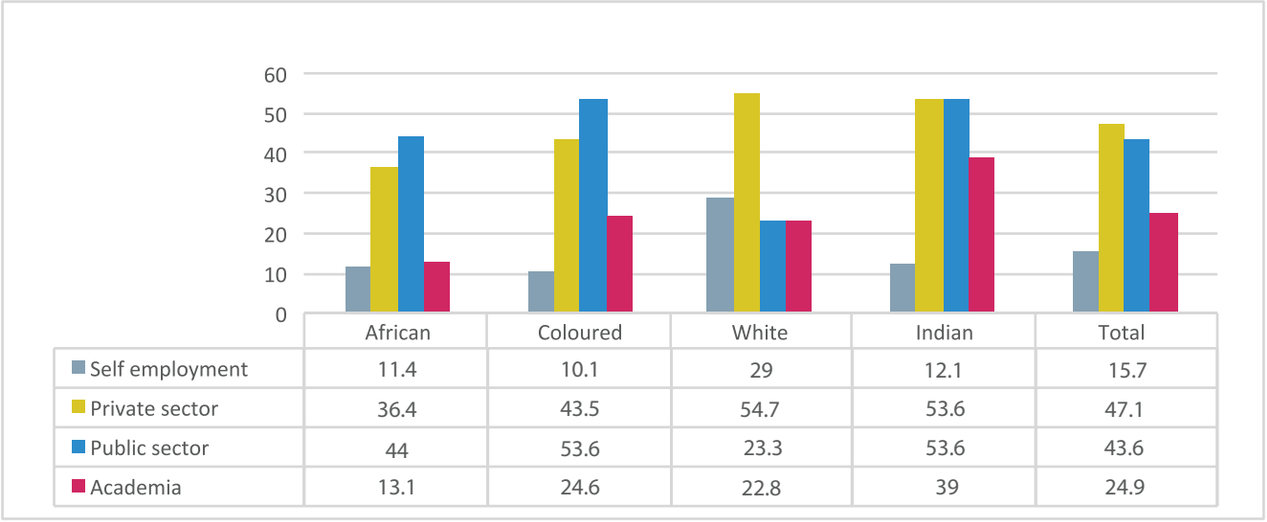


	African	Asian/Indian	Coloured	White
Public	76.7	47	56.6	39
Private	23	51.2	42.2	57.5
Self employment	0.3	1.8	1.2	3.6

Source: Moleke (2006)

Recent findings by Walker and Fongwa (2017) confirm that most African graduates indicate preference to work in the public sector while White graduates prefer to be self-employed or to work in the private sector (see Figure 2). They postulate that this is significantly influenced by the latter's strong link to the private sector compared to Black graduates.

Figure 3: Preferred graduate employment sectors[7]



	African	Coloured	White	Indian	Total
Self employment	11.4	10.1	29	12.1	15.7
Private sector	36.4	43.5	54.7	53.6	47.1
Public sector	44	53.6	23.3	53.6	43.6
Academia	13.1	24.6	22.8	39	24.9

Source: Adapted from Walker & Fongwa (2017)

The CHEC study of 2013 also asserted that White graduates (28%) are more likely to use social capital in their search for employment, compared to African graduates (11%), where the latter depend more on formal avenues to search for jobs. The confluence of race and institution is illustrated in the finding that of the four Western Cape universities, only 7.8% of Stellenbosch and UCT graduates are employed in 'government, municipalities and communities' compared to more than double (16.5%) of UWC and CPUT graduates (CHEC, 2013). This is also in line with the findings from Rogan and Reynolds (2016).

Analysis by Moleke (2006) also revealed racial differences in the occupational level at which graduates are employed in the South African labour market. More White and Indian graduates get jobs at managerial levels compared to Africans and Coloureds, who are more likely to be employed at operational levels. Akojee et al. (2012) confirms this trend in a later study showing that a bigger proportion of White graduates are employed at manager level (68%), compared to African graduates (15%) and Coloured graduates (7%).

Moleke (2010) also confirmed racial differences in the time it took graduates to find employment. While on average 70% of graduates from South African universities get employment by the sixth month after graduation, 92% of White graduates get jobs in that period in comparison to only 56% of African graduates.

7 Percentages will not add up to 100% per area of preferred employment, as the categories for selection were not mutually exclusive. In other words, graduates could select more than one area.

The CHE (2013) study also found similar trends, where it was observed that while 96% of White graduates were employed at the time of study, only about 77% of African graduates had gained employment.

Most studies alert us to the consistent and complex interplay between race, gender, field of study and institution in the labour market outcome of South African graduates (Bhorat et al., 2010; Cosser & Letseka, 2010; Moleke, 2006, 2010). Rogan and Reynolds (2016) confirm that graduates from low-income households, and particularly those who attended low-quintile schools, as well as those with degrees from HDUs are more likely to be unemployed. However, some studies maintain that race is still one of the strongest indicators of both successfully completing university and of finding employment, even after controlling for type of institution and field of study (Bhorat et al., 2010; Moleke, 2006). While the legacy of historical inequalities may still affect prospects for employment, a more positive finding is that once a graduate has found employment, there does not seem to be an earnings differential by race after controlling for other factors (Bhorat et al., 2010).

From the preceding sections we have been able to identify some of the main trends in graduate employment research with a focus on the South African context. In summary, graduate absorption into the labour market is complex and dependent on a number of factors. While obtaining a university degree significantly increases an individual's propensity to be employed in comparison to other types of qualifications, and the rest of the population, university type, field of study and its confluence with race, gender and quality of schooling impact significantly on the likelihood of finding employment, the time it takes a graduate to become employed, the sector of employment, and the propensity for the field of study to match the type of employment. Before we move to consider the design and methods to be applied to our investigation, it is also necessary to reflect on insights from studies looking at the role of public funding on graduate outcome.

2.3.5 Labour market absorption of graduates that receive public funding

Nationally, we are not aware of any published research that has investigated the labour market absorption of graduates who received public funding support. However, there are a few international studies that can guide our expectations and frame our interpretation of results. Blume-Kohout (2015) in the American context investigated how SET students' primary source of financial support during graduate training impacted on their cumulative debt load and early career employment outcomes. She found that the extent of debt appears to have an impact on the match between field of study and employment outcome, and also found racial differences in the impact of debt on early career employment choices. A further study by Blume-Kohout (2016) highlighted that type of funding support can impact on transition into the scientific workforce. Here she found that within the biomedical sciences, funding support through research assistantships, rather than through traineeships or fellowships impacted significantly on the likelihood of graduates taking up research-focused jobs in the United States (US) scientific workforce. Finally, in the Swedish context, Joensen and Mattana (2015: 46) investigated the impact of financial aid schemes on student debt, academic capital

and labour market outcomes. They found that "making income contingent repayment stricter – basically increasing taxes on post-college labour income – does not have large impacts. However, moving from an income contingent to an annuity based scheme has beneficial effects, as both drop-outs decrease and graduates accumulate less student debt and enter the labour market earlier".

In the main, investigations of the impact of public funding in the South African context have been limited to variables of access and success in the PSET system, most significantly the higher education sub-system. There have been some studies aiming to get a better understanding of the impact of the funding disbursed through NSFAS, but this has also been limited to issues of access, retention and throughput. These studies have suggested positive impacts in improved graduation rates, as well as declining drop-out rates (DHET, 2013; PER Treasury Study, 2014; Van der Berg, 2012). De Villiers et al. (2013), for example, argue, based on an analysis of cohort data, that NSFAS-supported students are better retained (i.e. drop-outs are lower) but are also going through the system faster than privately funded students.

As NSFAS, inter alia, aims at reaching those students who will otherwise not have access to PSET, having a better understanding of the labour market impact of NSFAS-funded students generally, but graduates more specifically, is a key gap in research in the country. Critical questions in this regard are: How many NSFAS-funded graduates transition into employment? Are there specific demographic profiles and patterns of social exclusion in transitions to the labour market in general, and in terms of employment in higher status occupational levels and sectors? Are patterns of exclusion improving or worsening over time? How does such patterns relate to the experience of other countries and the extent of difference, if there is, along a range of relevant variables?

Thus, in keeping with the preceding discussions, we contextualise the contribution of the findings within the graduate employment literature. Furthermore, as per the critical questions raised above, as well as evidence of the continued reproduction of social inequalities in graduate labour market outcome, there is room to use the findings as a basis for more critical engagements on the notion of 'employability'. Here we would be required to interrogate more fully the dichotomisation of whether graduates are employed or not, as well as what makes them less or more employed within a changing system (Marginson, 2011; Sandberg, 2015). We must acknowledge the range of complexities that impact on the actual and prospective labour market outcomes of individuals. Similar to insights raised by the CHEC (2013) study, such authors highlight some of the main factors impacting on graduate employability as: i) subject knowledge from university displayed in the quality of a degree or curriculum, ii) social capital or background and iii) other (soft) skills and competencies which employers increasingly demand. Given the transformational goals of NSFAS, it is important to add such a consideration to guide future analysis. An extensive reflection of relevant debates and concepts is provided in the literature review report by Fongwa et al. (2017).

As this project constitutes the first investigation into the labour market outcomes of NSFAS-funded graduates, it is by nature exploratory. We outline the design and methodological considerations next.

3. A note on methods and design

To recap, the main aim of the study is to *assess and determine the labour market absorption of NSFAS-funded university graduates in the South African labour market between 2005 and 2015*, investigating factors that explain the patterns of labour market absorption and taking into consideration a range of determinants – individual, institutional and field of study.

Ideally, we would have proposed a longitudinal panel or tracer study approach (Raffe, 2008) to such an investigation as this provides the most accurate indication of employment proportions. However, such a research design is extremely costly and time consuming. It requires a high-quality population dataset with reliable contact details for each individual, and then a methodology to survey a representative sample. Some researchers use electronic surveys, but they have not always been successful in South Africa. Simple and affordable methods of collecting data, such as Survey Monkey, an on-line survey tool, are attractive. However, in the South African contexts, they face challenges associated with email-based methods of collecting data, such as very low response rates. More significantly, they can yield highly-biased samples, reflecting those who can afford regular internet access. The HSRC has also previously used telephonic surveys, using a Computer-Assisted Telephonic Interview (CATI) tool and highly-trained telephonic interviewers to overcome the problem of low response rate and sample bias. The cost and time required for methodological rigour are very high, however. A less costly and more rigorous mechanism is to analyse administrative datasets. This requires a comprehensive population dataset containing unit record data.

NSFAS maintains a range of separate datasets at unit record level, to inform disbursement of loan funding and monitor repayment of loans. For the purposes of this project, a unique dataset was constructed at unit record level, combining data across five such distinct datasets. This unique dataset combined NSFAS **funding data** from 2005 – 2015 with South African higher education **participation** and **graduation status data** (HEMIS data) from 2005 – 2015, as well as **employment information** as at 22 February 2017. Such a methodology has recently been successfully employed at a national level to 'trace' matriculants into PSET institutions, as well as capture their education and training outcomes (Van Broekhuizen, 2016).

For this investigation, an NSFAS-funded graduate was taken as being employed if he or she had filed a tax return up until the end of the 2016/17 tax season. In addition, an individual was only considered to be validly employed if the **employer name** variable was also captured. This decision was informed by the fact that NSFAS experience with loan recovery suggests that if no employer name is captured for an individual, this likely indicates that the person is not employed or the tax return details are captured for possibly less secure forms of employment (student or casual employment).

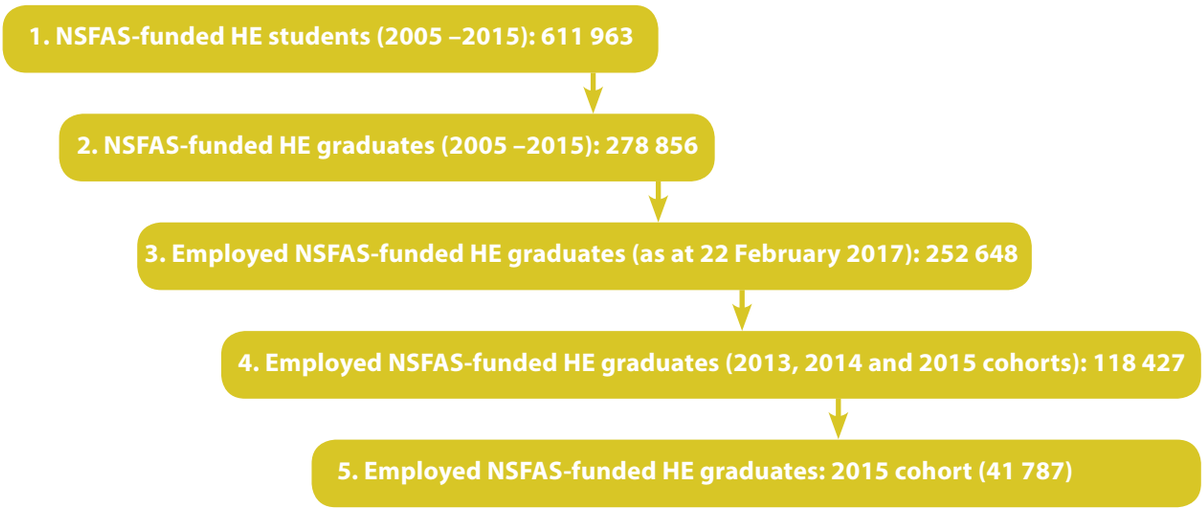
This proxy for employment would exclude an individual who may have been employed before the 2016/17 tax season, an individual who is employed in an informal setting, as well as those individuals who are continuing with further studies. It is possible also that even the 'valid' entries could include some 2015/16 employment data (because employment data is only updated once the tax return is filed). To the extent that this is the case, the employment estimates generated in this report should be seen as upper-bound estimates. ***This is not a very strong proxy for employment and indicates a key area in which NSFAS data gathering has to improve in order to strengthen the reliability of labour market absorption estimates.***

This report then provides the first baseline assessment of the labour market impact of NSFAS-funded graduates through analysing a unique dataset which provided the following usable data points:

- Demographic information (gender, race, age);
- Student-related information (higher education institution, CESM of the qualification, graduation status);
- Funding-related information (year of funding, type of funding) and;
- Employment-related information (name of the current employer).

The final dataset for analysis thus contains student funding, graduation and employment outcome information for 11 distinct cohorts of NSFAS-funded students who graduated from a public HE institution with a degree in 2005 (n = 5 552), 2006 (n = 9 314), 2007 (n = 12 246), 2008 (n = 15 275), 2009 (n = 18 232), 2010 (n = 20 732), 2011 (n = 25 234), 2012 (n = 32 009), 2013 (n = 38 648), 2014 (n = 46 723) and 2015 (n = 54 891). This enables us to explore graduation and employment outcomes of NSFAS-funded public HE students between 2005 and 2015 over time and compare the labour market outcomes of different cohorts of graduates, distinguished by institution, demographics and field of study. Figure 4 below illustrates the stages of analysis.

Figure 4: Illustration of the data cohorts that will be the focus of the analysis



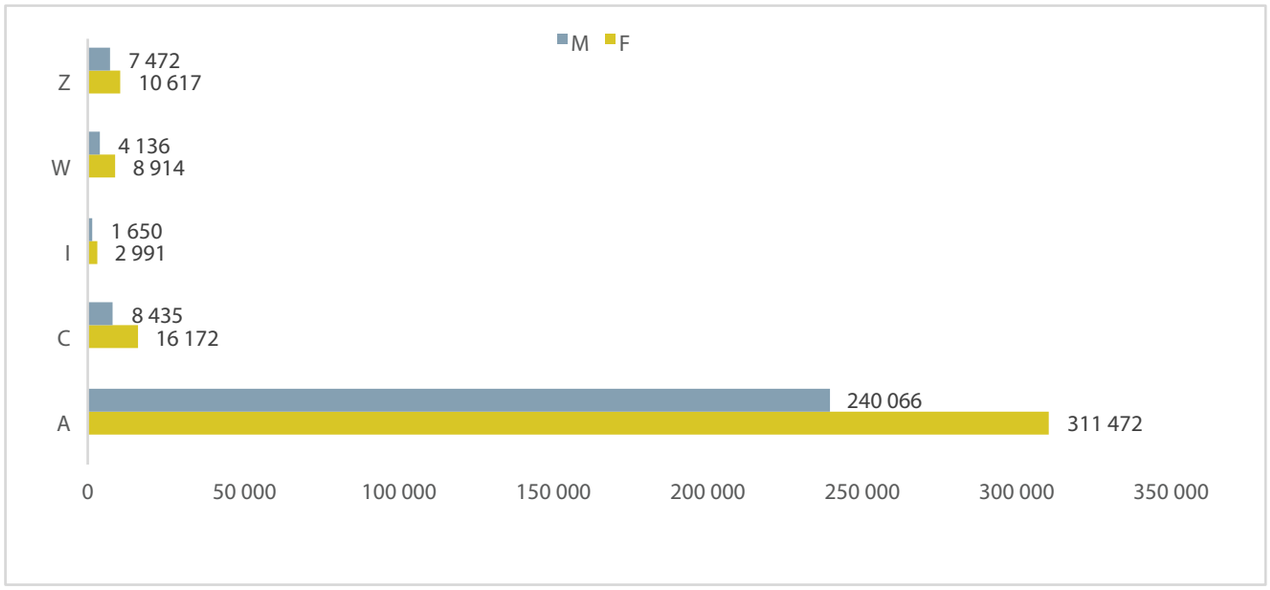
After describing the 2005 – 2015 NSFAS-funded HE student group we explore the graduates from this group and those who found employment (1-3 in the figure above). Then, later in the report, we focus on the 2013, 2014 and 2015 graduating cohorts, for which we have the most reliable CESM data, to explore the impact of field of study on labour market outcome. Finally, we focus in the final analysis on the 2015 graduating cohort as an indication of 'time to first job'. These last two sections (4–5 in the figure above) provide critical insights into the labour market outcomes of particular groups of NSFAS-funded HE graduates, including a sense of rate of absorption.

4. All NSFAS-funded students between 2005 and 2015

Before we focus on the employment outcomes of NSFAS-funded HE graduates, it is important to start with a profile of the study population, in other words a profile of NSFAS beneficiaries between 2005 and 2015, as this provides the background for considering the significance of the findings.

In line with the objectives of the funding scheme, we found that the majority of recipients come from designated groups. Firstly, beneficiaries of NSFAS funding from 2005 to 2015 were predominantly female (57%). Recipients were also disproportionately African (90%), with smaller proportions of Coloured (4%), White (2%), Indian (0.7%) and recipients classified as Other (3%). This confirms the strong transformative and redress objective of NSFAS support to provide access to higher education for particularly African individuals but raises the question of whether more can be done to include bigger proportions of Coloured and Indian/ Asian individuals.

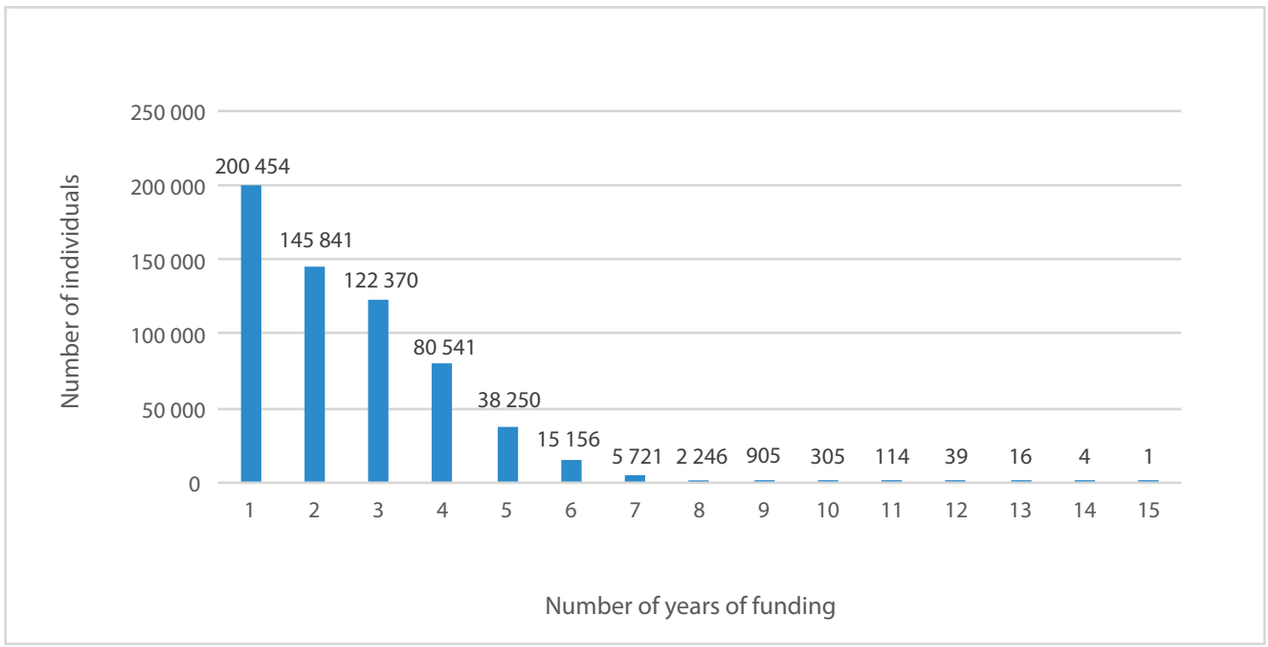
Figure 5: All NSFAS-funded students between 2005 – 2015 by race and gender



Note: M = Male, F = Female, A = African, C = Coloured, I = Indian/Asian, W = White, Z = Other, N = 611 963

The average length of funding support is 2.5 years, with a minimum of 1 year and a maximum of 15 years (only one individual fell into this category). The majority of the distribution is concentrated between 1–6 years of funding (98.5 %) (see figure 6). Thus, it is most likely that NSFAS will support students for roughly 3 years (the minimum time to complete a degree) and much less likely that funding support will exceed 6 years.

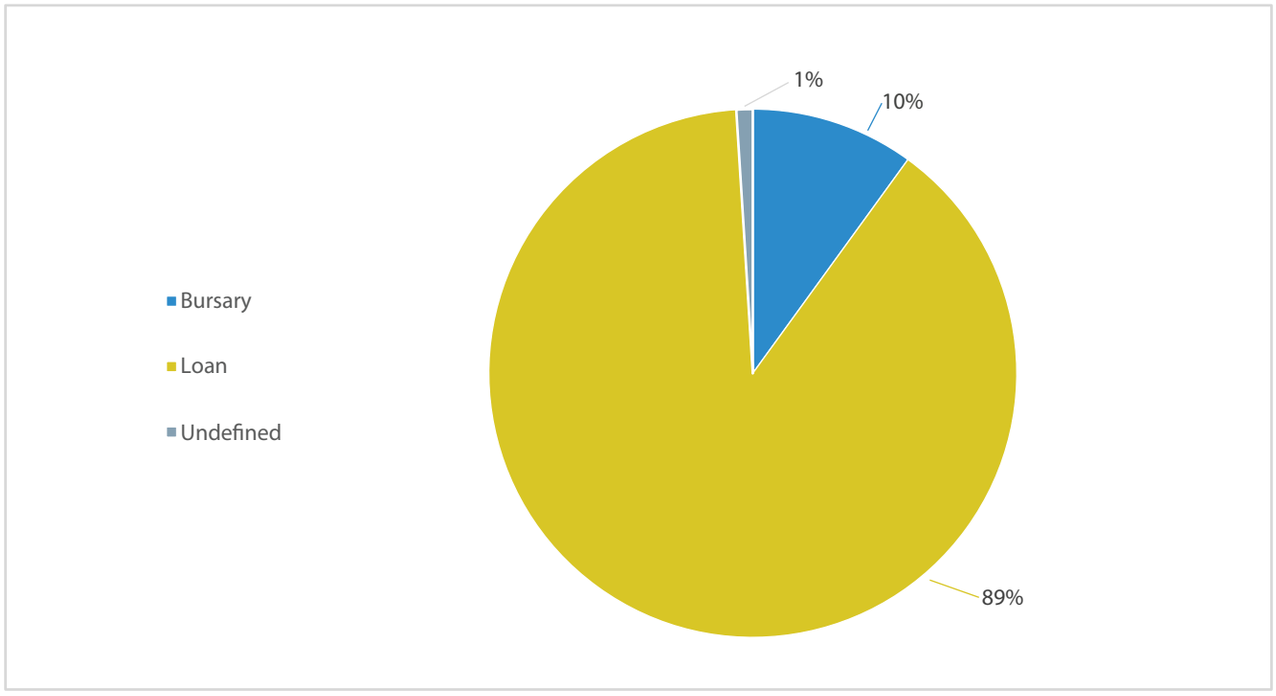
Figure 6: Distribution of awards by number of years of funding



N = 611 963 (number of individuals receiving an NSFAS award total number between 2005 and 2015)

NSFAS has a loan bursary conversion scheme, where up to 40% of a loan may be converted to a bursary if a student performs well academically. The dominant type of funding across the period is a loan of some sort, with a much smaller proportion being bursaries (see figure 7).

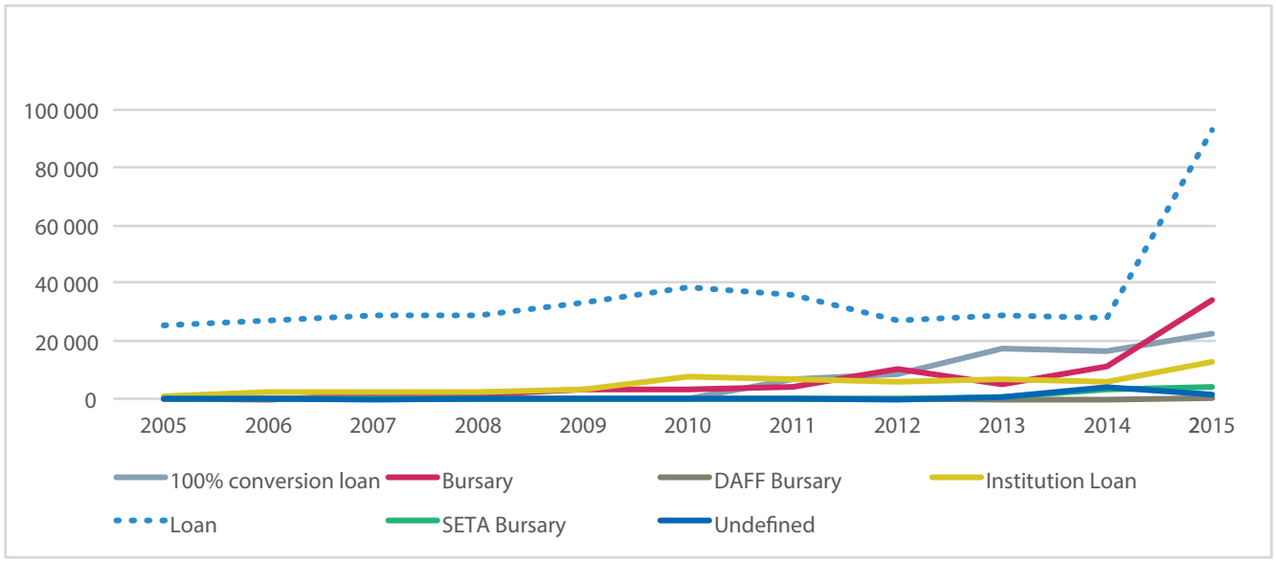
Figure 7: NSFAS awards between 2005 and 2015 by type



N = 1 534 807 (number of awards between 2005 and 2015)

Figure 8 (below) considers trends over time and disaggregates further by the categories used by NSFAS to differentiate between types of loans and bursaries. This figure confirms increases in the amount of loans and bursaries awarded by NSFAS (as noted in the introductory section). It also highlights the sharp increase in the amount of loans and, to a lesser extent, bursaries awarded between 2014 and 2015. As intimated earlier, this is most likely related to the DHET increase in funding allocations to higher education, in response to the #FeesMustFall protests.

Figure 8: Number of NSFAS awards by type and year (2005 – 2015)



N = 1 534 807 (number of awards)

A few other aspects are worth highlighting from this figure. The fact that the 100% conversion loan (also known as the Final-Year Programme) has shown such a steady increase since it was introduced in 2011, points to improvements in students' academic performance, as this is only granted on the basis of meritorious performance. It is only awarded if students pass all their final year subjects. If not, the conversion applicable to general loans is applied[8]. The figure also highlights that SETA and DAFF bursaries make up a very small proportion of overall awards. Institutional loans also do not constitute a very big component of awards over this period.

In sum then between 2005 and 2015, NSFAS has clearly facilitated access to higher education primarily for African and female beneficiaries. Individuals are most likely to receive on average between 3–6 years of funding, with much smaller proportions of students receiving awards for longer periods. The biggest proportion of awards are loans (90%), but this is expected given NSFAS's loan conversion scheme. Judging from the upward trend in the 100% conversion loan line, there is evidence that performance is also improving, but of course this will need to be corroborated with other and better indicators of academic success.

8 In other words, students who apply to be on the NSFAS Final-Year Programme can have their final-year loans converted into a 100% bursary if they pass all of their final-year courses and qualify to graduate (NSFAS, 2017).

We now turn to the main purpose of the report: the estimation of labour market absorption of NSFAS-funded HE graduates, considering the following research questions;

- What is the percentage of NSFAS-funded individuals who graduated between 2005 and 2015, with employment?
- How has this proportion changed over time between 2005 and 2015?
- How does this proportion vary by the following variables of interest: demographic characteristics; institution type; and field of study?

The analysis to follow thus aims to establish the overall employment proportion, as well as investigate changes and differences in employment proportions across different cohorts.

5. The absorption into employment of NSFAS-funded individuals who graduated between 2005 and 2015

Figure 9 below illustrates the total number of HE NSFAS recipients who graduated between 2005 and 2015 that we estimate to be employed, based on our proxy for employment (as explained in section 2). The total of 252 648 employed, NSFAS-funded graduates, represent about two fifths (41%) of all NSFAS-funded students between 2005 and 2015 (611 963) (as described in section 4 above) and 91% of all NSFAS-funded graduates between 2005 and 2015 (278 856).

The consideration of overall numbers from our merged dataset also suggests a NSFAS-funded student graduation rate of 46% during the period 2005 – 2015. This falls roughly in the middle of recent estimates of NSFAS-funded student graduation. A recent DHET (2017) cohort study suggested a higher rate of graduation for NSFAS-funded students, between 59% and 63% at 10 years after graduation, while a year before the Treasury PER (2016) suggested a graduation rate of closer to 32%. It is necessary to investigate and clarify the drivers generating these differences in estimations. Our estimated graduation 'rate' is based on the total number of NSFAS-funded HE students from 2005 to 2015 and matching this with graduation status data from HEMIS between 2005 and 2015.

Figure 9: NSFAS-funded graduates that found employment contextualised

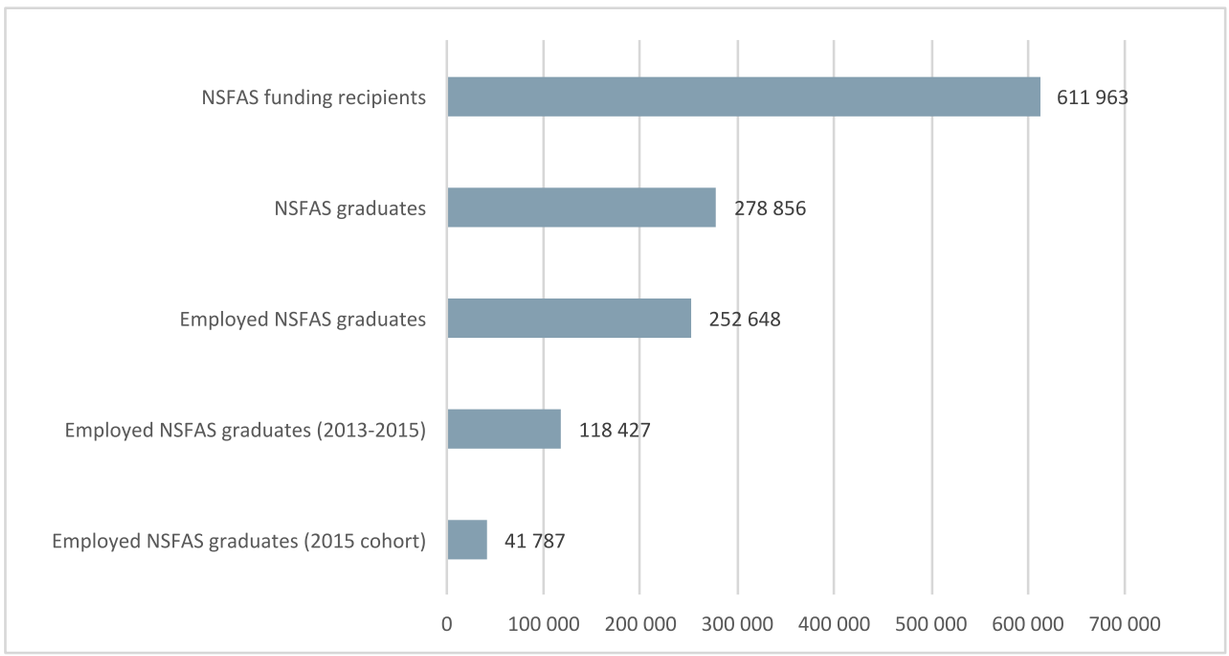
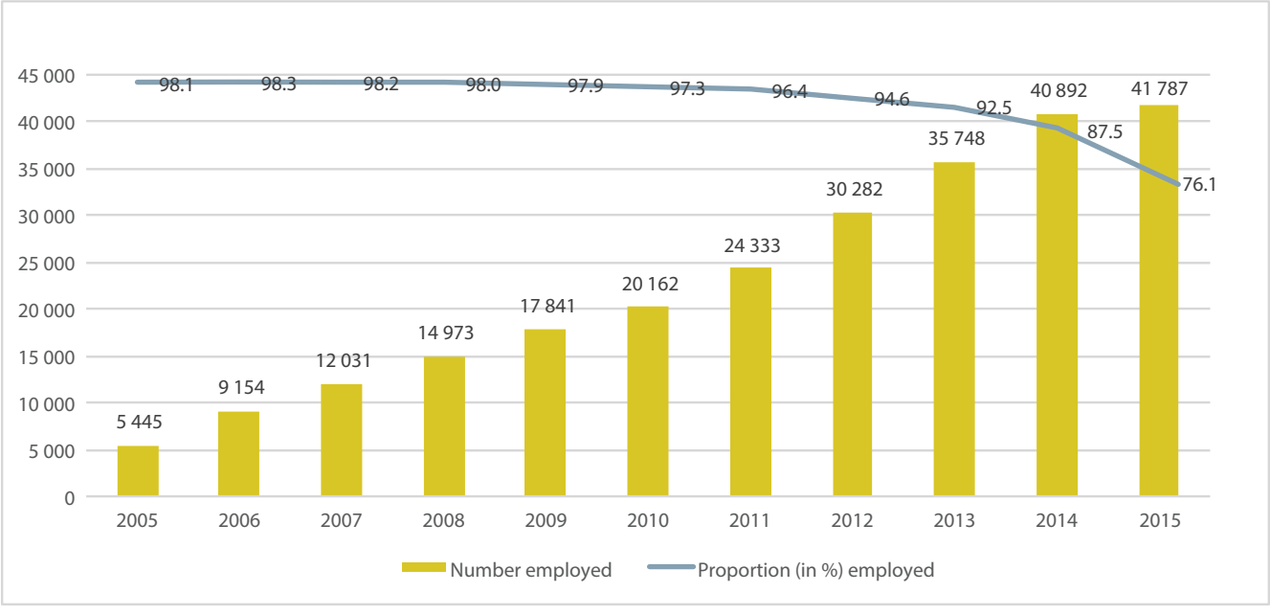


Figure 9 above also gives a sense of the context within which we should examine the trends in labour market outcome to be discussed in more detail below. This overall number of NSFAS-funded individuals form a small proportion of the overall higher education student population. But as this group represents a vulnerable constituency of our society, it is of great consequence that through accessing higher education and successfully completing their degrees they experience such high levels of overall employment.

5.1 Employment estimates and change over time

The number of NSFAS-funded graduates in employment has risen steadily since 2005, from 5 455 to 41 787 (as shown in Figure 10). We find an overall high average rate of NSFAS-funded HE graduate employment during the period (91%).

Figure 10: Number and proportion (%) of NSFAS-funded graduates between 2005 and 2015 (employed as at 22 February 2017)



N = 252 648

The figure shows that, as at 22 February 2017, on average nine out of ten graduates funded by NSFAS between 2005 and 2014 had found employment. The trend in the data is consistent with expectations in that the employment 'rate' decreases as we get closer to 2015, as a shorter period has elapsed since graduation. The employment proportion is highest for NSFAS-funded students who graduated in 2005, and by the time we get to the 2015 graduates, the employment proportion is 76%. It is clear that an individual's propensity for employment declines as the period of time after graduation decreases.

This estimate compares favourably with recent Australian and EU research on the employment rates of recent graduates. The former found a graduation rate of 68% measured four months after graduation, while the latter found a higher rate of 83%, but their definition of recent graduate was 1 to 3 years after graduation (OECD, 2017). Taking into account all this information, the employment estimates based on the analysis of our merged dataset (already acknowledged as likely to be upper-bound estimates) appear plausible based both on studies concerned with the employment rates of graduates generally, but also the expected rates as time after graduation decreases.

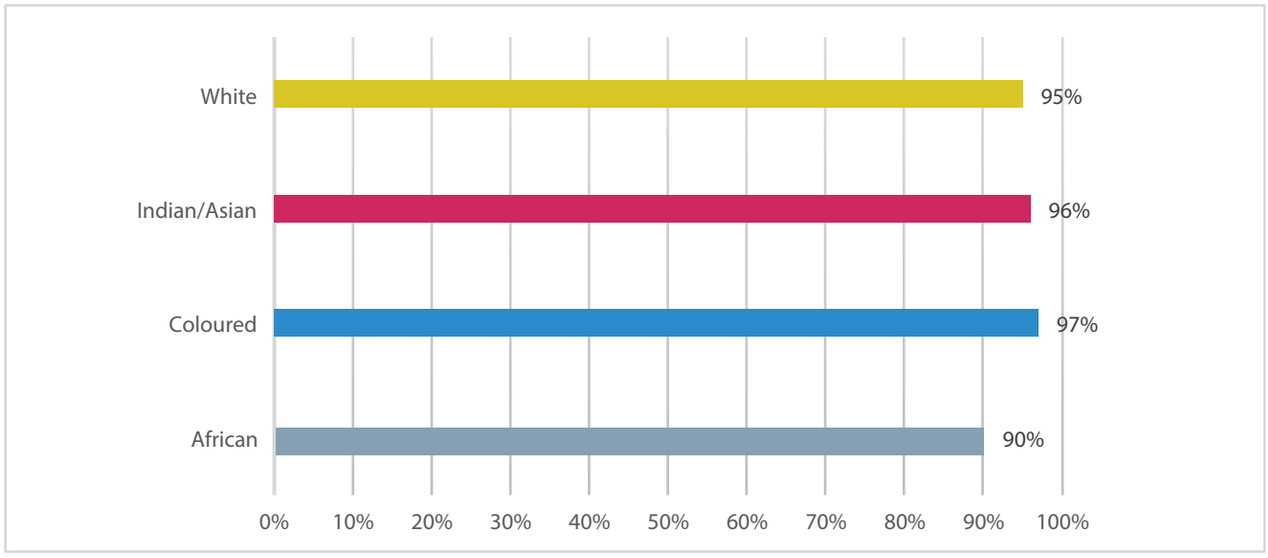
We have already explained that the data at our disposal allows us to investigate the employment proportion of 11 cohorts of NSFAS-funded graduates over time and that the data is less suitable for the analysis of a labour market absorption rate. But as the 2015 cohort of NSFAS-funded graduates represent a good proxy for 'time to first job', we will focus later more in-depth analysis on the determinants of their employment outcomes. Indeed, this will give us a sense of the labour market absorption rate of NSFAS-funded HE graduates, distinguished by race, gender, institution and field of study.

5.2 How do employment patterns vary by demographic characteristics

Recent cohort study information (DHET, 2017) points to a higher graduation rate for NSFAS-funded women students (66% for the 2006 cohort) in comparison to men (59%). When examining how our employment data compares, we find that the opposite is true for transition into the labour market. We found women to have a lower average employment 'rate' (90%) than men (92%) over the period of investigation (2005 – 2015). We will explore later through regression analysis, whether this difference by gender is statistically significant.

The average rate of employment by racial groups also appears to suggest remaining inequalities in transition to employment. While Coloured, Indian and White NSFAS-funded HE graduates have an employment proportion that is between 5 and 6 per cent higher than the average, Africans have a slightly lower rate of employment than the average across all years. As one has to take into account the total number of individuals to get a better sense of whether these differences are statistically significant, the impact of race on employment propensity, similar to the impact of gender, will be considered later in our final regression analysis.

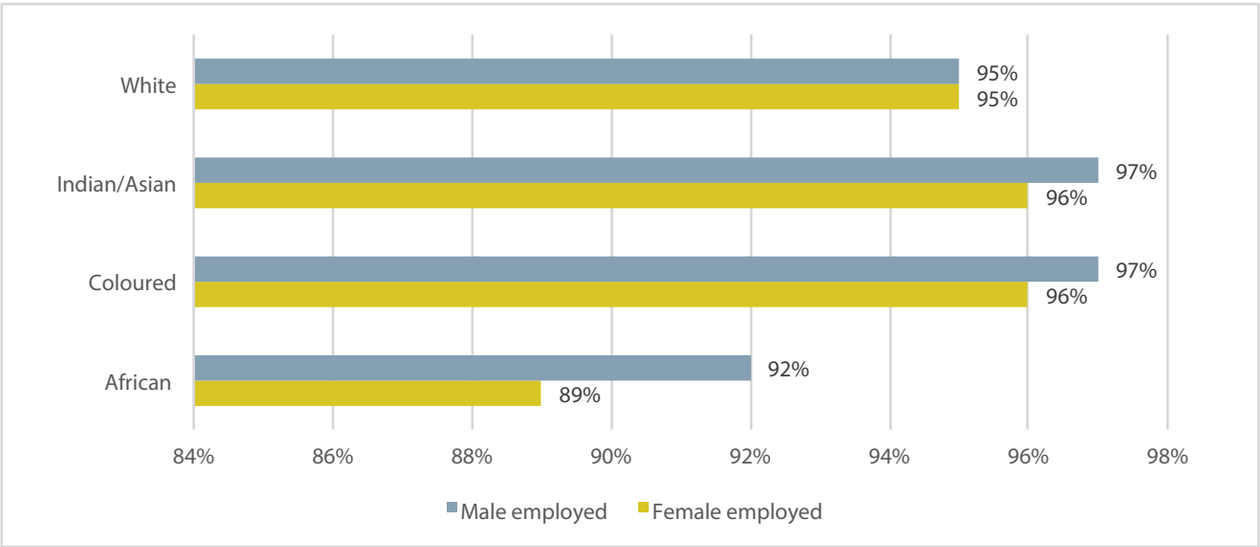
Figure 11: Average rate of employment between 2005 and 2015, disaggregated by race



N = 252 648

Considering race and gender together (see figure 12 below) illustrates subtle gender differences in employment proportion between White (0.4%) and Coloured (0.7%) males and females, with differences in employment rate being most pronounced for African (2.8%) and Indian/Asian individuals (1.4%). This is a concerning finding, considering the fact that the majority of NSFAS recipients are African females.

Figure 12: Average employment of NSFAS-funded HE graduates from 2005 – 2015, disaggregated by race and gender



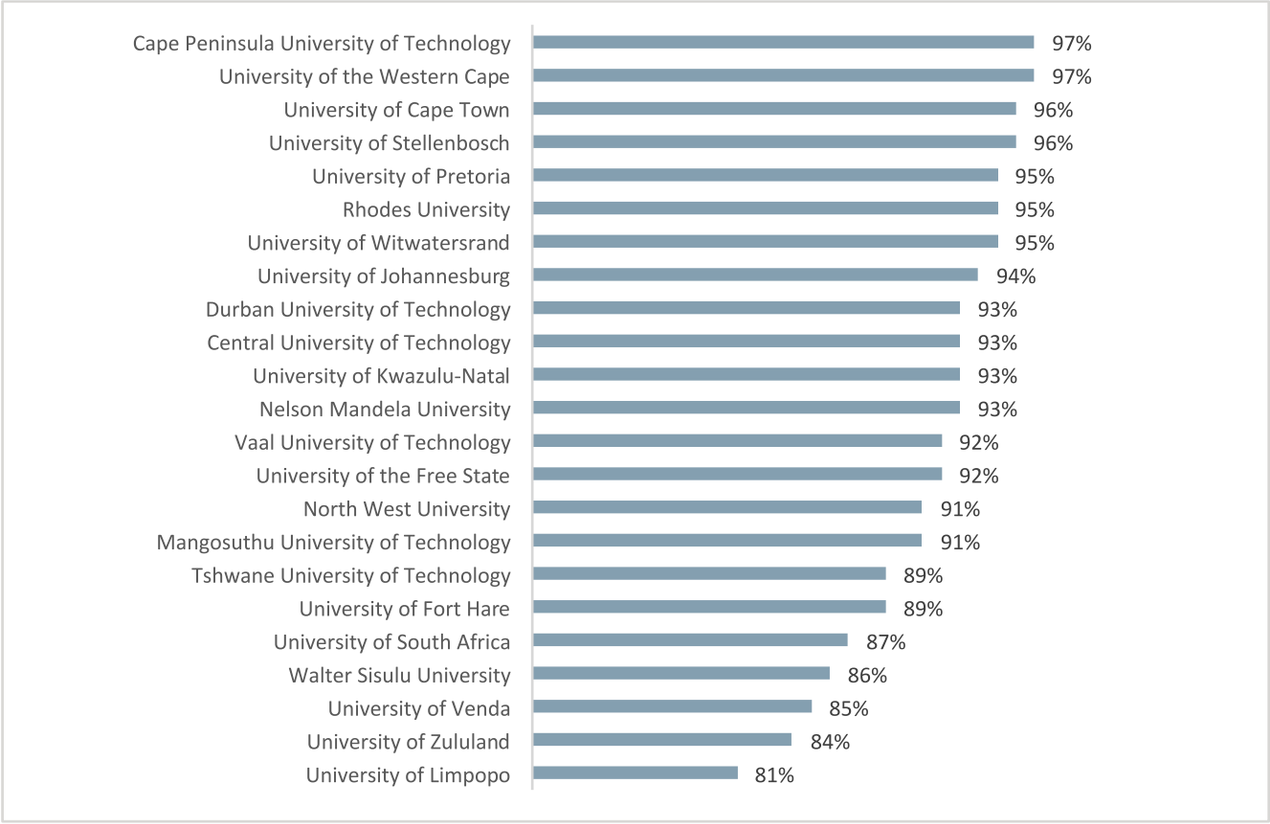
Note: African (M = 96 129, F = 135 332); Coloured (M = 3 463, F = 6 594); Indian/Asian (M = 907, F = 1 647); White (M = 1 781, F = 3 154); Other (M = 1 308, F = 2 476)
N = 252 648

These findings raise further questions: What are the reasons for differences in employment by gender and race? Are these findings a reflection of job/hiring preferences? Or do these trends reflect decisions by women to enter into the labour market later or not at all? It is noteworthy that this effect is strongest in the African population group, with the reverse gender trend actually evident for Whites.

5.3 How do employment patterns vary by institution?

Figure 13 shows the average employment proportions for NSFAS-funded HE graduates disaggregated by university. This highlights how this 'rate' varies quite substantially (17%), depending on the institution attended. This is consistent with the findings from other studies (for example, Bhorat, 2010; Van Broekhuizen, 2016), and remains one of the most consistent findings in the South African literature on graduate employment. The top three universities ranked by average percentage of employment, are CPUT (98%), followed by UWC and UCT in third place. The lowest average employment proportions were noted for University of Limpopo graduates (81%), followed by Zululand (84%) and Venda (85%).

Figure 13: Rate of employment between 2005 and 2015, disaggregated by institution

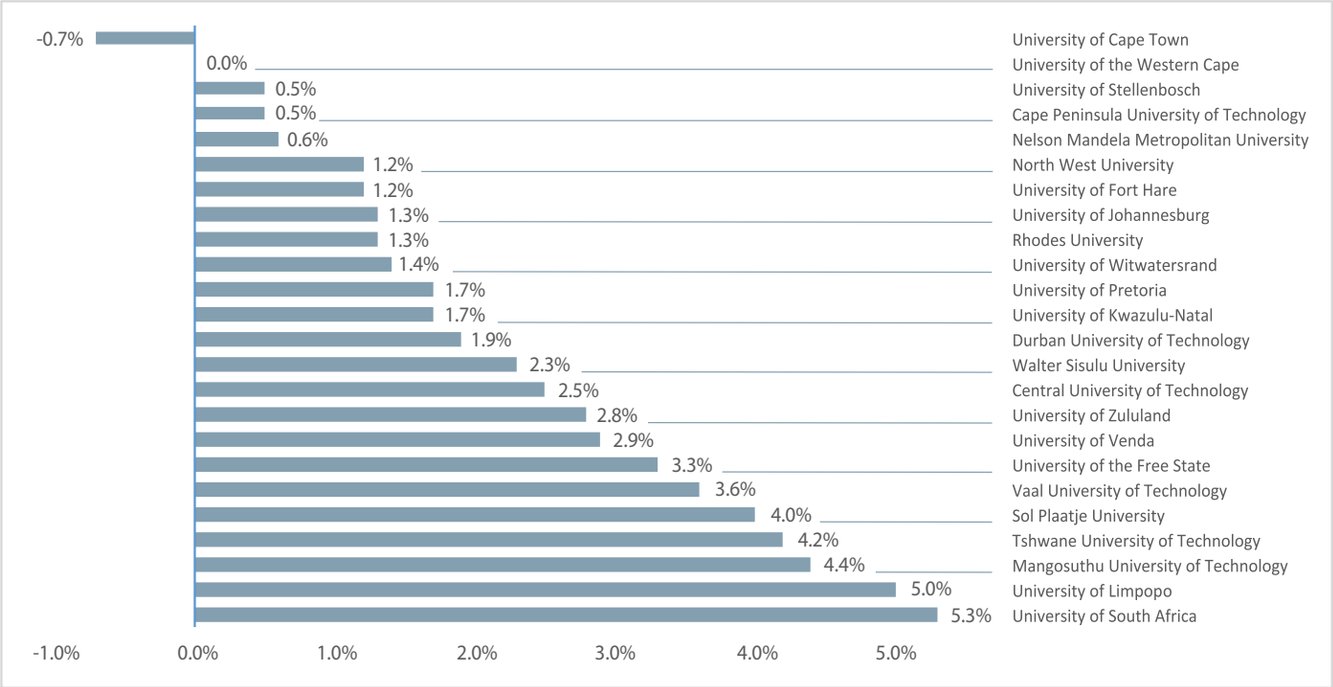


N = 252 648

A closer look at Figure 14 shows an interesting grouping of universities ranked from highest to lowest employment proportion. The grouping seems regional, firstly with Western Cape institutions presented at the top of the distribution (CPUT, UWC, UCT and US), followed largely by Gauteng institutions (UP, WITS and UJ – the odd one out here regionally being Rhodes University). The middle of the distribution has a range of institutions, seemingly not paying attention to regional location and then again, the bottom of the distribution is represented by rural HDUs (WSU, UNIVEN, UNIZULU and UL). Thus, while the ranking of employment proportions of NSFAS-funded graduates aligns broadly with our expectations from the literature with some HDUs being at the bottom and some HWUs at the top of the distribution, there are some exceptions. CPUT, for example, has the highest average employment proportion, with Wits and UKZN falling somewhere in the middle between a range of different institutions. Does this point to possible changes in employment outcome by institution, with a bit of reshuffling of the rankings taking place? Would this suggest that location, whether a university is in a rural or more urban setting, is starting to play a bigger role? We will return to this question later.

Figure 14 disaggregates the employment proportion by institution further by gender, and it is also arranged in terms of the difference between the proportion for males and females from left to right. The biggest difference between male and female average employment 'rates' is for those that studied at UNISA, UL and Mangosuthu University of Technology, whereas for NSFAS-funded graduates from UCT, women have a slightly higher average employment proportion than men. For NSFAS-funded graduates from UWC there is no difference in the employment proportion for women and men. Stellenbosch, CPUT and Nelson Mandela University have less than 1% difference between the employment proportion for men and women. While we cannot yet comment on the statistical significance, finding this difference raises again questions regarding the role of institution attended in finding employment, with gender disparities in finding employment being smallest for some institutions and much greater for others. We will test the significance of these trends in the regression analysis to follow later, but this starts to sensitise us to the possible interplay between institution and gender in the propensity for employment. In other words, is it possible that institution attended affects the likelihood for a stronger or weaker gendered outcome in employment?

Figure 14: Employment proportion between 2005 and 2015, disaggregated by institution and gender



N = 252 648 (Please check writing in figure above. Please replace commas in percentages with fullstops.)

As stated earlier in section 2, South African literature that considers the effect of field of study on the nature of employment outcomes is inconclusive. Some studies suggest a significant impact of field of study on likelihood for being employed, as well as the time it takes to become employed (CHEC, 2013; Du Toit & Roodt, 2008; Moleke, 2010). Other studies refute such findings to some degree. There is also research that link field of study to salary differences, with humanities graduates likely to earn considerably less (between

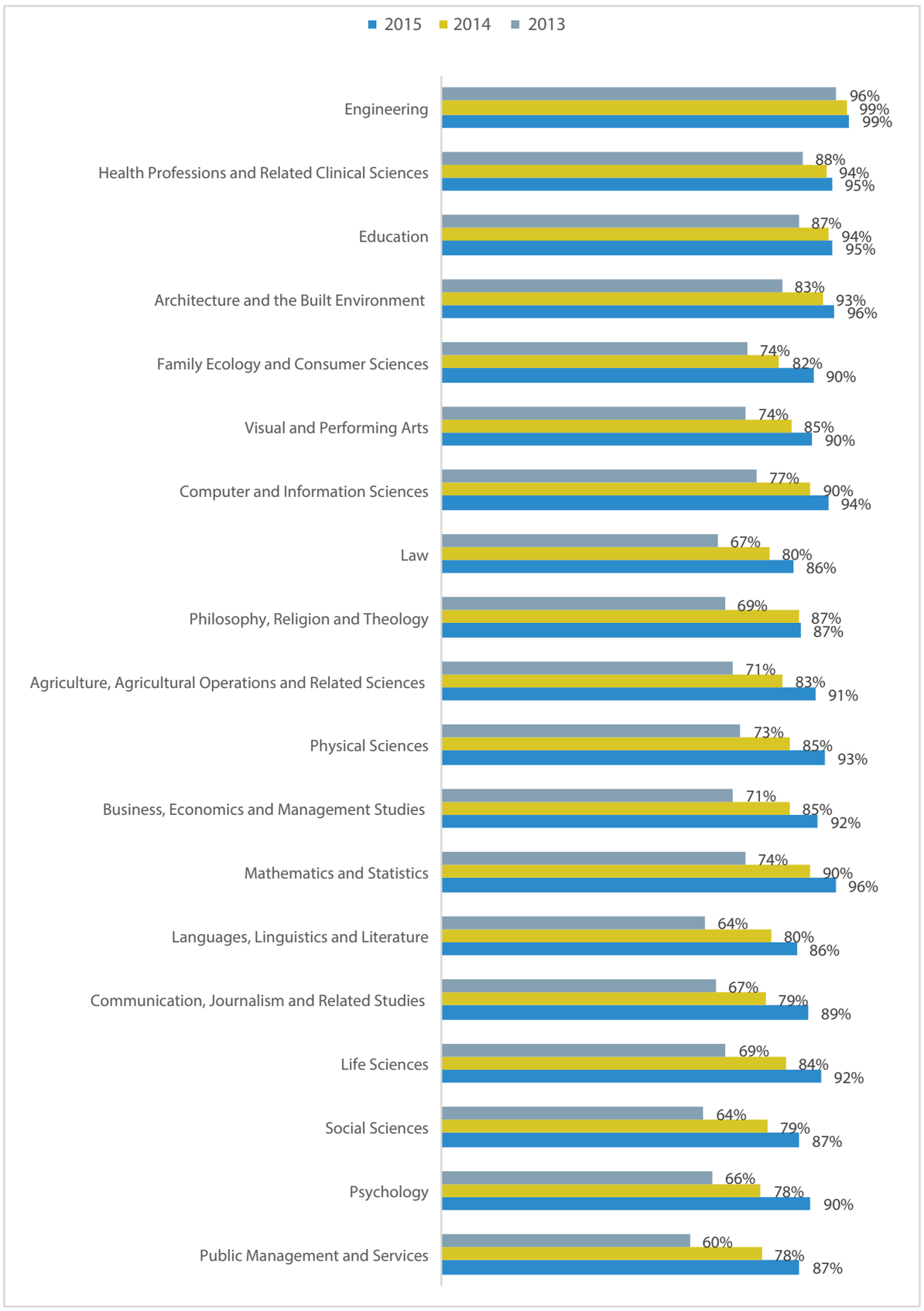
30 and 35 per cent less) than graduates with more technical degrees (Branson, 2012; Mouton et al., 2010), but even these findings have also been challenged (see Bhorat et al., 2012). Furthermore, there is research that points to a higher likelihood for employment and study field match for graduates from certain fields (Walker & Fongwa, 2017).

Evaluation of the trends in employment of NSFAS-funded individuals who graduated in the 2013, 2014 and 2015 cohorts (i.e. the cohorts which provided the most reliable CESM values as a proxy for field of study), indicate variation in employment proportions by field of study (see figure 15 below). The grey bar represents the employment estimate for the 2015 graduating cohort, followed by the orange bar for the 2014 graduating cohort, and finally the blue bar illustrates the employment estimate for the 2013 graduating cohort. Secondly, the graph arranges the y-axis (field of study) based on the difference between the employment estimate for each graduating cohort – top (smallest difference) to bottom (biggest difference). Because of the quality of the CESM data across years, we are careful not to draw very strong conclusions on 'declines'/'increases' of employment rates by field of study over time, but we do consider merely at a comparative level, this information per graduating cohort (2013, 2014 and 2015).

It is possible to draw out some high-level insights. For example, it is quite notable how stable the Engineering employment estimate remains, regardless of year of graduation, in comparison to the larger variation in employment estimate for NSFAS-funded graduates from the Public Management and Services field, for example. This could suggest that the likelihood of employment is much less affected by the time since you have completed the degree, if you graduate with an Engineering degree in comparison to a degree from the Public Management and Services field.

Figure 15 confirms an overall higher and more consistent employment rate for graduates from Engineering, Health Professions and Related Clinical Sciences, Education, and Architecture and the Built Environment fields. This suggests indeed that students from Engineering, Health Professions and Related Clinical Sciences, Education, and Architecture and the Built Environment fields have very smooth transitions into employment, and even shortly after graduating, theyhave more than an 80% chance of being employed. This likelihood improves even further 2 to 3 years after graduation. The opposite is true for Public Management and Services, Psychology, Social Sciences and Life Sciences fields, which have the lowest employment proportion across all the graduating cohorts. In other words, it appears from this data that for some fields of study, the likelihood for employment is much more affected by the time since graduation.

Figure 15: Employment proportion disaggregated by field of study for 2013 – 2015 cohorts of NSFAS-funded graduates



N = 118 427

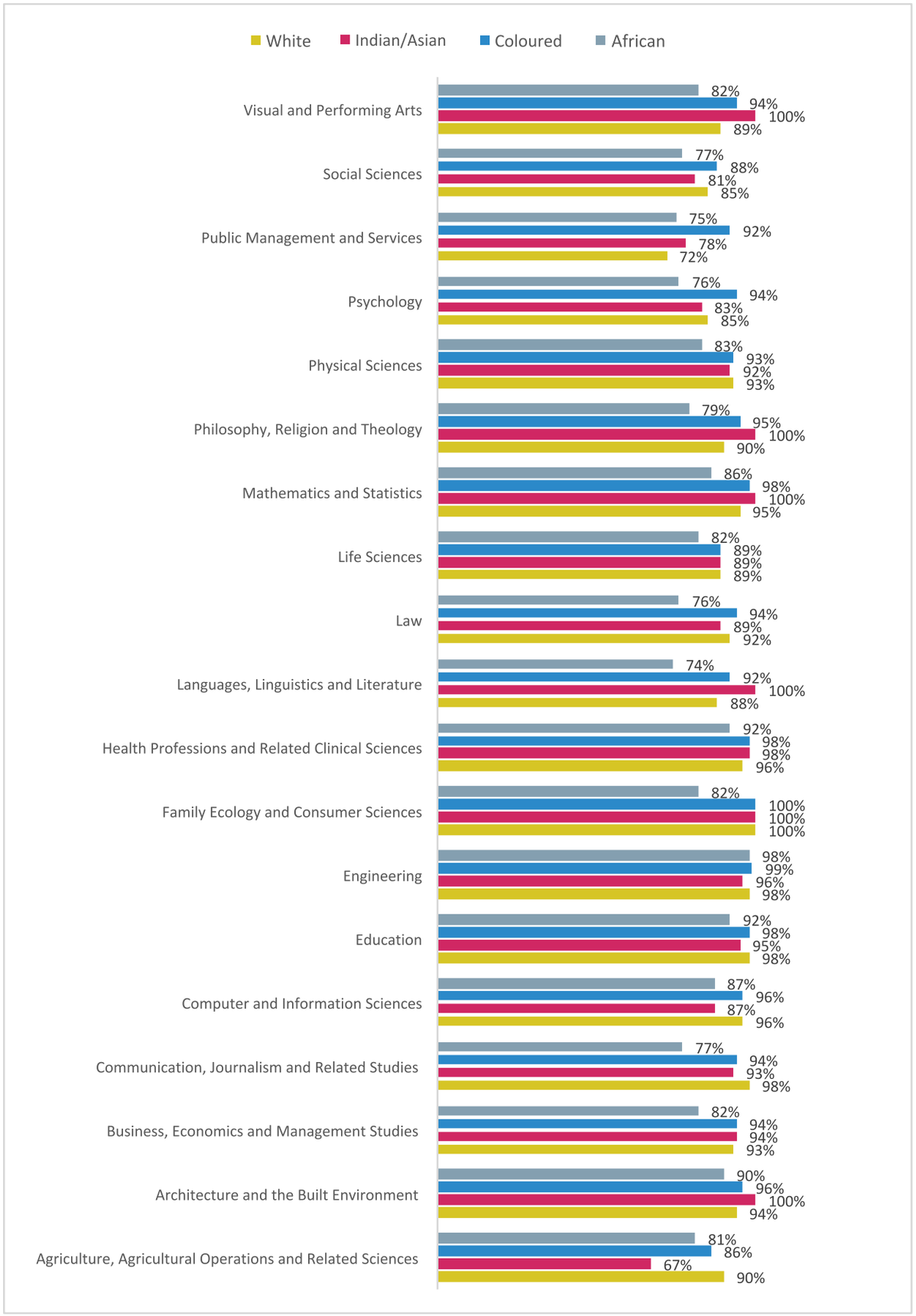
When one further considers the addition of race (see figure 16 below), it is clear that Africans experience a lower rate of employment in comparison to White graduates across disciplines. In line with other studies discussed in the literature review thus, our data also appears to suggest that irrespective of study choice, there is a race disadvantage to finding employment in the South African labour market. The difference in employment proportions by race appears more profound in certain disciplines, for example, while White NSFAS graduates from the Mathematics and Statistics field have a 95% average employment proportion, Africans have a comparable proportion of 86%. For graduates from the Life Sciences field there is a much smaller variance in average employment proportion by race: Whites, Indian/Asians and Coloureds have a proportion of 89%, compared to Africans with an average of 82%.

Similarly, in the Business, Economics and Management Studies field there is a small differences between the employment proportions for White (93%), Indian and Coloured graduates (94%), but African graduates have an employment proportion that is more than 10% below that of the rest of the groups (82%). Such differences in employment proportion of Africans in comparison to other race groups are quite pronounced in the Public Management, Psychology, Family Ecology, and Consumer Sciences and Communication, Journalism and Related Studies fields. On the other hand, racial differences in employment proportions are quite small in the Engineering, Life Sciences, Health Professions and Education fields. It is notable that Indians are particularly disadvantaged in terms of employment outcome, if they come from an Agriculture, Agricultural Operations and Related Sciences field.

One has to be cautious with the interpretations by race and CESM, as we know that Indian/Asians, Whites and Coloureds form a much smaller number of individuals in the population, but also some fields reflect much smaller numbers of graduates. We will, however, in the regression analysis to follow later, be able to test whether these findings by CESM and race still hold.

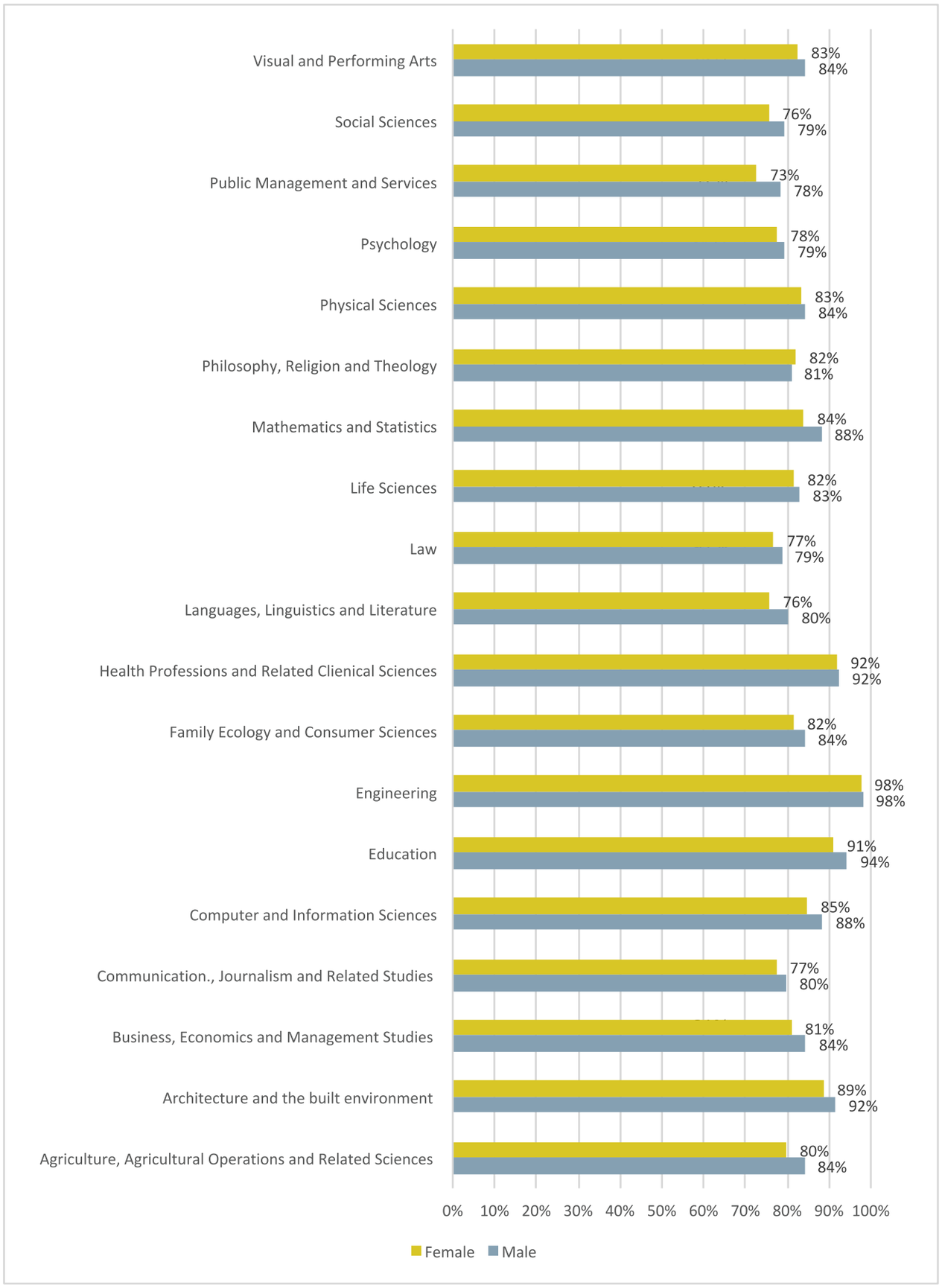
Next we turn back to the issue of gender to explore possible differences in employment proportion by the field of study. Figure 17 below confirms a generally lower average rate of employment for women in comparison to men, across various fields of study. There are some exceptions to the rule: In the Engineering and Health Professions and Related Clinical Sciences fields we find no difference in the employment proportion of women and men, and in the Philosophy, Religion and Theology field, the average employment proportion of women is 1% above the proportion for men. The difference is highest in the field of Public Management and Services. For all remaining fields of study, the average employment proportion of women is lower than that of men. It is also notable, if we reflect on the insights from the previous figure, that the differences in employment proportion by gender is much smaller than by race.

Figure 16: Average employment for NSFAS-funded graduates between 2013 and 2015, disaggregated by field of study and race



N = 118 427

Figure 17: Average rate of employment between 2013 and 2015, disaggregated by field of study and gender



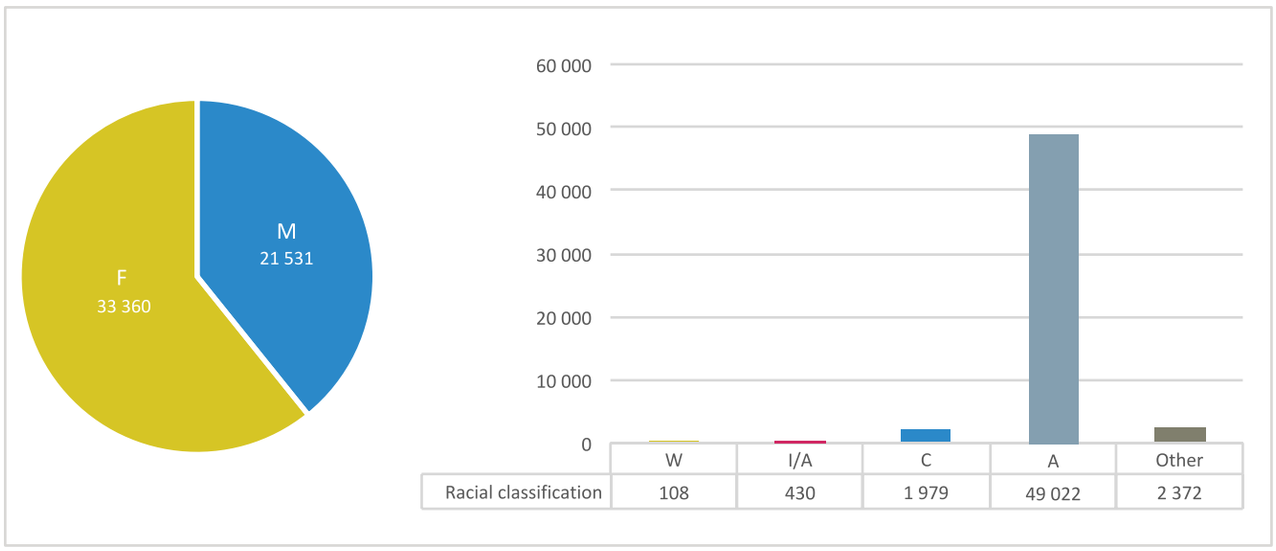
N = 118 427

Such findings again raise questions around the role of gender in securing employment and, similar to preceding insights (around the interplay between institution and gender), suggests that the strength of the impact might be mitigated by field of study. Before drawing together trends observed up until this point, we briefly turn to a closer analysis of the 2015 graduating cohort.

5.4 A focus on the 2015 graduating cohort

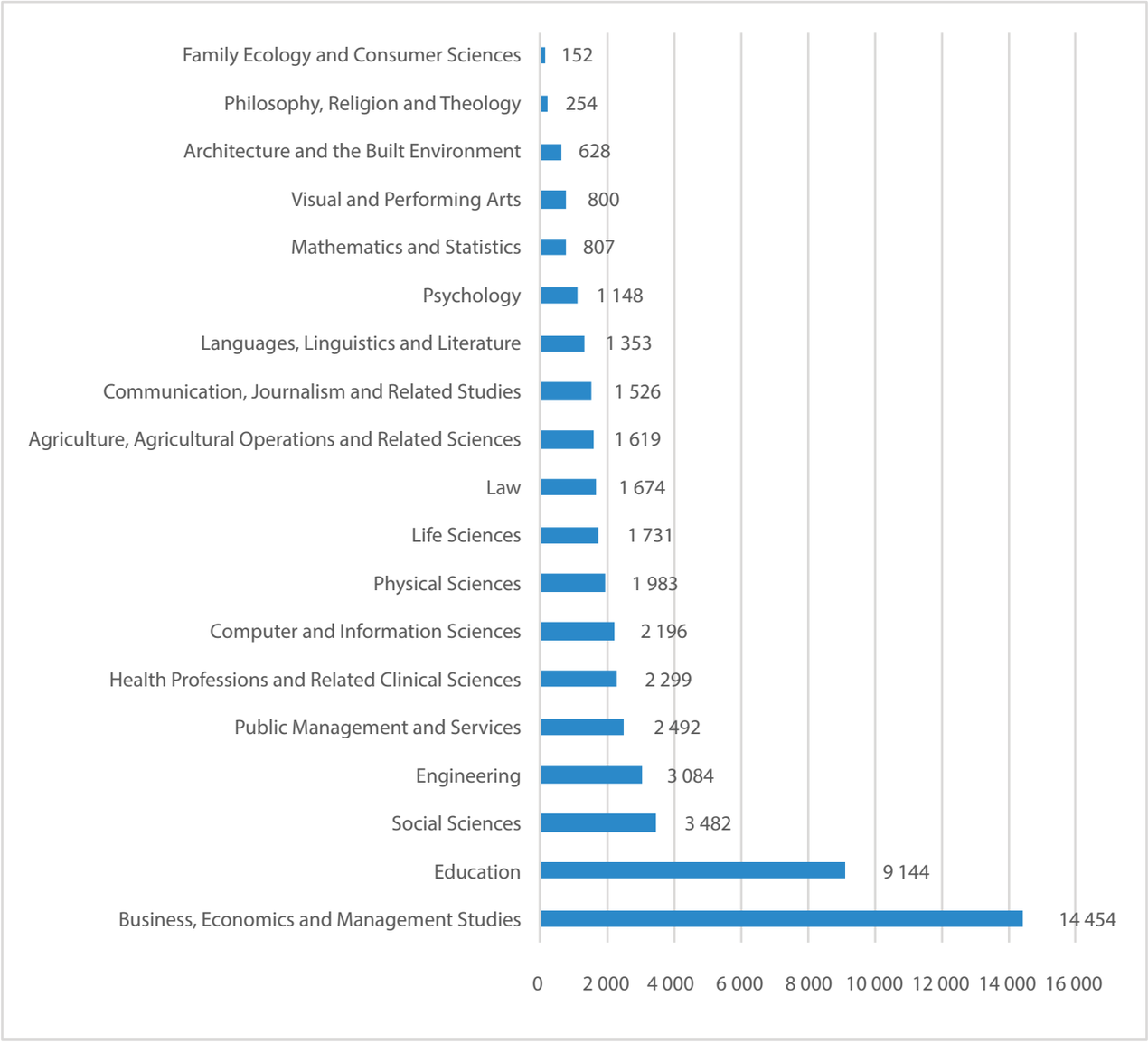
As explained before (section 3), our proxy for employment considers all NSFAS-funded graduates that had filed a tax return as at 22 February, in addition to having a valid employer name captured, as being employed. 22 February 2017 represents just over a year (14 months) since the 2015 cohort would have graduated. Since it has been a relatively short period, an analysis of employment outcomes for this cohort is a proxy for estimating 'first entry into a job'. But before we focus on the employment estimates, we need to give a sense of how this group of NSFAS-funded graduates (54 891 individuals) are distributed in terms of race, gender and field of study. It is clear that the majority of 2015 graduates are female (61%) and African (89%) in line with the rest of the study population.

Figure 18: Race and gender of NSFAS-funded graduates (2015 cohort)



Furthermore, the majority of NSFAS-funded graduates in the 2015 cohort come from the Business and Management Studies field (28%), followed by Education graduates (18%) and the smallest group of graduates come from the Family Ecology and Consumer Sciences (0.3%) and Philosophy, Religion and Theology fields (0.5%).

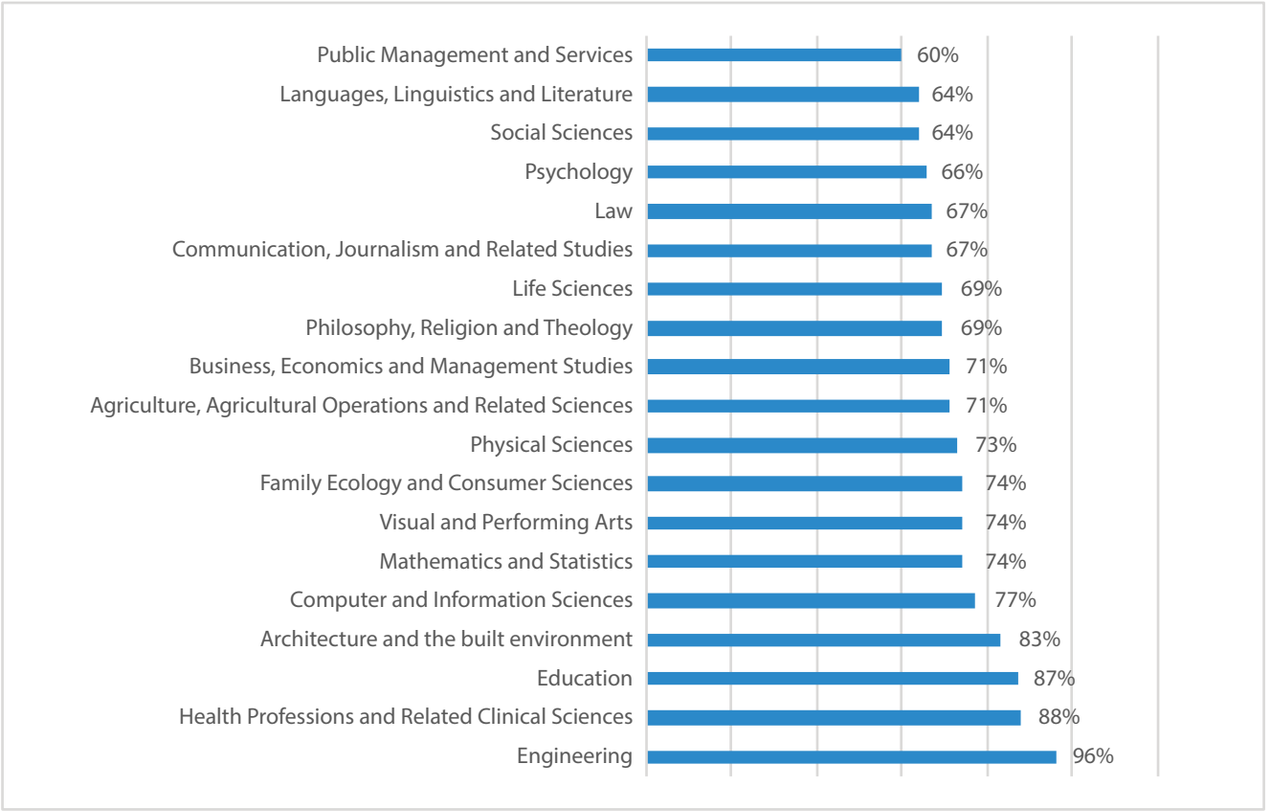
Figure 19: Distribution of 2015 cohort of NSFAS-funded graduates, disaggregated by field of study



N = 54 891

Figure 20 below illustrates the employment proportion by field of study (as per CESM categorisation). In alignment with many other South African studies it shows that particularly Engineering, Health, Education, and Architecture and the Built Environment graduates have a higher propensity for quick absorption into the labour market. Of course, the size of the graduate population has a bearing on the employment proportion, but it is significant to find that Business Economics and Management Studies, which have a total of 14 454 graduates in this sample, has a much lower graduation rate, ranking in fact 11th in this total of 19 fields of study.

Figure 20: Employment rate (%) of 2015 cohort of graduates, disaggregated by field of study



We know that this cohort has an overall lower rate of employment since they are the most recent graduates (75%). Nonetheless, the trends in terms of employment proportion by field of study is consistent with our findings of the 2013 and 2014 graduating cohorts. Engineering, Health, Education, and Architecture and the Built Environment fields have the highest employment proportions. Public Management and Services, Social Sciences, Languages, Linguistics and Literature graduates have the three lowest employment proportions. Does this suggest possibly a lower likelihood for quick labour market absorption for more general degrees (such as Public Management, Social Sciences and Languages) in comparison to the more field-specific degrees in preparation for a distinct occupation (such as Engineering, Health, Education and Architecture degrees)? Based on such a suggestion, it is surprising to find Psychology and Law so low on the ranking, as one would assume that these are also degrees with a clearer link to a specific occupation in comparison to a degree in Life Sciences and Business, Economics and Management Studies, for example. Our data does not permit exploring whether requirements for post-graduate training could explain this outcome, but indeed this is a possibility. In other words, a graduate internship or a period of community service is often a requirement for professional registration in these fields and could explain low employment estimates for graduates from these fields, in the short term.

Building on the descriptive statistics presented in this report, Table 5 below presents three basic logit regressions (the coefficients are presented as the natural log odds of being employed) to investigate, in a multivariate context, how a range of variables are associated with employment for the 2015 cohort of

graduates. Such analysis is useful as it allows one to estimate the probability of a given outcome (in this case employment) while controlling for multiple factors simultaneously[9].

The first model only focuses on the demographic characteristics of 2015 NSFAS-funded graduates (gender and race), whereas in the second model, the university type was introduced. Please refer to section 2.3.2 where the typologies are outlined; in this regression analysis we use the first characterisation of universities. The third model includes all the demographic and institutional type variables, and adds a more aggregated field of study variable. It is often customary to group the roughly nine broad CESM categories into fields of study. The recent LMIP Supply and Demand report, for example, analysed according to three broad categories: 1) Business, Economics and Management fields, 2) Science, Engineering and Technology (SET) fields (usually consisting of Science, Engineering and Health-related fields, and 3) Humanities (usually consisting of Arts, Education, Social Sciences and other Humanities fields) (Reddy et al., 2016). CHE (2013) in their vital stats publication categorised the 20 CESM categories into four broad fields or areas of study in the following way:

1. Science, Engineering and Technology (SET): CESM 01, 02, 06, 08, 09, 10, 13, 14, 15 & 16
2. Business & Commerce (B&C): CESM 04
3. Humanities (Hum): CESM 03, 05, 11, 12 ,17, 18, 19 & 20, and
4. Education (Ed): CESM 07

Our categorisation is largely consistent with the CHE categorisation, only in addition to the four broad categories we single out Health from the SET field and Law from the humanities field.

In the first model, we observe that women are less likely to become employed than men, and this difference is statistically significant (99% confidence level). Furthermore, Africans are less likely to become employed in comparison to all other race groups, and again this difference is statistically significant at the 99% confidence level.

In the second model, where university type is added, we find that graduates from universities of technology and traditional universities are significantly more likely to become employed relative to those who attended comprehensive universities (controlling for race and gender). This is an important finding and supports the conclusions from earlier work (Rogan & Reynolds, 2016; Van Broekhuizen, 2016) which suggests that there is variation in employment outcomes across the university system. In relation to the results in the table, an additional finding is that adding controls for university type does not change, appreciably, the employment probabilities by race and gender. Women and Black graduates remain significantly less likely to be employed.

9 As the models are based on the construction of a binary reference variable, it is best to confine interpretations to likelihood (less or more likely) and less appropriate to comment on the percentage of difference between the likelihood of one group in comparison to another.

Table 2: The correlates of employment (logit model) for the 2015 graduate cohort

	Model 1	Model 2	Model 3
Gender			
Male (ref; category)	.	.	.
Female	-0.244*** (-0.0209)	-0.234*** (-0.021)	-0.261*** (-0.0221)
Race			
African (ref; category)	.	.	.
Coloured	1.171*** (-0.0773)	1.148*** (-0.0777)	1.195*** (-0.0798)
Indian	0.830*** (-0.145)	0.816*** (-0.145)	0.776*** (-0.152)
White	1.264*** (-0.108)	1.263*** (-0.108)	1.213*** (-0.112)
Other	0.126* (-0.0501)	0.117* (-0.0505)	0.0706 (-0.052)
University Type (ref: comprehensive)			
Traditional University		0.157*** (-0.0244)	0.189*** (-0.0257)
Universities of Technology		0.299*** (-0.0248)	0.392*** (-0.0266)
CESM (ref: humanities)			
SET2015			0.529*** (-0.0328)
Com2015			0.0486+ (-0.0288)
Edu2015			1.213*** (-0.0383)
Health2015			1.202*** (-0.0679)
Law2015			-0.0424 (-0.0572)
_cons	1.253***(-0.0168)	1.105*** (-0.0214)	0.675*** (-0.03)
N	54891	54891	50864
pseudo R-sq	0.011	0.013	0.045
Standard errors in parentheses			
=”+ p<0.10	* p<0.05	** p<0.01	*** p<0.001”

In the final model when a control for broad field of study is added, the coefficients for gender, race and university type remain largely unchanged. Relative to Humanities graduates, Education graduates are most likely to find employment, followed by Health Sciences and then SET graduates. It is also interesting to note the effect on the university type estimates with the addition of broad field of study variables, as the effect of university type on employment outcome is further strengthened. In other words, university type makes a bigger difference to eventual employment outcome, when the particular discipline of study is added to the consideration.

In sum, based on our categorisation, the results suggest that regardless of the particular model:

- women are consistently less likely to become employed;
- university type plays a critical role in the likelihood for NSFAS-funded graduates to become employed;
- Whites consistently have the highest likelihood for employment; and
- Coloureds, Indians and Whites are much more likely to be employed than African graduates irrespective of the type of university attended and field of study.

6. Key findings and considerations for further research

The labour market absorption of graduates can be seen as an indicator of the quality of the post-schooling and/or higher education system and the health of the economy and society. Particularly with the historic legacy of exclusion of particular groups, a lot of social and personal investment has been made into ensuring that PSET plays its role as a significant facilitator towards achieving socio-economic mobility and transformation. While some research suggests that this upward social mobility since 1994 has been largely for a "privileged" Black minority into the middle and upper classes, rather than for the Black majority (Tonheim & Matose, 2013), the role that access to post-school education and training plays to afford better employment opportunities for students from disadvantaged backgrounds cannot be ignored.

Therefore, researching graduate outcomes is vital for assessing not only the success of investments in education; assessing the nature of those successes becomes increasingly important as we aim to promote equality and more equitable outcomes for livelihoods and employment. This is especially so for NSFAS-funded graduates who by definition not only represent the poor in our society, but they are also very likely first-generation graduates, which adds a general lack of social capital and networks to their already disadvantaged status in the education and labour market systems. As Tonheim and Matose (2013:1) note, "many obstacles stand in the way of young South Africans from disadvantaged backgrounds with limited social networks and skills to afford them opportunities in a shrinking labour market". Given the background of NSFAS recipients, their labour market outcomes is a critical indicator of transformation and success through access to PSET.

The crucial question in this project was thus whether NSFAS-funded graduates successfully transition into employment and to explore the difference in outcomes by race, gender, institution type and other variables that have been illustrated in the literature as playing an important role in labour market outcome in the South African context.

Most of what we know about graduate employment comes from either small dedicated graduate destination studies, which are not nationally representative (see Appendix A), or larger surveys (QLFS and SASAS) of the labour market, which do not have a focus on university graduates in general or particularly on those graduates that have received public funding support. Thus to address the question appropriately, we built on the small, but growing body of research on employment and job matching in the graduate labour market.

The literature and research suggested some trends that should inform our interpretation of the results of the quantitative analysis conducted in this study, and we reflect on these in summary in the next few sections.

6.1 A high average absorption of NSFAS-funded graduates between 2005 – 2015

The key finding is that the vast majority of NSFAS graduates are employed and that their absorption into employment is not only broadly in line with, but in some respects exceeds, graduate employment proportions overall. The overall employment proportion was found to be 91%, indicating that roughly 9 out of 10 NSFAS-funded graduates from public HE institutions between 2005 and 2015, have found employment. The employment estimate starts at a high of 98% for the 2005 graduating cohort and declines to an estimate of 75% for the 2015 graduating cohort. These estimations appear to be in line with other estimates of graduate employment (approximately 95% for university degree graduates).

What is concerning is the completion/graduation rate of 46% suggested by our data. Given the substantial financial investment made into the success of NSFAS-funded students, and reflecting on the fact that this investment is often made over a substantial period of time (as our analysis in Section 4 shows), it is absolutely critical that completion rates are improved. Our data shows and supports findings from similar studies, that once a student completes a higher education degree she/he will almost surely find employment within a few years.

Our closer analysis of the 2015 graduating cohort also suggests in line with extant literature that relatively quick absorption into the labour market is more likely for graduates from Engineering, Health Professions and Related Clinical Sciences, Education, and Architecture and the Built Environment fields. Based on our data, quick absorption is less likely for graduates from Public Management and Services, Social Sciences and Languages, Linguistics and Literature fields. More reliable CESM data would have allowed us to present a more comprehensive trend analysis of the impact of field of study on labour market absorption. However, this was not possible with the data at hand. This represents a key area for strengthening to improve the analysis by field of study in future NSFAS research.

6.2 Gender and race continue to be significant predictors of the likelihood for employment

Based on the evidence from previous studies (as described in section 2.3.4) we expected to find differences in employment estimates by race and gender, with African and female graduates having lower estimates for employment. Unfortunately, these expectations were supported by our data and, even after controlling for type of university and field of study, African and female graduates still showed a lower probability of finding employment than White and male NSFAS-funded graduates.

The descriptive analysis pointed to a consistently lower average rate of employment for African graduates across the period of evaluation (2005 – 2015). The regression analysis confirmed this effect, in that in the focus cohort (2015 graduates) Africans remained significantly less likely in comparison to all other race groups to find employment, regardless of broad field of study and institutional type.

We have surmised around the possible aspects that drive the gendered difference in employment outcome, and without more reliable CESM data over a longer period of time, it is difficult to assert whether this difference is a function of the short period between graduation and assessment of employment outcome, or whether this merely reflect women's decisions to start a family immediately after completing their degree (as Wildschut et al., 2011 finds in her study of women medical graduates in South Africa). However, there is substantial literature internationally and nationally, that continues to find gender segregation in labour outcomes (Flabbi, 2011; Shauman, 2016), both in absolute terms and in earnings potential. This literature suggests that women face structural inequality with regards to their employment. In recent EU employment data (2016) it was found that the employment proportion of recent male graduates (80.5%) was somewhat higher than the same proportion recorded among recent female graduates (76.0%), and that this continued a pattern that was apparent over the latest 10-year period for which data was available (Eurostat, 2016). While some of these gender differences may be explained by the fields of study that are typically followed by the two sexes (for example, a higher proportion of SET students tend to be male) and by differences in labour market demand for graduates with different skills, it would be important to ascertain whether further trend analysis over time would still support these assertions.

Of most concern thus is the sustained finding from our analysis, that race and gender are significant determinants of employment outcome in the graduate labour market in South Africa (Bhorat et al., 2010; Moleke, 2010; Rogan & Reynolds, 2016; Cosser, 2003).

6.3 Differences by institution types

Based on the official university categorisations in South Africa (CHE, 2013; Ouma, 2017), our evidence suggests the employment probability of graduates from universities of technology is higher than that of graduates from comprehensive and traditional universities. This is somewhat surprising and requires further investigation. The historical legacy of higher education under apartheid continues to imprint on DHET's reconfigured higher education system, and thus exploring a regression analysis based on the HWU/HAU and HBU/HDU categorisation, might illuminate further insights. The literature, for example, confirms that graduates from HBUs are more likely to be unemployed than those who graduate from HWUs. It is therefore possible that accounting for the historic position of higher education institutions would change the finding that graduates from universities of technology have the highest employment rates. Yet, this categorisation of universities is becoming increasingly difficult as mergers also affect the traditional groupings. Traditional universities, for example, are a mixture of research-intensive HWUs with access to resources as well as HBUs with a strong teaching focus and poorer access to external funding and resources. Comprehensive universities, on the other hand, are a very heterogeneous mixture of institutions without a clear typology at this stage. Our data might also be suggesting the importance of a regional/geographical characterisation of universities to tease out the impact of location. It could thus add value to the analysis in the final report, to

include a regression analysis based on a different typology of university types, for example by distinguishing between rural and urban universities or using other categorisations of universities, such as that by their level of knowledge production (see Cloete et al., 2015).

6.4 Engineering, Health, Education, and Architecture and the Built Environment graduates continue to have the highest rates of employment

While some studies assert a bigger effect than others of the impact of field of study on labour market outcomes, we did expect that employment probabilities might differ by field of study (for example, that those graduates from humanities would have a lower rate than those coming from sciences or business fields) even for NSFAS-funded graduates. In this regard, we found in the 2015 graduate cohort that graduates from all broad fields of study have a higher likelihood for employment than those from the Humanities. Education and Health graduates were found to be most likely to be employed. The descriptive analysis that preceded the regression analysis of the 2015 graduate cohort considered the impact of a more disaggregated field of study variable on employment proportion. The analysis there also pointed to the fact that Engineering, Health and Related Clinical Sciences, Education, and Architecture and the Built Environment graduates have consistently higher employment proportions in comparison to graduates from other fields of study (especially Public Management and Services, Social Sciences, and Language, Linguistics and Literature).

6.5 Further research

Researching graduate outcomes is vital for assessing and promoting social transformation. We have outlined up to this point the relevance of such findings and the review of literature also established that while other systems in developed economies have adopted graduate tracer studies at a systemic level to answer questions of impact, there are no centrally coordinated system studies in South Africa. Available studies do provide important indications with regards to graduate outcomes, but the research remains disjointed and emphasises the need on a more centrally coordinated framework for measuring graduate outcomes over a longer period so that we can establish a more coherent picture for South Africa. Having such a systemic picture is important to inform planning in the PSET system, as it points out where and how structural inequalities are being perpetuated as individuals from different social groups progress through their education and training into the labour market.

As has been shown above, tracer studies have been used previously to investigate the impact of NSFAS funding support and they have gone some way to understand the issues impacting on the success of NSFAS-funded students. However, a critical factor limiting confident conclusions about the performance and success of NSFAS-funded students is the lack of data on the labour market outcomes of NSFAS beneficiaries. This is a key gap that the research team attempted to fill by means of an exploration of the data at our

disposal. We have managed to estimate an average employment proportion for NSFAS-funded individuals who graduated between 2005 and 2015 and we have explored how this proportion varies by race, gender, field of study and institution.

One important area of further research is the type of employment that graduates obtain. The rough proxy that we have for whether or not a graduate is currently employed cannot say anything about the quality of employment. Improving our analytical capacity, as well as the validity of estimations around employment and field of study match, is heavily dependent on NSFAS ensuring that a sector and occupation variable is reflected in the employment dataset in the future.

In addition, from a methodological perspective, NSFAS could explore the possibility of sourcing information on earnings from SARS as a way in which to strengthen analytic capabilities around public and personal return on investment. There is academic precedent for this, where such information allows the investigation of the impact of particular types of student aid (in the form of loans or grants) on academic achievement and labour market behaviour (Joensen & Mattana, 2015).

Finally, an additional variable of interest would be a proxy for schooling quality or schooling type. Since all NSFAS graduates, by definition, come from relatively poor households, identifying those who had access to better schooling (e.g. by using school quintiles as proxy) is an important consideration that would help explore different levels of labour market absorption, given the role of social networks in finding employment.

The results reported here can be extended considerably through further analysis to focus on more specific questions and in relation to specific policy problems. The unique nature of the data set, if further strengthened as suggested, would provide many possibilities for further analysis in relation to identified policy problems, and we outline some possibilities in closing below.

HIGHLIGHTING POSSIBLE IMPLICATIONS FOR POLICY DRAWING FROM THE KEY FINDINGS
1. **A high average absorption of NSFAS-funded HE graduates, but low graduation rates:** NSFAS-funded degree graduates have roughly a 90% chance of becoming employed; their labour absorption rises to full employment within about seven years of graduation. A continued policy challenge are graduation rates where policy solutions and interventions must be found to greatly improve graduation rates.
2. **Gender, race and university type continue to be significant predictors of the likelihood for labour absorption:** Our findings point to ongoing inequality in labour absorption affecting African and female graduates; they may reflect preferences/discrimination by employers in employment decisions regarding different societal groups or other factors that affect these graduates' success in gaining employment. Consideration should be given whether NSFAS can play a role in assisting its beneficiaries in career placement, especially at institutions where employment likelihood is lower than in others.
3. **Field of study plays a significant role as predictor of the likelihood for employment:** Humanities graduates are statistically less likely to be employed than Education, Health Sciences and SET graduates, and there is also evidence of a quicker rate of labour absorption in these professional fields in comparison to Humanities graduates. Should NSFAS funding steer students towards fields of study with better labour absorption? Due consideration will have to be given to how this would align with the transformative and redress objective and mandate of the scheme.

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Appendix A

Table 3: Review of graduate studies post 1994

Author(s)	Methodological approach or Research design	Sampling	Main findings
Bhorat (2004)	Uses the 1995 October Household surveys (OHS) and 2002 Labour Force Survey (LFS) to interrogate the changing trends in graduate participation in the labour market.	Approximately 30 000 households per quarter	• Relative increase in number of graduates in the labour market. • Graduate employment affected by field of study and years of study.
Development Policy Research Unit DPRU (2006)	Econometric analysis of 1995 OHS and LFS of 2002 – 2005 to study graduate unemployment. Provides a broader definition of graduates to include all post-matriculation qualification or tertiary graduates.	Approximately 30 000 households per quarter	• Low tertiary unemployment. • Unemployment varies according to age groups with 15-34 most unemployed. • Race and field of study also affects employment of graduates. • Employers preferring more experienced graduates to more qualified but less experience.
Moleke (2006)	Tracer study: Uses a follow-up postal survey of university students who graduated between 1990 and 1998	2 672 respondents	Complements existing research. • Identifies a number of demand-supply factors affecting graduate outcomes. Include structural changes in the economy as well as background factors such as race and field of study. • Variables which impacted most on the finding of employment were race, gender, field of study, and institution attended (HBU vs HWU). • Unemployment was found to have both structural and frictional features.
Pauw, Oosthuizen, and Van der Westhuizen (2008)	Compares the 1995 OHS and 2005 LFS data to assess the changes in unemployment rates of those with tertiary qualifications	Approximately 30 000 households per quarter	• Smaller increase in number of unemployed university graduates (13%) when compared to other non-degree qualifications. • Presence of divergence between graduates skills attributes and those needed by employers over time.
Griesel and Parker (2009)	HESA-assigned pilot study which surveyed employers mainly in the private sector	99 employers	• Relatively close alignment between the work of HE and that of employers. • Highlights skills gap between skills and attributes graduates possess and those needed by employers.

Bhorat & Mayet (2010)	Tracer study: Uses 2005 Graduate Destination Survey and Student Retention Survey for 2002-2003 cohorts at seven South African universities	34 548 students in total (20353 non-completers and 14 195 graduates 5 491 (15.9%) Reponses	• Graduation or drop-out was significantly determined by factors such as race, type of institution, gender and field of study. • They go further to show that student household characteristics also play a significant role. • Concludes that Africans are significantly disadvantaged than their White counterparts.
Kraak (2010)	Desktop synthesis of graduate employment literature		• Confirms most of earlier findings of factors affecting graduate employment (race, field of study, etc). • Argues that high graduate unemployment numbers was due to a structural shift in the economy from low skills demand to high skills needs.
Letseka, Cosser, Breier and Visser (2010)	Tracer study: Student Retention and Graduate Destination Study across seven HEIs to analyse student experiences and pathways through university to employment 2 surveys	34 548 students in total (20 353 non-completers and 14 195 graduates 5 491 (15.9%) Reponses Survey 1: traced all students from 7 universities who 'dropped out' in 2002 (sent to 20 353) 3 328 responded. Survey 2: traced all students who obtained 3 or 4- year qualification in 2002 (sent to 14 195); 2 163 responded.	• Highlights a number of factors affecting graduate employment. Indirectly through student experiences based on race, poverty, institutional changes, and tensions between diversity and success and then directly through labour market demand factors. • Race continues to be a significant determinant of outcomes, such as graduation and employment. • However, there is no apparent earnings differential on the basis of race.
CDE: Van der Berg & Van Broekhuizen (2012)	Use LFS data 1995-2011 to recalculate graduate unemployment based on three levels of 'graduateness' – degree, certificate and diploma	Approximately 30 000 households per quarter	• Significantly low percentage of (degreed) graduate unemployment compared to earlier studies (<6%).
CHEC Cohort study (2013)	Tracer study: Uses a survey and follow-up interviews of 2010 graduates cohort across the four Western Cape universities to assess pathways from university to work.	24 710 graduates 5 560 (22.5%) (online and telephonic)	• Identifies seven possible pathways graduates pursue. • Three variables seem to affect graduate employment most – population group (race), matric science results and field of study. • 84 per cent of 2010 graduates were employed by 1 September 2012. • Burden of unemployment is largely among African graduates.

Rogan, M. & Reynolds, J. (2015)	Tracer study: Online survey and telephonic interviews	1 211 graduates from two EC universities	• Students from poorly resourced schools struggle to complete their first degree choice and later struggle to secure decent employment. Need for policy intervention at both supply and demand side initiatives.
Walker, M. & Fongwa, N.S. (2017)	Tracer study: Survey 2014 final-year students across four universities. Along with interviews of sampled final-year students who are tracked 1-2 years after graduation. Employers and academics also interviewed		• Identify some of the key factors affecting graduate employment outcomes – personal, university and external. • Provides a human development dimension to the graduate employment studies.
Cosser et al. (2003)	Tracer study: Questionnaire	3 503 graduates of 151 technical colleges who achieved an N2, N3 or National Senior Certificate (NSC) in 1999	• FET training appears to be a stepping stone to other types of training and education. • There is very little uptake in fields of study other than engineering and business studies. • Employment/unemployment outcomes vary considerably by race and gender.
CREST (2010)	Tracer study: Web-based survey	Online survey of 12 064 humanities alumni from 18 South African universities (Diploma-PhD)	• University education is strongly rewarded in the labour marke.t • There are very few differences in employment outcomes between humanities graduates and those from other disciplines. • Alignment between tertiary education and the needs of the labour market is generally very good.

The South African National Student Financial Aid Scheme (NSFAS), inter alia, aims at reaching those students who would otherwise not have access to post-schooling education and training (PSET). While, a growing body of literature suggests that NSFAS funding has impacted positively on student access, progression and success in post-school education and training (PSET), having a better understanding of the labour market impact of NSFAS-funded students generally, but graduates more specifically, is a key gap in research in the country. Towards addressing this gap, this report explores patterns of labour market absorption amongst NSFAS-funded graduates over a ten-year period (2005 – 2015). Two key findings are worth noting. Firstly, our analysis finds a high average absorption of NSFAS-funded higher education graduates, but low graduation rates. Secondly, gender, race, university type and field of study continue to be significant predictors of the likelihood for labour absorption. Amongst a range of other important issues, such findings raise complex policy questions which require engagement around NSFAS' role in supporting the transition into employment of graduates they fund.

NSFAS
National Student Financial Aid Scheme

HSRC
Human Sciences
Research Council