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INVESTMENT TRENDS IN POST-SCHOOL EDUCATION AND TRAINING IN SOUTH AFRICA

31 MARCH 2018



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FOREWORD

It is my pleasure to present to you the second report on *Investment Trends in Post-School Education and Training in South Africa*. This report provides a broad overview and analysis of investment trends in Post-School Education and Training (PSET), particularly for the financial years 2010/11 to 2019/20 (with special emphasis on the 2017 Medium Term Strategic Framework). The report comes at an opportune moment in the history of PSET in light of the recent Fees Must Fall protests, which drew attention to legitimate concerns about inequalities in access and success in higher education. In response to the widespread student fee protests which started in 2015, the government established a Commission of Inquiry into Higher Education and Training (also referred to as either the Fees Commission or the Heher Commission) in January 2016, which was tasked with examining “*the feasibility of making higher education and training fee-free in South Africa.*”



The Heher Commission released its report in November 2017, wherein it recommended, amongst other things, the expansion of the Technical Vocational Education and Training (TVET) sector so that they could become “institutions of first choice” for young people. Currently, the TVET and Community Education and Training (CET) sectors are chronically under-funded in relation to current enrolment growth targets, and this has made it very difficult to meet policy goals as outlined in the National Development Plan (NDP) and the White Paper (WP) on Post-School Education and Training. Although student enrolment in TVET Colleges has more than doubled since 2010, the growth of the TVET spending has moderated and there is a widening shortfall in available resources relative to those needed to attain targets of the WP. Enrolment targets for TVET colleges will therefore have to be revised downwards.

As acknowledged in the report of the Heher Commission, the South African PSET system faces deep challenges in terms of resource availability. Fiscal resources are likely to be scarce for at least the next few years because weaker than expected economic growth since the global financial crisis has resulted in much lower tax revenues, forcing government to reduce spending and reprioritise its commitments. Government therefore has had to balance fiscal consolidation and funding of postschool education in an environment of low economic growth and revenue. Although government allocations to PSET increased from 1.4% of the Gross Domestic Product (GDP) in 2012/13 to 1.5% of GDP in 2016/17, the funding needs for the PSET system remain high owing to constant expansion of the system.

More specifically, whilst the funding for universities has attracted attention following the Fees Must Fall protests, the reality is that the growth of the overall budget for higher education institutions has not kept pace with the growth in student enrolments, despite consistent increases in the state budget for higher education, including the provision of student funding for poor students. The analysis in this Investment Trends Report shows that other upper-middle income countries at comparable levels of GDP to South Africa spend far greater shares on tertiary education relative to total government expenditure on education. The OECD average for government tertiary expenditure as a share of GDP was 1.3% in 2013 (OECD, 2017), while South Africa's government spent 0.73% of GDP on tertiary education in 2014 (UNESCO, 2017). South Africa also spends somewhat less on tertiary education as a share of GDP compared to other upper-middle-income countries. For example, in 2013, public tertiary expenditure totalled 1.1% of GDP for both Brazil and India (UNESCO, 2017), while in 2015 Chile's total public expenditure on tertiary education was 1.26% of GDP and Malaysia's 1.35% (UNESCO, 2017).

Government's recent announcement on free PSET for the poor, in particular, its new definition of who the "poor" refers to, will undoubtedly change government investments in the PSET system. The Department will therefore continue to monitor investment trends in PSET through the publication of similar reports every two years.

The Department will strive to improve the accuracy of this report and be more responsive to stakeholders' needs. Your feedback, including suggestions for improvement, can be emailed to: Khuluvhe.M@dhet.gov.za.



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ABBREVIATIONS

APP	Annual Performance Plan
CET	Community Education and Training
DHET	Department of Higher Education and Training
EMIS	Education Management Information System
ENE	Estimates of National Expenditure
FET	Further Education and Training
TVETMIS	Technical and Vocational Education and Training Management Information System
FTE	Full-Time Equivalent
FTEN	First-time entering
GER	Gross Enrolment Ratio
HDI	Historically Disadvantaged Institution
HE	Higher Education
HEI	Higher Education Institution
HEMIS	Higher Education Management Information System
M&E	Monitoring and Evaluation
MIS	Management Information System
MTEF	Medium Term Expenditure Framework
NCV	National Certificate (Vocational)
NDP	National Development Plan
NPC	National Planning Commission
NRF	National Research Foundation
NSDS	National Skills Development Strategy
NSF	National Skills Fund
NSFAS	National Student Financial Aid Scheme
NT	National Treasury
OECD	Organisation for Economic Co-operation and Development
PFMA	Public Finance Management Act
PIC	Public Investment Corporation
RSA	Republic of South Africa
SARS	South African Revenue Services
SET	Science, Engineering and Technology
Stats SA	Statistics South Africa
SSA	Sub-Saharan Africa
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
WP	White Paper

1. Executive summary

1.1 Introduction

This report provides a broad overview and analysis of financial trends in Post-school Education and Training (PSET), with the emphasis falling on the 2010/11 to 2019/20 financial years, including the 2017 Medium Term Expenditure (MTEF) period, while providing detailed underlying data (nominal and real). “Investment trends” here refer to financial flows, and how these translate into gains in human capital and returns on investment. Successful investment in human capital should bring returns for the nation through improvements in skills and productivity, with important long run gains for both direct beneficiaries and others benefiting from economic growth. Such investment also contributes to the development of a critical citizenry, assists in developing knowledge for societal improvement, attends to social justice and helps drive societal transformation.

The PSET or post-school system comprises “all education and training provision for those who have completed school, those who did not complete their schooling, and those who never attended school” (DHET, 2013: xi). The focus of this report falls on four key sub-sectors: Higher Education Institutions or universities; Technical and Vocational Education and Training (TVET) Colleges; Community Education and Training (CET) Colleges; and Sectoral Education and Training Authorities (SETAs).

Given the high levels of both inequality and poverty in South Africa, much of it generated within the labour market, access to skills valued in the labour market is of crucial importance. Broadening such access is crucial as a means of reducing labour market inequality. This requires that the PSET sector should provide education and education of high quality, which improves skills for the workplace and thereby stimulates productivity and earnings of both employed workers and the self-employed.

The PSET system in South Africa currently faces a number of challenges. Fiscal resources are likely to be scarce for at least a few years. The protests around the Fees Must Fall movement have put funding for poor students under the spotlight. (This report was written before government has responded to the release of the report of the Heher Commission on funding higher education and training.) Rapid growth of TVET has drawn attention to the quality of training and its appropriateness for the workplace, and there are debates about how to improve the volume, utility and quality of the training supported by Sectoral Education and Training Authorities (SETAs).

The size and scope of the PSET system in terms of institutions is summarised in Figures A and B. These give a broad perspective on the magnitude of the PSET sector. Altogether, there were just over 2.5 million students/learners in the PSET sector in 2015: This excludes private colleges (because 2015 numbers are unavailable; in 2014 they had 7 560 participants). Of the total revenue of R85.5 billion in 2015/16, subsidies to universities amounted to R32.9 billion of this, whilst universities received another R25.8 billion as student fees or so-called third stream income (e.g. research income and donations). This number does not include spending by private colleges and private universities, nor R9.3 billion spent by NSFAS to provide loans and bursaries to support university and TVET students.

Altogether, there were just over 2.5 million students/learners in the PSET sector in 2015.

Figure A Number of students/learners in PSET across different sub-sectors of the system

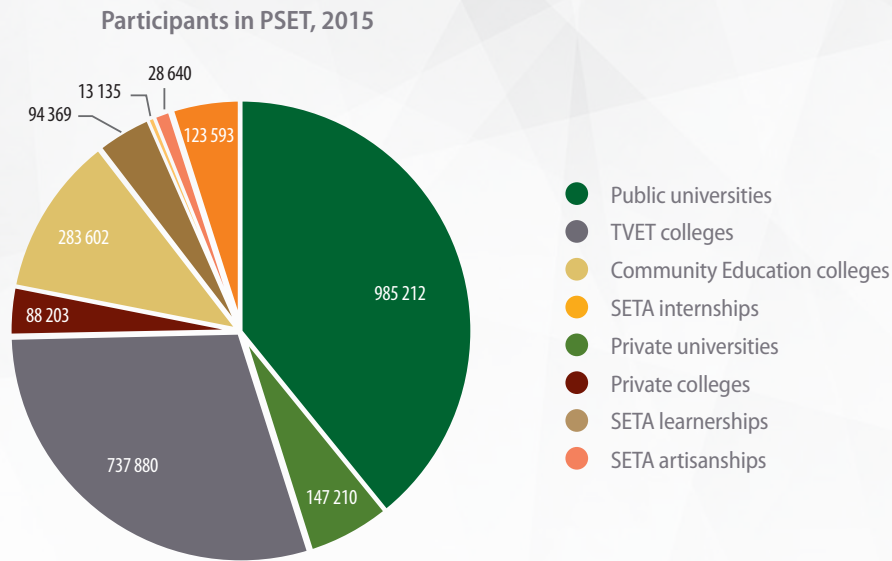
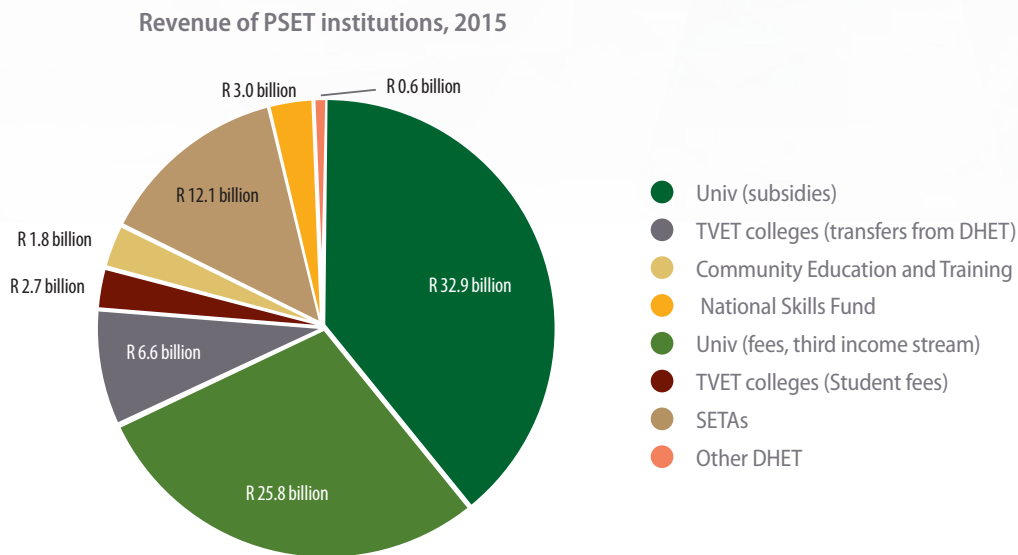


Figure B Total revenue of PSET institutions, 2015



The PSET system has expanded quite remarkably yet this report also has brought to the fore a number of challenges:

- The fiscal outlook for expanding funding for university students is bleak.
- Growth of TVET spending has moderated and there is a widening shortfall relative to the resources required to attain targets of the White Paper on Post-School Education and Training. Goals will have to be revised downwards.
- The heterogeneous output of TVET colleges and of the SETA systems makes analysis of such data more difficult. There is still limited information about flows through the TVET system.
- South Africa still lags behind other upper-middle-income countries in participation in tertiary education, there are backlogs in improving access for poor students to tertiary education, and participation rates still show large racial differentials.

1.1.1 Fiscal prospects

PSET institutions largely depend on the government budget. The dire fiscal situation dims prospects for the immediate future. Government borrowing is set to increase, requiring more future spending to pay interest on the government debt, crowding out other government spending. National Treasury warns of a number of fiscal risks, including uncertainty regarding funding higher education. In the Medium Term Budget Statement of October 2017, National Treasury estimated that to provide full loans to 50% of undergraduate university students in 2018, NSFAS spending would have to increase from the R11.4 billion estimated before by an additional R25.0 billion (in nominal 2017/18 Rand). Treasury also notes that there is also a large funding gap for TVET students.

1.2 Financing PSET

1.2.1 Aggregate trends in PSET expenditure

Total participation in the PSET system rose 6.7% per year between 2010 and 2015. SETA programme participation has increased particularly rapidly, at an average rate of 15.6% per year since 2010. Interestingly, enrolment growth at private universities outstripped the modest growth at public universities (1.8% per year), with the effect that the private university share of all university enrolments rose from 9.2% in 2010 to 13.0% in 2015. The college sector has also seen very rapid growth in enrolments, owing largely to the rise of TVET college enrolments.

Over the period 2013/14–2019/20, actual and forecast PSET allocations enjoy a higher growth rate than allocations to health, basic education and social grants, yet forecast growth is nevertheless lower than for the previous three years, reflecting the fiscal constraints.

University education is expected to experience the highest expenditure growth of 5.9% per year over the MTEF period, while TVET allocations only grow at 0.8% per year. The high projected growth of university education funding is the result of a deliberate reallocation of funds to increase funding for student financial aid and for compensating universities for loss in income. Since 2010/11, growth in public PSET expenditure enjoyed high priority and university education's share of total public PSET allocations grew modestly, while TVET expenditure shrank in relative terms. At the start of this period, total public PSET allocations from the government budget were 1.1% of GDP, by 2012/13 it had increased to 1.4% and in 2016/17 it had reached 1.5% of GDP. Compared to other upper-middle-income countries, South Africa's tertiary education expenditure as share of *government expenditure* is neither particularly low nor particularly high. Public tertiary expenditure totalled 1.1% of GDP for both Brazil and India (2013 data) (UNESCO, 2017), while in 2015 Chile's total public expenditure on tertiary education was 1.26% of GDP and Malaysia's 1.35% (UNESCO, 2017).

Total participation in the PSET system rose 6.7% per year between 2010 and 2015.

At the start of this period, total public PSET allocations from the government budget were 1.1% of GDP, by 2012/13 it had increased to 1.4% and in 2016/17 it had reached 1.5% of GDP.

1.2.2 Financing of the public PSET sub-sectors

1.2.2.1 Universities

Income for universities includes income from government subsidies, tuition fees and third stream income (e.g. donations, endowments, research income, etc.). Both real expenditure and real income roughly doubled between 2000 and 2010. The shares of revenue universities received from subsidies and from third stream

income have both been declining. There was thus a compensating increase in the share of student fees in total income, rising from 24% of total university income in 2000 to 35% in 2015. Student fees also include fees paid to universities by students who benefit from NSFAS scholarships, i.e. part of students fees originates from government (of the 33% of student fees income in 2013, about 40%, 13 percentage points, was from NSFAS).

Between 2010 and 2015 growth in total enrolment exceeded growth in first-time entering undergraduate enrolments, implying that students remained at universities longer before either completing a degree or dropping out.

Between 2010 and 2015 growth in total enrolment exceeded growth in first-time entering undergraduate enrolments, implying that students remained at universities longer before either completing a degree or dropping out. This increases the cost per student over the duration of their undergraduate studies and points to inefficiency within the university system.

Between 2006 and 2011 there was virtually no growth in real spending per full-time equivalent university student, and real growth since has been modest. The number of full time equivalent students grew at 3.4% per year over the full period. Yet over the period as a whole real expenditure grew even faster, so that the amount spent per full time equivalent student increased by 2.5% per year over the full 15-year period.

1.2.2.2 TVET

Real TVET expenditure by DHET experienced much less growth after 2013/14. DHET has calculated that large fiscal backlogs have now been generated compared to the spending requirements to meeting targets set in the White Paper. Due to rapid growth of student numbers, funding per full time equivalent student has been decreasing.

1.2.2.3 CET

The Community Education and Training (CET) sector was recently established as a separate sub-sector of PSET, after long operating as Adult Education Centres. This is a small sector, with 283 602 participants. Spending by DHET on CETs amounts to R1 859 million in 2016/17, expressed in 2015/16 money values.

1.2.2.4 Skills development

Employers with a monthly salary bill of R500 000 or more pay 1% of total salaries as a skills levy to the South African Revenue Service. 20% of this is allocated to the National Skills Fund and 80% to the SETAs. The SETAs return part of this amount to employers for training provided to staff through mandatory and discretionary grants, part as funding for the Quality Council for Trades and Occupations, while 10% is kept to cover administrative expenses. Total disbursement of the Skills Development Levy was R15.2 billion in 2015/16. Surpluses in previous years were ascribed to mandatory grants not having been claimed by employers, intended grant beneficiaries not having met the eligibility criteria for funding, and a weak implementation culture in SETAs.

1.3 Managing the transformation of the post-school education and training system: outputs and processes

Real NSFAS expenditure on universities and TVET colleges grew particularly rapidly since 2007/08 and more than quadrupled in real terms over a ten year period. Universities receive 80% of NSFAS funding in 2016/17, though more than half of NSFAS beneficiaries studied at TVET colleges. Despite the larger amounts for university students, this is still insufficient to cover the full cost of study.

The number of NSFAS beneficiaries at universities doubled between 2007/08 and 2016/17 while those at TVET colleges increased from only just over 12 000 to more than 255 000. By 2015, 23.5% of all undergraduate students at universities were NSFAS beneficiaries.

By 2015, 23.5% of all undergraduate students at universities were NSFAS beneficiaries.

Institutional support: In 2012, a new earmarked teaching development grant replaced the teaching development funds and in 2013, the research development funds that were formerly part of the block grant were replaced by an earmarked development fund. An earmarked Historically Disadvantaged Institution (HDI) development grant was implemented from 2015 onwards. Yet despite all these changes, the block grant subsidy for HDIs did not grow significantly faster than for the university sector as a whole.

Transformation and improvement at the individual level: The gross enrolment ratio for universities (GER, total headcount enrolment relative to the population 20–24 years old) improved from 14.6% in 2001 to 18.6% in 2015. Yet this remains low compared to that of Brazil (50.6%), Malaysia (26.1%), Chile (88.5%) and India (26.9%) and the 46.9% for upper-middle-income-countries. The OECD average was 70.0%. White (52.8%) and Indian (49.3%) individuals are still far more likely to enrol in universities than their black (15.6%) and coloured counterparts (14.6%). This racial gap is closing quite slowly. GERs are higher for women than for men in all race groups. Achieving the NDP objective of a rate of 30% by 2030 seems unlikely, as the GER would have to grow at 3.2% per year between 2015 and 2030, much faster than even the highest 5-year average growth rate achieved.

South Africa's relative shortage of people trained in Science, Engineering and Technology (SET) could potentially constrain economic growth. Growth in SET enrolments between 2000 and 2015 exceeded growth in overall headcount enrolments, with the most rapid growth among the black population. Though racial gaps are narrowing, the gender gap in SET enrolment propensities does not appear to be closing.

In 2015 the graduation rate for total undergraduate degrees was 19.4%, compared to 16.1% in 2000. For this rate to increase to 25% by 2030, as envisaged in the NDP, it would have to grow at 1.7% per year between 2015 and 2030. While this is feasible, it will require sustaining the current momentum in the growth of graduation rates over the next 15 years, which may require additional fiscal resources and the expansion of capacity.

Most students take much longer than the 3-year or 4-year regulation time to complete degree programmes. Encouragingly, throughput rates in universities are improving. The throughput rate within 5 years for 3-year undergraduate degree programmes increased from 25.4% (for the 2000 entry cohort) to 40.8% (2010 cohort). Nevertheless, the large differences between the throughput rates in 5 years and in 10 years is worrying, as a high proportion of students are taking more than 5 years to complete 3-year or 4-year programmes. For instance, considering the cohort entering university in 2006 for 3 year degrees, the throughput rate was 33.2% in 5 years, but rose to 46.2% after 10 years. Thus almost a third of those who eventually graduate only do so after at least 6 years of studying for a 3 year degree. Moreover, it is worrying that less than 50% of all students who enter for a 3-year undergraduate degree complete their studies. Substantial university funding is therefore being spent on more than half of new undergraduate students who do not complete their degrees.

The 59% of white students who complete their studies for 3-year and 4-year programmes within 5 years is much higher than the 43% amongst coloured students and 40% amongst black students. Encouragingly, the largest improvements in 5-year throughput rates for a combination of 3-year and 4-year programmes at universities are observed for black students, particularly black males. Across all race groups, female throughput rates are much higher than for males.

For TVET colleges, both pass rates (percentage of students writing the examinations passing) and certification rates (percentage of registered students passing the examinations) are low. Concerted efforts are needed to identify and address factors contributing to the low pass and certification rates.

Doctoral graduates produced by public universities nearly tripled from 973 in 2000 to 2 530 in 2015 and growth is accelerating.

Doctoral graduates produced by public universities nearly tripled from 973 in 2000 to 2 530 in 2015 and growth is accelerating. On the current trajectory, the university system will produce far in excess of the NDP target of 5 000 doctoral graduates per year by 2030. Although black individuals accounted for only 21% of doctoral graduates in 2000, rapid growth of PhDs among black students has caused their share to rise to almost 50% in 2015. On the current trajectory, women doctoral graduates could overtake men in the next few years.

Over 2000–2015, publication output units per permanent academic staff member grew by 5.9% per year, rising from 0.38 in 2000 to more than double that number (0.88) by 2015.

1.4 Conclusions and recommendations

The PSET system, mainly funded through DHET, has grown spectacularly since the turn of the century:

- In universities, there has been a rapid enrolment growth, rising throughput and graduation rates despite many more first-generation university students, a moderate improvement in racial inequalities in performance, and remarkable growth in two high level outputs, doctoral students and research publications. Yet this university sector remains much smaller than in other upper-middle-income countries, and it is now confronted by the challenge to find an appropriate funding model during a period of fiscal stress in order to allow more first generation university students to study successfully. Failure to find such a model may well lead to continued social instability on university campuses, with possible dire consequences for further development. The debate about this has recently also been influenced by the report of the Heher Commission and the announcement about free education by President Zuma in December 2017. At this stage it is not yet clear how this will play out in the months and years to come.

In universities, there has been a rapid enrolment growth, rising throughput and graduation rates despite many more first-generation university students, a moderate improvement in racial inequalities in performance, and remarkable growth in two high level outputs, doctoral students and research publications.

- Technical and Vocational Training (TVET) has expanded dramatically from a very low base. The funding flows required for it to grow to the size envisaged in the White Paper on Post-School Education and Training or in the National Development Plan are clearly not achievable. The TVET sector also has to demonstrate its contribution to generating the skills required in the economy, which would provide a stronger basis for continued growth.

Technical and Vocational Training (TVET) has expanded dramatically from a very low base.

There is also some uncertainty whether it should largely function as an alternative to the Further Education and Training school phase, as it is sometimes portrayed, or as actual post-secondary education and training.

- The SETAs have thus far failed to generate great enthusiasm amongst employers as offering an important vehicle for enhancing workplace productivity. Nevertheless, they have strongly expanded participation in their learnerships, internships and skills development programmes, indicating that some economies of scale may now be reaped.

This report has added to the availability of data on the PSET sector in one place. Further data improvement is important. One initiative may be to gather further data on the financial situation of private PSET institutions, especially private universities, which would add to the picture on the total PSET sector. Much more detailed information is also required on the outputs of the skills development sector (SETAs) and the TVET colleges.

2. Introduction

This report provides an overview of spending data trends in Post-school Education and Training (PSET) in South Africa (see Box A below for a more detailed discussion of the purpose of the report). The PSET or post-school system comprises “all education and training provision for those who have completed school, those who did not complete their schooling, and those who never attended school” (DHET, 2013: xi). Spending on PSET is intended to be an investment in human capital, research and societal capital. Successful investment in human capital should bring returns for the nation through improvements in skills and productivity, with important long run gains for both the direct beneficiaries and all others who benefit from a growing economy. Investment in PSET is required not only for its private returns through human capital development, but also for its public and societal positive aspects – it contributes to the development of a critical citizenry, assists in developing knowledge for societal improvement, attends to social justice and helps drive societal transformation.

BOX A: PURPOSE OF THIS REPORT

- To provide an overview and analysis of the broad financial trends over time in the PSET sector. It attempts to do so at a high level within this document, while making available the detailed data (nominal and real) underlying the figures and tables elsewhere in the report.
- The title of this report refers to “Investment trends”: it thus refers not only to financial flows, but also to how these translate into gains in human capital and, ultimately, into returns on investment.
- The DHET also produces a Macro-Indicators report. That report has a much wider focus on other types of data (e.g. student numbers, achievement, outputs) than this report, as its purpose is to compile as wide a set of data as possible on PSET in South Africa.
- This report was largely written before government has responded to the release of the report of the Commission of Inquiry into Higher Education and Training (also referred to as the Fees Commission or Heher Commission) on the funding of higher education and training in South Africa. While this report mentions the Heher report, it does not provide a full summary, assessment or any reflection on the report’s findings or recommendations, nor does it fully reflect the implications of the 16 December 2017 announcement by President Zuma that poor and working class students would receive free tertiary education.

The focus of this report falls on the four key sub-sectors of PSET: Higher Education Institutions or universities, as they are referred to in the rest of this report; Technical and Vocational Education and Training (TVET) colleges; Community Education and Training (CET) colleges (formerly Adult Basic Education and Training or ABET); and Sectoral Education and Training Authorities (SETAs).

Given the high levels of both inequality and poverty in South Africa, much of it generated within the labour market, access to skills that are valued in the labour market and the broader economy is of crucial importance. Broadening such access is imperative as a means of reducing economic inequality. This requires that the PSET sector should provide education of high quality, which improves skills for the workplace and thereby stimulates productivity and earnings.

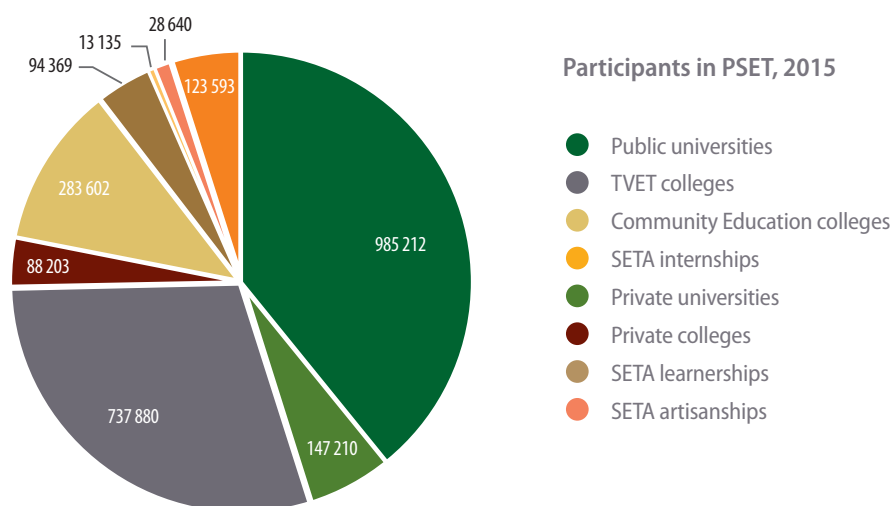
The PSET system in South Africa faces a number of challenges. Currently, fiscal resources are scarce and prospects are that this fiscal stress will continue for at least a few years. In addition, the protests around the Fees Must Fall movement have put funding for poor students under the spotlight, particularly at universities. While there has

been rapid growth in TVET and this sub-sector's expansion is supported by the National Development Plan, the recent focus on this sector has drawn attention to the quality of training it offers and its appropriateness for the workplace. In addition, there are debates about how to improve the volume, utility and quality of the training supported by SETAs. This introduction will briefly touch on some of these issues, to provide some context for the tables and figures that form the gist of this publication. It should be mentioned at the outset that data availability and quality are still a challenge in some parts of the PSET sector. This report tries to overcome this and offer in one place much of the data relating to spending and revenues of PSET.

The size and scope of the PSET system is summarised in Figure 1 as well as in Figures 2 and 3. These give a broad perspective on the magnitude of the PSET sector, with the two major numbers the 2.5 million who participate in some form of PSET, and the total revenue of R85.6 billion. Altogether, there were just under 2.5 million students/learners in the PSET sector in 2015: This number of 2 501 844 excludes private colleges (formerly called Adult Education Centres, AECs), because 2015 numbers are unavailable; in 2014 AECs had 7 560 participants. The total revenue of all the PSET institutions listed below (excluding private universities and private colleges) was R85.5 billion in 2015/16. Subsidies to universities from DHET amounted to R32.9 of this, whilst universities received another R25.8 billion in the form of student fees or so-called third stream income (other activities such as research as well as donations). This number does not include spending by private colleges and private universities, nor the spending of R9.3 billion by NSFAS to provide loans and bursaries to support university and TVET college students.

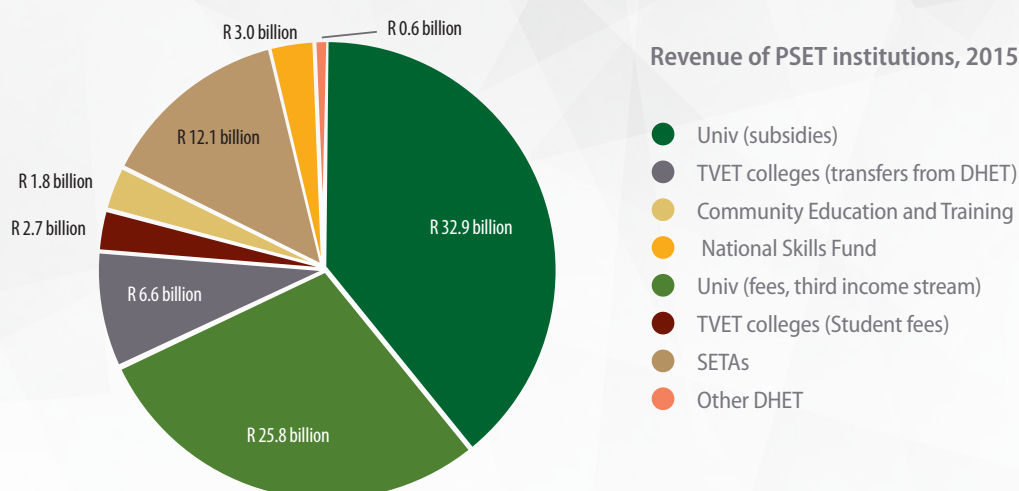
The 2.5 million expressed as a percentage of the core target group for most PSET activities, namely the 5.3 million people aged 20 to 24, is 47%, a high ratio for an upper middle-income country. But this is a broad definition of the PSET sector. If only those engaged in studies requiring completion of secondary education are considered, this would mainly include the higher education or university sector, i.e. 958 212 students or 18.6% of the 20–24 age group, though some college courses also require completion of secondary school, not a high ratio in international comparison. The revenue of R85.6 billion of PSET institutions is quite large, almost 6.7% of government expenditure (though not all of this expenditure is public spending).

Figure 1 Number of students/learners in PSET across different sub-sectors of the system



Source: Table 2.

Figure 2 Total revenue of PSET institutions, 2015



Source: Table 3 and CHET (2017)

The PSET system has expanded quite remarkably in the past decade or more. This can be measured by various factors, such as new undergraduate enrolments at universities, which grew by an average of 2.4% per year from 2000 to 2015, whilst total university enrolment grew by 3.5% per year. The number of doctoral candidates grew by a remarkable average of 6% per year over the same 15-year period, with a six-fold increase in doctoral degrees completed by black Africans and faster growth amongst women compared to men. Publication output units of universities increased three-fold and research output per staff member more than doubled over the same period. The expansion of the PSET system is also evidenced by the doubling in enrolments in TVET colleges in only five years to 2015, while three outputs of the SETA system (participation in learnerships, internships and participation in skills development programmes) grew at a rate of 15% or more per year over the same five-year period.

Despite rapid growth in enrolment in PSET institutions and programmes, the data and background information gathered for this report brought to the fore a number of challenges that now confront the PSET system:

- The fiscal outlook for expanding funding for university students is bleak, considering South Africa's tightly constrained fiscal situation. This is particularly problematic given high expectations in this regard.
- The growth of TVET spending has now moderated and the shortfall relative to what is required to attain the targets envisaged in the White Paper on Post-School Education has widened. The goals that have been set for this part of the PSET system will have to be revised downwards.
- The heterogeneous output of TVET colleges and of the SETA systems makes analysis of such data more difficult. There is still limited information about flows through the TVET system, though the new TVET-MIS (management information system for TVET) is starting to provide more systematic data.
- South Africa is still lagging behind other upper middle-income countries in participation in tertiary education. Despite considerable progress, there still exist large backlogs in improving access for poor students to tertiary education, and participation rates still show large racial differentials.

For this report, which focuses largely on investment trends in the PSET sector, the most important challenge that will have to be dealt with is the fiscal one. For this reason, this section ends with a short overview of evidence on this challenge presented in the Medium Term Budget Statement in October 2017 (National Treasury, 2017a.)

BOX B:

NOTES ON INTERPRETING THIS REPORT (THE GLOSSARY AT THE END OF THIS REPORT DISCUSSES IMPORTANT DEFINITIONS)

Real rather than nominal financial amounts are used throughout this report to facilitate comparability between years. For ease of interpretation, the base year chosen was 2015, a recent one, so that all the data indicated as being expressed in real terms refer to 2015 Rand values. Real amounts are expressed using 2015 as the base calendar year or 2015/16 as the base fiscal year. Most amounts are in R million, unless otherwise stated.

- Unless otherwise stated, reference to specific categories or sub-sectors of the PSET system are to the public PSET system. Similarly, reference to university output is to output of public universities.
- The term higher education institutions (HEIs) refers to both public and private HEIs, while the term universities is often only applied to public HEIs. However, to simplify the language of this report, the term universities is used to describe public and private HEIs. Where private HEIs are mentioned, this is clearly specified.
- Average annual growth rates are estimated by fitting log-linear curves to the data (see Appendix for full information on this). This avoids considering only the first and the last observations in a series for calculating the annual growth rate, as either of these observations could well be an outlier. Using this methodology thus considers all the data, but results may sometime seem inconsistent when applied over both sub-periods and the full period.
- The term Post-School Education and Training (PSET) system: When the acronym or term PSET is used in this report, it is used as a collective term for all delivery institutions included in the PSET system. There may, however, be some overlap because of definitional issues.

2.1 Fiscal prospects

The PSET sector is large in terms of both participants and its budget. Though PSET institutions do not all obtain all their funding from the state, they nevertheless largely depend on the government budget. In addition, NSFAS expenditure is also largely funded by the government budget and makes a large contribution to the funding of students in TVET colleges and universities. The government budget is also the source of much of the expenditure of the NSFAS.

Considering this, South Africa's dire fiscal situation dims the prospects for the PSET sector for the immediate future. In the Medium Term Budget Statement of October 2017 (National Treasury, 2017a: 3), the government cautions that *"per capita income will continue to stagnate in the coming years"*. Stagnation potentially implies limited ability to grow taxation income and therefore restrained government expenditure. Government income will remain far below its expenditure, implying a need to borrow about 4% of GDP annually, with overall government debt set to rise from 50.7% of GDP in 2016/17 to 59.7% in 2020/21. Spending to pay interest on the government debt will have to grow the fastest, crowding out other government spending.

National Treasury warns of a number of fiscal risks, including uncertainty regarding funding higher education:

"The current outlook is characterised by a deteriorating macroeconomic position over the medium term, severe revenue underperformance, expenditure pressures, and contingent liability risks that are beginning to crystallise. Sources of uncertainty include decisions on the scope of funding for higher education and the outcome of public-service wage negotiations" (National Treasury, 2017a: 49)

In the Medium Term Budget Statement of October 2017, National Treasury (2017a) sets out the expected shortfall for covering the full cost of study for various assumed levels of coverage of undergraduate university students (Table 1). Thus, if in 2018 government wanted to provide full loans to 50% of undergraduate university students, NSFAS spending would have to be increased from the R11 428 million estimated before (shown in the last line of the table) by an additional R24 980 million (figures in nominal 2017/18 Rand). Illustrating the extent of the shortfall of the envisaged NSFAS expenditure in this way under various assumptions regarding coverage is helpful in providing a first estimate of the cost of various funding proposals. In addition to this additional funding that may be required for university students, Treasury notes that there is also a large funding gap for TVET students:

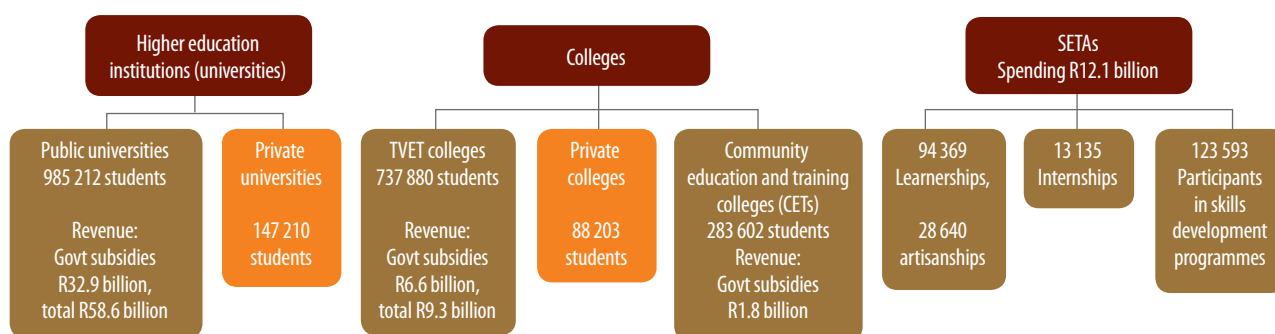
“In 2016, NSFAS provided financial assistance to 225 557 TVET college students whose family income is below R122 000 per year – about 70 per cent of full-time equivalent students. Covering the full cost of study for all TVET students, while ensuring that adequate programme funding is available, would require an additional R7.1 billion next year in addition to the R10 billion already allocated, or R23.5 billion over the next three years” (National Treasury, 2017a: 35)

Table 1 Current (2017/18 R million) and real (2015/16 R million) funding shortfalls on full cost of study for university students

	30%	40%	50%	75%	NSFAS budget
Current (R million, 2017/18)					
2017/18	10 724	17 691	24 980	40 728	11 428
2018/19	12 661	20 432	28 553	46 060	12 045
2019/20	14 875	23 550	32 606	52 083	12 702
2020/21	17 343	27 035	37 143	5 8 827	13 464
Real (R 2015/16 million)					
2017/18	9 473	15 628	22 067	35 979	10 095
2018/19	11 185	18 049	25 223	40 689	10 640
2019/20	13 140	20 804	28 804	46 010	11 221
2020/21	15 321	23 883	32 812	51 967	11 894

Source: National Treasury, 2017a: 35.

Figure 3 The PSET sector in 2015: A broad overview



Source: Table 3 and CHET (2017).

3. Financing PSET: Prioritisation and Constraints 2006/07 to 2019/20

3.1 Aggregate trends in PSET expenditure

While policy shifts have an important effect on the magnitude and composition of government expenditure across various PSET sub-sectors, total enrolments also influence expenditure. As context for analysis of expenditure data, this section summarises enrolments and participation in the various PSET sub-sectors, as these are both a driver and an outcome of expenditure allocations. Table 2 shows that total participation in the PSET system rose by an average of 6.7% per year between 2010 and 2015. In particular, SETA programme participation has increased rapidly since 2010, rising at an average rate of 15.6% per year. Interestingly, growth in enrolments at private universities (11.4% per year) significantly outstripped the modest growth in university enrolments (1.8% per year), with the effect that 13.0% of all university enrolments in 2015 was in private universities, as against 9.2% in 2010. The college sector has also seen very rapid growth in enrolments, owing largely to the rise of TVET College enrolments in accordance with the high priority accorded to this sector in both the National Development Plan (Presidency, 2011) and in the White Paper on Post-School Education and Training.

Table 3 presents data on total allocations (in 2015/16 R million) to the PSET function (administrative allocations to the programmes of the Department of Higher Education and Training, and allocations to the PSET institutions) and its sub-sectors. This includes allocations to SETAs and the National Skills Fund that are not appropriated in the national Budget, but are funded through an earmarked tax (the skills development levy). An average growth rate of 5.6% in total PSET allocations was achieved over the 2006/07 to 2019/20 period. This includes the expenditure forecast in the Medium Term Expenditure Framework (MTEF) period from 2017/18 to 2019/20, as well as revised estimated expenditure for 2016/2017. An average growth rate of 3.9% in total PSET expenditure is anticipated over the 2015/2016–2019/20 period, well below the average growth rate experienced over the total period and a reflection of the constrained fiscal environment.

University education is the PSET programme which is expected to experience the highest expenditure growth over the projection period at 5.9% per year, while in contrast TVET allocations will only experience growth of 0.8% per year over the period, a sharp decline compared to the growth rate for the previous two five-year periods of 8.6% (2006/07–2010/2011) and 2.4% (2010/11–2015/16).

The relatively high projected growth rate of the university education programme within DHET is the result of a deliberate reallocation of funds to increase funding available for student financial aid for poor students and, more recently, for compensating institutions for the loss in income due to announced zero percent fee increases in the wake of the recent student fee protest movement (#feesmustfall) – despite the tight fiscal constraint. The reallocation of funds will make achievement of the goals for TVET expansion set out in the White Paper on Post-School Education and Training very difficult. This also means that the growth role envisaged for TVET in the National Development Plan will not eventuate.

Table 2 Total IPSET enrolments by sub-sector

	2010	2011	2012	2013	2014	2015	Average annual growth (%)
HEIs	983 703	938 201 ^a	1 050 860	1 103 639	1 111 712	1 132 422	3.7%
– Public	892 936	938 201	953 373	983 698	969 155	985 212	1.8%
– Private	90 767	–	97 487	119 941	142 557	147 210	11.4%
Colleges	405 275	534 719	773 276	794 250	781 378	1 109 685 ^d	19.4% ^e
– TVET	358 393	400 273	657 690	639 618	702 383	737 880	16.2%
– Private	46 882	134 446 ^b	115 586	154 632	78 995	88 203 ^c	5.4% ^e
– CET	–	–	–	–	–	283 602	–1.9% ^f
AET Centres (current CET)	297 491	297 634	315 068	257 823	275 268	–	–1.9% ^f
– Public	–	289 363	306 378	249 507	262 680	–	–4.8%
– Private	–	8 271	8 690	8 316	7 560	–	–3.1%
Subtotal	1 686 469	1 770 554	2 139 204	2 155 712	2 168 358	2 242 107	6.0%
SETAS ^g	115 973	144 121	131 599	176 298	227 817	231 097	15.7%
– Learnerships	49 309	44 050	50 885	75 782	77 931	94 369	16.5%
– Internships	3 005	3 654	6 127	8 017	12 006	13 135	37.8%
– Skills Development Programmes	63 659	87 906	74 587	92 508	137 880	123 593	15.0%
Total	1 802 442	1 914 675	2 270 803	2 332 010	2 396 175	2 473 204	6.7%

Source: DHET (2017: 4.5), DHET (2016: 3.4), DHET (2015: 3.4), DHET (2014: 2.3), DHET (2013b: 2.30, 32), DHET (2013: 2.33, 35). Notes: Only private institutions that are registered with DHET are considered in the figures presented. Average annualised growth rates estimated via log-linear ordinary least squares. All growth rates estimated using only those years for which enrolment/registration information was available. ^(a) Private HEI enrolment estimates not available for 2011. ^(b) Represents enrolment at only 277 of the 449 private FET colleges that responded to the departmental Annual Survey in 2015. ^(c) Includes enrolments at CET colleges. ^(d) Estimated growth rates unlikely to accurately reflect true growth rates since underlying enrolment data missing for some years. ^(e) Public AET Centres were renamed to CET colleges in 2015 (DHET 2017: ii). Growth rates represent the average annual growth in enrolments at AET Centres/CET colleges over the period. ^(f) Includes programme registrations for both employed workers and unemployed persons.

Table 3 Real allocations (2015/16 R million) to PSET function and PSET sub-sectors

Year	Administration	Planning, Policy and Strategy	University Education	Technical and Vocational Education and Training	Skills Development	Community Education and Training	Subtotal	Sector education and training authorities	National Skills Fund	Total
2006/07	115	37	20 444	3 581	188	–	24 366	7 267	1 817	33 451
2007/08	109	43	21 070	4 050	186	–	25 460	8 000	2 000	35 460
2008/09	122	39	22 296	4 503	189	–	27 149	8 372	2 093	37 614
2009/10	140	40	23 320	4 434	187	–	28 121	8 500	2 125	38 747
2010/11	150	34	25 622	5 171	172	–	31 149	8 792	2 197	42 138
2011/12	276	52	29 087	7 709	151	–	37 277	9 959	2 488	49 724
2012/13	269	55	30 850	6 145	139	1 937	39 395	10 995	2 749	53 139
2013/14	297	53	31 443	6 532	137	1 974	40 435	10 747	2 684	53 867
2014/15	246	48	32 040	6 626	139	1 948	41 046	11 636	2 909	55 591
2015/16	347	52	32 899	6 605	217	1 824	41 943	12 126	3 031	57 100
2016/17	350	53	37 079	6 597	169	1 859	46 108	11 448	2 846	60 401
2017/18*	354	60	37 029	6 588	220	1 941	46 191	11 141	2 785	60 118
2018/19**	369	67	41 373	6 711	223	1 970	50 712	12 015	3 004	65 730
2019/20**	373	68	41 418	6 808	225	2 002	50 895	12 315	3 079	66 288
Average annual growth rate (%)										
06/07–10/11	8.1	-2.7	5.7	8.6	-1.7	–	6.1	4.5	4.5	5.7
10/11–15/16	11.9	5.4	4.6	2.4	2.5	–	5.3	6.0	6.0	5.5
15/16–19/20	2.0	7.8	5.9	0.8	3.6	2.5	4.9	0.8	0.9	3.9
06/07–19/20	11.3	4.6	5.9	4.7	1.3	0.3	6.2	4.0	4.0	5.6

Source: 2018/19–2019/20 from NATIONAL TREASURY (2017c: 269), 2016/17–2017/18 from NATIONAL TREASURY (2017d: 105), 2012/13–2015/16 from NATIONAL TREASURY (2016: 241), 2011/12 from NATIONAL TREASURY (2015: 243), 2009/10–2010/11 from NATIONAL TREASURY (2013: 375), 2007/08–2009/10 from NATIONAL TREASURY (2011: 346), 2006/07 from NATIONAL TREASURY (2010: 309). Notes: All values expressed in real terms (2015/16 R million). Average annualised growth rates estimated via log-linear ordinary least squares. Adjusted appropriation. ** Projected appropriation. All other estimates presented are based on audited outcomes.

Figure 4 below compares the average annual real growth rates in PSET allocations to total non-interest expenditure by government for three five-year periods and the full fifteen-year period. (Paying interest on government borrowing is a first demand on the budget, thus it is common to show expenditure on various programmes relative to total public expenditure after interest payments have already been subtracted.) Growth in public PSET allocations did not keep up with growth in non-interest expenditure for the first five-year period covered (2006/07–2010/11), but it exceeded growth in non-interest expenditure for the two more recent time periods. Since 2010/11, growth in public PSET expenditure enjoyed high priority: a growth rate of 4.9% in real terms as forecast for the most recent period would double PSET expenditure if it were to be sustained for 15 years. (Box C explains how growth rates can be interpreted in terms of doubling periods.) Indeed, for the full time period covered (2006/07–2019/20), growth in past and projected public PSET allocations exceeded growth in total non-interest expenditure.

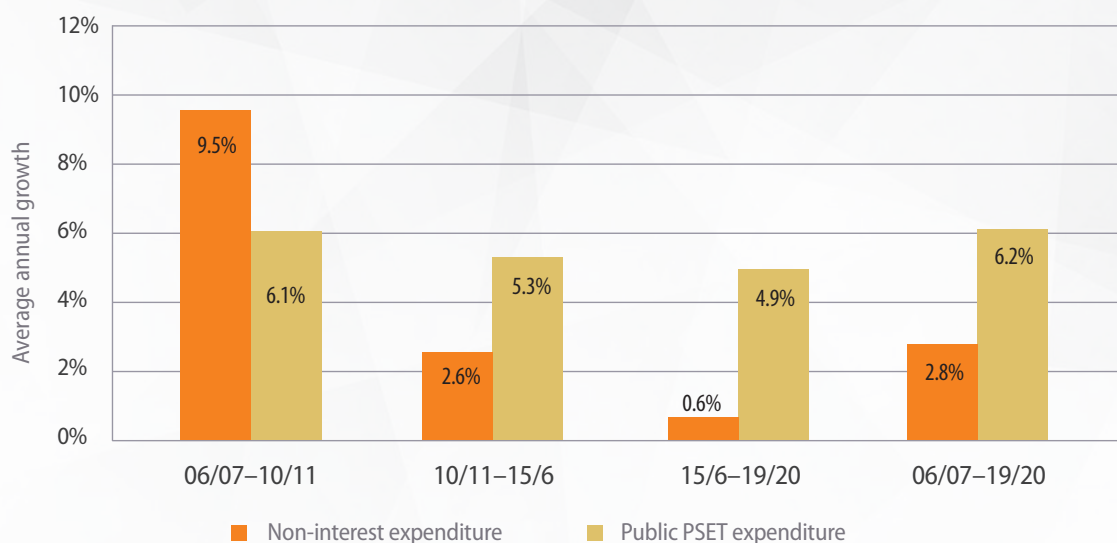
BOX C:

AN INTUITIVE UNDERSTANDING OF THE EFFECT OF DIFFERENT GROWTH RATES

Interpreting growth rates is not always intuitive to policy makers or other stakeholders who are not accustomed to work with data on a regular basis. Remember that if the average growth rate of an amount is 10% per year, the amount would increase by 10% in the first year, but then by 11% of the original amount in the next year, and so on, so it would not double in 10 years, but in a shorter space of time. One way of interpreting the magnitude of a growth rate is to think about it in terms of the period that such growth would have to be sustained before the original amount doubles. As a rule of thumb, one can say that the doubling period of anything is approximately equal to 72 divided by the growth rate. This would mean that spending that grows at 8% per annum would double in 9 years if that growth is sustained for the full period; spending growth of 4% would require 18 years to double, and so on. The table below presents a few growth rates and the actual doubling period as well as the approximate period applying the rule of thumb of 72 divided by the growth rate. As can be seen, this rule of thumb is a useful approximation to interpret what different growth rates mean.

Growth rate per year	Actual doubling period	Approximate doubling period
0.5%	139 years	144 years
1.0%	70 years	72 years
2.0%	36 years	36 years
2.5%	29 years	29 years
3.0%	24 years	24 years
4.0%	18 years	18 years
5.0%	15 years	14 years
6.0%	12 years	12 years

Figure 4 Average annual growth in real (2015/16 R million) public PSET allocations and non-interest expenditure



Source: Non-interest expenditure estimates for 2014/15–2019/20 from NATIONAL TREASURY (2017a: 28), 2013/14–2019/20 from NATIONAL TREASURY (2017d: 6), 2012/13 from NATIONAL TREASURY (2016c: 6), 2011/12 from NATIONAL TREASURY (2015c: 7), 2010/11 from NATIONAL TREASURY (2014c: 6), 2009/10 from NATIONAL TREASURY (2013c: 33), 2008/09 from NATIONAL TREASURY (2012c: 38), 2008/09 from NATIONAL TREASURY (2011c: 111), 2006/07–2007/08 from NATIONAL TREASURY (2010c: 61). PSET expenditure for 2018/19–2019/20 from NATIONAL TREASURY (2017b: 269), 2016/17–2017/18 from NATIONAL TREASURY (2017c: 105), 2012/13–2015/16 from NATIONAL TREASURY (2016: 241), 2011/12 from NATIONAL TREASURY (2015: 243), 2009/10–2010/11 from NATIONAL TREASURY (2013: 375), 2007/08–2009/10 from NATIONAL TREASURY (2011: 346), 2006/07 from NATIONAL TREASURY (2010: 309). Notes: All underlying values expressed in real terms (2015/16 R million). Average annualised growth rates estimated via log-linear ordinary least squares. State allocations to PSET excludes SETA, NSF and other sub-national spending. Non-interest expenditure on the main budget excludes provision for debt repayment, but does include the unallocated contingency reserve for 2017/18 to 2019/20.

BOX D:

WHY IS EXPENDITURE EXPRESSED AS PERCENTAGE OF GDP OR AS PERCENTAGE OF NON-INTEREST GOVERNMENT EXPENDITURE?

Gross Domestic Product (GDP) is the value of all goods and services produced in a country in a year. It gives a good indication of the resources available to that society to allocate for different purposes such as consumption of food and other goods, housing, medical services, entertainment, etc. Expressing spending on PSET relative to GDP thus indicates what proportion of a country's resources is allocated for providing such services.

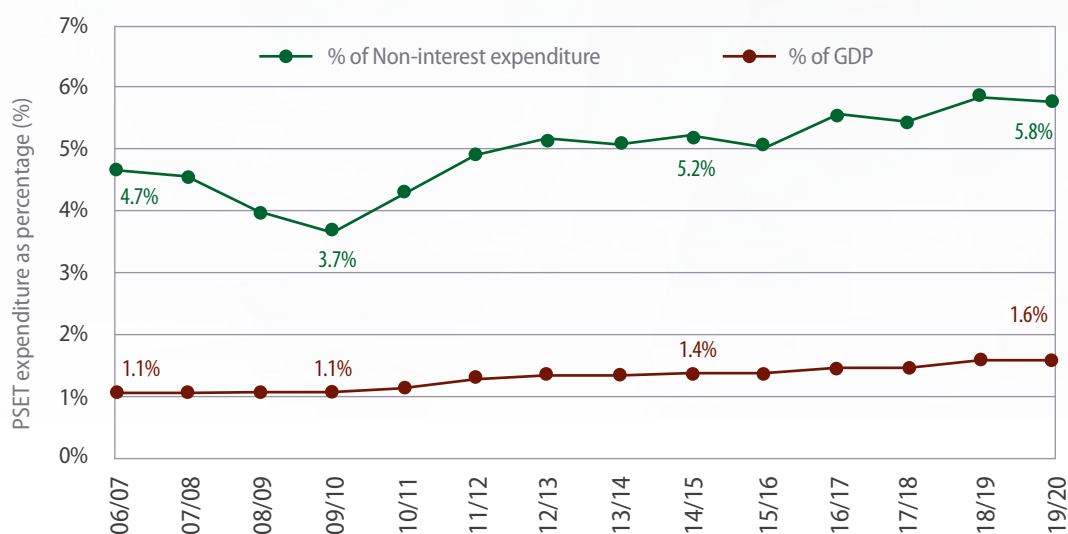
GDP per member of the population (GDP per capita) is often used as measure of the economic development level of a country. Typically, many other measures of development tend to be related to GDP per capita, particularly if these other measures are plotted against the log of the GDP per capita. This places the focus on *proportional* differences in GDP per capita.

Allocations to PSET can also be compared to the budgetary resources available to government. Before the government starts spending on other programmes, it first has to pay the interest on its debt. Thus PSET allocations are usually expressed relative to non-interest government expenditure, i.e. the budget *after* the interest payments have been subtracted. In international comparisons, it is not always clear whether all countries express expenditure as a proportion of the total budget or of non-interest government spending. As most comparator countries do not have large interest payments, the difference between these two measures may not be large.

Over the period as a whole, university education's share of total public PSET allocations grew very modestly, while TVET expenditure shrank relative to aggregate PSET expenditure, mainly as a result of falling behind since 2010/2011 (see Table 24 in Appendix). This shrinking share of TVET contrasts with expressed plans to expand TVET's allocated budget share.

Figure 5 shows total public PSET expenditure as a share of Gross Domestic Product (GDP) (see Box D for an explanation on why expenditure is often expressed as a percentage of GDP), and total public PSET expenditure as a share of non-interest government expenditure. This comparative perspective provides some insight into the fiscal demands that PSET expenditure places on national resources. At the start of the period total public PSET allocations were 1.1% of GDP, by 2012/13 it had increased to 1.4% and in 2016/17 it had reached 1.5% of GDP. PSET expenditure is expected to remain at approximately the same share of GDP during the MTEF years (2017/18–2019/20).

Figure 5 Public allocations to PSET as a percentage of GDP and non-interest government expenditure

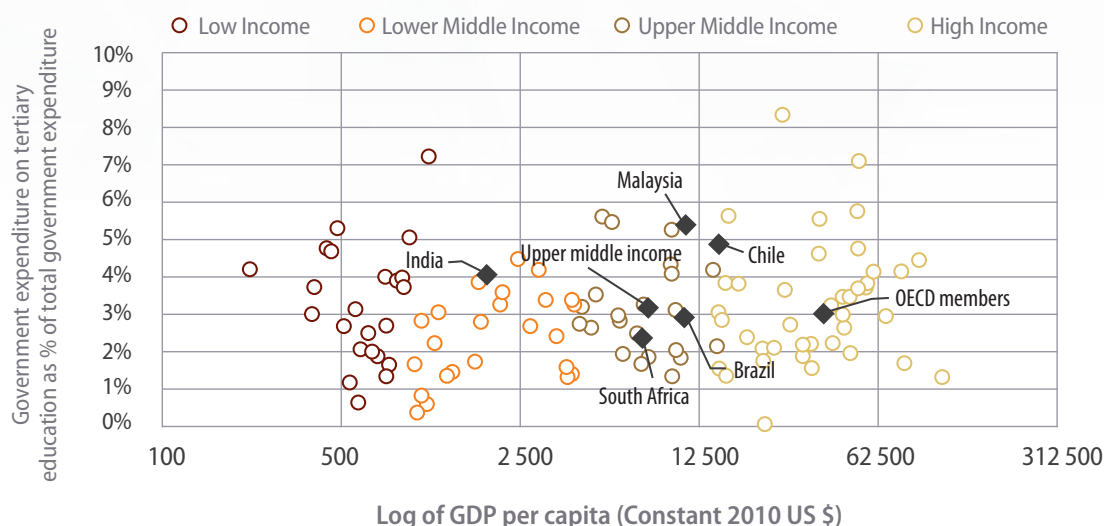


Source: Non-interest expenditure estimates for 2014/15–2019/20 from NATIONAL TREASURY (2017a: 28), 2013/14–2019/20 from NATIONAL TREASURY (2017d: 6), 2012/13 from NATIONAL TREASURY (2016c: 6), 2011/12 from NATIONAL TREASURY (2015c: 7), 2010/11 from NATIONAL TREASURY (2014c: 6), 2009/10 from NATIONAL TREASURY (2013c: 33), 2008/09 from NATIONAL TREASURY (2012c: 38), 2008/09 from NATIONAL TREASURY (2011c: 111), 2006/07–2007/08 from NATIONAL TREASURY (2010c: 61). PSET expenditure for 2018/19–2019/20 from NATIONAL TREASURY (2017b: 269), 2016/17–2017/18 from NATIONAL TREASURY (2017c: 105), 2012/13–2015/16 from NATIONAL TREASURY (2016: 241), 2011/12 from NATIONAL TREASURY (2015: 243), 2009/10–2010/11 from NATIONAL TREASURY (2013: 375), 2007/08–2009/10 from NATIONAL TREASURY (2011: 346), 2006/07 from NATIONAL TREASURY (2010: 309). Notes: All underlying values expressed in real terms (2015/16 R million). Average annualised growth rates estimated via log-linear ordinary least squares. The expanded definition of public PSET allocations includes spending on SETA, NSF and other sub-national spending. Non-interest expenditure on the main budget excludes provision for debt repayment, but does include the unallocated contingency reserve for 2017/18 to 2019/20.

Since the PSET sector (in terms of programme and sub-sector coverage) is unique to South Africa, it is not possible to compare total allocations to PSET as a percentage of GDP to those of other countries. The closest point of comparison is total public tertiary expenditure as a percentage of GDP. The OECD average for government tertiary expenditure as a share of GDP was 1.3% in 2013, the last year for which comprehensive data across most member countries was available (OECD, 2017), while South Africa's government spent 0.73% of GDP on tertiary education in 2014 (UNESCO, 2017). South Africa also spends somewhat less on tertiary education as a share of GDP than some upper-middle-income countries. For example, public tertiary expenditure totalled 1.1% of GDP for both Brazil and India (2013 data) (UNESCO, 2017), while in 2015 Chile's total public expenditure on tertiary education was 1.26% of GDP and Malaysia's 1.35% (UNESCO, 2017).

The upper line in Figure 5 shows that public PSET allocations as a share of non-interest *government expenditure* was 4.7% in 2006/07 before first declining to 3.7% in 2009/10, and then gradually increasing to eventually constitute 5.2% of non-interest government expenditure in 2014/15. This proportion is forecast to reach 5.9% in 2018/19. If spending on tertiary education (defined to be consistent with international approaches; (see the definitions list in the Appendix at the end of this report) as a share of government expenditure is compared to that of other upper-middle-income countries (Figure 6 below), South Africa has neither a low nor a particularly high share.

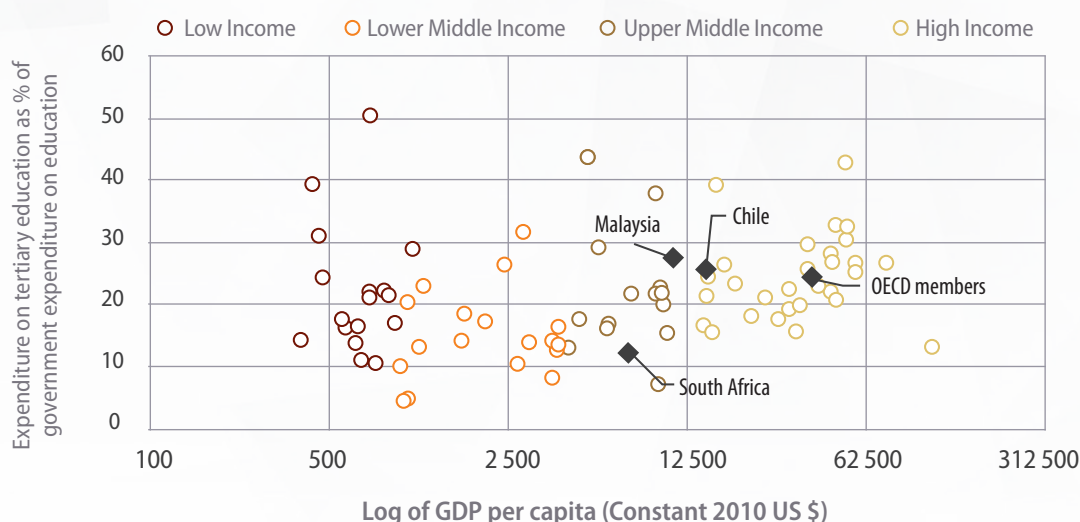
Figure 6 Government expenditure on tertiary education as % of total government expenditure by GDP per capita



Source: World Bank (2017). Notes: Estimates for the most recent available year between 2012 and 2016 are used, expenditure data in Constant 2010 US \$. Government expenditure on tertiary education as percentage of total government expenditure is calculated as the product of SE.XPD.TERT.ZS and SE.XPD.TOTL.GB.ZS WDI indicators.

Data on South Africa's expenditure on tertiary education as a percentage of total government expenditure on education relative to GDP are presented in Figure 7 below.¹ This indicator provides a sense of the priority accorded to tertiary education relative to other education expenditure, which can then be compared to how other countries prioritise tertiary education. It is clear from Figure 7 that other upper-middle income countries at comparable levels of GDP to South Africa spend far greater shares on tertiary education relative to total government expenditure on education. It is not obvious whether this is because South Africa prioritises primary and secondary education, or whether there is a lack of prioritisation of tertiary education.

Figure 7 Expenditure on tertiary education as % of government expenditure on education by GDP per capita



Source: World Bank (2017). Notes: Estimates for the most recent available year between 2014 and 2016 are used. Expenditure data in Constant 2010 US \$.

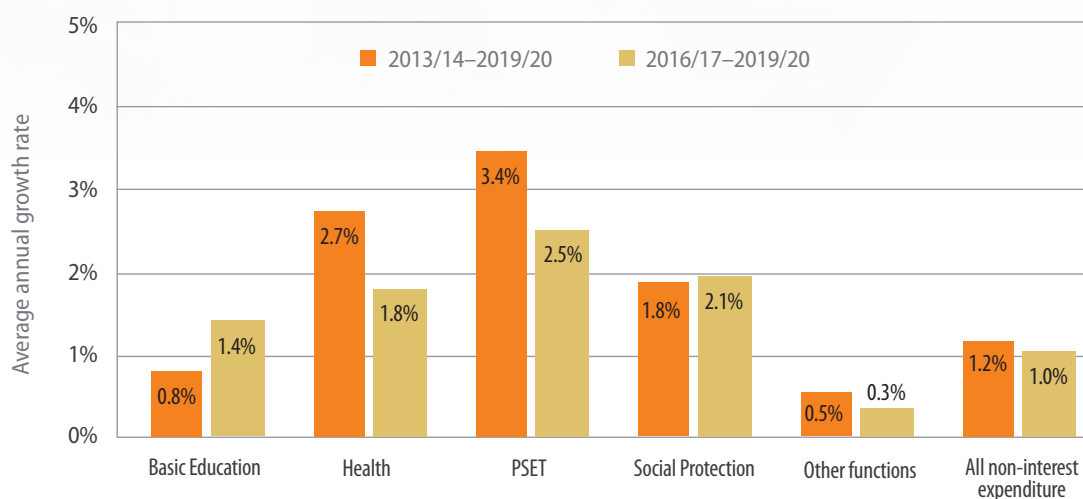
Table 4 provides data on growth in South Africa's consolidated government expenditure² (i.e. across both the national and provincial departments). Over the full period shown (2013/14–2019/20), PSET allocations enjoy a higher growth rate at 3.4% than allocations to the other three critical social service categories (Figure 8). While real allocations to PSET are expected to grow faster over the 2016/17 to 2019/20 period than for health, social protection and basic education, the growth in the forecast period is nevertheless lower than for the previous three years, reflecting the fiscal constraints.

Table 4 Real (2015/16 R million) consolidated government allocations for a select number of functions

Year	Basic Education	Health	PSET	Social Protection	Other functions	All non-interest expenditure
2013/14	200 070	149 185	56 421	145 460	613 180	1 164 315
2014/15	199 121	151 934	59 501	151 270	624 102	1 185 927
2015/16	213 676	159 377	64 158	154 353	660 251	1 251 815
2016/17	203 567	165 213	64 422	154 875	631 034	1 219 111
2017/18*	203 787	167 398	67 689	157 781	642 540	1 239 196
2018/19**	208 758	170 911	66 970	161 142	633 048	1 240 829
2019/20**	211 402	174 098	70 270	164 034	641 493	1 261 297
Average annual growth rate (%)						
13/14–16/17	1.2	3.6	4.8	2.1	1.4	1.9
16/17–19/20	1.4	1.8	2.5	2.0	0.3	1.0
13/14–19/20	0.8	2.7	3.4	1.8	0.5	1.2

Source: Estimates for 2016/17–2019/20 from NATIONAL TREASURY (2017a: 37), 2015/16 from NATIONAL TREASURY (2016c: 10), 2014/15 from NATIONAL TREASURY (2015c: 12), 2013/14 from NATIONAL TREASURY (2014c: 82). Notes: Average annualised growth rates estimated via log-linear ordinary least squares. * Revised estimate (MTBSP 2017). ** Medium-term estimates (MTBSP 2017).

Figure 8 Average annual growth in real (2015/16 R million) consolidated government allocations for a number of functions



Source: Estimates for 2016/17–2019/20 from NATIONAL TREASURY (2017a: 37), 2015/16 from NATIONAL TREASURY (2016c: 10), 2014/15 from NATIONAL TREASURY (2015c: 12), 2013/14 from NATIONAL TREASURY (2014c: 82). Notes: All underlying values expressed in real terms (2015/16 R million). Average annualised growth rates estimated via log-linear ordinary least squares. * Revised estimate (MTBSP 2017). ** Medium-term estimates (MTBSP 2017).

3.2 Financing of the PSET sub-sectors

3.2.1 Universities

Table 5 and Figures 9 and 10 below show the income and expenditure of universities in real and nominal terms. Income for universities includes income from three sources: public funding (from government), tuition fees collected from students and third stream income. The latter refers to all university income derived from sources other than state subsidies or student tuition fees and includes donations or endowments, money generated through research and entrepreneurial activities, as well as income earned from investments. Also see the definitions section of this report.

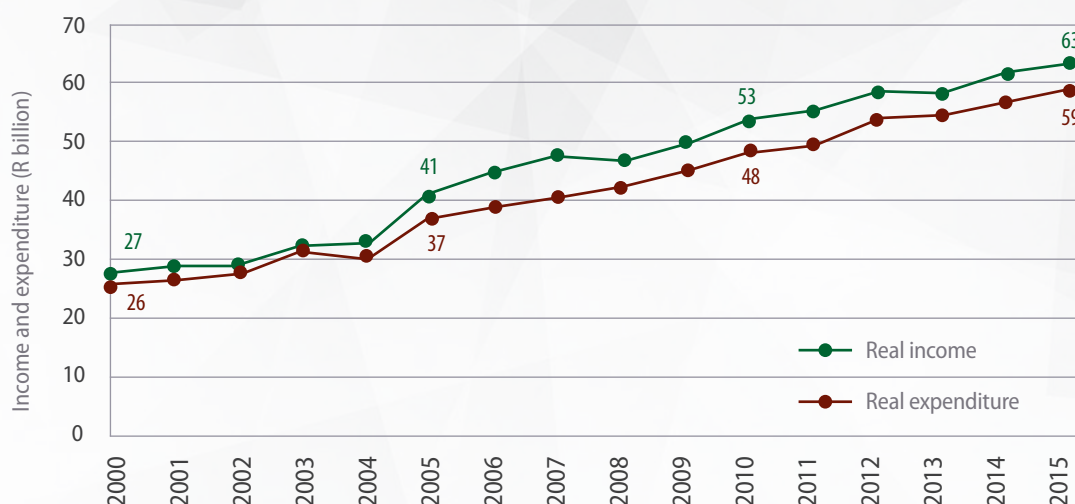
Note that real expenditure and real income roughly doubled between 2000 and 2010. While expenditure of universities taken as a whole never exceeded their income (Figure 9), Figure 10 makes clear that growth in university expenditure since 2005 slightly outstripped growth in university income over the period.

Table 5 Income and expenditure of universities

Year	Nominal		Real (2015 = 100)	
	Income	Expenditure	Income	Expenditure
2000	12 603	11 745	27 409	25 543
2001	13 914	12 934	28 628	26 612
2002	15 357	14 872	28 857	27 946
2003	17 878	17 738	31 789	31 540
2004	18 650	17 131	33 393	30 673
2005	23 207	20 919	40 712	36 698
2006	26 328	22 903	44 736	38 916
2007	29 695	25 334	47 521	40 542
2008	32 429	28 992	47 155	42 157
2009	36 722	33 283	49 781	45 119
2010	40 879	37 175	53 252	48 427
2011	44 434	40 181	55 118	49 842
2012	49 905	45 818	58 553	53 757
2013	52 563	49 170	58 304	54 541
2014	58 999	54 205	61 660	56 649
2015	63 192	58 710	63 192	58 710
Average annual growth (%)				
2000–2005	12.4%	11.8%	7.5%	7.0%
2005–2010	11.8%	12.5%	4.8%	5.5%
2010–2015	9.2%	9.7%	3.5%	4.0%
2000–2015	11.8%	11.6%	6.2%	6.0%

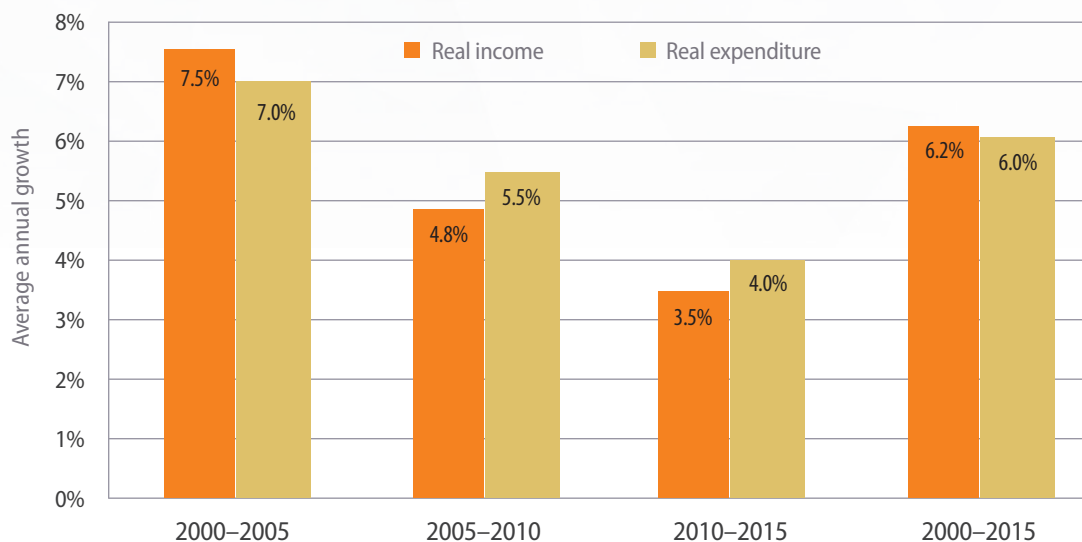
Source: CHET (2017). Notes: Nominal income and expenditure expressed in R million. Real income and expenditure expressed in 2015 R million. Average annual growth rates estimated via log-linear ordinary least squares. Income and expenditure data for the following institutions missing for certain years: WSU (2001, 2002, 2004, 2005), DUT (2000), UZ (2001), UCT (2004), UL (2004).

Figure 9 Real (2015 = 100) income and expenditure for public universities



Source: CHET (2017). Notes: Nominal income and expenditure expressed in R million. Real income and expenditure expressed in 2015 R million. Income and expenditure data for the following institutions missing for certain years: WSU (2001, 2002, 2004, 2005), DUT (2000), UZ (2001), UCT (2004), UL (2004).

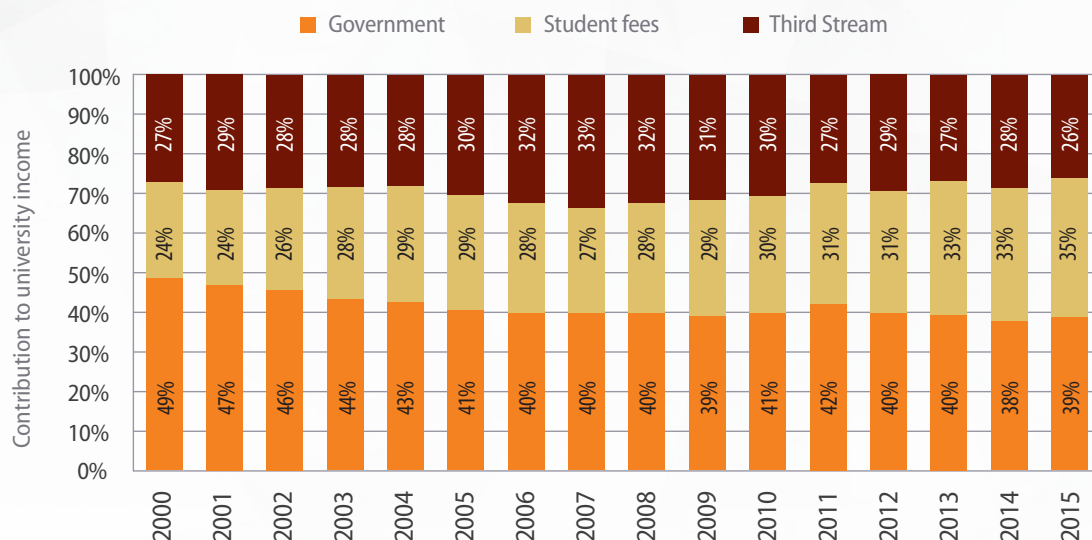
Figure 10 Average annual growth in real (2015 = 100) income and expenditure for public universities



Source: CHET (2017). Notes: Underlying real income and expenditure expressed in 2015 R million. Average annual growth rates estimated via log-linear ordinary least squares. Income and expenditure data for the following institutions missing for certain years: WSU (2001, 2002, 2004, 2005), DUT (2000), UZ (2001), UCT (2004), UL (2004).

The share of income universities received from the state (public income) has been declining, and in the past decade the same also applied to third stream income (Figure 11). There was thus a compensating increase in the student fees as a share of total income for universities, with such fees constituting 24% of total university income in 2000 and rising to 35% of total income in 2015. Student fees also include fees paid to universities by students who benefit from NSFAS bursaries, i.e. part of students fees is also funding that largely originates from government (of the 33% of student fees income in 2013, about 40%, 13 percentage points, was from NSFAS and about 60%, 20 percentage points, from private fees).

Figure 11 Main source of income for public universities



Source: CHET (2017). Notes: Income source information for SPU, UMP, and SMHSU only available for 2015

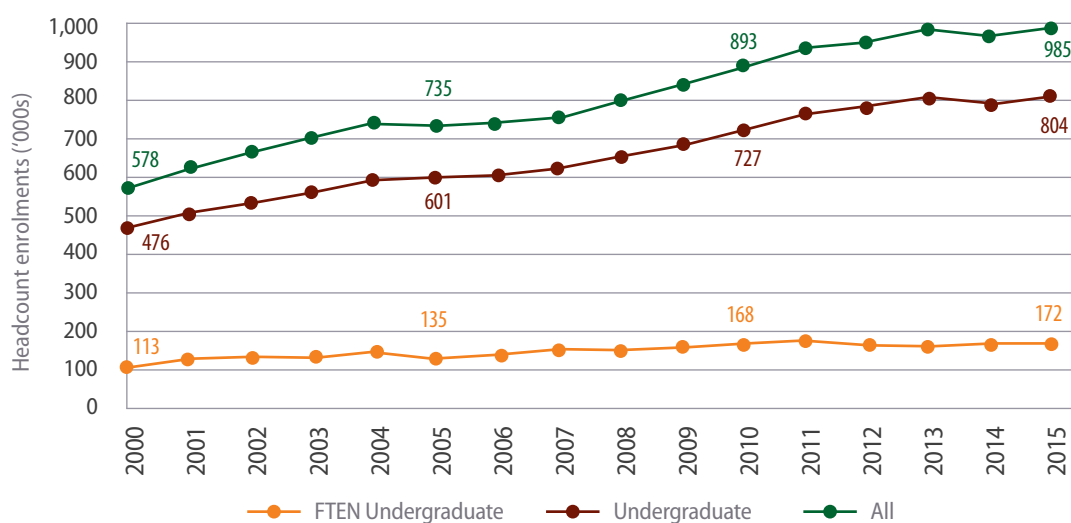
Table 6 and Figure 12 show that first-time entering undergraduate enrolments (a measure of the new students entering universities) did not increase as much as total undergraduate enrolments or as total enrolments (including postgraduate students).

Table 6 Headcount enrolments in public universities

Year	FTEN Undergraduate	Undergraduate	All
2000	112 791	475 721	578 134
2001	127 238	511 184	627 277
2002	137 924	537 806	667 182
2003	141 453	564 408	705 255
2004	145 238	597 605	744 478
2005	135 293	600 620	735 073
2006	140 008	607 510	741 380
2007	152 191	624 977	761 090
2008	152 507	655 305	799 387
2009	164 528	684 419	837 779
2010	168 388	726 882	892 936
2011	179 105	766 772	938 201
2012	169 767	781 710	953 373
2013	158 399	800 955	983 698
2014	168 599	790 898	969 154
2015	172 142	804 089	985 212
Average annual growth			
2000–2005	3.9%	4.9%	5.2%
2005–2010	4.6%	4.0%	4.0%
2010–2015	-0.4%	1.8%	1.8%
2000–2015	2.4%	3.6%	3.5%

Source: HEMIS (2016). Notes: "FTEN undergraduate" refers to first-time entering undergraduate students. Average annual growth rates estimated via log-linear ordinary least squares.

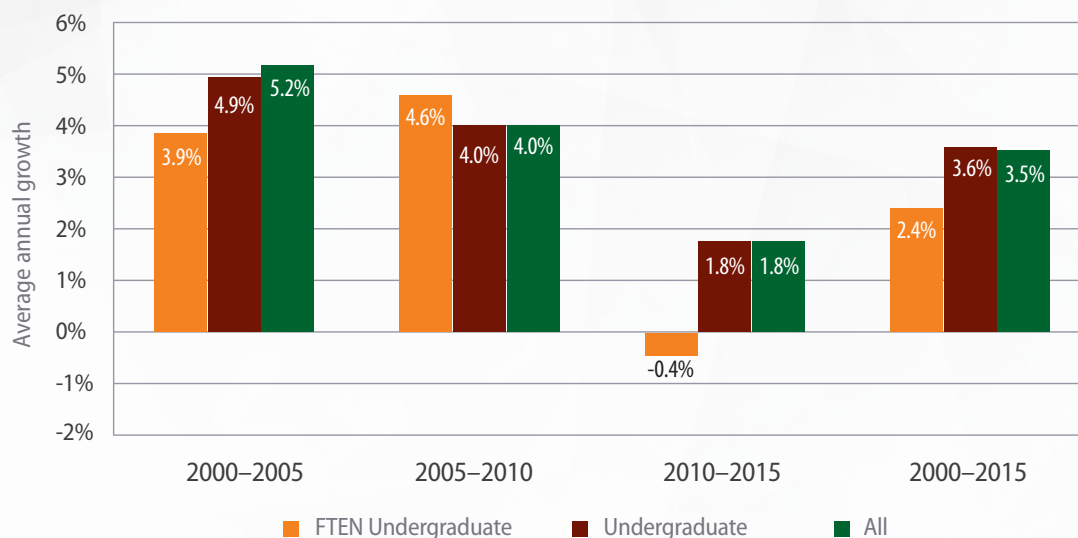
Figure 12 Headcount enrolments in public universities



Source: HEMIS (2016). Notes: "FTEN undergraduate" refers to first-time entering undergraduate students.

Figure 13 shows that between 2010 and 2015 first-time entering undergraduate enrolments did not drive most of the growth in enrolments. In fact, throughout the period total undergraduate enrolments grew faster than first-time entering undergraduate enrolments. This means that the rise in total enrolments was due to students remaining at universities longer before either completing a degree or dropping out, and not because of new students entering the system. This slow throughput in the university system increases the cost per student over the duration of their undergraduate studies and may point to inefficiency within the university system.

Figure 13 Average annual growth in headcount enrolments in public universities



Source: HEMIS (2016). Notes: "FTEN undergraduate" refers to first-time entering undergraduate students. Average annual growth rates estimated via log-linear ordinary least squares.

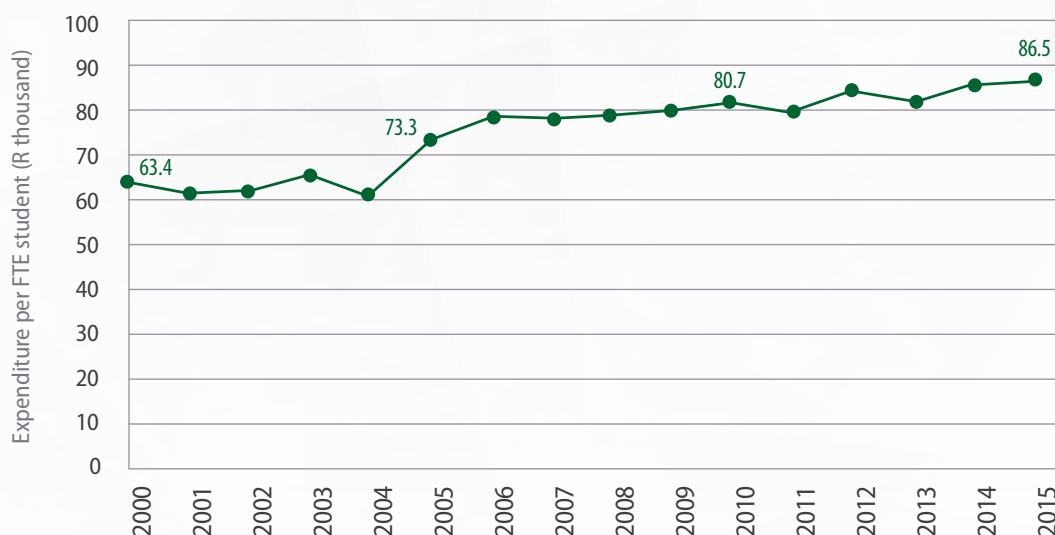
BOX E:
FULL TIME EQUIVALENT (FTE) STUDENTS AND HEADCOUNT ENROLMENT; ALSO FTE AND FTEN

It is common in universities and colleges to distinguish between full time equivalent (FTE) students and headcount enrolments. The headcount enrolment is the total number of students enrolled at universities or colleges, without considering whether they are full time or part time and whether they are doing the full credits prescribed for a year or less. For instance, a student may repeat half the credits from a particular year and not enrol for any additional credits. Such a student is counted as half a full time equivalent student. Two such students would thus together only be counted as one full time equivalent student, but they are considered two in terms of headcount.

Please note: FTE students are full time equivalent students; FTEN students refers are first time entering students, that is students who enrol at a university for the first time.

Figure 14 shows only a modest rise in universities' real expenditure per full-time equivalent student per year. In fact, there was virtually no growth in spending per student between 2006 and 2011 once general price inflation³ (as measured through the CPI index) has been taken into consideration, and only modest real growth since. The number of full time equivalent students (see Box E above for a discussion of the definition of full time equivalent students) grew at 3.4% per year over the full period, though growth in numbers has declined towards the latter part of this period. Even after considering this trend in numbers and the effect of inflation, the amount spent per full time equivalent student increased by 2.5% per year over the full 15-year period.

Figure 14 Real (2015 = 100) per FTE student expenditure at public universities



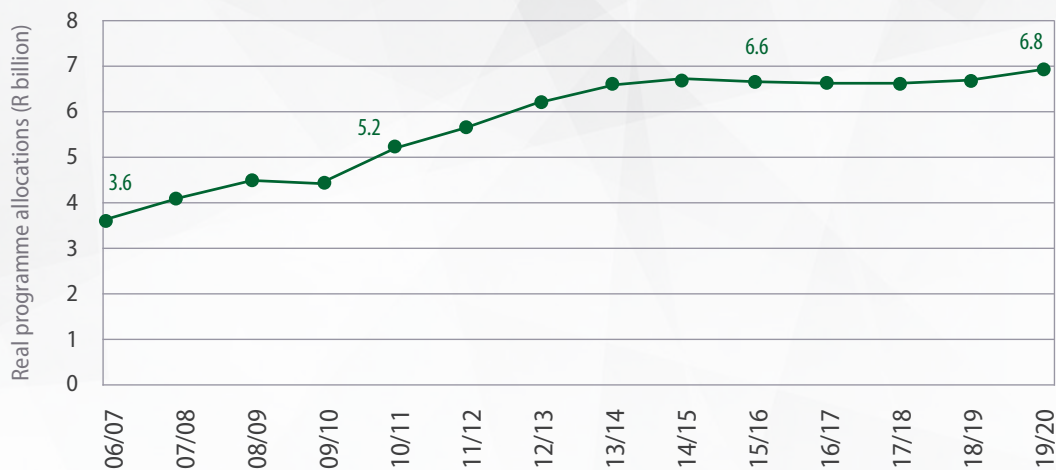
Source: FTE enrolment data from HEMIS (2016) and total university expenditure from CHET (2017). Notes: Real amounts expressed in 2015 R thousand.

Block grants constitute the largest category of public expenditure on university funding and are intended to fund day-to-day operational costs of universities (DHET, 2017b). Though there were small fluctuations during the period shown, by the end of the period the expenditure per FTE student from the block grants was about the same in real terms (i.e. after CPI inflation's effect has been removed) as at the start of the period (see Appendix Table 25). While block grants constituted 86.7% of public funding for universities (excluding NSFAS) in 2004/05, its share had decreased to 67.7% by 2015/16 due to greater growth of the others sources (DHET, 2015).

3.2.2 TVET colleges

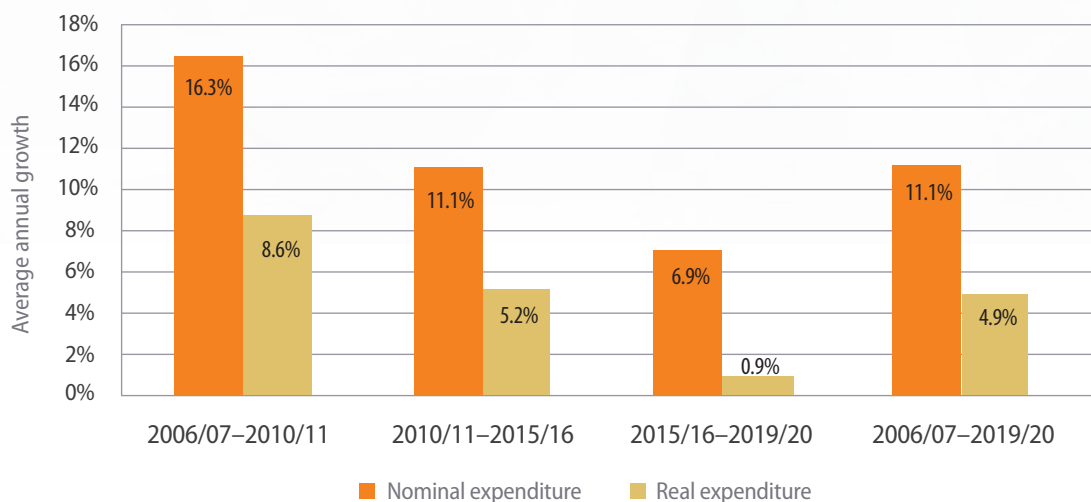
Real programme allocations for public TVET experienced much less growth after 2013/14 than had been the case over the period 2006/07–2013/14 (Figures 15 and 16, see also Appendix Table 26). TVET programme allocations are expected to grow only modestly over the four year period, 2015/16 to 2019/20, at about 0.9% per year, which contrasts sharply with the 8.6% real expenditure growth per year during the 2006/07 to 2010/11 period. This was the period during which DHET was established as a separate department from the Department of Basic Education and there was much focus on expanding this important post-school education and training sector. The slowdown in growth since 2010/11 reflects the fact that the period of very rapid expansion in TVET expenditure has ended (DHET, 2016).

Figure 15 Real (2015/16 R billion) programme allocations for public TVET Colleges



Source: ENE (2017: 277), ENE (2016: 250), ENE (2014: 375), ENE (2013: 387), ENE (2012: 368), ENE (2011: 355), ENE (2010:320). Notes: Nominal amounts expressed in R billion. Real amounts expressed in 2015/16 R billion.

Figure 16 Average annual growth in programme allocations for public TVET Colleges



Source: National Treasury (2017c: 277), National Treasury (2016b: 250), National Treasury (2014b: 375), National Treasury (2013b: 387), National Treasury (2012b: 368), National Treasury (2011b: 355), National Treasury (2010b: 320). Notes: Underlying real amounts expressed in 2015/16 Rands. Average annual growth rates estimated via log-linear ordinary least squares.

The White Paper on Post-School Education and Training (White Paper) sets a target of 2.5 million TVET students by 2030. The current (2016/17) enrolment target of 829 000 students is aligned with this White Paper target (DHET, 2016b). The projected increase in TVET student numbers over the 2017/18–2019/20 period is 14.4% per year, implying 1.24 million enrolments by 2019. From 2020 until 2030, the required growth to reach the White Paper target of 2.5 million would then be 6.6% per year. DHET also calculated the large fiscal shortfalls that will be generated over the 2017/18–2019/20 period if student number targets are to be met, given the allocations made in the MTEF budget. Table 7 shows that in the current financial year (2017/18), a projected shortfall of R13.4 billion will be generated relative to the 2030 White Paper targets. By 2019/20, the total accumulated projected TVET funding shortfall in terms of meeting the White Paper’s TVET student number targets will be R63.4 billion in current Rand values. These amounts are also shown in real 2015/16 Rand values in Table 7.

Table 7 Nominal (R million) and real (2015/16 R million) estimated TVET programme funding shortfall: 2017 MTEF in line with 2030 White Paper target

	Budget Requirement	Less: Baseline	Projected Shortfall
Nominal (R million)			
2015/16	15 988	8 615	7 373
2016/17	20 799	9 072	11 727
2017/18	24 738	9 567	15 171
2018/19	29 479	10 087	19 392
2019/20	30 185	10 652	19 533
Total	121 189	47 993	73 196
Real (R 2015/16 million)			
2015/16	15 988	8 615	7 373
2016/17	19 516	8 513	11 004
2017/18	21 845	8 448	13 397
2018/19	24 640	8 431	16 208
2019/20	23 884	8 428	15 456
Total	105 874	42 436	63 438

Source: DHET (2016b: 13).

BOX F: **MEASURING THROUGHPUT – GRADUATION RATES VS. COMPLETION RATES**

Most studies on South African universities focus on graduation rates as the only measure of university throughput. This is partly due to the fact that graduation rates are simple to calculate, but also partly because the type of data that is required for calculating more detailed and accurate measures of throughput are generally not publicly available.

Graduation rates express the number of students graduating from a particular programme as a percentage of the total number of students enrolled for that programme in the same year. Thus, they are only crude measures of throughput, being highly sensitive to changes in the number of FTEN, student repetition, drop-out, and retention rates. This sensitivity makes graduation rates inherently volatile and means that they can create very misleading impressions of throughput and performance.

Completion rates express the number of graduations for a given cohort in a particular year as a percentage of the total initial enrolment for that cohort in its starting year. This has two major implications. First, it means that completion rates are cohort-specific. Unlike graduation rates, they are thus insensitive to the number of FTEN, and the repetition rates, drop-out rates, and retention rates for other cohorts. Second, the completion rate for a particular cohort depends on the year for which it is estimated.

From the perspective of evaluating student performance and university efficiency, knowing what percentage of all enrolled students graduate in a given year is of less importance than knowing what proportion of a cohort of students who enrol for a qualification ultimately complete that qualification and how long it takes for them to do so. As measures of throughput, graduation rates are thus a weaker measure than completion rates.

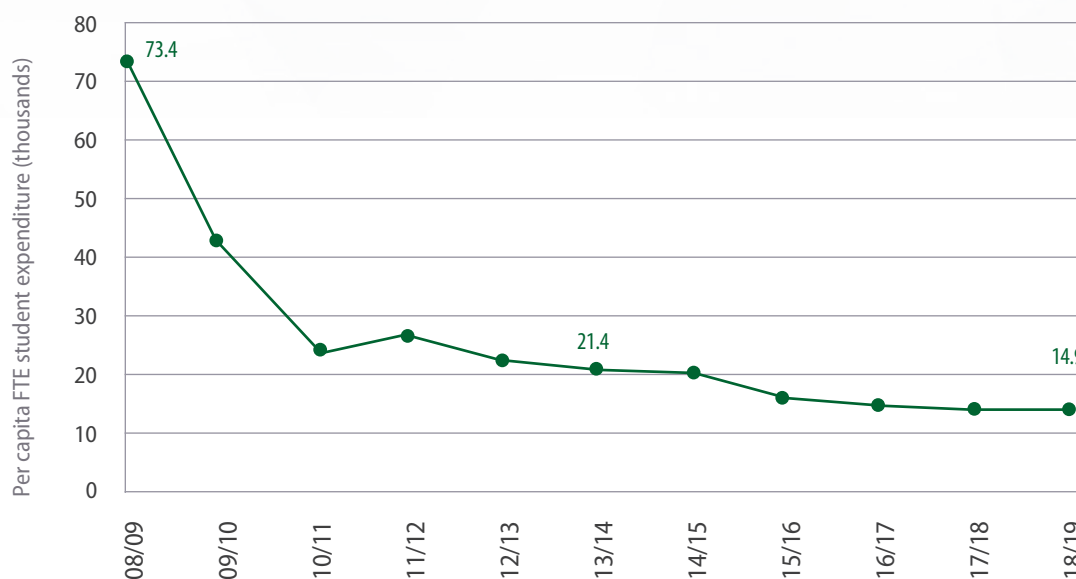
Source: Van Broekhuizen, H. (2016). *Graduate unemployment, Higher Education access and success, and teacher production in South Africa*. PhD thesis. Stellenbosch: Stellenbosch University.

For the TVET sector to continue to grow rapidly, it would have to be perceived as an important route to obtaining remunerative employment in the labour market. There is also some uncertainty whether it should largely function as an alternative to the Further Education and Training school phase, or as actual post-secondary education and training.

Real expenditure per full time equivalent student at public TVET colleges showed a large decrease in the first two years of the period covered in Figure 17. This was largely driven by large increases in the numbers of FTE students after the TVET colleges were introduced. Yet the funding per FTE student has been decreasing ever since and is projected to decrease further. Factors such as cost savings in terms of generating economies of scale, or a changing mix of programmes and colleges, may have made it possible for TVET colleges to decrease their expenditure per FTE student. (DNA Economics (2015) note that the averages conceal significant variation in expenditure per FTE student between different TVET colleges.) Throughput rates (see Box F for a discussion of throughput rates relative to graduation rates) at TVET colleges are also very low, resulting in a disproportionately high ratio between FTE students and graduates (DNA Economics, 2016). It has been suggested that, given low throughput rates, expenditure and cost measures per graduate rather than per FTE student may be more useful (DNA Economics, 2016), though variations between programmes make this difficult.

Since 2012/13, staff costs of public TVET colleges totalled around 80% of all programme funding of TVET colleges, while direct transfers to colleges were around 20%. Direct transfers are funding provided for expenditure on goods and services or operational costs.

Figure 17 Real (2015 R thousand) expenditure per FTE student at public TVET colleges



Source: National Treasury (2016b: 238, 250), National Treasury (2015b: 242), National Treasury (2014b: 363, 375), National Treasury (2013b: 375, 387), National Treasury (2012b: 355, 368). Notes: Nominal amounts expressed in R billion. Real amounts expressed in 2015/16 R billion.

3.2.3 Financing of skills development

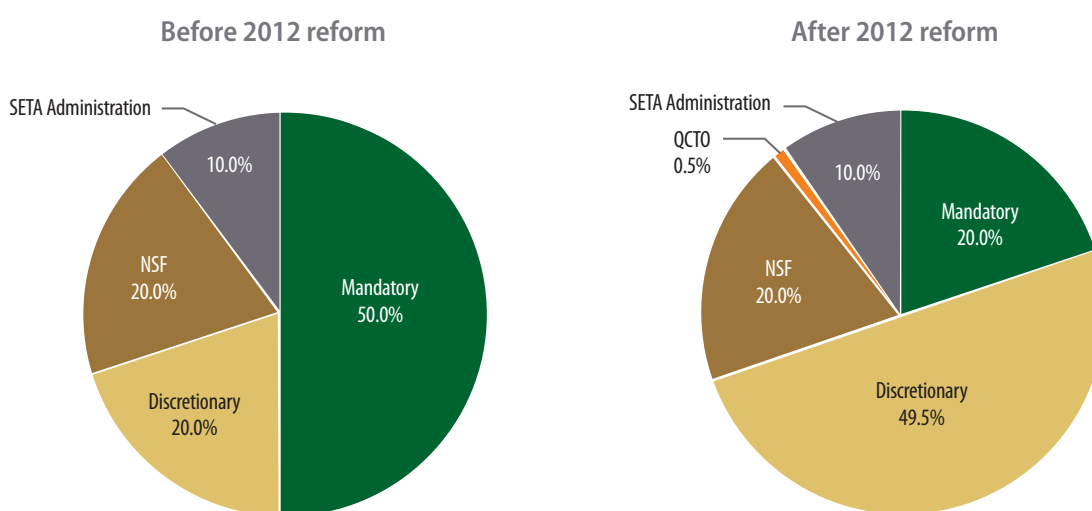
Government has developed various policies regarding workplace training to deal with emerging and growing skills shortages. This report only considers the skills sector and associated policies in terms of how they assist in the achievement of PSET goals.

The 1999 Skills Development Act requires all employers with a monthly salary bill of R500 000 or more to pay the equivalent of 1% of total salaries as a skills levy to the South African Revenue Service (SARS) (OECD, 2017d). The funds are transferred from SARS to the National Revenue Fund from where 20% is distributed to the National Skills Fund and 80% is allocated to the Sector Education and Training Authorities (SETAs) (OECD, 2017d). The SETAs then return part of the levy amount to employers for training provided to staff through mandatory and discretionary grants, part is provided as funding for the Quality Council for Trades and Occupations, while 10% of funds is kept to cover administrative expenses (OECD, 2017d). The levy is used to fund training as identified in the SETA Sector Skills Plan (SSP).

Up to 2012, firms could claim up to 50% of their levy contribution back through mandatory grants (Figure 18). However, in 2012 the regulations on the distribution of SETA grants were changed through the 2012 SETA grant regulations (OECD, 2017d). Mandatory grants were reduced from 50% to 20% of the total levy amount paid by firms to SETAs, while a payment of 0.5% of the levy to the Quality Council for Trade and Occupations was initiated. The purpose of the Council is to provide quality assurance to training programmes. Since the regulatory change, 49.5% of the total levy amount is allocated to discretionary grants (OECD, 2017d). However, 80% of discretionary grants are earmarked for payment as PIVOTAL grants. These are professional, vocational, technical and academic programmes that provide training to address gaps in the areas of scarce and critical skills.

Given the critical importance of skills and skills development to economic growth and development, discussions are currently underway to determine whether and how skills development can be more closely integrated with the core functions of DHET.

Figure 18 Skills development levy allocation before and after the 2012 reform



Source: OECD (2017d: 49)

Information on expenditure categories of the Skills Development levy is provided in Table 8 below, in 2015/16 Rand values so as to enable comparison over time after excluding the effect of inflation. Total disbursement of the Skills Development Levy was R15.2 billion in 2015/16 after it had grown at an annual rate of 4.9% from R12.5 billion in 2011/12. Of the R15.2 billion, 80% was transferred to SETAs and the remainder to the National Skills Fund.

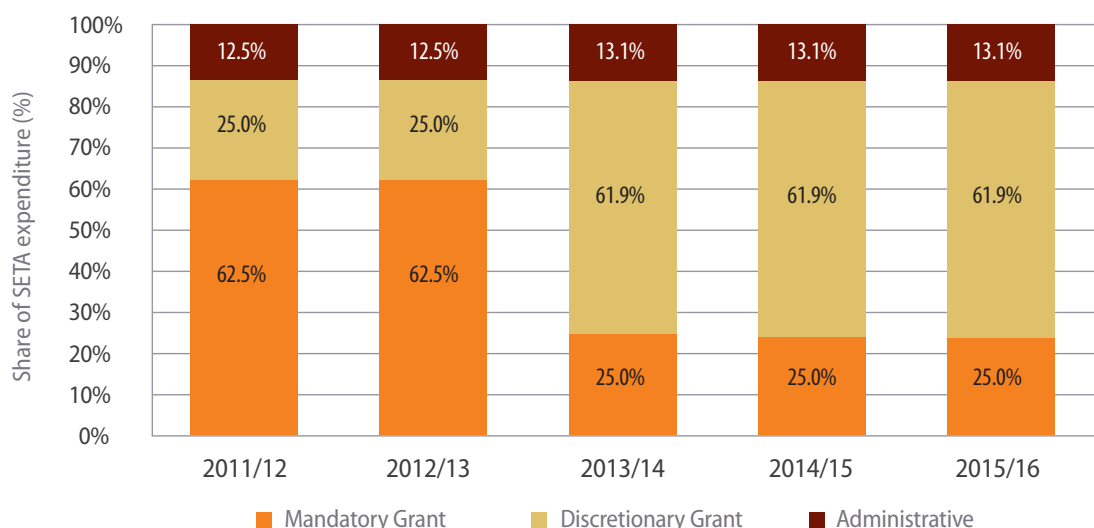
Table 8 Real (2015 R million) distribution of the Skills Development Levy

Year	Total amount disbursed by the Skills Development Levy	Distribution of Levy Funds					SETA Admin costs transferred to QCTO
		Amount transferred to the National Skills Fund	Amount disbursed to SETAS	SETAs			
				Admin Costs	Mandatory Grant Allocation	Discretionary Grant Allocation	
2011/12	12 547	2 508	10 039	1 255	6 275	2 510	–
2012/13	13 421	2 684	10 737	1 342	6 710	2 684	–
2013/14	13 960	2 790	11 170	1 466	2 793	6 912	17
2014/15	14 753	2 962	11 791	1 548	2 948	7 295	30
2015/16	15 225	3 044	12 181	1 599	3 045	7 537	40
Average annual growth							
2011/12–2015/16	4.9%	5.0%	4.9%	6.5%	–20.3%	37.7%	52.8%

Source: DHET's Statistics on Post-School Education and Training: 2015 page 64. Notes: All value expressed in real 2015 R million. Average annual growth rates estimated via log-linear ordinary least squares.

Figure 19 shows the composition of SETA expenditure for the last five years between mandatory grants, discretionary grants and administration. There was a clear compositional shift in the 2013/14 fiscal year following the implementation of the new SETA regulations, away from mandatory grants to discretionary grants. While mandatory grants constituted 62.5% of total SETA expenditure in 2011/12, it had decreased to 25.0% by 2015/16.

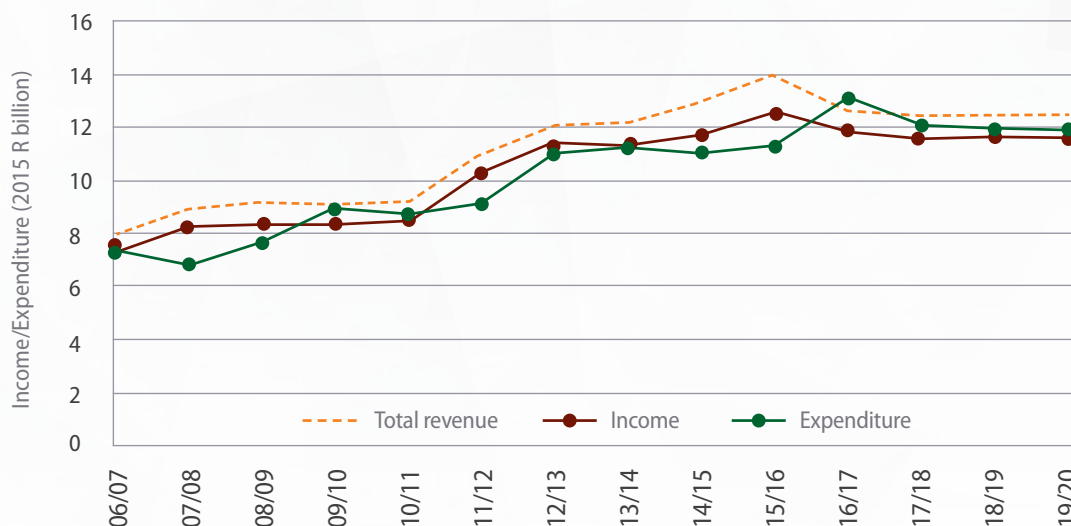
Figure 19 Real (2015 R million) SETA expenditure breakdown by category



Source: DHET's Statistics on Post-School Education and Training: 2015 page 64. Notes: All underlying values expressed in real 2015 R million.

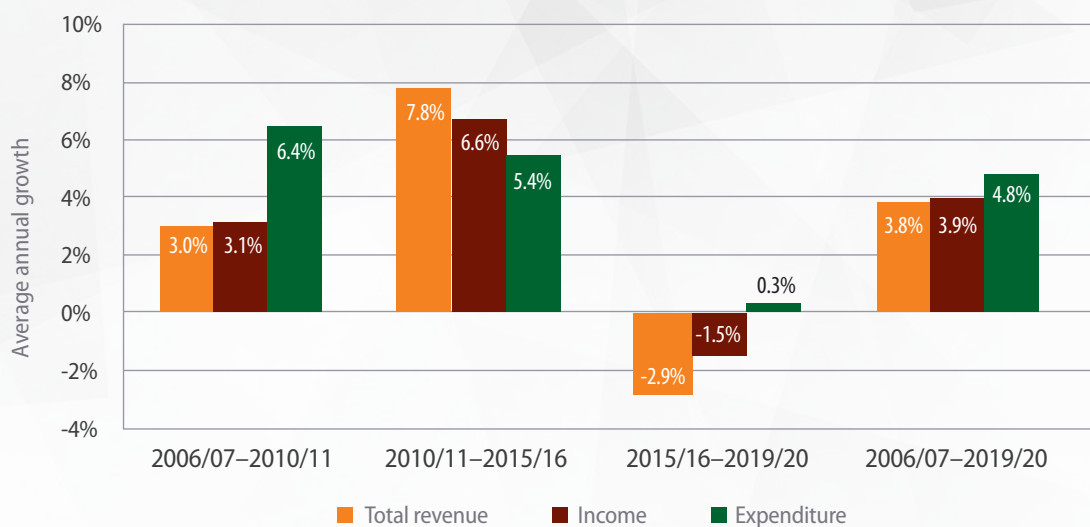
Figure 20 shows actual and estimated consolidated SETA income and expenditure over a somewhat longer period. SETAs on the whole experienced surpluses during most years up to 2015/16, yet deficits were generated or are likely to be generated thereafter. Surpluses in previous years were ascribed to mandatory grants not having been claimed by employers, intended grant beneficiaries not having met the criteria that would have made them eligible for funding, and a weak implementation culture in SETAs (DHET, 2016). It is possible for SETAs to experience short run deficits, because they could use earlier surpluses. Thus expenditure could grow, albeit modestly, at only 0.3% per year between 2015/16 and 2019/20, as shown in Figure 21 below. It should be noted that levy income is likely to experience negative growth of 2.9% per year over this period.

Figure 20 Real (2015 R billion) SETA levy income and expenditure



Source: National Treasury (2017c: 287–288), National Treasury (2016b: 262), National Treasury (2015b: 261), National Treasury (2014b: 385), National Treasury (2013b: 398), National Treasury (2012b: 375), National Treasury (2011b: 364), National Treasury (2010b: 320). Notes: All values expressed in real 2015 R billion. Income reflects direct transfers from the national government only and excludes non-tax revenues. Total revenue includes both direct transfers from the national government and non-tax revenues.

Figure 21 Average annual growth in real (2015 R billion) SETA levy income and expenditure



Source: National Treasury (2017c: 287–288), National Treasury (2016b: 262), National Treasury (2015b: 261), National Treasury (2014b: 385), National Treasury (2013b: 398), National Treasury (2012b: 375), National Treasury (2011b: 364), National Treasury (2010b: 320). Notes: All underlying values expressed in real 2015 R billion. Income reflects direct transfers from the national government only and excludes non-tax revenues. Total revenue includes both direct transfers from the national government and non-tax revenues. Average annual growth rates estimated via log-linear ordinary least squares.

The National Skills Fund provides some educational loans for young people in the PSET system. While the total number of students served increased from 37 793 in 2011/12 to 70 000 in 2014/15 (the last year for which data are available, National Treasury, 2015b), the number of students is small considering the very large need for skills development. Similar numbers of students are likely to be funded in later years.

3.2.4 Community Education and Training (CET) colleges

The Community Education and Training (CET) sector was recently established as a separate sub-sector of PSET, after it had long been operating as public Adult Education Centres (AECs). Since data on this sector is in the early stages of collection and compilation, detailed data are not yet available on this sub-sector. As indicated earlier, this is a small sector, with 283 602 participants in public centres in 2015. Enrolment in private centres is not known, but in 2014 private Adult Education Centres (AECs) had 7 560 participants, according to official data (though many community-based efforts may not be captured in these numbers). Spending by DHET on CETs amounted to R1 824 million in 2015/16 and R1 859 million in 2016/17, expressed in 2015/16 Rand values.

4. Managing the transformation of the post-school education and training system: outputs and processes

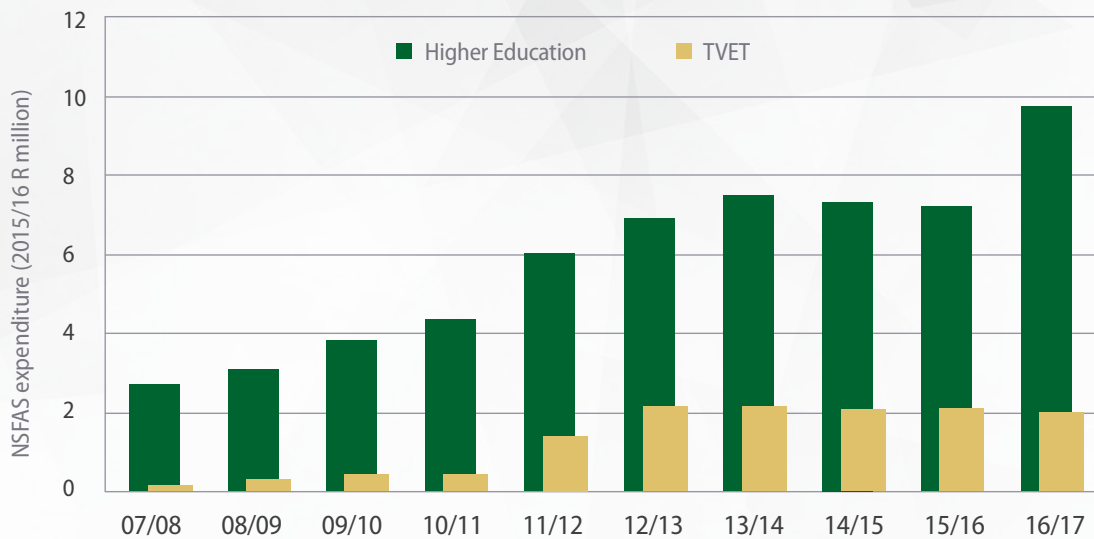
4.1 Output and Implementation Successes – Transforming the PSET system

4.1.1 Broadening access of poor students through funding from the National Student Financial Aid Scheme (NSFAS)

The National Student Financial Aid Scheme (NSFAS) has played an important role in enabling greater access to public universities and TVET colleges by providing loans and bursaries to financially needy students. This has contributed to many more students from historically disadvantaged backgrounds to participate in university or TVET studies than was previously the case. Table 9 presents data on the real NSFAS allocations for students at universities and TVET colleges for a ten-year period. Real NSFAS expenditure on universities and TVET colleges grew particularly rapidly between 2007/08 and 2013/14. This expenditure more than quadrupled over the full ten-year period when expressed in 2015 Rand values – a real increase of 17.1% per year. This outstripped the growth in the numbers of beneficiaries, resulting in positive, although modest, growth in real NSFAS support per beneficiary in universities.

While the TVET sector's share of NSFAS expenditure has grown significantly, universities still receive the majority of NSFAS funding (Figure 22). After falling below 70%, the university share of total NSFAS funding again rose to 80% in 2016/17, even though more than half of all NSFAS beneficiaries studied at TVET colleges. This difference between enrolment share and funding share of beneficiaries from universities compared to those of TVET colleges is due to different levels of per student funding in these respective tertiary institutions. In 2016/17 NSFAS expenditure was R42 794 per university student funded and R7 734 per TVET student funded, expressed in 2015/16 Rand values. Despite the larger loans and bursaries for university students, these are still not sufficient to cover the full cost of study. University fees are much higher than at TVET colleges, though there is wide variation between universities. An example provides some perspective: In 2015 tuition fees for a BA degree at one university was R32 534, equating to 44% of average adult income per year at the time (Calitz & Fourie, 2016), whilst the average NSFAS funding for a university student was R40 202 (Table 7), leaving little for accommodation and living expenses. (Calitz & Fourie, 2016).

Figure 22 Real (2015/16 R million) NSFAS allocation to public universities and TVET colleges



Source: 2015/16–2016/17 from NSFAS (2017: 74), 2013/14–2014/15 from NSFAS (2016: 84), 2012/13 from NSFAS (2015: 76), 2011/12 from NSFAS (2014: 53), 2010/11 from NSFAS (2013: 77), 2009/10 from NSFAS (2012: 61), 2008/09 from NSFAS (2011: 59), 2007/08 from NSFAS (2009: 58). Note that NSFAS expenditure estimates over the indicated period differ between NSFAS's annual reports and DHET (2015b: 7).

There has been significant growth in the number of NSFAS beneficiaries at universities and even more so at public TVET colleges. The number of NSFAS beneficiaries at universities doubled between 2007/08 and 2016/17. Over the same period, the number of NSFAS beneficiaries at public TVET colleges increased from only just over 12 000 to more than 255 000 (Table 9), about 30 000 more than the number of university students assisted. This rapid growth made it difficult to maintain real growth in bursary values per TVET student.

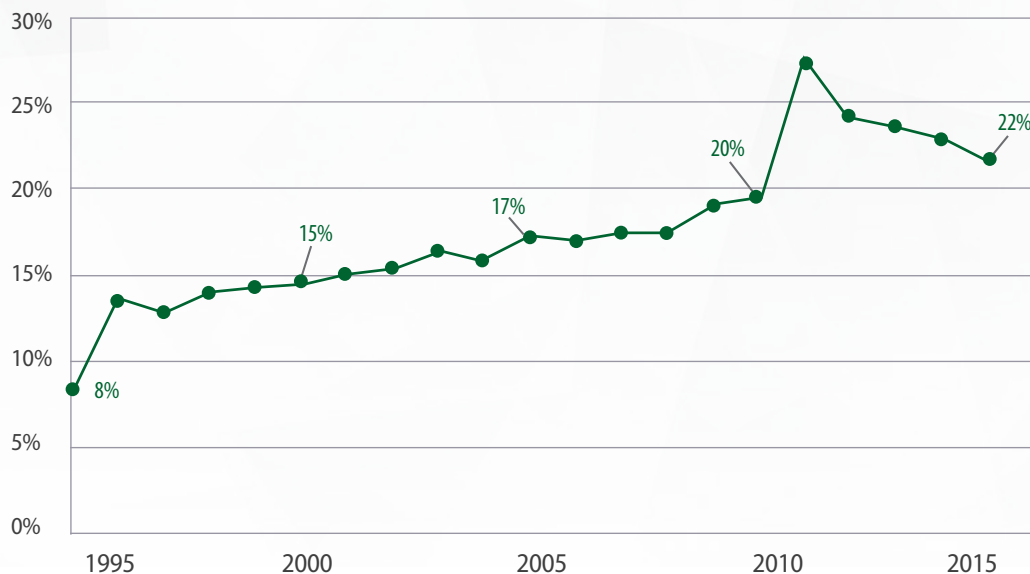
Table 9 Real (2015/16 = 100) total and per student NSFAS allocation to public universities and TVET colleges

Year	University			TVET			University + TVET				TVET share of NSFAS expenditure	TVET share of NSFAS supported students
	Expenditure ('000s)	Students assisted	Per student expenditure	Expenditure ('000s)	Students assisted	Per student expenditure	Expenditure ('000s)	Students assisted	Per student expenditure			
2007/08*	2 694 559	113 519	23 737	106 171	12 283	8 644	2 800 729	125 802	22 263	4%	10%	
2008/09*	3 085 745	118 450	26 051	319 324	35 352	9 033	3 405 069	153 802	22 139	10%	23%	
2009/10	3 831 505	135 202	28 339	455 297	55 838	8 154	4 286 802	191 040	22 439	12%	29%	
2010/11	4 384 733	148 387	29 549	441 218	62 205	7 093	4 825 952	210 592	22 916	10%	30%	
2011/12*	6 001 421	216 874	27 672	1 405 027	115 313	12 184	7 406 448	332 187	22 296	23%	35%	
2012/13	6 900 560	194 504	35 478	2 161 761	188 610	11 462	9 062 321	383 114	23 654	31%	49%	
2013/14	7 475 632	194 923	38 352	2 169 959	220 978	9 820	9 645 590	415 901	23 192	29%	53%	
2014/15	7 325 577	186 150	39 353	2 093 102	228 642	9 154	9 418 679	414 792	22 707	29%	55%	
2015/16	7 194 619	178 961	40 202	2 095 130	235 988	8 878	9 289 748	414 949	22 388	29%	57%	
2016/17	9 669 355	225 950	42 794	1 976 393	225 557	8 762	11 645 748	451 507	25 793	20%	50%	
Average annual growth rate (%)												
2007/08–10/11	18.3	9.8	7.7	58.9	70.3	-6.7	20.5	19.3	1.0	34.4	42.8	
2010/11–13/14	19.0	7.4	10.9	68.4	53.6	9.6	25.6	24.4	1.0	41.5	23.5	
2013/14–16/17	7.8	4.1	3.6	-2.8	0.9	-3.7	5.7	2.5	3.1	-9.8	-1.5	
2007/08–16/17	14.5	7.1	6.9	37.3	36.1	0.9	17.1	16.0	0.9	19.9	17.3	

Source: 015/16–2016/17 from NSFAS (2017: 74), 2013/14–2014/15 from NSFAS (2016: 84), 2012/13 from NSFAS (2015: 76), 2011/12 from NSFAS (2014: 53), 2010/11 from NSFAS (2013: 77), 2009/10 from NSFAS (2012: 61), 2008/09 from NSFAS (2011: 59), 2007/08 from NSFAS (2009: 58). Notes: Average annual growth rates estimated via log-linear ordinary least squares. For these years there were differences in the number of student between data reported by NSFAS relative to data reported by DHET (2015b: 7). DHET (2015b) reports the number of NSFAS supported students for 2011/12 as 144 757. Note also that NSFAS expenditure for 2011/12 differs substantially between NSFAS's annual reports and DHET (2015b: 7; smaller differences also occur for 2007/08 and 2008/09).

Table 10 below shows NSFAS beneficiaries at universities by race. By 2015, 23.5% of all undergraduate students at universities were NSFAS beneficiaries, and almost 30% (29.5%) of black African undergraduate university students received NSFAS funding (the latter group of students constitute more than 90% of NSFAS beneficiaries). The percentage of undergraduate students receiving NSFAS funding has growing fast since 2000 (Table 10 and Figure 23), increasing the share of students supported by NSFAS up to its peak in 2012, whereafter this share declined. This downward trend was reversed after the student fees protest in late 2015; in 2016 the number of university students receiving NSFAS support increased sharply to the highest number yet: 225 950 received financial support from NSFAS in 2016 (NSFAS, 2017).

Figure 23 NSFAS students as percentage of total undergraduate students at universities



Source: Steyn & de Villiers, 2006: 184; DoE Education Statistics in South Africa at a Glance 2004; 2005; 2006; 2007; 2008 CHET Open Data at www.chet.org.za/data/sahe-open-data; De Villiers, 2017. Note: Data point for 2016 not included here. While data on the total number of NSFAS recipients for 2016 have been released, data on the total number of undergraduates at universities was not available at the time of writing this report. A data point for NSFAS students as percentage of total undergraduate students at universities could therefore not be calculated.

Table 11 presents data on NSFAS beneficiaries at universities. In 2014, 109 829 female students (23.7%) were NSFAS beneficiaries, compared to 76 322 male students (23.3%). This larger number of female students supported largely reflects the fact that there are more women at universities. The female share of headcount enrolments grew at the same rate as the female share of NSFAS beneficiaries between 2000 and 2014, thus women were no more likely to receive NSFAS relative to men in 2014 than they were in 2000. The gender shares of NSFAS beneficiaries should therefore be viewed as a reflection of the gender shares of undergraduate students.

Table 10 NSFAS supported students at public universities by race

Year	Black			Coloured			Indian			White			All		
	Under graduate students	Students with NSFAS	NSFAS students as % of UG students	Under graduate students	Students with NSFAS	NSFAS students as % of UG students	Under graduate students	Students with NSFAS	NSFAS students as % of UG students	Under graduate students	Students with NSFAS	NSFAS students as % of UG students	Under graduate students	Students with NSFAS	NSFAS students as % of UG students
2000	293 928	75 342	25.6%	25 505	2 831	11.1%	32 339	1 832	5.7%	122 570	2 248	1.8%	475 721	83 251	17.5%
2001	317 339	72 543	22.9%	27 652	2 821	10.2%	35 247	1 773	5.0%	129 189	2 741	2.1%	511 184	80 603	15.8%
2002	331 691	77 532	23.4%	31 797	3 015	9.5%	38 436	1 895	4.9%	134 904	3 360	2.5%	537 806	86 147	16.0%
2003	347 453	87 476	25.2%	35 678	3 476	9.7%	41 285	2 221	5.4%	138 938	3 379	2.4%	564 408	96 552	17.1%
2004	372 501	90 117	24.2%	38 195	3 656	9.6%	43 641	2 273	5.2%	141 892	2 767	1.9%	597 605	98 813	16.5%
2005	376 163	98 304	26.1%	38 804	3 954	10.2%	44 473	2 030	4.6%	140 441	2 564	1.8%	600 620	106 852	17.8%
2006	380 615	100 393	26.4%	40 643	3 903	9.6%	44 517	1 843	4.1%	140 625	2 277	1.6%	607 510	108 416	17.8%
2007	403 414	104 868	26.0%	41 108	4 431	10.8%	42 396	1 477	3.5%	137 065	2 840	2.1%	624 977	113 616	18.2%
2008	434 338	108 345	24.9%	42 726	5 182	12.1%	41 939	1 178	2.8%	135 337	3 062	2.3%	655 305	117 766	18.0%
2009	460 662	124 251	27.0%	45 182	5 678	12.6%	42 663	1 217	2.9%	135 156	4 056	3.0%	684 419	135 202	19.8%
2010	499 173	136 516	27.3%	47 555	5 935	12.5%	43 405	1 335	3.1%	132 957	4 600	3.5%	726 882	148 387	20.4%
2011	538 652	134 190	24.9%	48 686	5 646	11.6%	43 680	1 158	2.7%	132 055	3 764	2.9%	766 772	144 757	18.9%
2012	559 544	179 916	32.2%	48 575	7 197	14.8%	41 249	1 362	3.3%	128 130	4 668	3.6%	781 710	194 504	24.9%
2013	576 987	169 778	29.4%	50 305	8 187	16.3%	42 081	1 754	4.2%	127 947	5 458	4.3%	800 955	194 923	24.3%
2014	570 381	168 466	29.5%	50 307	8 191	16.3%	42 365	1 489	3.5%	123 672	5 212	4.2%	790 898	186 150	23.5%
2015	583 763	NA	NA	51 834	NA	NA	42 159	NA	NA	120 919	NA	NA	804 089	178 961	22.3%
Average annual growth rate (%)															
2000-2005	5.2	6.2	1.0	9.5	7.7	-1.7	6.8	4.1	-2.5	2.9	2.0	-0.8	4.9	5.8	0.8
2005-2010	6.1	6.8	0.7	4.0	9.9	5.7	-0.7	-9.7	-9.0	-1.2	14.5	15.8	4.0	6.9	2.8
2010-2014	3.4	6.8	3.3	1.5	10.7	9.1	-0.9	6.5	7.5	-1.7	6.4	8.3	2.1	7.8	5.5
2000-2014	5.1	6.8	1.6	4.6	8.4	3.6	1.2	-3.1	-4.3	-0.3	5.4	5.7	3.7	6.8	2.9

Source: Headcount enrolment data for public universities taken from HEMIS (2016), NSFAS beneficiaries taken from DHET (2015: 7). Notes: Average annual growth rates estimated via log-linear ordinary least squares. The four race categories may not add up to the total number of students as the "other" race category has been omitted.

Table 11 NSFAS supported students at public universities by gender

Year	Male			Female			All		
	Undergraduate students	Students with NSFAS	NSFAS students as % of UG students	Undergraduate students	Students with NSFAS	NSFAS students as % of UG students	Undergraduate students	Students with NSFAS	NSFAS students as % of UG students
2000	224 168	36 630	16.3%	251 375	46 621	18.5%	475 721	83 251	17.5%
2001	235 030	36 271	15.4%	275 958	44 332	16.1%	511 184	80 603	15.8%
2002	247 066	38 766	15.7%	290 731	47 381	16.3%	537 806	86 147	16.0%
2003	260 642	44 414	17.0%	303 765	52 138	17.2%	564 408	96 552	17.1%
2004	274 459	45 454	16.6%	323 146	53 359	16.5%	597 605	98 813	16.5%
2005	272 208	48 083	17.7%	328 411	58 769	17.9%	600 620	106 852	17.8%
2006	271 366	48 787	18.0%	336 143	59 629	17.7%	607 510	108 416	17.8%
2007	277 325	49 991	18.0%	347 651	63 625	18.3%	624 977	113 616	18.2%
2008	285 098	50 639	17.8%	370 192	67 127	18.1%	655 305	117 766	18.0%
2009	292 458	56 785	19.4%	391 952	78 417	20.0%	684 419	135 202	19.8%
2010	308 325	60 839	19.7%	418 552	87 548	20.9%	726 882	148 387	20.4%
2011	320 656	57 903	18.1%	446 092	86 854	19.5%	766 772	144 757	18.9%
2012	324 262	77 802	24.0%	457 387	116 702	25.5%	781 710	194 504	24.9%
2013	331 797	77 969	23.5%	469 155	116 954	24.9%	800 955	194 923	24.3%
2014	327 631	76 322	23.3%	463 266	109 829	23.7%	790 898	186 150	23.5%
2015	332 888	NA	NA	471 195	NA	NA	804 089	178 961	22.3%
Average annual growth rate (%)									
2000–2005	4.3	6.4	2.0	5.4	5.3	-0.1	4.9	5.8	0.8
2005–2010	2.5	4.8	2.2	5.1	8.5	3.3	4.0	6.9	2.8
2010–2014	1.6	7.8	6.1	2.6	7.8	5.1	2.1	7.8	5.5
2000–2014	2.7	5.7	2.9	4.6	7.6	2.9	3.7	6.8	2.9

Source: Headcount enrolment data for public universities taken from HEMIS (2016). NSFAS beneficiaries taken from DHET (2015: 7). Notes: Average annual growth rates estimated via log-linear ordinary least squares. For these years there were differences in the number of student between data reported by NSFAS relative to data reported by DHET (2015b: 7). DHET (2015b) reports the number of NSFAS supported students for 2011/12 as 144 757. Note also that NSFAS expenditure over the indicated period also differs between NSFAS' annual reports and DHET (2015b: 7).

Table 12 below shows the number of NSFAS applicants and recipients at TVET colleges. In 2013, about 14% of students who applied for NSFAS could not be funded. The number of qualifying students who could not be funded by NSFAS rose to almost 19% in 2014. This suggests financial need is greater than the funding ability of NSFAS. In the wake of the student fee protest movement, much resources and time have been spent trying to explore alternative funding mechanisms to alleviate the financial need of particularly first-generation university and TVET students. In 2016, NSFAS funded 255 557 students at 50 TVET colleges and 225 950 students at 26 public universities (NSFAS, 2017).

Table 12 NSFAS shortfall in terms of student numbers

	2013	2014
Number of applicants who applied for NSFAS funding	339 665	289 105
Number of successful NSFAS applicants	194 923	186 150
Number qualifying for NSFAS but not receiving funding	46 050	53 987
% that applied but who could not be supported	13.6%	18.7%

Source: DHET (2015: 9).

4.1.2 CET

As explained earlier, the community education and training (CET) sector was recently established as a separate sub-sector of PSET and there is therefore limited data available on this sector.

4.2 The Heher Commission report and the recent announcement by the President on free education for poor and working class students

In response to the widespread student fee protests which started in 2015, the Commission of Inquiry into Higher Education and Training (also referred to as either the Fees Commission and the Heher Commission) was established in January 2016⁴, tasked with examining *“the feasibility of making higher education and training fee-free in South Africa”* (Commission of Inquiry into Higher Education and Training, 2016a). It called for public submissions and conducted public hearings on the nature and funding of higher education in South Africa. In its interim report released in November 2016 the Commission called for the government to

“without delay recognize and implement an obligation to fully fund the very poor (less than annual family income of R 122 000) and the ‘missing middle’ (less than R 600 000 annual family income) as well as recognizing that there may be persons who fall outside the upper limit who should be assisted, while it also stated that “those who can afford to pay for such education should be required to do so”

(Commission of Inquiry into Higher Education and Training, 2016b: 3–4).

A year later, in November 2017, the final *Report of the Commission of Inquiry into the Feasibility of Fee-Free Higher Education and Training*, known as the Heher Commission, was released. The commission concluded that fee free higher education and training was not viable, and recommended instead that students should be funded through income-contingent loans from commercial banks, which should be guaranteed by government. Thus, according to this proposal, all students at universities (including private universities) and TVET colleges would be able to obtain such loans from commercial banks, to be repaid once the student has graduated and is earning an income above a certain threshold. If the student does not graduate or does not earn enough after graduating, government would repay the bank. The Commission further recommended that the income contingent loans should replace funding by NSFAS, as it regarded NSFAS as unlikely to produce “a significant proportion of successful students” or to improve much on its “gross inefficiency in the collection of loan debts”. (Heher Commission 2017).

It therefore recommended that NSFAS should concentrate on the financing of TVET. The Commission also recommended that spending on universities should be raised to 1% of GDP in the short term, excluding the cost of student loans (Heher Commission 2017: par 1052.9). The Commission strongly supported growth of the TVET sector so that they could become “institutions of first choice” for many, but warned against expansion “while programmes are outdated and not in line with the needs of industry” (Heher Commission 2017: par 1052.916). It recommended that studying at TVET colleges should be free. The Commission highlighted “dire state of student accommodation” in all PSET sectors (Heher Commission 2017: par 1052.21–24) and urged government spending to this end. In this regard the Commission recommended that R50 billion from the Unemployment Insurance Fund surplus as well as an additional amount from the National Skills Fund, obtained by reducing spending on SETAs, be ringfenced to fund TVET college infrastructure. Heher Commission 2017: par 1052.68–71) Regarding the CET sector, the Commission recommends that the most appropriate location for it should be reconsidered, “as it is not clear that this should form part of higher education and training” (Heher Commission 2017: par 1052.29). The Commission also warned that “the tendency to develop policy without costing it prior to publishing should be avoided” (Heher Commission 2017: par 1052.30)

On 16 December 2017 President Zuma seemed to overrule the main findings of the Heher Commission when he announced that government will provide free higher education in both universities and TVET colleges for poor and working class students from households with a combined household income of less than R350 000. This will apply to all students in their first year of study and will be fully phased in to all students over 5 years. In addition he announced that NSFAS funding already allocated to existing NSFAS students for further years of study will be converted from loans to grants, effective immediately.

The President also committed government to increase subsidies to universities to 1% of GDP over the next 5 years, as recommended by the Heher Commission. He promised that government will allocate additional funds to improving infrastructure in the TVET sector and expand training, development and appointment of staff in TVET colleges to improve quality of teaching and learning. He also promised urgent attention to student accommodation in universities and TVET colleges (News24 2017: Zuma announces free higher education for poor and working class students).

The full financial implications of this announcement are not yet clear and will only become apparent in the course of the next year or two (Business Day 2017: Zuma blindsides Treasury in fees decision). The suddenness of the announcement had meant that many institutions affected by this announcement were not fully informed. For example, the CEO of Universities South Africa (USAF) expressed annoyance that they were not consulted, and indicated that they needed at least a year to implement the strategy. (TimesLive 2017: Zuma's fee-free education does not tackle Fees Must Fall)

4.3 Equity and redress at an institutional and individual level

In the discussion below, the report explores how the PSET system is being transformed through specific support for certain categories of institutions, as well as how system improvements are playing out at the level of individual institutions.

4.3.1 Institutional support

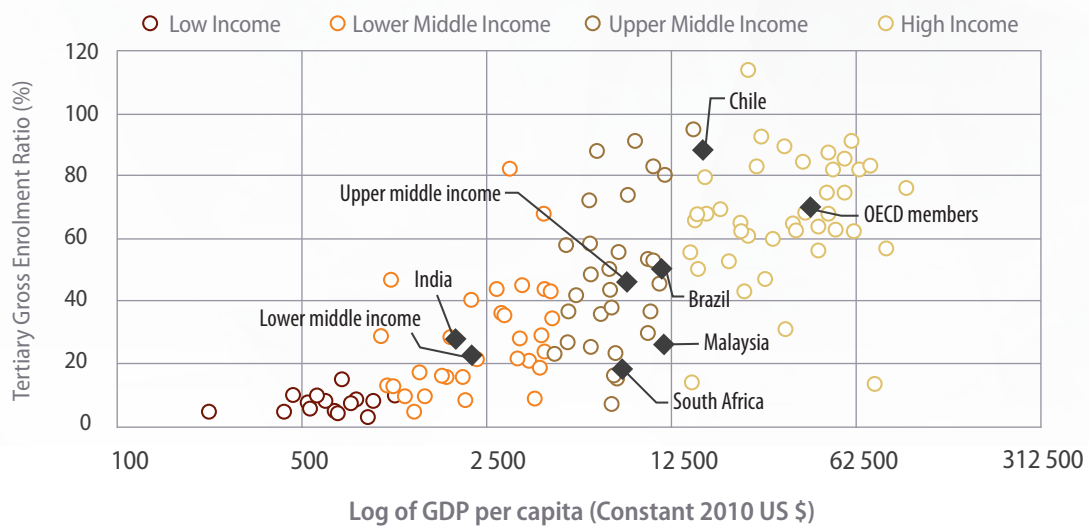
The block grant subsidy to universities has changed in a number of ways in recent years. In 2012, the removal of the block grant calculated teaching development funds took place and a new earmarked teaching development grant was implemented in its place (DHET, 2017). In 2013, the research development funds formerly incorporated in the block grant were replaced with earmarked research development funds, aimed at facilitating a more equitable distribution of research funding between different groups of universities. Lastly, the implementation of an earmarked Historically Disadvantaged Institution (HDI) development grant was implemented from 2015 onwards (DHET, 2017b). Yet the data indicate that the block grant subsidy for HDIs did not grow significantly faster than that for the university sector as a whole for the period 2004/05–2017/18 (see Appendix Table 25), though there was significant variation in the block grant subsidy growth rate among HDIs. Over the period as a whole, HDIs experienced average total growth of 44.7% in their block grant subsidies, compared to 44.2% for all universities. Thus the block grant subsidy did not significantly change allocations between HDIs and other universities, but it did affect different universities within these groups differently.

In 2008/09 HDIs received 46.9% of total infrastructure grant allocations (see Appendix Table 28). This share fluctuated widely over the period 2008/09 to 2016/17. By 2016/17, after earlier decreases in the share over the period, HDIs were receiving 40.5% of total infrastructure grant allocations, compared to an average of 35.8% over the period.

4.3.2 Transformation and improvement at the individual level

The gross enrolment ratio (GER) is the total headcount enrolment expressed relative to the size of the national population of 20–24 years old, calculated as a percentage (CHE, 2017).⁵ South Africa’s GER for universities of 18.6% in 2015 is low in comparison to Brazil (50.6%), Malaysia (26.1%), Chile (88.58) and India’s (26.87) GERs for the same year (World Bank, 2017). The GER for upper-middle-income-countries in 2015 was 46.9%, while the OECD average was 70.0% (World Bank, 2017). Global data that considers tertiary education (i.e. not only universities, but also colleges and other institutions offering post-secondary education) is also sometimes used for comparative purposes, while in South Africa the focus is only on universities. However, considering South Africa’s position in terms of the GER to comparator countries in terms of GDP per capita, it is clear that South Africa is lagging behind its peers, other upper-middle income countries, and even behind some lower-middle-income countries. This is shown in Figure 24 below.

Figure 24 Tertiary gross enrolment ratio (GER) by GDP per capita



Source: WDI (2017). Notes: Estimates for the most recent available year between 2014 and 2016 are used. GDP per capita in current US\$.

Table 13 below shows South African gross enrolment ratios (GERs) in universities by race and gender for the period 2001–2015. The GER of 18.6% in 2015 shows improvement on the 14.6% in 2001, but racial differentials remain large. White (52.8%) and Indian (49.3%) individuals still remain far more probable to enrol in public universities than their black (15.6%) and coloured counterparts (14.6%). The table shows that this gap is closing quite slowly. In terms of gender, GERs are higher for women than for men in all race groups. The race-gender group with the highest GER in 2015 was Indian women (60.5%), while the group with the lowest GER was black men (12.9%).

An objective set out in the NDP is that the public university participation rate should reach 30% by 2030. To achieve this objective, the GER would have to grow at 3.2% per year between 2015 and 2030 – a rate far higher than even the highest 5-year average growth rate (2.3%) achieved between 2000 and 2015. Moreover, the annual growth rate in the GER over the period 2010 to 2015 was just 0.3%. Continuation of the current GER trajectory would make achievement of this NDP goal by 2030 highly unlikely.

South Africa has a shortage of people trained in Science, Engineering and Technology (SET), which potentially constrains growth prospects. A positive trend in this regard is that students at universities are becoming relatively more likely to enrol in SET programmes. The growth in SET enrolments between 2000 and 2015 exceeded the growth in overall headcount enrolments, implying that SET programmes' share of total enrolments increased over this period (Table 14). The most rapid growth in the propensity to enrol in SET programmes occurred among the African population, notably black males. Black females and males had accounted 24.0% and 27.7% respectively of all SET headcount enrolments in universities in 2000, and these shares had increased to 31.2% and 36.0% in 2015. Yet both black men and women remain less likely to enrol in SET programmes than their Indian and white counterparts. Though this racial gap is narrowing, the gender gap in SET enrolment propensities does not appear to be closing. Men remain significantly more likely to enrol in SET programmes than women across all race groups.

In 2015 the graduation rate for total undergraduate degrees was 19.4%, compared to 16.1% in 2000 (Table 15). The graduation rate grew particularly strongly over the 2010 – 2015 period. It is encouraging to note the rapid rise in the undergraduate degree graduation rate (4.2% growth per year) between 2010 and 2015. For graduation rates in the public higher education system to increase to 25% by 2030, as envisaged in the NDP, they would have to grow at a rate of 1.7% per year between 2015 and 2030. While this is feasible, it will require the current momentum in the growth of graduation rates to be sustained over the next 15 years. This will also set some important requirements for the fiscal resources necessary to make this possible, in terms of funding both universities and needy students. This issue is currently intensely debated in the light of the student protests and the recent release of the Heher Commission's report.

Table 13 GER in public universities by race and gender

year	Black			Coloured			Indian			White			All		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
2001	11.5%	9.7%	10.6%	9.4%	9.3%	9.4%	44.2%	39.6%	41.9%	59.8%	57.8%	58.8%	15.4%	13.8%	14.6%
2002	12.0%	10.2%	11.1%	10.8%	10.4%	10.8%	50.2%	42.9%	46.5%	65.4%	60.6%	63.0%	16.2%	14.5%	15.4%
2003	12.3%	10.8%	11.6%	12.8%	11.3%	12.1%	56.3%	45.8%	51.0%	71.1%	63.5%	67.2%	17.0%	15.1%	16.1%
2004	13.0%	10.4%	11.7%	13.2%	11.1%	12.1%	55.0%	45.7%	50.4%	62.6%	56.9%	59.8%	17.4%	14.5%	15.9%
2005	13.0%	10.3%	11.7%	13.9%	10.8%	12.3%	56.1%	45.1%	50.6%	63.5%	57.3%	60.4%	17.5%	14.3%	15.9%
2006	13.0%	10.3%	11.7%	15.1%	11.2%	13.2%	57.2%	44.1%	50.7%	63.1%	55.4%	59.2%	17.6%	14.3%	15.9%
2007	13.8%	10.8%	12.3%	15.6%	11.2%	13.4%	54.7%	42.4%	48.5%	61.5%	53.0%	57.2%	18.1%	14.4%	16.3%
2008	14.6%	11.3%	13.0%	15.8%	11.2%	13.5%	51.8%	37.9%	44.7%	61.5%	51.6%	56.5%	18.7%	14.7%	16.7%
2009	15.3%	11.3%	13.3%	17.0%	11.6%	14.3%	52.8%	37.4%	44.9%	64.0%	53.1%	58.5%	19.3%	14.7%	17.0%
2010	16.5%	11.8%	14.1%	18.4%	12.4%	15.5%	54.2%	37.4%	45.6%	62.7%	52.0%	57.3%	20.5%	15.1%	17.8%
2011	18.4%	12.9%	15.7%	18.4%	12.0%	15.2%	56.9%	39.8%	48.4%	63.7%	51.3%	57.4%	22.3%	16.0%	19.1%
2012	18.9%	13.1%	16.0%	17.7%	11.3%	14.5%	55.9%	38.0%	46.9%	61.7%	49.2%	55.4%	22.5%	15.9%	19.2%
2013	19.5%	13.4%	16.5%	17.9%	11.2%	14.5%	59.2%	39.0%	48.9%	61.3%	48.3%	54.7%	23.0%	16.1%	19.5%
2014	18.2%	12.6%	15.4%	17.6%	10.8%	14.2%	59.3%	38.7%	48.9%	59.9%	46.6%	53.1%	21.7%	15.2%	18.4%
2015	18.3%	12.9%	15.6%	18.2%	11.0%	14.6%	60.5%	38.5%	49.3%	59.9%	45.8%	52.8%	21.7%	15.4%	18.6%
Average annual growth (%)															
2001–2005	3.4%	1.5%	2.5%	9.9%	3.7%	6.9%	5.8%	3.3%	4.7%	0.8%	-0.8%	0.0%	3.4%	0.7%	2.0%
2005–2010	5.0%	2.9%	4.1%	5.3%	2.3%	4.1%	-1.3%	-4.3%	-2.7%	-0.1%	-1.8%	-0.9%	3.2%	1.1%	2.3%
2010–2015	1.5%	1.2%	1.3%	-0.5%	-2.7%	-1.4%	2.1%	0.3%	1.3%	-1.2%	-2.6%	-1.9%	0.7%	-0.1%	0.3%
2001–2015	4.1%	2.3%	3.3%	4.2%	0.7%	2.7%	1.2%	-1.1%	0.2%	-0.5%	-2.0%	-1.2%	2.8%	0.8%	1.9%

Source: Underlying headcount enrollment data for public universities taken from HEWIS (2016). Underlying 20–24 year-old population estimates taken from STAISSA (2001) – STATSSA (2015). Notes: Mid-year population estimates for 2002 and 2012 were not available by gender and race. The estimates for these years have therefore been linearly interpolated. Average annual growth rates estimated via log-linear ordinary least squares.

Table 14 SET enrolments as percentage of total headcount enrolments in public universities by race and gender

year	Black			Coloured			Indian			White			All		
	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total
2001	21.2%	29.1%	24.8%	24.4%	32.6%	28.5%	30.3%	43.5%	36.6%	27.9%	40.2%	34.2%	23.6%	33.5%	28.3%
2002	20.2%	28.4%	23.9%	23.0%	31.6%	27.2%	29.0%	41.1%	34.7%	26.0%	38.2%	32.0%	22.4%	32.3%	27.0%
2003	20.0%	27.8%	23.5%	21.4%	30.5%	25.7%	28.1%	40.4%	33.8%	25.4%	38.1%	31.6%	22.0%	31.7%	26.5%
2004	21.7%	29.6%	25.3%	21.3%	30.9%	25.7%	27.4%	39.2%	32.8%	25.2%	38.3%	31.5%	23.0%	32.7%	27.5%
2005	21.1%	29.9%	25.0%	21.3%	30.7%	25.6%	26.8%	39.1%	32.4%	25.0%	38.4%	31.4%	22.5%	32.8%	27.2%
2006	21.7%	33.5%	27.0%	21.9%	32.2%	26.4%	25.6%	39.3%	31.7%	25.1%	40.4%	32.4%	22.8%	35.7%	28.7%
2007	22.1%	34.1%	27.4%	21.4%	31.8%	25.8%	24.2%	37.7%	30.1%	24.2%	40.0%	31.6%	22.7%	35.8%	28.5%
2008	21.7%	33.8%	27.0%	20.9%	31.6%	25.4%	23.7%	37.4%	29.7%	24.4%	40.0%	31.7%	22.4%	35.5%	28.2%
2009	21.4%	34.3%	27.0%	21.6%	31.5%	25.7%	23.7%	37.5%	29.7%	24.5%	40.4%	31.9%	22.2%	35.8%	28.1%
2010	21.5%	34.8%	27.1%	21.8%	31.9%	25.8%	23.8%	37.9%	29.8%	25.0%	40.8%	32.2%	22.4%	36.2%	28.3%
2011	21.1%	34.8%	26.8%	21.8%	32.3%	26.0%	24.2%	38.3%	30.1%	25.0%	42.3%	32.9%	22.0%	36.4%	28.1%
2012	20.7%	35.2%	26.7%	21.3%	32.8%	25.9%	24.7%	39.4%	30.8%	25.5%	43.3%	33.7%	21.8%	37.0%	28.2%
2013	21.1%	35.7%	27.1%	21.8%	33.8%	26.5%	25.2%	40.2%	31.3%	26.2%	44.7%	34.6%	22.3%	37.6%	28.7%
2014	21.4%	35.9%	27.4%	21.9%	33.7%	26.5%	25.5%	40.5%	31.5%	26.1%	44.7%	34.4%	22.5%	37.7%	28.8%
2015	22.3%	36.6%	28.2%	22.7%	34.3%	27.1%	26.7%	42.4%	33.0%	26.9%	45.6%	35.2%	23.3%	38.5%	29.6%
Average annual growth (%)															
2000–2005	0.9%	2.7%	1.8%	-2.2%	-0.4%	-1.6%	-3.2%	-1.9%	-2.7%	-1.8%	0.1%	-0.9%	-0.3%	1.1%	0.4%
2005–2010	-0.7%	0.8%	-0.2%	0.2%	0.1%	-0.2%	-0.9%	-0.3%	-0.8%	0.2%	0.8%	0.4%	-0.7%	0.4%	-0.3%
2010–2015	1.7%	1.1%	1.4%	0.8%	1.3%	0.9%	2.6%	2.4%	2.3%	2.0%	1.7%	1.6%	1.7%	1.2%	1.3%
2000–2015	0.3%	1.9%	1.0%	-0.1%	0.6%	0.0%	-0.8%	0.1%	-0.5%	0.2%	1.3%	0.6%	0.0%	1.3%	0.5%

Source: Underlying headcount enrolment data for public universities taken from HEMIS (2016). Data represent the share of total headcount enrolments for each race-gender combination that were enrolled in SET programmes. Average annual growth rates estimated via log-linear ordinary least squares.

Table 15 Graduation rates (%) in public universities by qualification type

Year	Undergraduate Certificates and Diplomas	Undergraduate Degrees	Total undergraduate	Postgraduate below Master's Level	Master's Degrees	Doctoral Degrees	Total postgraduate	Total
2000	14.0%	14.7%	14.4%	33.3%	19.3%	15.2%	27.1%	16.1%
2001	15.7%	12.3%	13.6%	33.8%	18.8%	12.9%	26.9%	15.3%
2002	16.6%	11.6%	13.4%	34.4%	17.7%	12.7%	26.7%	15.2%
2003	16.7%	11.9%	13.7%	34.9%	17.2%	12.6%	26.6%	15.4%
2004	14.9%	13.4%	14.0%	35.5%	17.4%	12.1%	27.1%	15.7%
2005	15.7%	13.9%	14.7%	37.8%	18.1%	12.6%	28.1%	16.4%
2006	17.3%	14.2%	15.5%	37.4%	18.4%	11.2%	27.7%	16.8%
2007	17.1%	14.1%	15.3%	37.3%	18.3%	12.7%	27.9%	16.6%
2008	16.9%	14.3%	15.4%	35.6%	18.0%	11.8%	27.3%	16.6%
2009	18.6%	14.1%	15.9%	35.5%	18.6%	13.1%	27.9%	17.3%
2010	18.2%	13.9%	15.6%	37.3%	18.5%	12.3%	28.8%	17.2%
2011	18.4%	13.5%	15.4%	36.7%	19.8%	12.3%	29.0%	17.1%
2012	17.7%	14.1%	15.4%	39.0%	20.9%	13.4%	30.6%	17.4%
2013	18.4%	15.1%	16.3%	41.4%	20.7%	12.8%	31.7%	18.4%
2014	18.7%	16.0%	16.9%	44.4%	21.7%	12.6%	32.9%	19.1%
2015	19.0%	16.6%	17.4%	43.6%	21.5%	13.0%	32.2%	19.4%
Average annual growth (%)								
2000–2005	1.2%	0.1%	0.6%	2.3%	-1.6%	-3.2%	0.6%	0.6%
2005–2010	2.7%	0.0%	1.2%	-0.7%	0.3%	0.8%	0.4%	0.9%
2010–2015	0.9%	4.2%	2.6%	4.1%	2.9%	0.9%	2.8%	2.9%
2000–2015	1.6%	1.5%	1.5%	1.6%	1.2%	-0.2%	1.3%	1.5%

Source: Underlying headcount enrolment and graduation data for public universities taken from HEMIS (2016). Notes: The graduation rate expresses the total number of graduations in a particular year as a percentage of the total headcount enrolments for that same year. E.g. the graduation for Master's Degrees reflects the total number of student completing Master's degrees in a particular year divided by the total number of students enrolled in Master's degree programmes in that same year. Average annual growth rates estimated via log-linear ordinary least squares.

Tables 16, 17 and 18 below show the throughput rates for, respectively, 3-year undergraduate diploma programmes at universities, 3-year undergraduate degree programmes and 4-year undergraduate degree programmes. Across all three categories of qualifications, students take longer than the 3-year or 4-year regulation time to complete degree programmes, that is, 5 or more years. (This is at least two years longer than the minimum completion time for the 3-year qualifications and at least one year longer than the minimum completion time for the 4-year degree programme). However, throughput rates appear to be rising. As an example, the throughput rate within 5 years for 3-year undergraduate degree programmes increased from 25.4% (for the 2000 entry cohort) to 40.8% (2010 cohort) (Table 17 and Figure 25). If an additional year is allowed (6 year completion period), the throughput rate for this 2010 cohort increases to 46.7%. Figure 25 shows how the throughput rates for newer cohorts are trending upwards, thus total completion rates may also rise further when these cohorts have been followed for a longer period. Nevertheless, the fact that there are still large differences between the throughput rates in 5 years and in 10 years is worrying, as it shows that a high proportion of students are taking more than 5 years to complete 3-year or 4-year programmes. For instance, considering the cohort entering university in 2006 in Table 16 (the last cohort that can currently be tracked over 10 years), the throughput rate was 33.2% in 5 years, but rose to 46.2% after 10 years (at the end of 2015). Thus almost a third of those who do eventually graduate only do so after at least 6 years of study for a 3-year degree. Moreover, it is worrying that less than 50% of all students who enter for a 3-year undergraduate degree complete their studies. Substantial amounts of university funding are therefore being spent on more than 50% of students of a first-time entering undergraduate cohort who do not complete their degrees.

Despite improvements over time, significant throughput rate differentials between race groups remain. The 59% of white students who complete their studies for 3-year and 4-year programmes within 5 years is much higher than the 43% of coloured students, and 40% of black students. Encouragingly, the largest improvements in 5-year throughput rates for a combination of 3-year and 4-year programmes at universities (see Appendix Table 29) are observed for black students, particularly black males. Across all race groups, female throughput rates are much higher than for men.

Table 16 Throughput rates for 3-year undergraduate diploma programmes at public universities

Intake year	Year of study							
	3	4	5	6	7	8	9	10
2000	12.2%	20.2%	25.4%	28.2%	30.3%	31.8%	33.0%	34.1%
2001	12.0%	19.1%	23.1%	26.2%	28.0%	29.5%	30.6%	31.6%
2002	15.4%	22.0%	27.4%	30.3%	32.2%	33.7%	34.9%	36.1%
2003	15.5%	24.8%	30.6%	33.8%	35.9%	37.4%	39.0%	40.2%
2004	15.0%	24.4%	30.8%	34.6%	37.0%	38.9%	40.4%	41.7%
2005	15.3%	25.9%	33.3%	37.7%	40.6%	42.6%	44.4%	45.9%
2006	15.3%	26.0%	33.2%	37.7%	40.6%	42.8%	44.6%	46.2%
2007	14.9%	25.6%	33.4%	38.2%	41.6%	44.3%	46.4%	
2008	13.7%	25.4%	33.8%	39.3%	43.1%	45.8%		
2009	15.4%	29.4%	39.2%	45.7%	49.7%			
2010	17.2%	30.9%	40.8%	46.7%				
2011	16.8%	30.8%	40.6%					
2012	17.0%	30.9%						
2013	20.9%							

Source: DHET. (2017e: 22). Notes: Numbers represent the percentage of a given first-time entering (FTEN) undergraduate 3-year diploma programme cohort that successfully completed their studies within the specified number of years of commencement.

Table 17 Throughput rates for 3-year undergraduate degree programmes at public universities

Intake year	Year of study							
	3	4	5	6	7	8	9	10
2000	19.2%	33.9%	42.7%	47.1%	49.7%	51.2%	52.4%	53.4%
2001	19.4%	32.6%	40.9%	45.2%	47.6%	49.2%	50.5%	51.4%
2002	19.3%	32.5%	40.8%	44.8%	47.2%	48.6%	49.7%	50.6%
2003	18.9%	32.9%	41.0%	45.3%	47.7%	49.3%	50.6%	51.6%
2004	19.7%	33.7%	42.4%	46.7%	49.3%	51.0%	52.3%	53.5%
2005	21.9%	37.1%	46.2%	50.7%	53.5%	55.1%	56.5%	57.6%
2006	20.3%	35.1%	44.4%	49.1%	51.9%	54.0%	55.8%	57.1%
2007	19.2%	34.0%	43.9%	49.0%	52.5%	54.7%	56.4%	
2008	20.5%	36.1%	46.2%	51.9%	55.3%	57.5%		
2009	18.8%	35.1%	46.0%	52.0%	55.7%			
2010	21.5%	39.0%	50.3%	55.8%				
2011	20.9%	38.0%	48.9%					
2012	22.9%	40.5%						
2013	26.6%							

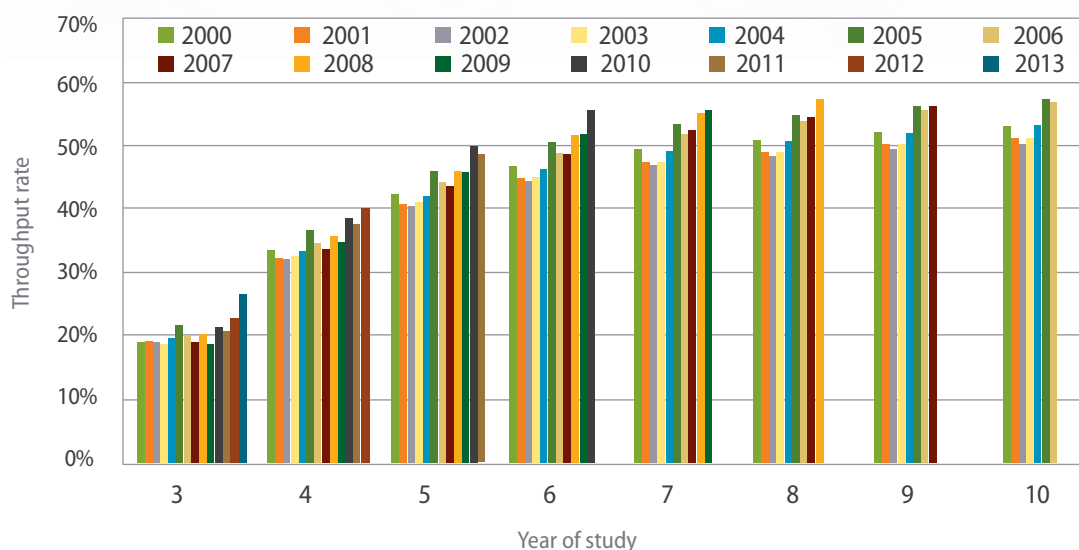
Source: DHET. (2017: 47). Notes: Numbers represent the percentage of a given first-time entering (FTEN) undergraduate 3-year degree programme cohort that successfully completed their studies within the specified number of years of commencement.

Table 18 Throughput rates for 4-year undergraduate degree programmes at public universities

Intake year	Year of Study						
	4	5	6	7	8	9	10
2000	31.3%	41.2%	48.5%	51.6%	53.4%	54.7%	55.8%
2001	30.6%	41.3%	48.6%	51.8%	53.6%	55.0%	56.1%
2002	32.9%	44.9%	52.0%	55.2%	57.2%	58.6%	59.6%
2003	32.0%	44.3%	51.9%	55.3%	57.2%	58.6%	59.7%
2004	32.9%	46.9%	55.5%	59.4%	61.5%	62.8%	64.0%
2005	31.4%	45.2%	53.2%	57.0%	59.0%	60.8%	62.2%
2006	33.0%	47.0%	55.9%	60.0%	62.3%	64.3%	65.7%
2007	32.6%	47.0%	55.8%	60.2%	63.0%	64.9%	
2008	35.5%	50.9%	60.4%	65.0%	67.6%		
2009	33.3%	48.7%	58.2%	63.1%			
2010	31.8%	46.5%	56.2%				
2011	29.0%	43.4%					
2012	29.5%						
2013							

Source: DHET. (2017: 73). Notes: Numbers represent the percentage of a given first-time entering (FTEN) undergraduate 4-year (or more) degree programme cohort that successfully completed their studies within the specified number of years of commencement.

Figure 25 Throughput rates for 3-year undergraduate degree programmes at public universities



Source: DHET. (2017: 47). Notes: Numbers represent the percentage of a given first-time entering (FTEN) undergraduate 3-year degree programme cohort that successfully completed their studies within the specified number of years of commencement..

Table 19 presents data on success rates in TVET colleges. Not all data are available for all years. In general, both pass rates (percentage of students writing the examinations passing) and certification rates (percentage of registered students passing the examinations) are low. Due to weak output at TVET colleges, even though spending per learner per year in 2014 was less than R29 220 in nominal values for a sample of NC(V) courses at a sample of colleges, the cost per single graduate was estimated to be R454 000 (again in nominal values), due to the very low 6-year throughput rate of 10.6% (DNA Economics, 2015: 22, 37). This very starkly highlights the need to address this question of efficiency rather than simply expanding enrolment. Yet it is encouraging that the numbers flowing through the system, including the numbers that pass, have grown markedly over the short period considered. Concerted efforts are needed to identify and address the factors contributing to the low pass and certification rates.

Table 20 contains data on doctoral graduates produced by universities by race and gender from 2000 to 2015. There has been strong growth in the number of doctoral graduates since 2000, with the number nearly tripling from 973 in 2000 to 2,530 in 2015. This represents an average yearly growth rate of 6.6% per year. Moreover, growth appears to have accelerated over time and was highest between 2010 and 2015, with a growth rate of 12.3% per year.

The NDP envisages that the public university sector will produce around 5,000 doctoral graduates per annum by 2030. This would require doctoral graduates produced to grow by 4.7% per year between 2015 and 2030. The estimates in the table above suggest that this goal is well within reach. In fact, if the current growth trajectory can be sustained, it is likely that the public university system will produce far in excess of 5 000 doctoral graduates per year by 2030.

It is particularly encouraging to note the rapid growth in the number of black male and female doctoral graduates since 2000. Black individuals accounted for only 21% of doctoral graduates produced by the public university sector in 2000, but their share has risen to almost 50% in 2015.

Over the entire period, men still account for a larger share of doctoral graduations than women (1 412 male vs. 1 118 female doctoral graduates in 2015). However, given the growth trajectory for the two groups, it seems probable that women will overtake men in terms of doctoral graduations in the next few years.

Table 21 presents data on publication output units at universities. The table shows rapid growth of 7.6% per year in publication outputs over the 2010–2015 period, with faster growth in the latter part of this period. Over the full period the number of permanent academic staff members grew at 1.6% per year. The increased research output indicates that the measures by DHET and the National Research Foundation (NRF) to increase research output have borne fruit. Over the full period 2000–2015, the number of publication output units per permanent academic staff member in public universities grew by 5.9% on average per year, rising from 0.38 in 2000 to more than double that number (0.88) by 2015.

Table 19 Public and private TVET registrations, examinations, pass rates, and certifications

Programme	Enrolment type	2013	2014	2015	2016
NC(V) Level 2	Registered	103 620	97 462	91 698	93 597
	Wrote exam	74 142	69 384	65 503	68 504
	Passed exam	24 345	22 087	24 697	31 222
	Pass rate (%)	32.8%	31.8%	37.7%	45.6%
	Certification rate (%)	23.5%	22.7%	26.9%	33.4%
NC(V) Level 3	Registered	46 811	48 886	48 856	52 944
	Wrote exam	40 477	41 471	42 055	46 574
	Passed exam	12 227	12 777	15 974	21 713
	Pass rate (%)	30.2%	30.8%	38.0%	46.6%
	Certification rate (%)	26.1%	26.1%	32.7%	41.0%
NC(V) Level 4	Registered	25 051	25 585	28 825	31 415
	Wrote exam	22 470	22 705	26 144	28 683
	Passed exam	8 346	7 838	10 465	11 898
	Pass rate (%)	37.1%	34.5%	40.0%	41.5%
	Certification rate (%)	33.3%	30.6%	36.3%	37.9%
Report191 N3	Registered	66 889	77 429	82 071	10 0435
	Wrote exam	65 788	74 710	73 650	91 397
	Passed exam	26 186	35 782	43 259	54 314
	Pass rate (%)	39.8%	47.9%	58.7%	59.4%
	Certification rate (%)	39.1%	46.2%	52.7%	54.1%
Report191 N6	Registered	53 799	70 772	93 489	11 1908
	Wrote exam	52 052	68 678	89 454	106 927
	Passed exam	18 584	29 071	53 125	69 280
	Pass rate (%)	35.7%	42.3%	59.4%	64.8%
	Certification rate (%)	34.5%	41.1%	56.8%	61.9%

Source: TVETMIS (2016) examinations database extract provided by DHET. Notes: Pass rates express the number of students who passed a particular programme examination as a percentage of the number of students who wrote the programme examination. Certification rates express the number of students who passed a particular programme examination as a percentage of the number of students who registered for that programme. Note: Data for 2012 and earlier not comparable.

Table 20 Doctoral graduates produced by public universities by race and gender

Year	Black			Coloured			Indian			White			All		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
2000	148	56	204	29	11	40	30	24	54	365	310	675	572	401	973
2001	145	53	198	21	10	31	32	23	55	364	249	613	564	336	900
2002	174	55	229	31	19	50	44	28	72	355	278	633	605	380	985
2003	184	58	242	26	25	51	55	44	99	378	281	659	643	409	1052
2004	218	80	298	36	14	50	60	42	102	370	284	654	685	420	1105
2005	237	104	341	42	26	68	44	39	83	340	355	695	665	524	1189
2006	224	107	331	33	24	57	46	45	91	320	298	618	625	475	1100
2007	272	133	405	45	26	71	69	35	104	356	335	691	744	530	1274
2008	262	121	383	25	30	55	52	44	96	321	323	644	661	521	1182
2009	379	137	516	45	30	75	46	38	84	331	366	697	807	573	1380
2010	378	165	543	47	34	81	54	52	106	341	340	681	826	595	1421
2011	436	194	630	43	37	80	67	60	127	361	363	725	915	660	1576
2012	566	238	804	63	35	98	71	70	141	370	447	817	1084	794	1878
2013	595	301	896	64	47	111	62	78	140	411	458	869	1156	895	2051
2014	729	362	1091	58	47	105	76	85	161	422	426	848	1322	936	2258
2015	819	414	1233	65	56	121	79	118	197	410	499	909	1412	1118	2530
Average annual growth (%)															
2000–2005	10.9%	13.3%	11.6%	9.9%	17.3%	12.5%	12.2%	14.3%	13.1%	-0.7%	3.1%	1.1%	4.1%	6.1%	4.9%
2005–2010	11.7%	8.8%	10.8%	2.6%	6.3%	4.2%	2.1%	3.4%	2.6%	0.0%	1.0%	0.5%	5.1%	3.4%	4.4%
2010–2015	16.9%	21.1%	18.2%	7.5%	10.5%	8.8%	6.3%	16.2%	11.5%	4.4%	7.2%	5.8%	11.6%	13.1%	12.3%
2000–2015	12.3%	15.1%	13.1%	6.6%	10.3%	7.9%	5.0%	9.2%	7.0%	0.7%	3.9%	2.2%	6.1%	7.4%	6.6%

Source: Doctoral graduation numbers for public universities taken from HEMIS (2016). Notes: Average annual growth rates: estimated via log-linear ordinary least squares.

Table 21 Publication output units per permanent academic staff member in public universities

Year	Permanent academic staff	Publication output units	Publication output units per staff
2000	14 632	5 546.5	0.38
2001	14 614	5 464.5	0.37
2002	14 974	6 426.6	0.43
2003	15 386	6 360.8	0.41
2004	15 422	6 660.2	0.43
2005	15 302	7 228.2	0.47
2006	15 809	8 002.7	0.51
2007	15 812	7 751.0	0.49
2008	15 936	8 353.4	0.52
2009	16 320	9 109.3	0.56
2010	16 684	9 747.8	0.58
2011	16 935	11 191.0	0.66
2012	17 451	12 363.8	0.71
2013	17 838	14 008.7	0.79
2014	18 250	15 316.4	0.84
2015	18597	16 304.0	0.88
Average annual growth (%)			
2000–2005	1.2%	5.6%	4.4%
2005–2010	1.5%	5.8%	4.1%
2010–2015	2.3%	11.0%	8.5%
2000–2015	1.6%	7.6%	5.9%

Source: Permanent academic staff numbers for public universities taken from HEMIS (2016). Publication output unit data for public universities for the period 2002–2015 taken from DHET. (2017c). SAPSE research output unit data for public universities for the period 2000–2001 taken from DHET. (2003). Notes: Publication outputs include all books for specialists, conference proceedings, patents and artefacts, but exclude weighted research masters and doctoral graduate heads. Average annual growth rates estimated via log-linear ordinary least squares.

5. Conclusions and recommendations

This report provided an overview of financial trends regarding the PSET sector in South Africa, with a focus on spending trends. Such spending in higher education and skills for the workplace is an investment in human capital. Successful investment in human capital will be an investment that should bring returns for the nation through improvements in skills and productivity, with important long run gains for both the direct beneficiaries of this investment and all others who benefit from a growing economy. It also can potentially reduce both poverty and inequality, as the source of much of the income inequality in South Africa is the large differences in labour market skills.

The report has shown that the PSET sector, mainly funded through the Department of Higher Education and Training insofar as the public part of the sector is concerned, has shown spectacular growth since the turn of the century:

- In the university sector, there has been rapid growth of enrolments, rising throughput and graduation rates despite many more first-generation university students, a moderate improvement in racial patterns of performance, and remarkable growth in two high level outputs, doctoral students and research publications. Yet the university sector remains much smaller than in other upper-middle-income countries, and it is now confronted with a major new challenge that would affect its growth: finding an appropriate funding model during a period of fiscal stress. This is imperative for further expansion to more first-generation university students. Failure to find such a model may well also lead to continued social instability on university campuses, with possible dire consequences for further development.
- Technical and Vocational Training (TVET) college enrolment has expanded dramatically, though from a very low base. However, the continued funding flows required for it to grow to the size envisaged in the White Paper on Post-School Education and Training or in the National Development Plan are now clearly no longer achievable, given the general fiscal situation and the funding crisis for universities and indeed TVET students. The TVET sector also has to demonstrate its contribution to generating the skills required in the workplace, which would provide a stronger basis for continued growth. Coupled with the fact that there is also some uncertainty whether it should largely function as an alternative to the Further Education and Training school phase, or as actual post-secondary education and training, this warrants more policy attention to issues in this sub-sector, including issues of the efficiency of resource use. Extremely low throughput rates imply very high costs of producing graduates.
- The SETAs have thus far failed to generate great enthusiasm amongst employers as offering an important vehicle for enhancing productivity in the workplace. Nevertheless, they have strongly expanded participation in their learnerships, internships, artisanships and skills development programmes, indicating that some economies of scale now seem to be reaped. Further improvement in the design and scope of training initiatives are required, but the tight economic situation in the next few years will strain expenditure and may make experimentation difficult.

In conclusion, then, the PSET sector is poised at an important watershed, where fiscal consolidation is imperative, yet important decisions need to be made to maintain and increase the momentum of human capital development. The report of the Heher Commission report and the announcement by the president on free education for poor and working class students are steps along this road. The full implications of this are only likely to become clear in the next year and beyond.

This report has added to the availability of more data on investment trends in the PSET sector in one place. It is hoped that this would facilitate data analysis for policy makers and stakeholders. It is important to improve such data further. One initiative may be to gather further data on the financial situation of private PSET institutions, especially private universities, which would add to the picture of the total PSET sector. Much more detailed information is also required on the outputs of the skills development sector (SETAs) and the TVET colleges.

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APPENDIX: DEFINITIONS AND GLOSSARY

To ensure consistency between this report and others that can be found in the South African and international literature, some of the definitions provided below have been taken verbatim from existing sources. Superscripts based on the following key-value pairs are used to indicate where this is the case:

f. DHET (2017d: 71–78)

g. CHE (2017: ii – vi)

Block grant^b

State subsidy to universities is divided into block and earmarked grants. Block grants are consolidated into a single transfer and the funds can be used for any legitimate university purpose. Currently block grants have four components: teaching input (based on enrolments), teaching output (based on graduations), research output (based on approved publications and research masters and doctoral graduations) and institutional factors (based on institution size and proportion of historically disadvantaged students).

Bursary^a

That part of the loan granted to a person by the NSFAS, that the person is not required to pay back on compliance with the criteria and conditions set in the written agreement. *South Africa (1999) National Student Financial Aid Scheme Act, No. 56 of 1999. Pretoria.*

Certification^a

Formal Recognition of a qualification or part qualification awarded to a successful learner. *SAQA (2013) Standard Glossary of Terms: Terms related to the South African National Qualifications Framework. Pretoria.*

First-time entering (FTEN) undergraduate student

Any student who enrolls in a formal undergraduate programme at a higher education institution for the first time, having never before enrolled in any other formal undergraduate programme at any other higher education institution. Note: Where the HEMIS (2016) database is used as the source for data presented in this report, first-time entering undergraduate students refer to all students who are (a) classified as being “first-time entering” according to the ENTRCAT classification field and (b) are enrolled in formal undergraduate academic programmes. This means that first-time entering students would exclude any occasional students, will, for example, include students who are entering formal 1 or 2 year undergraduate diploma or certificate programmes.

Full-time equivalent (FTE) student^a

A student in the post-school sector who is enrolled for an academic programme for a full academic year and who is registered for all the courses included in the curriculum of that programme. If a student is following, for example, only half of the courses required for a full-year academic programme, then he/she would be counted as 0.5 FTE students. If a student is taking 20% more than the courses required in a standard full-year curriculum, then he/she would be counted as 1.2 FTE students. Adapted from *Department of Education (1982, 1995) Manual: South African Post-Secondary Education (SAPSE), Pretoria.*

Graduate^a

A student who has satisfied all the requirements of the degree, diploma or certificate for which he/she was registered. *South African Post-Secondary Education (SAPSE)-020: Student Statistics Manual. Pretoria.*

Graduation rate^a

A calculation based on the number of students who have graduated in a particular year, irrespective of the year of study, divided by the total number of students enrolled at the universities, in that particular year.

Headcount student^a

Total unduplicated number of students enrolled in a post-secondary education institution at a given census date, regardless of their course load. *Department of Education (1995) South African Post-Secondary Education (SAPSE)-005: Student Statistics Manual. Pretoria.*

Higher Education Institution (HEI)^a

Any institution that provides higher education on a full-time, part-time or distance basis and which is:

- a. merged, established, or deemed to be established, as a public higher education institution under the Higher Education Act, 1997 (Act No. 101 of 1997);
- b. declared as a public higher education institution under the Higher Education Act, 1997 (Act No. 101 of 1997); or
- c. registered or provisionally registered as a private higher education institution under the Higher Education Act, 1997 (Act No. 101 of 1997).

South Africa (1997) Higher Education Act, No. 101 of 1997 (as amended). Pretoria.

National Skills Fund ^a

The National Skills Fund was established in 1999 in terms of section 27 of the Skills Development Act, 1998 (Act No. 97 of 1998). The money in the fund may be used for the primary objectives as defined by the prescripts of the Skills Development Act, namely:

1. To fund projects identified in the national skills development strategy as national priorities (section 28(1) of the Skills Development Act);
2. To fund projects related to the achievement of the purposes of the Skills Development Act as the Director-General determines (section 28(1) of the Skills Development Act);
3. To administer the Fund within the prescribed limit (section 28(3) of the Skills Development Act). Regulations to prescribe the limit for the administration of the Fund at 10% of revenue has been approved and published in Notice No. R.1030, Government Gazette No. 33740 dated 8 November 2010; and
4. To fund any activity undertaken by the Minister to achieve a national standard of good practice in skills development (section 30B. of the Skills Development Act). National Skills Fund Annual Report, 2014/2016.

National Student Financial Aid Scheme (NSFAS) ^a

The National Student Financial Aid Scheme was established in terms of the National Student Financial Aid Scheme (Act 56 of 1999). It is responsible for providing loans and bursaries to eligible students at all public universities, technical and vocational education and training (TVET) colleges (formerly known as Further Education and Training [FET] colleges) throughout the country. Further mandates for the entity include the recovery of student loans and raising funds for student loans and bursaries, and to recover the loans from students once they are employed.

Occasional student ^b

This is a person who satisfies the statutory requirements for entry into a formally approved qualification offered by the institution and who is effectively registered for an approved course, but who is not registered for an approved qualification. It includes persons enrolled for non-degree purposes.

Postgraduate ^b

Postgraduate qualifications include Postgraduate Diplomas and Honours, Masters and Doctoral degrees.

Third stream income^b

This refers to all university income derived from sources other than state subsidy or student tuition fees. It is also sometimes called private income. Sources of third stream income are diverse and can include donations or endowments; money earned through contract research or entrepreneurial activity; and income from investments.

Throughput rates ^b

The throughput rate calculates the number of first-time entry undergraduate students of a specific cohort of a specific year who have graduated either within the minimum time, or up to 2 years beyond the minimum time, to the number of students in the baseline enrolments of that cohort. Throughput rates are reflected in the section on cohort studies.

Undergraduate ^b

A student engaged in an undergraduate qualification at a university, namely a first or entry qualification, including certain certificate programmes, diplomas and Bachelor degrees.

University participation rate or Gross Enrolment Ratios (GER) ^b

This is total headcount enrolment over the national population of 20–24 years old, calculated as a percentage. The term used by the Department of Higher Education and Training is participation rate. The National Plan for Higher Education (Department of Education: 2001) explains: “The participation rate is calculated using the UNESCO standard, as the percentage of 20–24 year olds of the general population enrolled in higher education”.

International definitions (for international comparability purpose, especially for country comparison data in this report):

Tertiary education (ISCED levels 5 to 8)

Tertiary education builds on secondary education, providing learning activities in specialised fields of education. It aims at learning at a high level of complexity and specialisation. Tertiary education includes what is commonly understood as academic education but also includes advanced vocational or professional education.

Source definition: ISCED 2011

Post-secondary non-tertiary education (ISCED 4)

Post-secondary non-tertiary education provides learning and educational activities building on secondary education preparing for both labour market entry as well as tertiary education. It typically targets students who have completed upper secondary (ISCED level 3) but who want to increase their opportunities either to enter the labour market or to progress to tertiary education. Programmes are often not significantly more advanced than those at upper secondary as they typically serve to broaden rather than deepen knowledge, skills and competencies. It therefore aims at learning below the high level of complexity characteristic of tertiary education.

Source definition: ISCED 2011

ISCED 5: Short-cycle tertiary education

Programmes at ISCED level 5, or short-cycle tertiary education, are often designed to provide participants with professional knowledge, skills and competencies. Typically, they are practically based, occupationally-specific and prepare students to enter the labour market. However, these programmes may also provide a pathway to other tertiary education programmes. Academic tertiary education programmes below the level of a Bachelor's programme or equivalent are also classified as ISCED level 5.

Source definition: ISCED 2011

ISCED 6: Bachelor's or equivalent level

Programmes at ISCED level 6, or Bachelor's or equivalent level, are often designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Programmes at this level are typically theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and equivalent tertiary educational institutions.

Source definition: ISCED 2011

ISCED 7: Master's or equivalent level

Programmes at ISCED level 7, or Master's or equivalent level, are often designed to provide participants with advanced academic and/or professional knowledge, skills and competencies, leading to a second degree or equivalent qualification. Programmes at this level may have a substantial research component but do not yet lead to the award of a doctoral qualification. Typically, programmes at this level are theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and other tertiary educational institutions.

Source definition: ISCED 2011

ISCED 8: Doctoral or equivalent level

Programmes at ISCED level 8, or doctoral or equivalent level, are designed primarily to lead to an advanced research qualification. Programmes at this ISCED level are devoted to advanced study and original research and are typically offered only by research-oriented tertiary educational institutions such as universities. Doctoral programmes exist in both academic and professional fields.

Source definition: ISCED 2011

APPENDIX

Methodology

Many of the estimates reported above are sourced from publicly available publications, many of which constitute a particular series of reports (e.g. National Treasury's Estimates of National Expenditure series or DHET's Statistics on Post-School Education and Training in South Africa series). Where such a series of reports was used to populate a particular indicator or set of indicator series, the most recent publicly available report was used.

Calculating total growth, year-on-year changes, and average annual growth rates⁶

Below methods used to calculate total growth, year-on-year changes and average annual growth rates are described.

The total percentage change in any indicator can be calculated as

$$\% \Delta Y_{t-0} = \frac{(Y_t - Y_0)}{Y_0} \times \frac{100}{1}$$

where $\% \Delta Y_{t-0}$ represents the percentage change in the indicator variable, Y , between periods 0 and t , and Y_t and Y_0 are the values taken by Y at the end of periods 0 and t , respectively, for all $t > 0$.

Using this formula, the year-on-year change in variable, Y , for year t can be expressed as

$$\% \Delta Y = \frac{Y_t}{Y_{t-1}} - 1$$

There are several ways of calculating the average annual growth rate of an indicator series over a particular period. However, standard compound growth rate formulas have the disadvantage that they tend to be highly sensitive to the chosen start and end points of a data series and tend to be unduly influenced by any extreme observations that occur between those points. An alternative approach and one that is employed throughout this report, is to estimate average annual growth rates by fitting a simple linear regression trend line to the logarithmic value of the underlying indicator over the period in question.

This approach is based on the compound growth rate formula:

$$Y_t = Y_0(1 + r)^t$$

where r is the compound growth rate and Y_t and Y_0 are the values taken by Y at the end of periods 0 and t , respectively, for all $t > 0$. Taking logs of this expression yields

$$\ln Y_t = \ln Y_0 + t \ln(1 + r)$$

Letting $\alpha = \ln Y_0$ and $\beta \ln(1 + r)$ and including an additive contemporaneous error term, ε_t , this expression reduces to an estimable function

$$\ln Y_t = \alpha + \beta t + \varepsilon_t$$

Estimating this equation via ordinary least squares will yield an estimate of the compound growth rate that can be expressed as

$$(e^{\hat{\beta}} - 1) \times \frac{100}{1} = \frac{(Y_t - Y_0)}{Y_0} \times \frac{100}{1} = \% \Delta \bar{Y} = r$$

where r represents the expected average compound growth rate in the dependent variable Y associated with a one unit (i.e. one year or one fiscal year) change in the independent variable, t .

It is this value, r , that is used to characterise the average annual growth rate in outcome variables throughout this report.

CPI INDICES AND DEFLATORS

Table 22 CPI headline index values (2015 = 100) and year-on-year inflation rates

year	year-on-year inflation (%)	CPI headline index	Deflator	fiscal year	year-on-year inflation (%)	CPI headline index	Deflator
1980	13.6	5.0	20.0994	1980/81	14.3	5.1	19.6779
1981	15.3	5.7	17.4392	1981/82	14.9	5.8	17.1339
1982	14.7	6.6	15.2123	1982/83	14.6	6.7	14.9583
1983	12.4	7.4	13.5457	1983/84	11.4	7.4	13.4344
1984	11.5	8.2	12.1457	1984/85	12.7	8.4	11.9129
1985	16.3	9.6	10.4440	1985/86	17.3	9.9	10.1517
1986	18.7	11.4	8.8020	1986/87	18.0	11.6	8.6059
1987	16.2	13.2	7.5774	1987/88	15.4	13.4	7.4581
1988	12.8	14.9	6.7188	1988/89	12.8	15.1	6.6117
1989	14.7	17.1	5.8561	1989/90	15.1	17.4	5.7447
1990	14.3	19.5	5.1225	1990/91	14.2	19.9	5.0315
1991	15.3	22.5	4.4414	1991/92	15.7	23.0	4.3495
1992	14.0	25.6	3.9003	1992/93	12.3	25.8	3.8752
1993	9.7	28.1	3.5549	1993/94	9.8	28.3	3.5299
1994	8.9	30.6	3.2632	1994/95	9.0	30.9	3.2376
1995	8.7	33.3	3.0025	1995/96	7.9	33.3	3.0028
1996	7.3	35.8	2.7969	1996/97	8.1	36.0	2.7770
1997	8.6	38.8	2.5754	1997/98	7.6	38.7	2.5819
1998	6.9	41.5	2.4096	1998/99	7.6	41.7	2.3992
1999	5.3	43.7	2.2909	1999/00	3.8	43.3	2.3115
2000	5.3	46.0	2.1748	2000/01	6.5	46.1	2.1705
2001	5.7	48.6	2.0575	2001/02	5.3	48.5	2.0611
2002	9.5	53.2	1.8791	2002/03	10.9	53.8	1.8586
2003	5.8	56.2	1.7781	2003/04	2.5	55.1	1.8145
2004	-0.7	55.9	1.7905	2004/05	0.2	55.2	1.8104
2005	2.1	57.0	1.7543	2005/06	2.1	56.4	1.7733
2006	3.2	58.9	1.6992	2006/07	4.0	58.7	1.7049
2007	6.2	62.5	1.6003	2007/08	7.1	62.8	1.5913
2008	10.0	68.8	1.4541	2008/09	10.0	69.1	1.4466
2009	7.3	73.8	1.3556	2009/10	6.4	73.6	1.3595
2010	4.1	76.8	1.3027	2010/11	3.7	76.3	1.3114
2011	5.0	80.6	1.2405	2011/12	5.6	80.5	1.2415
2012	5.7	85.2	1.1733	2012/13	5.6	85.1	1.1753
2013	5.8	90.2	1.1092	2013/14	5.8	90.0	1.1109
2014	6.1	95.7	1.0451	2014/15	5.7	95.1	1.0510
2015	4.5	100.0	1.0000	2015/16	5.1	100.0	1.0000
2016	6.6	106.6	0.9381	2016/17	6.6	106.6	0.9383
2017	6.4	113.5	0.8813	2017/18	6.3	113.2	0.8831
2018	5.7	120.0	0.8337	2018/19	5.7	119.6	0.8358
2019	5.6	126.7	0.7892	2019/20	5.6	126.4	0.7913

Source: OECD (2017). Year-on-year inflation projections for 2017–2019 and the 2017/18–2019/20 fiscal years respectively taken from pages 14 and 29 of NATIONAL TREASURY (2017). Budget Review. Notes: Base academic year = 2015. Base fiscal year = 2015/16.

ADDITIONAL APPENDIX TABLES

Table 23 PSET sub-sector shares (%) of total PSET expenditure

Year	Administration	Planning, Policy and Strategy	University Education	Technical and Vocational Education and Training	Skills Development	Community Education and Training	Subtotal	Sector education and training authorities	National Skills Fund	Total expenditure estimates
2006/07	0.3	0.1	61.1	10.7	0.6		72.8	21.7	5.4	100.0
2007/08	0.3	0.1	59.4	11.4	0.5		71.8	22.6	5.6	100.0
2008/09	0.3	0.1	59.3	12.0	0.5		72.2	22.3	5.6	100.0
2009/10	0.4	0.1	60.2	11.4	0.5		72.6	21.9	5.5	100.0
2010/11	0.4	0.1	60.8	12.3	0.4		73.9	20.9	5.2	100.0
2011/12	0.6	0.1	58.5	15.5	0.3		75.0	20.0	5.0	100.0
2012/13	0.5	0.1	58.1	11.6	0.3	3.6	74.1	20.7	5.2	100.0
2013/14	0.6	0.1	58.4	12.1	0.3	3.7	75.1	20.0	5.0	100.0
2014/15	0.4	0.1	57.6	11.9	0.2	3.5	73.8	20.9	5.2	100.0
2015/16	0.6	0.1	57.6	11.6	0.4	3.2	73.5	21.2	5.3	100.0
2016/17*	0.6	0.1	61.1	10.8	0.3	3.2	76.1	19.1	4.8	100.0
2017/18**	0.6	0.1	60.8	10.7	0.4	3.2	75.9	19.3	4.8	100.0
2018/19**	0.6	0.1	62.9	10.2	0.3	3.0	77.2	18.3	4.6	100.0
2019/20**	0.6	0.1	62.5	10.3	0.3	3.0	76.8	18.6	4.6	100.0
Average annual growth rate										
2006/07–2010/11	2.3	-7.9	0.0	2.8	-7.0		0.4	-1.1	-1.1	0.0
2010/11–2015/16	6.1	0.0	-0.9	-2.9	-2.8		-0.2	0.5	0.5	0.0
2015/16–2019/20	-1.8	1.4	1.9	-2.9	-0.3	-1.8	1.0	-3.1	-3.1	0.0
2006/07–2019/20	5.3	-0.5	0.2	-0.9	-4.2	-3.0	0.5	-1.4	-1.4	0.0

Source: Estimates of National Expenditure 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017. Notes: All values expressed in real terms (2015/16 R million). Average annualised growth rates estimated via log-linear ordinary least squares. * Revised estimate (ENE 2017). ** Forecast (ENE 2017)

Table 24 Real block grants (universities) by institution (continued)

	CPUT	UCT	CUT	DUT	UFH	UFS	UJ	UKZN	UL	NMMU	NWU	UP	:	ALL HDIs	ALL universities
2004/05	661	834	236	602	217	675	990	1 213	550	581	801	1 402	:	2 408	15 511
2005/06	696	842	256	608	226	718	1 071	1 264	577	630	852	1 445	:	2 514	16 216
2006/07	728	893	261	603	224	712	1 106	1 255	573	657	898	1 482	:	2 523	16 632
2007/08	717	973	260	587	216	708	1 082	1 247	529	623	847	1 493	:	2 357	16 073
2008/09	742	919	270	578	223	713	1 085	1 258	548	605	906	1 443	:	2 438	16 077
2009/10	802	1 007	290	618	233	760	1 143	1 302	606	655	1 002	1 542	:	2 648	17 267
2010/11	876	1 112	322	655	258	832	1 271	1 461	641	695	1 077	1 738	:	2 912	19 058
2011/12	949	1 179	333	701	299	898	1 339	1 591	679	736	1 159	1 833	:	3 150	20 345
2012/13	951	1 146	335	707	319	916	1 344	1 517	759	753	1 216	1 788	:	3 391	20 697
2013/14	924	1 123	331	684	328	923	1 358	1 461	725	749	1 212	1 735	:	3 339	20 484
2014/15	917	1 098	330	672	332	929	1 364	1 432	768	755	1 247	1 673	:	3 417	20 559
2015/16	893	1 075	322	669	330	913	1 327	1 399	570	739	1 294	1 651	:	3 191	20 538
2016/17	861	1 060	347	681	399	861	1 309	1 405	519	732	1 260	1 620	:	3 111	20 341
2017/18	959	1 119	388	771	427	908	1 412	1 554	639	790	1 407	1 796	:	3 483	22 362
Average annual growth (%)															
2004/05–2010/11	4.2%	4.6%	4.5%	0.9%	2.1%	2.7%	3.1%	2.2%	1.9%	1.9%	4.5%	2.7%	:	2.3%	2.6%
2010/11–2017/18	-0.1%	-0.8%	1.7%	1.0%	6.3%	0.5%	0.7%	-0.5%	-2.6%	1.0%	3.0%	-0.8%	:	1.2%	1.3%
2004/05–2017/18	2.8%	2.3%	3.3%	1.7%	5.6%	2.7%	2.6%	1.7%	1.2%	2.1%	4.4%	1.7%	:	3.2%	2.8%
Total growth (%)															
2004/05–2010/11	32.5%	33.3%	36.6%	8.8%	18.9%	23.3%	28.3%	20.4%	16.6%	19.6%	34.6%	24.0%	:	20.9%	22.9%
2010/11–2017/18	9.5%	0.7%	20.3%	17.8%	65.7%	9.1%	11.1%	6.4%	-0.3%	13.8%	30.6%	3.3%	:	19.6%	17.3%
2004/05–2017/18	45.1%	34.2%	64.3%	28.2%	96.9%	34.6%	42.6%	28.1%	16.2%	36.1%	75.7%	28.1%	:	44.7%	44.2%

Source: All estimates taken from DHEI. (2017). University State Budgets 2004/05–2017/18. [online] available from <http://www.dhet.gov.za/Financial%20and%20Physical%20Planning/University%20state%20budget,%20March%202017.xlsx?Web=1> [Accessed September 24, 2017]. Notes: Real block grant estimates expressed in real terms (2015 = 100). Where applicable, amounts represent the sum of the block grants for each university's constituent pre-amalgamation institutions. Includes recovered funds from certain universities owing to incorrect student data provided to the department in previous year. Data for 2004/2005 include the block grant for Vista University. Average annualised growth rates estimated via log-linear ordinary least squares.

Table 24 Real block grants (universities) by institution

	RHODES	UNISA	US	TUT	UNIVEN	VUT	WSU	UWC	WITS	UNIZULU	MUT	SMU	Otherb	ALL HDIs	ALL universities
2004/05	: 217	1 434	820	1 143	225	316	520	454	914	248	193		265	2 408	15 511
2005/06	: 221	1 588	847	1 242	241	341	537	491	926	247	195		156	2 514	16 216
2006/07	: 235	1 633	902	1 317	235	363	535	508	985	255	193		82	2 523	16 632
2007/08	: 243	1 380	906	1 263	217	375	473	493	989	245	183		22	2 357	16 073
2008/09	: 250	1 365	899	1 218	215	385	489	493	982	266	203		20	2 438	16 077
2009/10	: 271	1 485	942	1 265	239	425	524	537	1 083	285	224		26	2 648	17 267
2010/11	: 296	1 744	1 070	1 349	282	469	563	604	1 165	323	241		15	2 912	19 058
2011/12	: 314	1 892	1 144	1 389	308	487	597	658	1 238	352	259		13	3 150	20 345
2012/13	: 315	2 061	1 146	1 413	366	503	636	673	1 197	371	267			3 391	20 697
2013/14	: 320	2 073	1 132	1 408	351	512	635	679	1 201	359	262			3 339	20 484
2014/15	: 323	2 123	1 202	1 407	349	525	643	672	1 146	404	249			3 417	20 559
2015/16	: 324	2 283	1 178	1 361	358	526	620	684	1 148	385	244	244		3 191	20 538
2016/17	: 321	2 511	1 155	1 252	358	492	550	653	1 146	393	240	219		3 111	20 341
2017/18	: 335	2 795	1 228	1 401	420	525	602	717	1 224	406	272	265		3 483	22 362
Average annual growth (%)															
2004/05–2010/11	: 5.1%	1.0%	3.7%	1.6%	2.1%	6.2%	0.3%	3.7%	3.8%	4.1%	3.6%	–	–38.3%	2.3%	2.6%
2010/11–2017/18	: 1.3%	6.2%	1.4%	–0.4%	4.2%	1.2%	0.0%	1.4%	–0.3%	2.9%	0.2%	–	–	1.2%	1.3%
2004/05–2017/18	: 3.7%	5.2%	3.3%	1.1%	5.3%	4.1%	1.7%	3.6%	2.2%	4.7%	2.9%	–	–	3.2%	2.8%
Total growth (%)															
2004/05–2010/11	: 36.3%	21.6%	30.4%	18.0%	25.4%	48.4%	8.2%	33.0%	27.6%	30.2%	24.8%	–	–94.2%	20.9%	22.9%
2010/11–2017/18	: 13.2%	60.3%	14.8%	3.9%	48.6%	12.0%	6.9%	18.7%	5.1%	25.7%	13.2%	–	–	19.6%	17.3%
2004/05–2017/18	: 54.2%	94.9%	49.7%	22.6%	86.4%	66.2%	15.7%	57.8%	34.0%	63.6%	41.2%	–	–	44.7%	44.2%

Source: All estimates taken from DHET. (2017). University State Budgets 2004/05–2017/18. [online] available from <http://www.dhet.gov.za/Financial%20and%20Physical%20Planning/University%20state%20budget%20March%202017.xlsx?Web=1> [Accessed September 24, 2017]. Notes: Real block grant estimates expressed in real terms (2015 = 100). Where applicable, numbers represent the sum of the block grants for each university's constituent pre-amalgamation institutions. Includes recovered funds from certain universities owing to incorrect student data provided to the department in previous year. Data for 2004/2005 include the block grant for Vista University. Average annualised growth rates estimated via log-linear ordinary least squares.

Table 25 Programme allocations and average annual growth rate in programme allocations for public TVET Colleges

Year	Nominal expenditure	Real expenditure	Nominal YOY change	Real YOY change
2006/07	2 100 745	3 581 472		
2007/08	2 545 261	4 050 292	21,2%	13,1%
2008/09	3 112 530	4 502 542	22,3%	11,2%
2009/10	3 261 435	4 434 077	4,8%	-1,5%
2010/11	3 942 870	5 170 712	20,9%	16,6%
2011/12	4 540 838	5 637 616	15,2%	9,0%
2012/13	5 228 304	6 144 646	15,1%	9,0%
2013/14	5 879 250	6 531 528	12,5%	6,3%
2014/15	6 304 514	6 626 197	7,2%	1,4%
2015/16	6 604 810	6 604 810	4,8%	-0,3%
2016/17	6 960 244	6 531 068	5,4%	-1,1%
2017/18	7 408 249	6 541 986	6,4%	0,2%
2018/19	8 029 306	6 711 173	8,4%	2,6%
2019/20	8 604 512	6 808 431	7,2%	1,4%
Average annual growth				
2006/07–2010/11	16,3%	8,6%		
2010/11–2015/16	11,1%	5,2%		
2015/16–2019/20	6,9%	0,9%		
2006/07–2019/20	11,1%	4,9%		

Source: ENE (2017: 277), ENE (2016: 250), ENE (2014: 375), ENE (2013: 387), ENE (2012: 368), ENE (2011: 355), ENE (2010: 320). Notes: Nominal data expressed in nominal terms (R thousand). Real data expressed in real terms (2015 R thousand). Average annual growth rates estimated via log-linear ordinary least squares.

Table 26 Nominal total and per capita NSFAS allocation and average annual growth in nominal total and per capita NSFAS allocation to public universities and TVET colleges

Year	University			TVET			University + TVET			TVET share of NSFAS expenditure	TVET share of NSFAS supported students
	Expenditure ('000s)	Students assisted	Per capita expenditure	Expenditure ('000s)	Students assisted	Per capita expenditure	Expenditure ('000s)	Students assisted	Per capita expenditure		
2007/08	1 693 299	113 519	14 916	66 719	12 283	5 432	1 760 018	125 802	13 990	4%	10%
2008/09	2 133 123	118 450	18 009	220 743	35 352	6 244	2 353 866	153 802	15 305	10%	23%
2009/10	2 818 220	135 202	20 845	334 888	55 838	5 997	3 153 108	191 040	16 505	12%	29%
2010/11	3 343 531	148 387	22 533	336 446	62 205	5 409	3 679 977	210 592	17 474	10%	30%
2011/12	4 833 866	216 874	22 289	1 131 684	115 313	9 814	5 965 551	332 187	17 958	23%	35%
2012/13	5 871 490	194 504	30 187	1 839 381	188 610	9 752	7 710 871	383 114	20 127	31%	49%
2013/14	6 729 070	194 923	34 522	1 953 253	220 978	8 839	8 682 323	415 901	20 876	29%	53%
2014/15	6 969 941	186 150	37 443	1 991 488	228 642	8 710	8 961 429	414 792	21 605	29%	55%
2015/16	7 194 619	178 961	40 202	2 095 130	235 988	8 878	9 289 748	414 949	22 388	29%	57%
2016/17	10 304 757	225 950	45 606	2 106 267	255 557	8 242	12 411 024	481 507	25 775	20%	53%
Average annual growth rate (%)											
2007/08–2010/11	26.1	9.8	14.8	69.4	70.3	-0.5	28.5	19.3	7.7	34.4	42.8
2010/11–2013/14	25.8	7.4	17.2	77.9	53.6	15.8	32.7	24.4	6.7	41.5	23.5
2013/14–2016/17	14.0	4.1	9.5	2.8	4.8	-1.9	11.7	4.5	6.9	-9.8	0.3
2007/08–2016/17	21.1	7.1	13.0	45.2	37.0	6.0	23.8	16.4	6.3	19.9	17.7

Table 27 Real (2015/16 R million) infrastructure grant and average annual growth in real infrastructure grant to public universities by university – (Continued from previous table)

	RHODES	UNISA	US	TUT	UNIVEN	VUT	WSU	UWC	WITS	UNIZULU	MUT	SMU	Otherb	ALL HDIs	ALL universities
2008/09	: 29	0	20	107	107	0	203	116	101	72	14	0	0	744	1 584
2009/10	: 68	0	31	208	147	41	245	109	136	82	27	0	0	745	1 988
2010/11	: 41	25	125	177	37	23	83	90	175	67	49	0	0	541	2 079
2011/12	: 39	25	121	170	36	22	80	87	168	65	48	0	0	522	2 005
2012/13	: 66	34	62	128	116	120	165	73	61	147	90	0	2	844	2 115
2013/14	: 68	65	59	141	113	109	146	69	58	139	85	0	0	848	2 222
2014/15	: 64	0	55	150	107	104	179	66	55	132	80	0	361	843	2 312
2015/16	: 135	25	35	102	32	32	25	395	85	35	25	167	320	744	2 301
2016/17	: 28	31	67	134	36	119	170	28	77	161	73	282	73	921	2 273
Average annual growth (%)															
2004/05 –2010/11	: 11.7%		43.1%	1.7%	-11.8%		-14.2%	-10.7%	-7.7%	12.7%	52.4%			-1.0%	6.0%
2010/11 –2017/18	: -9.7%		-3.4%	-2.4%	-30.3%	-11.8%	-15.9%	-1.6%	8.9%	-11.4%	-15.3%			0.4%	1.8%
2004/05 –2017/18	: 5.9%		4.8%	-2.9%	-9.1%		-8.7%	-4.3%	-9.4%	4.7%	13.7%			3.8%	3.7%
Total growth (%)															
2004/05 –2010/11	: 129.7%		205.8%	20.0%	8.2%		-18.4%	-36.7%	-39.8%	103.8%	520.1%			13.5%	33.6%
2010/11 –2017/18	: -57.4%	-8.7%	8.8%	4.0%	-68.8%	-0.4%	2.6%	-61.3%	25.9%	9.2%	-18.7%		3652.9%	9.1%	7.4%
2004/05 –2017/18	: -2.1%		232.8%	24.9%	-66.3%		-16.3%	-75.5%	-24.2%	122.5%	404.0%			23.8%	43.5%

Source: All estimates taken from DHET. (2017). University State Budgets 2008/09–2016/17. [online] available from <http://www.dhet.gov.za/Financial%20and%20Physical%20Planning/University%20state%20budget,%20March%202017.xls?Web=1> [Accessed September 24, 2017]. Notes: Real infrastructure grant estimates expressed in 2015/16 R million. Average annual growth rates estimated via log-linear ordinary least

Table 28 Throughput rates after 5-years of study in 3 and 4-year programmes at public universities by race and gender

Intake year	Black			Coloured			Indian			White			All		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
2000	23.2%	30.1%	26.8%	27.0%	37.0%	32.4%	31.4%	41.9%	37.9%	46.7%	62.0%	52.4%	30.5%	38.7%	35.1%
2001	22.5%	29.2%	26.1%	27.3%	37.6%	33.0%				50.1%	58.2%	52.3%	29.3%	37.8%	34.6%
2002	25.5%	32.8%	29.4%	28.6%	38.5%	34.2%				46.7%	58.7%	53.1%	31.5%	40.4%	36.8%
2003	26.8%	33.4%	30.3%	29.5%	39.1%	34.9%	35.1%	43.6%	39.9%	49.3%	60.4%	55.2%	33.0%	41.3%	37.9%
2004	27.2%	34.3%	30.9%	28.3%	38.6%	34.2%	34.9%	44.0%	40.2%	48.9%	61.9%	55.8%	33.3%	42.3%	38.7%
2005	29.9%	36.9%	33.6%	31.5%	41.8%	37.4%	35.6%	47.1%	42.2%	51.5%	62.2%	57.1%	36.0%	44.4%	40.7%
2006	31.4%	37.4%	34.6%	31.0%	38.0%	35.3%	37.5%	41.5%	39.8%	51.4%	58.7%	55.3%	36.9%	43.1%	40.4%
2007	31.2%	37.3%	34.5%	34.2%	42.8%	39.4%	35.7%	43.2%	39.9%	51.7%	61.4%	56.9%	36.4%	43.5%	40.4%
2008	33.1%	38.4%	36.1%	36.6%	42.8%	40.4%	40.0%	49.5%	45.4%	54.1%	63.3%	59.1%	38.4%	44.6%	42.0%
2009	36.1%	43.4%	40.3%	35.8%	42.9%	40.1%	40.1%	50.2%	45.9%	51.8%	61.3%	57.0%	39.7%	47.3%	44.1%
2010	38.3%	44.8%	42.0%	35.8%	45.6%	41.8%	43.3%	50.8%	47.7%	53.6%	64.1%	59.4%	41.5%	48.8%	45.8%
2011	37.1%	42.8%	40.4%	38.5%	45.5%	42.9%	43.6%	51.0%	47.9%	54.2%	63.4%	59.3%	40.7%	46.8%	44.4%
Average annual growth (%)															
2000–2005	5.5%	4.4%	4.9%	2.6%	2.0%	2.4%	2.6%	2.0%	2.0%	1.4%	0.7%	1.9%	3.7%	3.0%	3.2%
2005–2011	4.3%	3.5%	4.0%	3.4%	2.2%	2.8%	3.7%	2.9%	3.2%	0.9%	0.8%	0.9%	2.5%	1.8%	2.2%
2000–2011	5.0%	3.8%	4.4%	3.4%	1.9%	2.6%	3.0%	2.0%	2.3%	1.3%	0.6%	1.2%	3.2%	2.1%	2.5%

Source: "DHET (2017). 2000 to 2014 first time entering undergraduate cohort studies for public higher education institutions. Pretoria: Department of Higher Education and Training (DHET). [online] available from [http://www.dhet.gov.za/HEMIS/2000%20TO%202014%20FIRST%20TIME%20ENTERING%20UNDERGRADUATE%20COHORT%20STUDIES%20FOR%20PUBLIC%20HE%20\(FINAL\).pdf](http://www.dhet.gov.za/HEMIS/2000%20TO%202014%20FIRST%20TIME%20ENTERING%20UNDERGRADUATE%20COHORT%20STUDIES%20FOR%20PUBLIC%20HE%20(FINAL).pdf) [Accessed August 1, 2017]. Notes: Numbers represent the percentage of a given first-time entering (FTE) undergraduate cohort that successfully completed their undergraduate studies within the specified number of years of commencement and are calculated as the weighted average of the throughput rates for all students who enrolled for 3-year undergraduate diplomas, 3-year undergraduate degrees, or 4- to 6-year undergraduate degrees. Average annual growth rates estimated via log-linear ordinary least squares.

Table 29 Undergraduate throughput rates for first-time entering students at public universities

Intake year	Year of study							
	3	4	5	6	7	8	9	10
2000	14.9%	27.6%	35.1%	39.6%	42.1%	43.7%	44.9%	45.9%
2001	14.8%	27.4%	34.6%	39.2%	41.5%	43.1%	44.3%	45.4%
2002	16.2%	28.8%	36.8%	41.1%	43.4%	45.0%	46.2%	47.2%
2003	15.3%	29.8%	37.9%	42.5%	45.0%	46.7%	48.0%	49.1%
2004	15.3%	30.0%	38.7%	43.5%	46.2%	48.1%	49.4%	50.7%
2005	15.4%	31.2%	40.7%	46.0%	49.0%	50.9%	52.5%	53.9%
2006	15.1%	31.1%	40.4%	45.9%	49.0%	51.1%	53.0%	54.4%
2007	14.3%	30.4%	40.4%	46.1%	49.8%	52.3%	54.1%	
2008	14.4%	31.5%	42.0%	48.4%	52.1%	54.6%		
2009	14.0%	32.6%	44.1%	51.1%	55.2%			
2010	15.2%	34.2%	45.8%	52.5%				
2011	14.2%	32.9%	44.4%					
2012	14.6%	33.8%						
2013	17.6%							

Source: DHET. (2017e). Notes: Numbers represent the percentage of a given first-time entering (FTEN) undergraduate cohort that successfully completed their undergraduate studies within the specified number of years of commencement. This is calculated as the weighted average of the year-specific throughput rates for all students who enrolled for 3-year undergraduate diplomas, 3-year undergraduate degrees, or 4-year to 6-year undergraduate degrees. Average annual growth rates estimated via log-linear ordinary least squares.

NOTES

1. All data reflected in this figure, including the data point for South Africa, were obtained from the World Bank's World Development Indicators (2017).
2. Consolidated government expenditure includes spending by national departments and sub-national spending (inclusive of national transfers and sub-national own resources), which explains the larger budgeted amounts for PSET compared to what is appropriated on the vote of the DHET.
3. It is important to note that while CPI inflation is used in this document to convert all nominal or current amounts to real prices, there also exists education inflation. Education inflation is the general increase in price levels as experienced in the education sector and is generally higher than CPI.
4. The Presidential Proclamation describing its establishment was published in the Government Gazette on 22 January 2016.
5. The term "participation rate" as often used by DHET is the same as the Gross Enrolment Rate. The National Plan for Higher Education (Department of Education: 2001 as cited by CHE, 2017) explains that: "The participation rate is calculated using the UNESCO standard, as the percentage of 20–24 year olds of the general population enrolled in higher education".
6. This section adapted from VAN BROEKHUIZEN (2016: 267).





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