TECHNICAL AND VOCATIONAL EDUCATION

1 Introduction

Technical and Vocational Education and Training (TVET) colleges, formerly known as Further Education and Training (FET) colleges, provide education to two groups of people: learners pursuing vocation-focused schooling rather than a traditional matric, and those who have completed their schooling and seek a tertiary qualification but who do not qualify for university entrance. The two main qualifications streams offered at TVET colleges are:

- National Accredited Technical Education Diploma (NATED or 'Report 191') programmes, which used to be the theoretical component of the artisanal training system for apprentices employed by private sector firms. More recently, however, students have been allowed to enrol in NATED programmes without being employed or obtaining employer sponsorships. The courses are presented over six trimesters (for engineering studies) or three semesters (for business and services programmes).
- National Certificate (Vocational) – or NC(V) – programmes were introduced in 2007 and emphasise practical and vocation-specific learning. They run over three years, and account for the majority of students in the TVET sector.

The National Development Plan identified the potential of the TVET sector to play a critical role in South Africa's development and in reducing unemployment. It sets a target of 2.5 million enrolees at TVET colleges by 2030, up from 640 000 in 2013. It is, however, unclear whether and to what extent the skills of TVET graduates meet employers' needs and are in demand in the labour market. It is also not clear whether the performance of South African schools can be raised soon enough to produce the number of TVET-eligible school-leavers required to meet this demanding goal: in 2015, fewer than 350 000 matriculants passed their courses with grades high enough to qualify for entry into university and diploma-level studies.

This performance and expenditure review (PER) of the TVET sector was conducted by DNA Economics between November 2014 and October 2015. It describes how the sector works and is financed, how those funds are used, the implications of expanding the sector to meet the targets of the National Development Plan, and how its efficiency might be improved. The technical report can be found at www.gtac.gov.za/programmes-and-services/public-expenditure-and-policy-analysis.

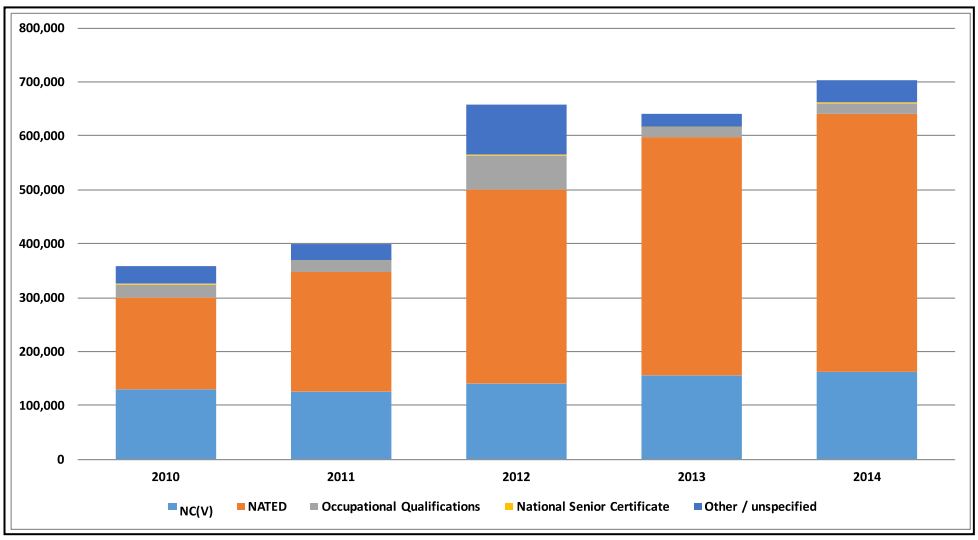
2 Institutional context

In addition to the introduction of NC(V) programmes in 2007, the public TVET sector has undergone a number of significant changes in recent times:

- In 2001/02, 152 FET colleges were merged into 50 TVET colleges to consolidate college administration and reduce funding disparities.
- A large-scale recapitalisation of TVET colleges started in 2007, and includes a 2014 commitment of R2.5 billion for the refurbishment of existing campuses and the building of 12 new ones.
- On 1 April 2015, the administrative function of TVET colleges was shifted from provincial governments to the national Department of Higher Education Training (DHET), with TVET college staff being transferred to the DHET.

Important though these changes are, the crucial dynamic in the sector is the rapid rise in enrolees, as per Figure 1. Enrolment numbers increased from nearly 360 000 in 2010 to over 700 000 in 2014, a rate of growth of nearly 20% a year. Over the same period, government spending on TVET colleges increased by only 16% a year. Thus, despite the significant increase in real spending on TVET colleges, there has been a substantial reduction in real spending per enrolee – from nearly R12 000 per full-time equivalent (FTE) student in 2010 to under R9 500 in 2014 (in 2010 rand).

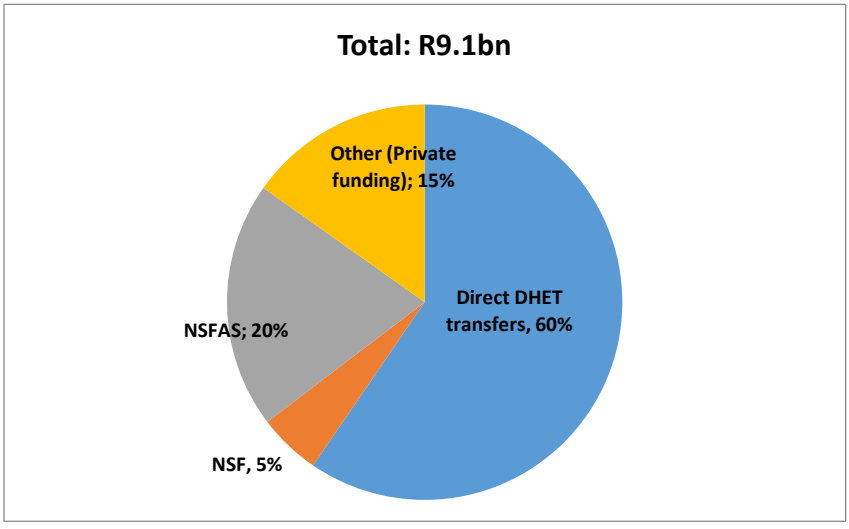
Figure 1: TVET enrolees, 2010 to 2014



3 Expenditure

In 2013/14, TVET colleges' combined funding amounted to R9.1 billion, with 85% of this amount financed by the state through (i) direct transfers from DHET (approximately 60% of total funding); (ii) bursary funding from the National Student Financial Aid Scheme (NSFAS) (a further 20%); and (iii) project funding financed by the National Skills Fund and Sector Education and training authorities (SETAs) (5%). If enrolments were to quadruple by 2030, therefore, it would have significant implications for the national budget.

Figure 2: TVET college funding, 2013



Within the sector, funding was allocated among colleges largely on the basis of historical spending norms, despite the funding formula being driven by enrolment numbers. The dominance of historical funding levels in actual allocations meant that TVET colleges received only 50–80% of the amounts implied by the formula. In addition, the formula did not differentiate between colleges, although urban colleges, for example, would face higher staffing costs than would rural ones.

Although the current funding formula did not appear to drive actual allocations, its exclusive focus on enrolments rather than on college performance has the potential to create perverse incentives. In particular, a formula incentivising growth in student numbers without assessing throughput and graduation rates will tend to raise the number of enrolees more quickly than the number of graduates. Ensuring that funding and performance measurement correctly align the incentives for colleges with the country's long-term policy goals should therefore be a key focus area.

4 Expenditure drivers

Data was not available on the cost of courses delivered by all public TVET colleges across the sector. The PER team therefore collected detailed course-level data from a sample of 15 colleges. While it made an effort to ensure a degree of representivity, it is impossible to know whether and to what extent the costs of other colleges may differ from these figures.

An analysis of the sampled colleges showed substantial differences in average spending per FTE student across apparently similar courses. For NC(V) qualifications, for example, average college spending per student ranged from R20 000 to R40 000 a year, while the average spending per student in NATED courses ranged from R15 000 to R36 000. Table 1 shows the costs per programme for some of the courses offered at TVET colleges.

Table 2: Minimum, average and maximum college programme expenditure per FTE

Rand	Minimum expenditure per FTE	Average expenditure per FTE	Maximum expenditure per FTE	Funding model (normed) cost 2014/15
NATED	**13 703**	**21 401**	**105 782**	**25 666**
Management Assistant	14 495	24 527	39 383	19 818
Educare	13 703	22 875	59 496	24 074
Financial Management	16 886	22 667	34 069	19 818
Business Management	17 342	20 863	36 370	19 818
Engineering Studies N4–N6	16 260	20 783	27 610	23 406
Human Resource Management	14 409	20 302	31 627	19 818
Engineering Studies N1–N3	14 475	19 686	39 480	20 063
NC(V)	**17 561**	**29 220**	**48 362**	**46 349**
IT and Computer Science	20 658	31 939	44 023	48 200
Hospitality	21 344	31 445	48 362	59 986
Tourism	17 561	31 094	38 733	45 690
Electrical Infrastructure Construction	18 601	29 406	41 387	48 938
Engineering and Related Designs	20 390	29 349	41 372	64 359
Civil Engineering and Construction	19 058	28 937	41 860	49 615
Finance, Economics and Accounting	19 343	27 627	36 406	35 176
Office Administration	19 131	26 426	40 626	31 443
Total	**13 703**	**24 799**	**105 782**	**36 007**

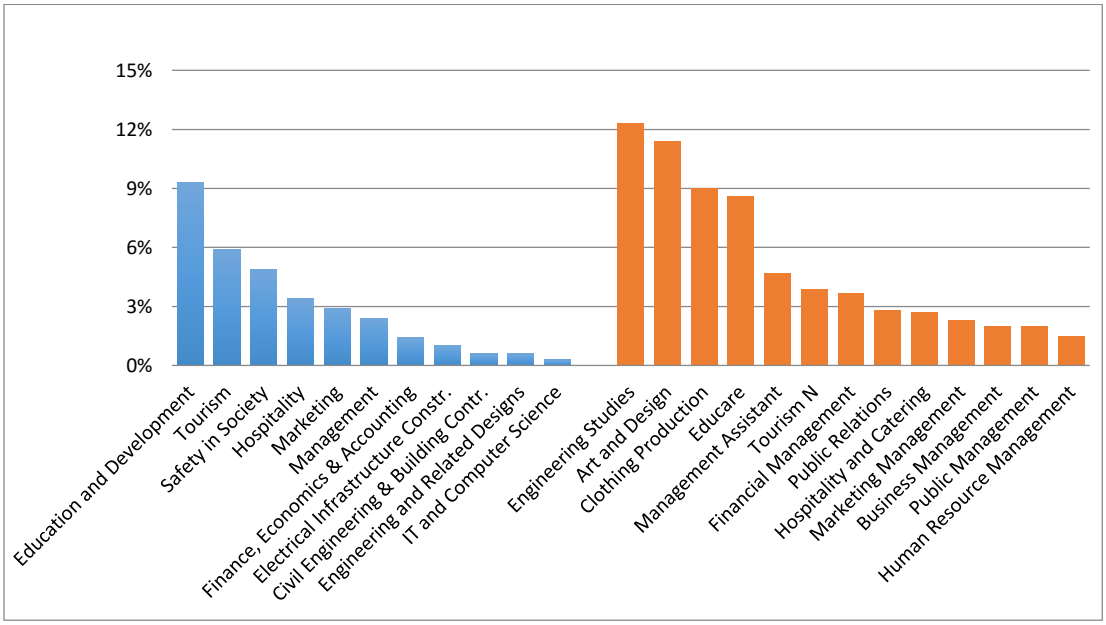
While spending on similar courses at different colleges varied considerably, there was much less variation in spending on different courses within a particular college. This runs counter to the assumption in the funding formula that courses involving more practical work would cost more than those that are predominantly theoretical; in practice there was little difference. This reflects the fact that TVET courses are somewhat less practical than anticipated, with curricula being more dominated by theoretical work. This is also reflected in the relatively low levels of spending on equipment and complementary inputs such as textbooks, programme consumables and toolkits, which were substantially less than the 25% assumed in the funding norms.

5 Performance

By far the biggest challenge to the TVET sector playing the developmental role envisaged by the National Development Plan is its low throughput rate. While comprehensive information could not be obtained, available data shows that the average certification rates for NC(V), NATED Business and NATED Engineering per level were 33%, 32% and 49% respectively. The certification rate is a poor measure of success, however, because of the way it is calculated. Although there is limited data on final graduation rates, it appears that as few as 2% of students who start NC(V) courses at Level 2 complete the qualification in three years, and only 10% complete their studies in six years. Estimates for the number of students passing in the shortest possible time for other courses and programmes range from about 12% to below 1%. Throughput rates are especially low in more technically demanding programmes, such as engineering and IT-related courses.

Although aggregate graduation rates for a cohort of enrolees are obviously higher than the portion of students who graduate in the minimum possible time, low throughput rates mean that the costs per graduate are very high. The PER estimated that on average, it costs over R450 000 to produce a single NC(V) graduate. Low throughput rates also result in small class sizes at later levels of NC(V) and NATED programmes, increasing the FTE costs per student. One possible response is to consolidate classes for some courses on a single campus, but such an approach would reduce accessibility and raise transport and accommodation costs for students.

Figure 3: Estimated % of students completing NC(V) and NATED courses in minimum prescribed time



6 Costing model

The PER developed a model to estimate the costs of achieving the enrolment goals of the DHET and the National Development Plan. It allows users to vary key performance parameters, such as the mix of programmes delivered or graduation or throughput rates, to establish how these affect total costs or the cost per graduate. Users can gain a better understanding of the impact of different cost assumptions, programme mixes, and delivery assumptions (e.g. student-to-lecturer ratios).

The model estimates that, without substantial changes in existing performance parameters, enrolling 2.5 million students will result in an annual cost of approximately R36 billion in 2014 rand – or four times current spending. This figure excludes the costs of providing more college infrastructure. It also assumes that South Africa's schools can improve enough to generate a large increase in the number of college-ready school-leavers.

The TVET costing model demonstrates the crucial role of throughput rates in determining the cost-effectiveness of the sector, and shows that the current low rates translate into very high costs per graduate. While the relationship between spending and performance cannot be reliably estimated with the available data, the model highlights the importance of focusing on the cost per graduate, rather than on the more basic measures currently in use, such as the cost per enrolment or per FTE.

7 Findings

The key factors affecting the cost of achieving the long-term policy goals of the TVET sector are:

- The mix of programmes and courses offered;
- The extent to which enrolments can be raised in the context of a poorly performing school system and inadequate infrastructure and lecturers; and
- The ability of colleges to attract private sector funding.

Ultimately, however, the sector will only have a strong developmental impact if its graduates' skills and qualifications are in demand in the labour market. Higher enrolment at the cost of reduced quality will fail to meet the country's real needs. Improving the level and quality of engagement between TVET colleges and the business community is crucial for ensuring the relevance of training to employers. An important corollary, however, is that setting enrolment targets for the system, and measuring its success in meeting these, is a problematic basis for planning. This is especially true as increasing graduation rates is the system's most critical challenge. Much more planning should be devoted to ensuring that the TVET system produces graduates whose skills enable them to obtain employment, rather than merely increasing enrolment numbers.