

A funding framework to address efficiency and equity in public higher education institutions in South Africa

Summary

Funding of higher education from public sources in South Africa prior to 2004 was based on a formula designed in 1982-83 which could not assist the government in addressing the goals set out in the Education White Paper 3 of 1997. A new funding framework replaced the old formula funding in 2004 and directs the allocation towards achieving the goals stipulated in the white paper. In addition, it specifies how funds are to be distributed in order to achieve the sustainability of institutions, as well as to promote equity and efficiency. This paper analyzes these distributive mechanisms and the extent to which the funding framework achieves the goals described in the Higher Education Act (1997): equity, efficiency and sustainability of the higher education sector.

Key words: South Africa, funding framework, higher education, efficiency, equity.

JEL: I220

1. Introduction

In 1994, the post-apartheid government set out to achieve a new society that could benefit all its citizens. For higher education this means fulfilling the general purposes as set out in the *white paper* of 1997, the *Programme for the Transformation of Higher Education*. The *National Commission on Higher Education* in 1995 set in motion specific policy goals and initiatives for the higher education system, resulting in the *National Plan for Higher Education in South Africa* (NPHE) being released in February 2001. The NPHE set out five major goals and strategies for higher education. These goals relate to providing educational opportunities to youth in order to “produce” skilled graduates for the South African economy, promoting equity in order to reflect the demographic profile of the country, ensuring a diversified higher education system, securing and advancing high-level research capacity, and restructuring the higher education landscape. One direct consequence of the NPHE was a major restructuring of the higher education landscape. The minister of education set about rationalizing the number of higher education institutions from a total of 36 institutions to 23. Up to 2003 the 36 institutions comprised traditional universities and “technikons”. Technikons are essentially the

equivalent of polytechnics existing in other countries. The name “technikon” has now been replaced by “university of technology”. The development of technikons evolved from the era of technical colleges in the 1950s, mainly to provide a career-oriented education. The effect of rationalization addressed the original racially classified institutions into a more geographically coordinated system, and redesignated institutions as reflected in Table 1.

2. The history of financing higher education

The financial problems facing higher education institutions in South Africa are the same ones facing other higher education systems worldwide. According to Johnstone (2004:001), these relate to the cost of higher education per student and the increase in enrolment due to the legitimate expectations of the school-leaving youth. In 2000, the Taskforce on Higher Education and Society (2000:54) estimated that total public expenditure on higher education in the entire world is approximately USD 300 billion, or 1% of the gross domestic product. It is also estimated that about one third of this expenditure occurs in developing

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Table 1: Changes in the public higher education landscape in 2004 in South Africa

	Higher education institution	No. of institutions	Headcount enrolment (%)
Before 2004	Historically advantaged universities	11	54
	Historically disadvantaged universities	10	14
	Historically advantaged technikons	8	24
	Historically disadvantaged technikons	7	8
After 2004	Traditional universities	11	36
	Comprehensive universities	6	44
	Universities of technology	6	20

Source: Council on Higher Education, 2004:40; Council on Higher Education, 2006:184.

countries, where higher education is heavily subsidized by the government, with a low fee charged to students.

Higher education institutions in South Africa derive their income from three main sources: state grants and subsidies, tuition fees, and third-stream income (income from other sources), i.e. income received from research contracts and donations. Prior to the introduction of a new funding framework for higher education in South Africa, the following formulae and mechanisms were used to fund higher education institutions:

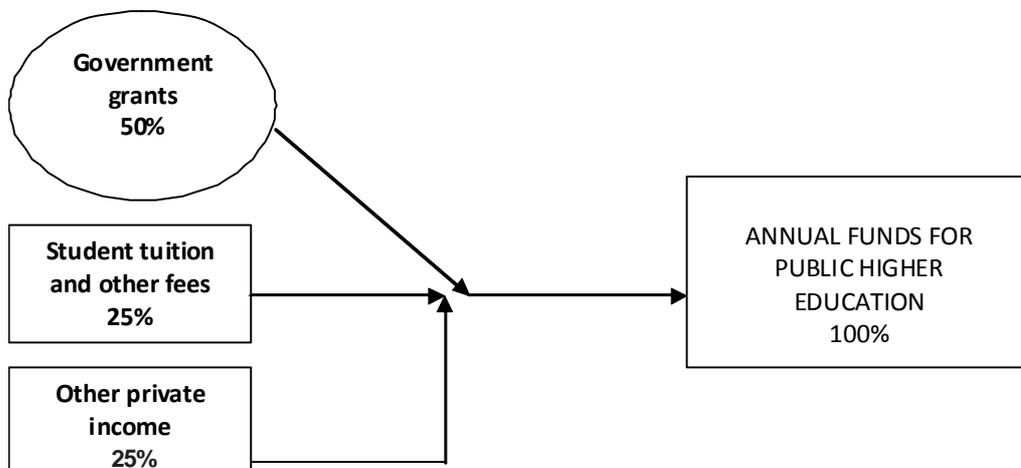
- The Holloway formula for funding universities implemented in 1951;
- The formula recommended by the Van Wyk de Vries Commission for funding universities

implemented in 1977;

- The South African Post-Secondary Education (SAPSE) formula for funding universities implemented in 1984;
- An adaptation of the SAPSE formula for funding technikons implemented in 1987;
- A revised SAPSE formula for funding both universities and technikons implemented in 1993.

The new funding framework, which is the main subject of this paper, came into effect in the 2004-05 fiscal year. The largest sources of income for most higher education institutions in South Africa are state grants and subsidies, whilst in most institutions tuition fees and third-stream income contribute approximately 25% each (Figure 1).

Figure 1: Sources of funds of public higher education institutions in South Africa



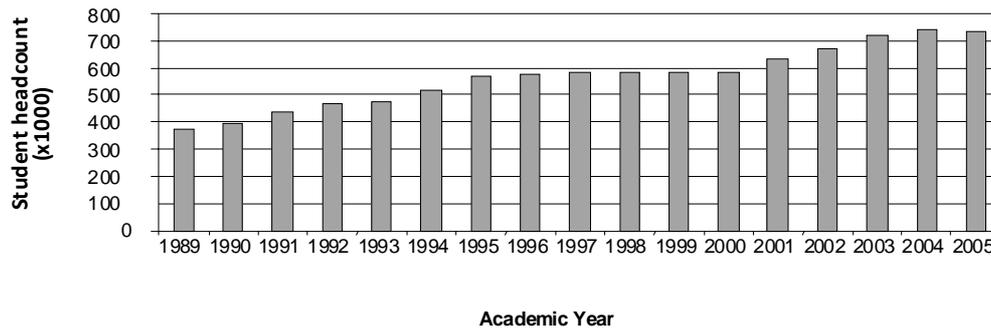
Source: South Africa, 2004c.

3. Inflow and outflow of higher education

Most entrants into the South African higher education system may enrol only if they have

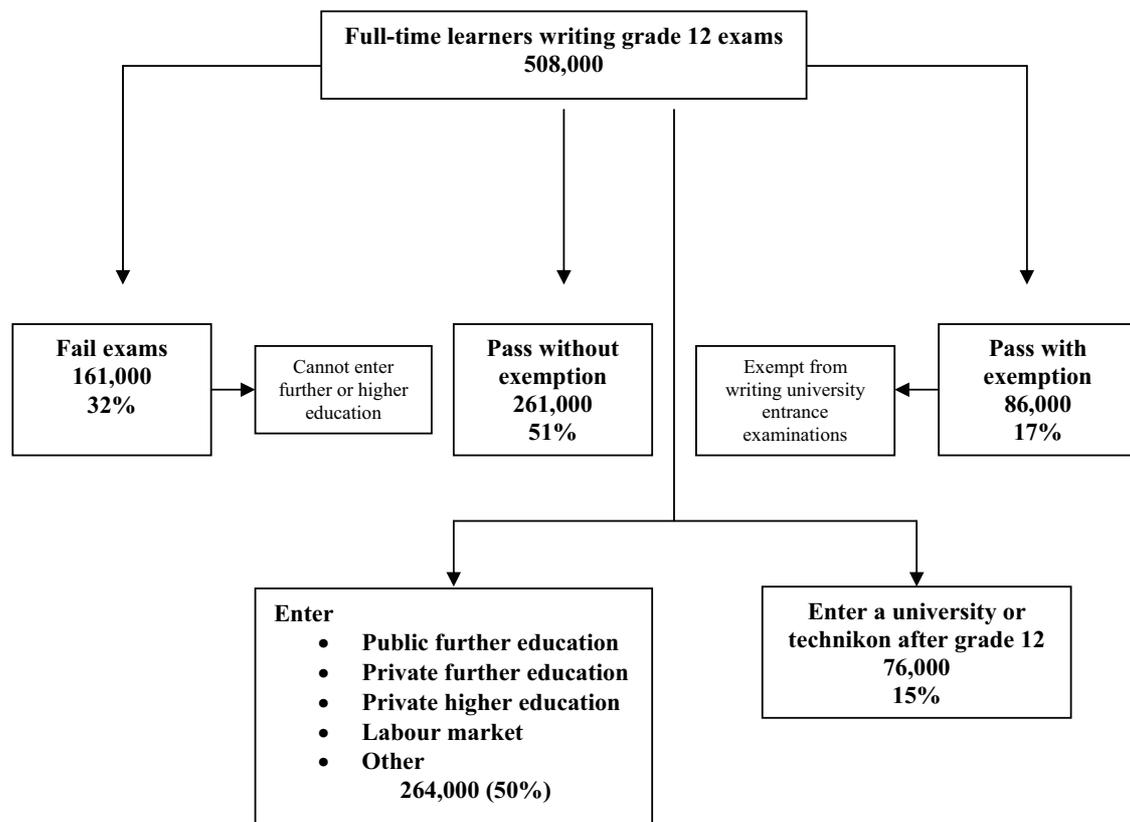
obtained a grade 12 certificate. Figure 2 represents the number of students in the public higher education sector from 1989 to 2005, and Figure 3 reflects the current transfer of students from secondary to tertiary education.

Figure 2: Headcount enrolment in higher education institutions



Sources: Council on Higher Education, 2006:24; South Africa, 2005a:30; South Africa, 2006b:29.

Figure 3: Flow of students from grade 12 into higher education institutions – South Africa, 2003



Sources: South Africa, 2004c; South Africa, 2006b.

4. The financing of higher education

Prior to 2004, South African higher education institutions were subsidized on the basis of the old formula approach. The South African Post-Secondary Education System (SAPSE) identifies and defines 11 programmes that describe all of a university's potential activities (South Africa, 1985:15). These eleven educational and general programme activities comprise the following: instructional programme, research programme, public service programme, academic support programme, student services programme, institutional support programme, operation and maintenance of plant programme, bursaries programme, auxiliary enterprises programme, hospital programme and independent operations programme.

The formula operated on the basis of ten different types of "cost units" to ensure that the cost of higher education was appropriately subsidized. The ten cost units related to state subsidies for three categories of salaries (one category each), for supplies, buildings and equipment, two separate categories for subsidizing books and periodicals in the humanities, and two separate categories for subsidizing books and periodicals in the natural sciences.

In December 2003 a new public higher education funding framework was released after a consultative process (South Africa, 2003:5-6). It indicates, amongst other issues, that *"the new framework is a goal-directed and performance-related distributive mechanism which explicitly links the allocation of funds to academic activity and output, and in particular to the delivery of teaching-related and research-related services which contribute to the social and economic development of the country"*.

The new framework is also compatible with the medium-term expenditure framework (MTEF) process used by the government. The MTEF process allows the formal motivation and annual negotiation of funds with three-year cycles. The National Treasury reviews budgets by considering

growth, affordability within the fiscal framework, the spending and policy priorities of each department in terms of its contribution towards government's strategic objectives, inflation adjustments, and sector-specific issues. Issues specifically related to higher education are increases in enrolment and graduation rates, costs, efficiency in the sector, and restructuring the higher education sector. The MTEF allocation for the 2007-10 fiscal period (Table 2) shows an average increase of public expenditure on higher education by approximately 10% per year.

The higher education budget in the new framework is allocated into three broad categories: block grants, earmarked funds and institutional restructuring.

The purpose of block grants is to provide performance-related funds for higher education institutions. These grants are subdivided into five categories: teaching input grant, teaching output grant, research output grant, institutional factor grant and various types of earmarked grant.

Firstly, a *teaching input grant* is generated by full-time equivalent (FTE) students. These are weighted in terms of a cost-based funding grid and a detailed planning grid as summarized in Table 3. This funding is based on the classification of educational subject matter (CESM) categories used in the higher education management information system (HEMIS). Student enrolment plans of institutions must also be pre-approved by the minister of education.

FTE calculations are based on enrolments of the year n-2. The teaching input grid applied in 2004 continues to be used, although the minister has indicated that it will be reviewed in the future (South Africa, 2004b). For 2007-08, approximately 52% of the total public expenditure on higher education has been allocated to higher education institutions in the form of teaching input grants. Expenditure for this purpose will increase by approximately 8% and 9% in 2008-09 and 2009-10 respectively.

Table 2: Allocation of public expenditure on higher education in South Africa for 2007-2010

	2007-2008 (in ZAR millions)	2008-2009 (in ZAR millions)	2009-2010 (in ZAR millions)
BLOCK GRANTS	10,689	11,582	12,712
EARMARKED GRANTS	1,768	2,303	3,214
INSTITUTIONAL RESTRUCTURING	600	600	0
	13,057	14,485	15,926

Source: South Africa, 2007:6.

Table 3: Funding grid used as weighting factors for the teaching input factor – South Africa, 2004

Funding group	CESM categories	Price ratio (weight)			
		U* M+3	Hons* M+4	M** M+5	D** M+6
1	Education, law, librarianship, psychology, social services/public administration	1.0 (0.5)	2.0 (1.0)	3.0	4.0
2	Business/commerce, communication, computer science, language, philosophy/religion, social sciences	1.5 (0.75)	3.0 (1.5)	4.5	6.0
3	Architecture/planning, engineering, home economics, industrial arts, mathematical sciences, physical education	2.5 (1.25)	5.0 (2.5)	7.5	10.0
4	Agriculture, fine and performing arts, health sciences, life and physical sciences	3.5 (1.75)	7.0 (3.5)	10.5	14.0

Source: South Africa, 2004a.

Legend: U = undergraduate degree, Hons = honours degree, M=master's degree, D= doctoral degree, M+3 = grade 12 (last high school grade) + minimum 3 years post-school education.

* Weight for distance institutions is given in brackets. ** Ratios are the same for contact and distance institutions.

Table 4: Weighting factors for calculation of graduates – South Africa, 2004

	Weighting factor - actual teaching output	*Graduation benchmark %
1 st certificates and diplomas, 2 years or less	0.5	22.5 (13.5)
1 st diplomas and bachelor's degrees, 3 years	1.0	22.5 (13.5)
Professional 1 st bachelor's degrees, 4+ years	1.5	18 (9)
Postgraduate and post-diploma	0.5	54 (27)
Postgraduate degrees	1.0	54 (27)
Honours degrees/higher diplomas	0.5	54 (27)
Non-research master's degrees and master's diplomas	0.5	30 (22.5)

Source: South Africa, 2004a.

*Distance education institution benchmarks are indicated in brackets.

Teaching output grants are based on the graduate outputs of universities, which are determined by the weights attached to these outputs and the benchmarks specified by the minister of education. The weighting and the benchmarks set are shown in Table 4.

For the 2007–08 academic year, approximately 13% of the state higher education budget was allocated for the teaching outputs of institutions. This will also increase by approximately 8% and 9% in 2008–09 and 2009–10 respectively. Most institutions failed to meet the teaching output benchmarks set by the minister of education. In order to allow institutions some time to improve their outputs, the minister of education approved a strategy to ensure that institutions will not face major financial setbacks through the application of the new funding framework. The minister has referred to this as a “migration” strategy, which will enable institutions to benefit from the allocation of a teaching development grant for an interim period. This will be discussed later in this paper.

The improvement in student graduation rates is one of the planned outcomes of the National Plan for Higher Education (South Africa, 2001a:27). Research master's and doctoral graduates do not qualify for teaching output grants, as these fall under the research output grant.

Research output grants are performance grants allocated to institutions for actual publication in journals accredited by the Department of Education and for research master's and doctoral graduates. Research subsidies are distributed using weighting and prices for research as it is presented in Table 5.

Table 5: Weighting factors used to calculate research output grants – South Africa, 2004

OUTPUT	WEIGHT
Publication	1.0
Master's degree	1.0
Doctoral degree	3.0

Source: South Africa, 2004a.

The minister of education annually determines the elements of research output, the weighting to be attached to different research outputs, and the benchmark ratios applicable to the different categories of higher education institutions. The current benchmark (2007–08) is 1.25 units and 0.5 units (per permanent teaching/research staff) for universities and former technikons (now mostly universities of technology) respectively.

For 2007–08, approximately 11% of the total higher education budget has been allocated to institutions for actual research output. This will also increase by approximately 8% and 9% in 2008–09 and 2009–10 respectively. Most institutions failed to meet the research output benchmark set by the minister of education. In order to allow institutions some time to improve their research outputs, the minister of education approved a special strategy, similar to that of the teaching development grant, which enabled institutions to benefit from the allocation of a research development grant for an interim period.

An institutional factor grant is also built into the funding framework to address socio-economic inequities and institutions that may receive a smaller subsidy because of their size. The Department of Education has decided to use the percentage of students classified as African and Coloured to calculate a “disadvantaged factor” for an institution. The current application is on the basis that higher education institutions with less than 40% FTE students (disadvantaged) will receive no additional funds to their teaching input grant. Those institutions with FTE students (disadvantaged) of above 80% will receive the maximum 10% in addition to their teaching input grant, while those with above 40% but less than 80% FTE students (disadvantaged) will receive a proportionate increase in their teaching input grant, greater than 0% but less than 10%. The institutional factor grant also enables smaller institutions to benefit due to their number of FTE students. A sliding scale is used in which institutions with more than 25,000 FTE students receive no additional benefits, whilst institutions with 12,000 FTE students receive 9.3% in addition to their teaching input grants, and up to a maximum scale of 15% added on to the teaching input units for higher education institutions with 4,000 or less FTE students.

The new funding framework also provides additional funds in the form of a *multi-campus* allocation for institutions which are required to deliver teaching services on more than one campus as a result of the changes in the higher education landscape of the country. As an interim measure,

merged institutions have been allocated a larger institutional factor grant on the assumption that the “old” institutions prior to mergers still exist. The total amount allocated as institutional factor grants will be held as a constant value of approximately 6% of the total higher education budget, with annual increases of approximately 8%.

Whilst block grants represent the largest percentage of the state higher education budget, the minister has *earmarked grants* for specific purposes. The first category of these grants is the *National Student Financial Aid Scheme (NSFAS)*, which was initiated to assist students who have academic potential but cannot afford to pursue higher education. The basis of the scheme is that students meeting the requirements for the provision of funds based on their poverty level receive a low-interest loan, the repayment of which starts only when they are gainfully employed above a certain income threshold. For 2007–08, qualifying students are granted a maximum loan of up to ZAR 35,000, which is sufficient to pay for their tuition fees and books and provide them with a reasonable living allowance. Depending on the students’ academic performance, up to 40% of the loan could be converted by NSFAS into an outright bursary. For 2007–08, approximately 9% of the total higher education budget has been allocated for NSFAS.

A second category of earmarked grants relate to funds for *infrastructure and output efficiency funds*. The main purpose of these funds is to improve the institutional infrastructure so that institutions can increase their graduate and research output to acceptable benchmarks. The minister intends to provide an increase of over 63% in 2008–09 and an increase of over 100% in 2009–10. These funds also assist institutions that were affected by the changes in the higher education landscape.

The new framework also earmarks funds for *foundation programmes*. These programmes are entry-level programmes designed to assist students from disadvantaged educational backgrounds to acquire sufficient knowledge and skills to enable them to register for a mainstream diploma or degree programme at public higher education institutions. Institutions will have to make formal applications for funding for a three-year period. Once an application is approved, the grant applies for a three-year period. The funding grant will be dependent on the funds available for a particular year. For the 2007–08 financial year approximately 1% of the total higher education budget has been allocated for this purpose, with an increase of approximately 8% in 2008–09 and 6% in 2009–10.

For the first time in the 2007–08 fiscal year, the minister has allocated an initial amount of ZAR 8 million for the clinical training of health professionals in the form of *other earmarked funds*. This will increase substantially in the period 2008–10.

Before applying the new funding framework in 2004–05, the ministry took into account that the full application of the new framework could destabilise the higher education system because some institutions would have faced a massive reduction in state grants. The minister of education applied a strategy from 2004–05 that ensured institutions would not become unsustainable as a result of the application of the new funding framework.

In 2006–07 the minister first used the teaching and research output benchmark of the funding framework to determine the normative values of these outputs. After allocating the funds available for teaching and research outputs actually earned by institutions, the minister decided to allocate the remaining funds to help institutions improve both their teaching and research outputs. These allocations are referred to as “teaching development grants” and “research development grants”. The minister has stressed that the allocation of both grants will not be automatically awarded to institutions. All future allocations will be based on the progress made by institutions in respect of teaching and research outputs in each cycle.

In 2007 the minister also recognized that each institution had to be considered on its own merits, and therefore set institution-specific benchmarks for teaching and research outputs to be achieved by the end of this MTEF cycle, i.e. 2009–10.

5. The realities and challenges of the new funding framework

Like many other countries, South Africa has also sought an innovative approach to financing higher education. As we have seen, the demand for higher education in South Africa has risen sharply in the post-apartheid years. Salmi and Hauptman’s (2006:3) reasoning for such high demands for higher education corresponds to the South African situation. These reasons include the following: the economic value of having higher education is greater than just having secondary education, social pressures encourage children to enter once they have finished their secondary education, and higher education curricula are becoming more relevant to the real economy.

This acute demand for access to higher education places an additional demand on the state to provide sufficient funding for aspiring entrants into higher education. Many of these aspirations are further fuelled by pressure from parents who did not have the opportunity to continue their education for either political or financial reasons.

The South African government has done well in providing a funding framework that addresses the following key objectives, also spelt out in the Education White Paper 3 (South Africa, 1997):

- equitable distribution of funds amongst institutions;
- providing access to students who could not normally afford to enter higher education institutions;
- efficiencies through setting benchmarks for both teaching output and research output;
- additional funding to assist institutions with specific needs.

A deeper analysis suggests that more ought to be done to address the expectation created in a post-apartheid South Africa. Whilst the higher education system has undoubtedly addressed the previous fragmented higher education system, the system may have not changed the elite status accorded to some institutions. Institutions like the University of Cape Town, University of Pretoria, University of the Witwatersrand, Rhodes University, University of Stellenbosch and other formerly advantaged institutions are still regarded by many as preferred institutions. They attract the best-quality students, both black and white. There might seem nothing wrong with this, but the current funding framework does not fully take into account that many of the less elite institutions are competing on equal footing for funds. Elite institutions attract better-quality students and would therefore find it easier to achieve the higher education benchmarks set by the Department of Education. In addition, the elite institutions never seem to turn away students who come from less impoverished backgrounds and therefore have the ability to pay a higher tuition fee, afford better accommodation and be more focused on their studies.

It is commendable that the new higher education landscape in South Africa has created open access for all those who qualify to enter it. Wallace (1993:15) correctly emphasizes that targeted financial aid will subsidize those who do not have the financial resources to enable them to enter higher education. In South Africa poor students passing a family income means test will be able to receive support via the National Student Financial

Aid Scheme. The reality of this is that these poor students will also be saddled with a debt burden well before they earn enough to pay it back. Since 1989 the number of students entering higher education has almost doubled; public expenditure on higher education has increased more slowly. The obvious result is that pressure will be on increasing tuition fees to ensure that there are sufficient funds to provide a quality education.

The Department of Education provides clear guidelines on how the funding framework will be applied via a ministerial statement in every cycle. The timing of this information may create time lags in the planning cycle of institutions, which could have a negative impact especially on enrolment patterns. In addition, the actual higher education funding support of the government is not in balance with the political perception that there are no restrictions on the number of students that can be accommodated in the higher education sector.

The drive to achieve benchmarks set by the Department of Education for teaching output grants could lead to concerns about the quality of output, despite quality being checked by the Higher Education Quality Committee every five years. This must be seen against the background of an approximately 100% increase in student numbers since 1989, with no state provision for infrastructure development in the application of the new framework up to the 2006–07 financial year. Infrastructure development relates both to academic infrastructure and support for the welfare of students, e.g. a better residential environment, sports facilities, etc.

The greatest challenge still remains the shifting of higher education access for an increasing proportion of the previously disadvantaged population, as envisaged in the Education White Paper 3 (South Africa, 1997a). This has to be done in a country where the sectors of health, transport and housing are also facing huge resource constraints.

6. Concluding remarks

The country experienced a reasonable economic growth of around 5% in the past year (Manuel, 2007), thus suggesting more funds will be available for education. The minister of education's hopes of increasing the participation rate to 20% by 2015 may meet with some difficulty if fewer students pass mathematics and sciences with grades acceptable for university entrance (Jansen, 2006).

In 2005 only 12% of the headcount enrolled students attained their first qualification and 4% completed their postgraduate qualification (South Africa 2006b:34). This clearly suggests that more resources, amongst other factors, are needed to improve the graduate rate in higher education.

Whilst most higher education institutions have introduced additional academic support programmes for students coming from substandard schools, it will not be possible to achieve a higher graduation rate within a context of relatively decreasing funds. At the same time universities are reluctant to force substantial tuition fee increases, especially in an environment where over 70% of university drop-outs were black students coming from very low income families (Letseka, 2007).

Financial dependence on the state means that funding levels vary with the availability of government resources for higher education. The importance of higher education needs to be matched by adequate public and private investment to enable institutions to produce the graduates required by both the public and private sector, without interfering with the autonomy of institutions. It is clear that the economy is greatly dependent on the skilled workforce produced by higher education institutions, but the contradiction remains that higher education institutions need more resources.

This paper has discussed many questions which must be solved for the better operation of higher education institutions in South Africa. More importantly, the issues of access, academic performance and moving away from elitism must be more fully discussed and communicated to the public.

The new funding framework has in some aspects moved away from the old formula to create a better system for planning the growth and financial sustainability of institutions. The results of the implementation of the new funding framework up to 2009–10 will provide valuable information on whether real benefits are derived from this innovative approach.

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