

PERFORMANCE INDICATORS IN SOUTH AFRICAN HIGHER EDUCATION 2000–2008

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CONTENTS

SECTION A: Introduction	1
SECTION B: Profile of public higher education in South Africa	11
SECTION C: Institutional profiles	25
Cape Peninsula University of Technology	27
University of Cape Town	37
Central University of Technology	49
Durban University of Technology	59
University of Fort Hare	69
University of the Free State	79
University of KwaZulu-Natal	91
University of Johannesburg	101
University of Limpopo	111
Mangosuthu University of Technology	121
Nelson Mandela Metropolitan University	131
North-West University	143
University of Pretoria	155
Rhodes University	167
University of South Africa	177
Stellenbosch University	187
Tshwane University of Technology	197
Vaal University of Technology	209
University of Venda	219
Walter Sisulu University	237
University of the Western Cape	249
University of the Witwatersrand	259
University of Zululand	269
SECTION D: Peer groupings in higher education in South Africa	279

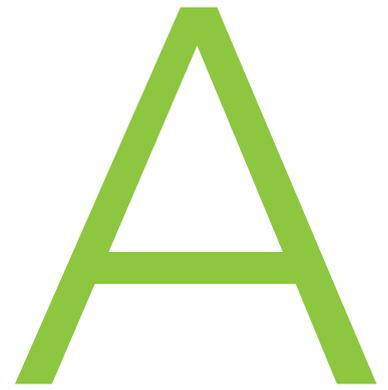
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DISCLAIMER

Data were obtained from the Higher Education Management Information System (HEMIS) of the Department of Higher Education and Training (DHET). The quality of the HEMIS data is dependent on the accuracy of the institutional data submissions.



SECTION A

Introduction

INTRODUCTION

Background

These profiles of South African universities are part of CHET's on-going work on measuring performance within South Africa's steering model of higher education governance. This steering model is embodied in the 1997 White Paper, *A Programme for the Transformation of Higher Education*, and replaced two other models which had been part of South Africa's apartheid legacy. These were the state control model which had applied to the historically black universities, and the market model which had applied to the historically white universities.

State control and market models are very different, as can be seen below:

- A state control model gives higher education institutions low levels of administrative autonomy. A market model, in contrast, gives higher education institutions a great deal of administrative autonomy. For example, in a state control model the size and shape of the student enrolment of individual universities would be determined by regulations issued by a government department. In a market model, size and shape would be determined by the choices of students and by competition between universities, with government intervening only to correct 'market failures'.
- In a state control model, funds are allocated to higher education institutions through budgets approved by a government department. Higher education institutions are not permitted to use funds outside the parameters of the budget approved by their controlling department. In a market model, government allocates lump sums to higher education institutions through the use of a mechanical formula, and permits their councils to spend these funds at their discretion.

In a steering model of higher education governance, government does not micro-manage, for example, the admission and enrolment processes of individual universities. But it does not permit students' readings of the labour market and institutional competition to be the main determinants of the size and shape of the enrolment of the public higher education system. Government steers the system by (a) laying down national higher education goals, (b) setting broad goals for individual higher educational institutions, and (c) monitoring the performances of the system and of individual institutions in relation to these goals. In the section which follows, a more detailed account is offered of the implications government steering has for South African higher education institutions.

CHET has published two books on the measuring of systemic and institutional performance within a steering model of higher education governance. These are:

- Cloete N & Bunting I (2000). *Higher Education Transformation: Assessing Performance in South Africa*. CHET: Pretoria.
(www.chet.org.za/books/higher-education-transformation)
- Bunting I & Cloete N (2004). *Developing Performance Indicators for Higher Education: A South African Case Study*. CHET: Cape Town.
(www.chet.org.za/books/developing-performance-indicators-higher-education)

The 2000 book opens by setting two essential requirements for a higher education performance measurement system. These are that government must have published clear policy-driven goals, and must have available a conceptually consistent and common sets of data for all higher education institutions. The book then shows (a) that the 1997 White Paper contains the required sets of goals, (b) that quantitative indicators can be extracted from the national higher education management information system, and (c) that these indicators can be used to measure the

extent to which the higher education system has met the White Paper's transformation goals.

CHET's 2004 publication begins by exploring a number of different approaches to the assessment of performance in South Africa's higher education system. The book ends with a presentation of a new performance measurement model. The main features of this model, which are implicit in the institutional profiles which follow, are these:

- The model uses performance indicators as ways of referring to policy-driven higher education goals. Because it draws a distinction between systemic and institutional goals, the model constructs two separate sets of indicators. The systemic and institutional indicators cover these broad areas:
 - size and shape of student enrolments;
 - student equity;
 - student pass rates and graduation rates;
 - staff equity;
 - qualifications of staff;
 - research outputs.
- These systemic and institutional indicators are linked to a number of quantitative targets that the system and individual institutions are expected to meet. Benchmarks are not proposed, since these could imply that higher education institutions are being placed in a qualitative ranking order.
- The targets linked to the systemic and institutional indicators are derived from national policy documents of the South African government. These include the 1997 White Paper, the 2001 National Plan for Higher Education, and the 2003 funding framework publications.

The institutional profiles in this publication fall within the conceptual framework of its 2004 publication. The profiles do not, however, attempt to cover all of the indicators suggested in 2004. The actual performance and other indicators used in the profiles are the outcome of consultative discussions which CHET held with planners in universities. The main consultation took place in a workshop on the profiles which was held in Irene (near Pretoria) in November 2007. This workshop was attended by representatives of most universities. Follow-up discussions after the workshop also helped CHET to decide which specific data and policy to include in the institutional profiles.

Steering the South African higher education system

The discussion in the background section above provides a brief outline only of the mechanisms which the South African government has developed for steering the higher education system. This section offers a more detailed account of these mechanisms, and of the implications which they have for higher education institutions.

Subsection 3 of clause 3 of the Higher Education Act of 1997 gives the Minister of Higher Education and Training the power to determine the scope and range of the operations of (a) the public higher education system and (b) individual public higher education institutions. This implies that the Minister can determine which academic programmes may be offered by a higher education institution, and what its student enrolments in these programmes should be. The Minister can also determine how public subsidies should be distributed to higher education institutions, on the basis of their approved academic programmes and approved student enrolments.

The Ministry of Higher Education and Training uses these mechanisms of academic programme planning, student enrolment planning, and government funding to steer the public higher education system towards the goals of the 1997 White Paper. The key transformation goals of this 1997 White Paper are (a) increasing the access to higher education of a larger and more diverse student population, and (b) ensuring that the higher education system responds to national development needs (see White Paper: 1.13 and 2.17).

Academic programme planning at a national level has functioned as a steering mechanism as follows.

In 2002, the Minister approved an academic programme and qualification mix (PQM) profile for each higher education institution. Institutions wishing to expand these approved 2002 PQMs have, since 2003, submitted applications to the Department of Education/Higher Education and Training. These applications have to pass an initial assessment made by the Department before they can be passed to the Council on Higher Education (CHE) for quality evaluations and possible accreditation. The Department has taken particular account of the following in its assessment of applications for new academic programmes:

- (1) the capacity of the institution with respect to physical infrastructure, qualified staff, and student to academic staff ratios;
- (2) the institution's enrolment trends over the past 3 to 5 years;
- (3) the institution's student success rates; and
- (4) the institution's graduation trends over the past 3 to 5 years.

New academic programmes have been approved for submission to the CHE only when the institution has been able to demonstrate to the Department that it has the required staff and physical capacity, and that its performance levels have met national output targets.

The academic programme and qualification mix of each institution provides the framework within which national student enrolment planning takes place. Institutions have to develop their student enrolment plan within the limits of their approved programme and qualification mix, and cannot use this planning process as a way of expanding their academic programme offerings. The factors summed in (1) to (4) above are used again when assessments are made of the acceptability of the various parts of an institution's student enrolment plan.

Student enrolment plans, for the period up to the end of 2010, were negotiated with each higher education institution during 2006 and 2007. When agreement had been reached between an institution and the Ministry, its plan was aggregated with all others into sets of national targets which were published in October 2007 in a *Ministerial Statement on Student Enrolment Planning*. This Statement contains student enrolment and student output targets for each institution, and is in effect a contract between the council of each institution and the Ministry of Higher Education and Training. Each council has had, as part of the negotiations, to confirm that it accepts the targets contained in the enrolment plan, and that it will ensure that the institution will comply with these targets.

Government funding is linked to both the programme and qualification mix, and enrolment plans. The input and output targets approved in the October 2007 Ministerial Statement determine, to a large extent, what the levels of government funding will be for each public higher education institution for at least a five-year planning cycle.

Purpose and contents of profiles

The requirement that each higher education institution must confirm its acceptance of student enrolment planning targets makes it essential that councils understand (a) what is implied by the targets, and (b) how their institution is performing relative to these targets. CHET's experience has been that this has not been an easy task for councils. Currently very few institutions produce data sets which would enable council members to engage meaningfully in discussions about the performance of the institution which they are entrusted to govern.

Because it has been involved since 2000 with various aspects of higher education performance indicators, CHET decided, with the financial assistance of the Ford Foundation, to produce data profiles which should enable university councils to make assessments of the performance of their institution relative to the Minister's targets.

Each institutional profile will present, in the form of 20 graphs, data for 2000–2008 on student enrolments and outputs, staffing inputs and outputs, and key aspects of the income and expenditure of each institution. Where this is appropriate, the performance of the institution is related to performance indicators used by the Department of Higher Education and Training.

The 20 graphs in a profile can be divided into the following groups:

- (1) **Student enrolments and outputs 2000–2008 and Ministerial targets for 2010:**
 - Graph 1: head count and FTE student enrolments;
 - Graph 4: shape of head count enrolment by qualification type;
 - Graph 5: shape of head count enrolment by major field of studies;
 - Graph 8: average success rates;
 - Graph 9: total graduates;
 - Graph 10: graduation rates.
- (2) **Other trends in student enrolments 2000–2008:**
 - Graph 2: average annual growth rates in student enrolments;
 - Graph 5: enrolments by population group;
 - Graph 6: enrolments by gender.
- (3) **Staff data for 2000–2008:**
 - Graph 11: ratio of administrative to academic staff, compared to national averages;
 - Graph 12: ratio of FTE students to academic staff, compared to national averages;
 - Graph 13: proportion of academic staff with doctorates, compared to national averages;
 - Graph 14: ratio of publication units to academic staff, compared to appropriate targets for universities, comprehensive universities, and universities of technology;
 - Graph 15: ratio of weighted research outputs to academic staff, compared to appropriate targets set in the government funding framework.
- (4) **Financial data 2000–2008:**
 - Graph 16: total income and expenditure;
 - Graph 17: deficits and surpluses;
 - Graphs 18 and 19: sources of income and comparisons to national averages;
 - Graph 20: subsidy income plus student fees per graduate, compared to national averages.

Data sources

The sources of the data used in the profiles are these:

- (1) **Student input and outputs for 2000–2008 in graphs 1 and 4–10:** data submitted annually by each higher education institution to the Department of Higher Education and Training in terms of the requirements of the national Higher Education Management Information System (HEMIS).
- (2) **Ministerial student input and output targets in graphs 1, 4, 5, 8, 9 and 10:** *Ministerial Statement on Student Enrolment Planning (October 2007)*.
- (3) **Staff data in graphs 11 and 13:** data submitted annually by each higher education institution to the Department of Higher Education and Training in terms of the requirements of the national Higher Education Management Information System (HEMIS).
- (4) **Research publication data in graph 14:** data submitted annually by each university in terms of the requirements of the government funding framework.
- (5) **Norms for research outputs per academic staff member:** *Ministerial Statement on Higher Education Funding (November 2009)*.
- (6) **Income and expenditure data in graphs 16–19:** financial statements submitted annually to the Department of Higher Education and Training by each institution.

The following graphs were derived from calculations based on data in the graphs listed above:

- Graph 2: average annual increases in enrolments;
- Graph 3: comparisons of average sizes of 2008 enrolments,
- Graph 12: FTE student to academic staff ratios;
- Graph 15: ratios of total research outputs to academic staff members;
- Graph 20: subsidy income plus student fees per graduate.

Dealing with mergers and incorporations

In 2000, the start date of the data in each profile, South Africa had a total of 34 public higher education institutions. This number was reduced as a result of the various mergers and incorporations which occurred during the period 2000 to 2005. Twenty of the higher education institutions which existed in 2000 were disestablished. Nineteen of these were merged into new higher education institutions. The remaining institution was split up into its constituent campuses, which were then incorporated into seven other higher education institutions.

Table 1 lists the 20 institutions which were disestablished as well as the 9 new institutions which were constituted after the merger processes had been completed.

Table 1: 20 disestablished and 9 new institutions post-merger

Original institutions in 2000	New institution after merger
Cape Technikon	Cape Peninsula University of Technology
Peninsula Technikon	
University of Port Elizabeth	Nelson Mandela Metropolitan University
Port Elizabeth Technikon	
University of Transkei	Walter Sisulu University
Border Technikon	
Eastern Cape Technikon	
ML Sultan Technikon	Durban University of Technology
Natal Technikon	
University of Durban-Westville	University of KwaZulu-Natal
University of Natal	
Potchefstroom University	North-West University
University of the North-West	
Rand Afrikaans University	University of Johannesburg
Technikon Witwatersrand	
Technikon South Africa	University of South Africa
University of South Africa	
University of the North	University of Limpopo
Medical University of South Africa	
Vista University	Disestablished; with campuses incorporated into 7 other universities

Table 2 lists Vista University's seven campuses and the universities into which they were incorporated. Three of these were existing institutions in 2000 (Pretoria, Free State, Central) and four were new universities resulting from mergers (South Africa, Johannesburg, Nelson Mandela, North-West).

Table 2: Vista University campuses incorporated into other institutions

Vista University campuses	Incorporated into:
Distance education	University of South Africa
Mamelodi	University of Pretoria
Soweto	University of Johannesburg
East Rand	
Sebokeng	North-West University
Bloemfontein	University of the Free State
Port Elizabeth	Nelson Mandela Metropolitan University
Welkom	Central University of Technology

Three other major incorporations occurred during the period up to 2005. These are summed up in Table 3.

Table 3: Non-Vista University incorporations into other institutions

Campuses moved to another university	Incorporated into:
QwaQwa campus of University of the North	University of the Free State
East London campus of Rhodes University	University of Fort Hare
Dental Faculty of Stellenbosch University	University of the Western Cape

The tables above show that a total of 43 institutions would have to be included if data pictures were to be drawn for all the institutions which existed in 2000 plus all those which came into existence after mergers and incorporations. Because of the unnecessary complexities involved, CHET has decided to simplify the presentation of data in the following ways:

- (1) **The 19 institutions which merged:** their data from 2000 to the official date of the merger are aggregated and presented as being data for the new university.
- (2) **Vista University:** the data for the seven campuses are included in the data of the incorporating universities from the 2004 academic year; earlier Vista data appear only in national higher education totals for the period 2000–2003.
- (3) **Other incorporations:** the data for QwaQwa, East London and the dental faculty are left in the original institution up until the date of incorporation into another institution.

The application of these rules permits data profiles for the full period of 2000–2008 to be constructed for the 23 universities listed in Table 4.

Table 4: 23 South African higher education institutions

(arranged by Department of Higher Education and Training reference code)

Name of higher education institution
1. Cape Peninsula University of Technology
2. University of Cape Town
3. Central University of Technology
4. Durban University of Technology
5. University of Fort Hare
6. University of the Free State
7. University of Johannesburg
8. University of KwaZulu-Natal
9. University of Limpopo
10. Mangosuthu University of Technology
11. Nelson Mandela Metropolitan University
12. North-West University
13. University of Pretoria
14. Rhodes University
15. University of South Africa
16. University of Stellenbosch
17. Tshwane University of Technology
18. Vaal University of Technology
19. University of Venda
20. Walter Sisulu University
21. University of the Western Cape
22. University of the Witwatersrand
23. University of Zululand

Profile of the public higher education system

The context for the 23 institutional profiles is set out in the opening section which offers an overall summary of the public higher education system for the years 2000–2008. The 18 graphs in this section which provide an overall profile of the South African system are based on 14 of those which appear in institutional profiles. The additional four graphs deal with:

- Graph 9: total staff employed in the public higher education system;
- Graph 10: comparison of growth rates in total staff and total student enrolments;
- Graph 13: overall totals of research outputs;
- Graph 17: average annual increases in income of the higher education system by source.

Peer groupings

The final section of this publication deals with cross-institutional comparisons of input and output data. It offers examples of ways in which the public higher education institutions can be clustered into peer groups, to enable a council to compare the performance of its institution to that of similar institutions.

The section begins by dividing the 23 public higher education institutions into the three

categories recognised by current national higher education policy: (a) those which offer university-type academic programmes ('universities'), (b) those which offer technikon-type academic programmes ('universities of technology'), and (c) those which offer both university-type and technikon-type academic programmes ('comprehensive universities'). The institutions which fall into these three categories are:

- **Universities** (11): Cape Town, Fort Hare, Free State, KwaZulu-Natal, Limpopo, North-West, Pretoria, Rhodes, Stellenbosch, Western Cape, Witwatersrand.
- **Universities of technology** (6): Cape Peninsula, Central, Durban, Mangosuthu, Tshwane, Vaal.
- **Comprehensive universities** (6): Johannesburg, Nelson Mandela Metropolitan, South Africa, Venda, Walter Sisulu, Zululand.

Data extracted from the individual institutional profiles are used in the peer group analyses. The data employed are limited to the following:

- (1) **Student enrolments:** (a) head count enrolments in 2008, (b) average proportions for 2006-2008 of science and technology majors, and (c) average proportions for 2006-2008 of masters and doctoral enrolments.
- (2) **Student outputs:** (a) average success rates for 2006-2008, (b) average graduation rates for 2006-2008, and (c) average annual total for 2006-2008 of doctoral graduates.
- (3) **Academic staff:** (a) average annual proportion for 2006-2008 of staff with doctorates, (b) average annual total for 2006-2008 of research publications produced, and (c) average annual ratio for 2006-2008 of total research outputs per academic staff member.
- (4) **Income in 2008:** (a) total income from all sources, (b) proportion of private income, and (c) income from government subsidies and student fees per FTE enrolled student.

The data used for the graphs in the institutional profile are available on the CHET website (www.chet.org.za) in a format that enables an institution to select for itself the other institutions with which it wishes to compare itself.

B

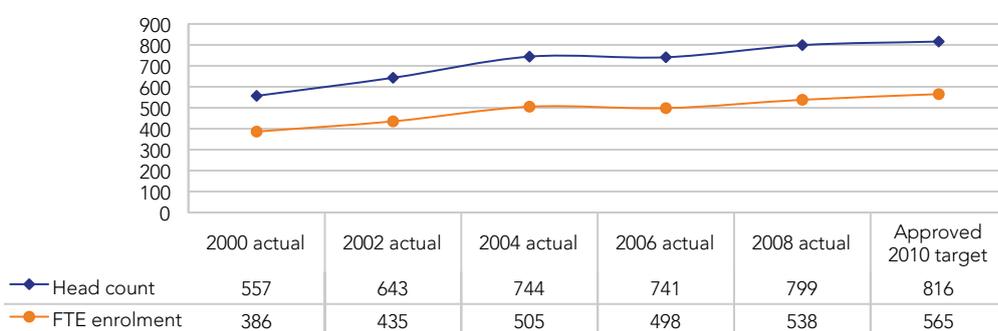
SECTION B

Profile of Public Higher Education in South Africa

1. STUDENT ENROLMENTS

Graph 1 shows how the student enrolments in South Africa's (SA's) public higher education system increased over the period 2000–2008. It also sets out the 2010 enrolment targets which the Minister of Education published in the *Ministerial Statement on Student Enrolment Planning* (October 2007). These targets are the sum of all the individual targets agreed between individual universities and the Department of Higher Education and Training (DHET).

Graph 1 Student enrolments (thousands)

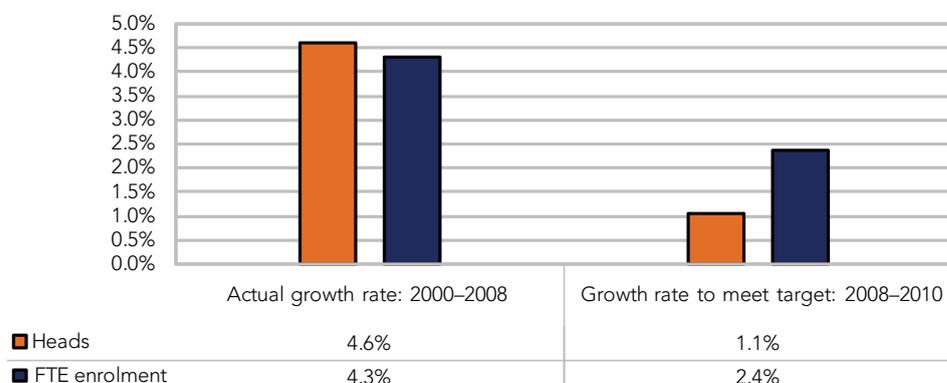


Notes:

1. In a head count enrolment total, students are counted as units, regardless of the course load they are carrying.
2. A full-time equivalent (FTE) total takes account of a student's course load. So a student carrying a standard full-time curriculum would = 1 FTE student, and a student carrying a half-load would = 0.5 FTE students.

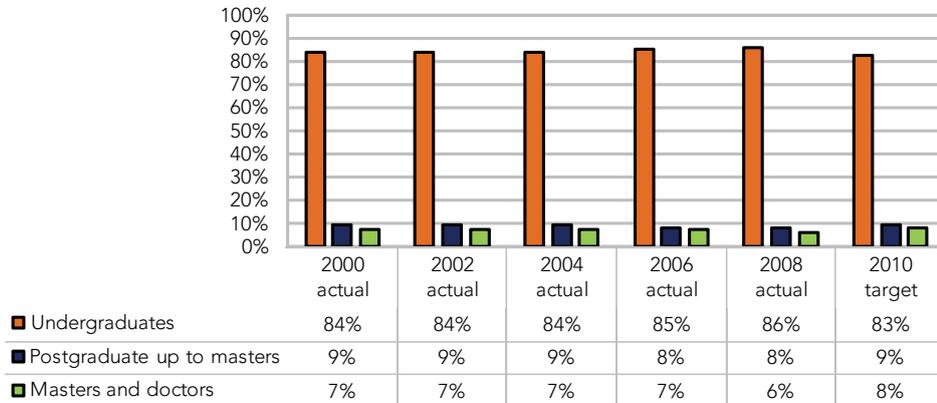
The head count student enrolment total in the public higher education system increased by 242 000 (or 43%) in 2008 compared to 2000, and the full-time equivalent (FTE) enrolment by 152 000 (or 39%). Graph 2 compares the average annual growth rates in enrolments in the period 2000–2008 to the rates needed if the targets in Graph 1 are to be achieved. The two graphs suggest that the enrolment targets set for 2010 will almost certainly be exceeded.

Graph 2 Average annual growth in head count enrolments



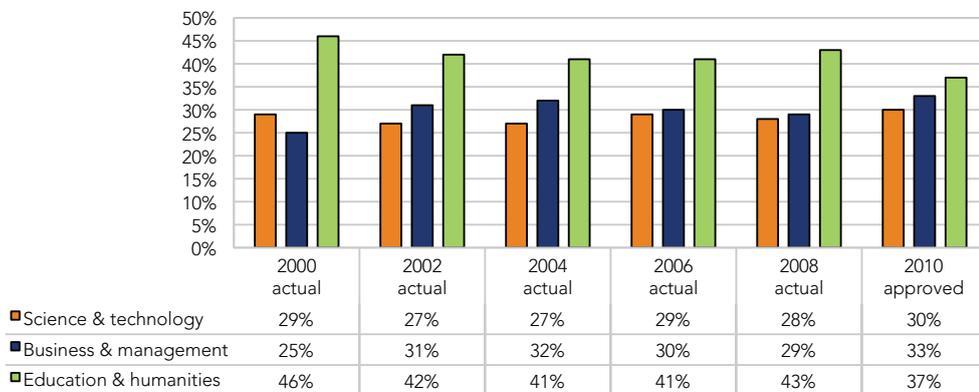
Graph 3 shows that the public higher education system’s enrolment profile remained stable between 2000 and 2008. The 2010 targets keep the system as largely an undergraduate one.

Graph 3 Enrolments by qualification type



Graph 4 provides a broad summary of the major fields of study for which students were enrolled between 2000 and 2008, and compares these to the DHET’s targets for 2010. The main change that occurred between 2000 and 2008 was the move of students from majors in education and humanities to business and management studies. The Ministerial targets for 2010 reinforce this shift in fields of study.

Graph 4 Enrolments by major field of study

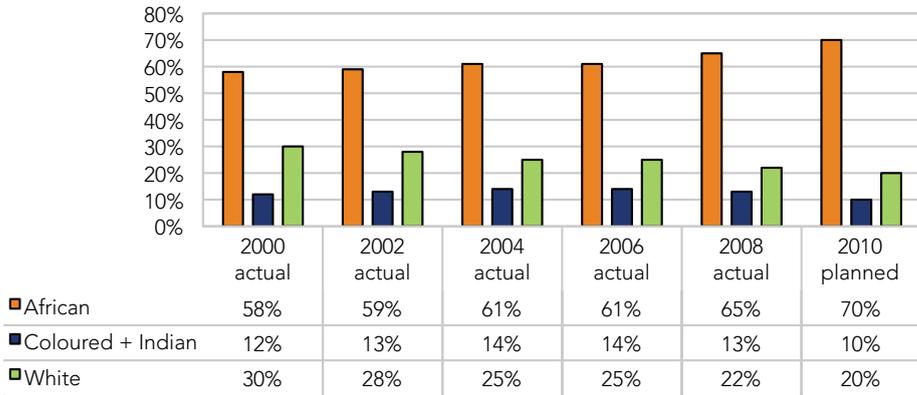


Notes:

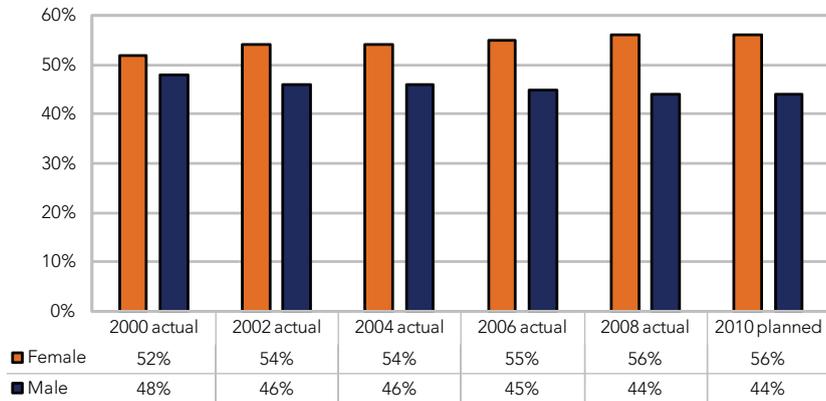
1. The ‘field of study’ is the major or principal subject the student is following in his/her qualification.
2. ‘SET’ = all majors in science, engineering and technology, including the health sciences
3. ‘Business’ = all majors in business, commerce, management, accounting, finance
4. ‘Humanities’ = all majors in education, languages, fine and applied arts, social sciences

The Ministry of Education did not set institutional targets for race group or gender. Institutions were nevertheless asked to pay due regard to racial and gender equity imperatives in the implementing of their student enrolment targets. Graphs 5 and 6 show what the actual profile by race and gender were for the period 2000–2008, and sum up the targets which appeared in the 2006 enrolment plans of institutions.

Graph 5 Enrolments by race group



Graph 6 Enrolments by gender

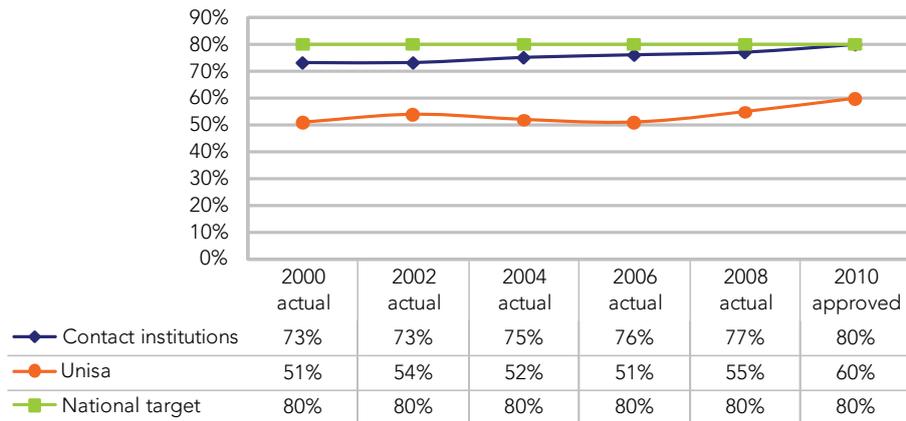


2. STUDENT OUTPUTS

Graph 7 presents the student output data for the public higher education system in the form of average success rates by course. These success rates are calculated by dividing the system's FTE degree credit total by its FTE enrolled student total. An FTE degree credit calculation follows the same method as an FTE enrolled calculation, but takes account only of the courses passed by students.

The graph shows that the average success rates for contact universities improved between 2000 and 2008, but remained below the DHET's target of 80% throughout the period. The target is regarded as the minimum which a higher education system should achieve if it is to ensure that it has an efficient outflow of graduates. The success rate target set for the University of South Africa (Unisa) takes account of its role as the large, dedicated distance education institution in the higher education system. In 2008 Unisa's head count student enrolment was 262 000 students, which was 33% of the total enrolment of the public higher education system.

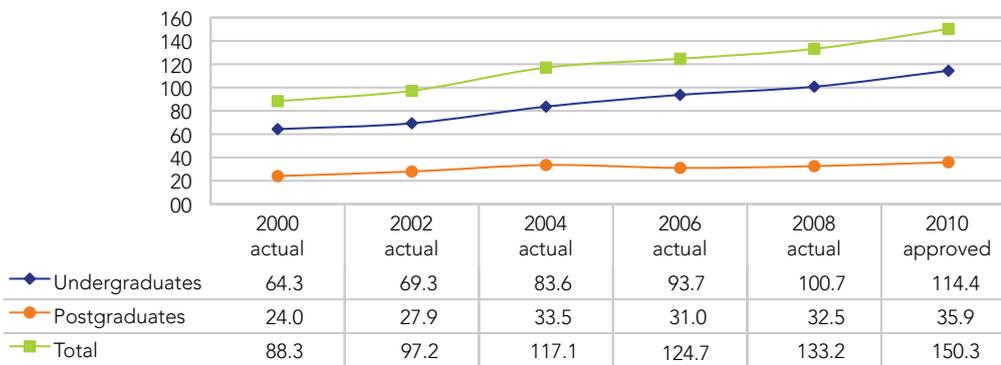
Graph 7 Success rates



Note: These success rates are calculated by dividing the university's FTE degree credit total by its FTE enrolled student total. An FTE degree credit total is calculated in the same way as an FTE enrolled student total, but taking account only of the courses actually passed by students.

Graph 8 summarises the public higher education system's graduate totals. The graph shows that the graduate total increased by 44 900 (or 51%) in 2008 compared to 2000. The total of graduates grew at a slightly faster rate than head count enrolments over this period: 5.0% compared to 4.6%.

Graph 8 Graduates (thousands)



Note: A graduate is defined as a student who has satisfied all the requirements of a degree or diploma or certificate.

3. STAFFING

Graph 9 offers a summary of the total permanent staff members employed in the public higher education system in SA over the period 2000–2008.

Graph 9 Total permanent staff (thousands)

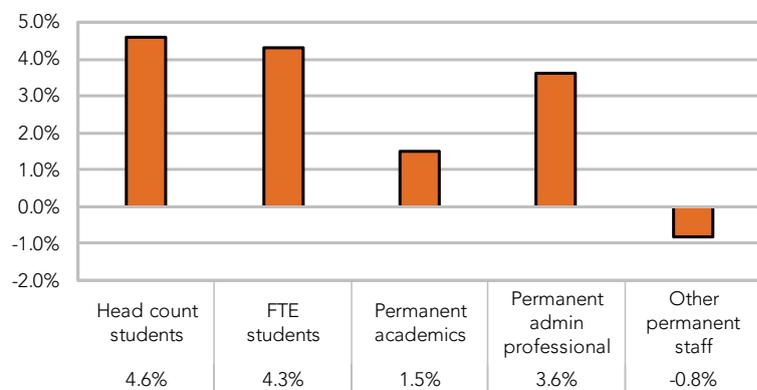


The following definitions are used in these classifications of staff:

- A permanent staff member is an employee who contributes to a retirement fund.
- Academic staff members (also known as instruction/research professionals) are employees who spend at least 50% of their time on duty on instruction and/or research activities.
- Administrative professionals are those who spend less than 50% of their time on instruction and/or research activities, and whose posts have a minimum requirement of a four-year higher education qualification.
- Administrative staff are all other employees, and include service (or unskilled) employees.

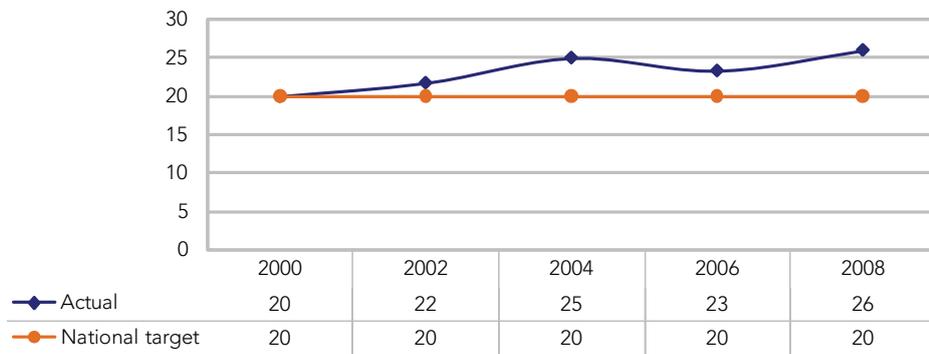
Graph 10 compares growth rates in student enrolments to those of the staff in the three categories in Graph 9. The important point to note is that the growth rate in student enrolments over the period 2000–2008 was three times higher than that in permanent academic staff.

Graph 10 Comparison of growth rates in students and permanent staff 2000–2008



Graph 11 shows what the main effect of the different growth rates in students and academic staff has been. The graph reflects what the availability of academic staff to meet the teaching needs of students is, with the national target being set as a maximum ratio of 20 FTE enrolled students per FTE instruction/research staff member. The graph shows that the system met this target in 2000, but that the ratio became increasingly unfavourable in succeeding years.

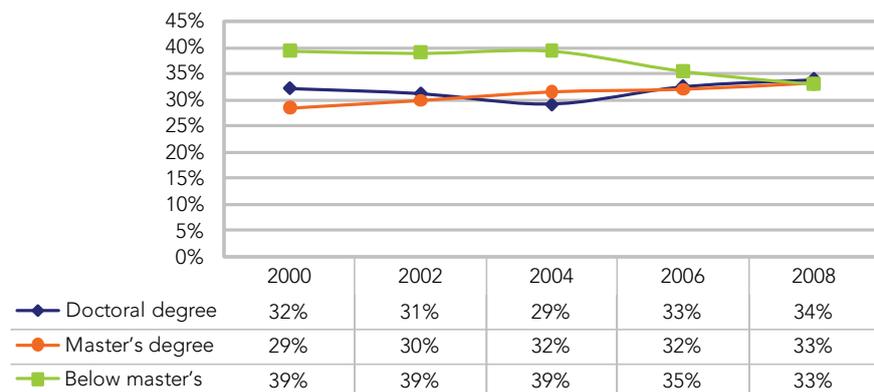
Graph 11 Ratios of FTE students to FTE academic staff



Note: A full-time equivalent (FTE) staff is an employee who is employed full-time for 12 months.

Graph 12 summarises the qualifications of the public higher education system’s permanent academic staff, in terms of their highest formal qualifications. The graph shows that the proportion of permanent academics with doctoral degrees rose to 34% in 2008 compared to the 2000 proportion of 32%. The largest change occurred in the proportion of academic staff whose highest formal qualification was lower than a master’s degree. This proportion fell from 39% in 2000 to 33% in 2008.

Graph 12 Percentage of permanent academic staff with doctorates



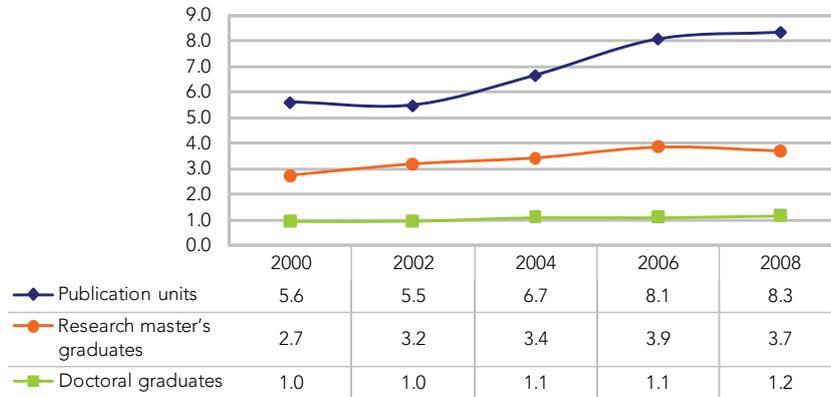
Graph 13 gives the totals of research outputs for the public higher education system for the period 2000-2008. The research outputs recognised by the government’s funding framework are the following:

- research publication units, which must be publications in peer-reviewed journals and peer-reviewed books;
- the research thesis components of master’s graduates (if a degree requires 100%

research, then 1 unit is recorded in the graph, if the degree requires 50% course work and 50% research thesis, then 0.5 of a unit is recorded in the graph);

- doctoral graduates.

Graph 13 Research output totals (thousands)

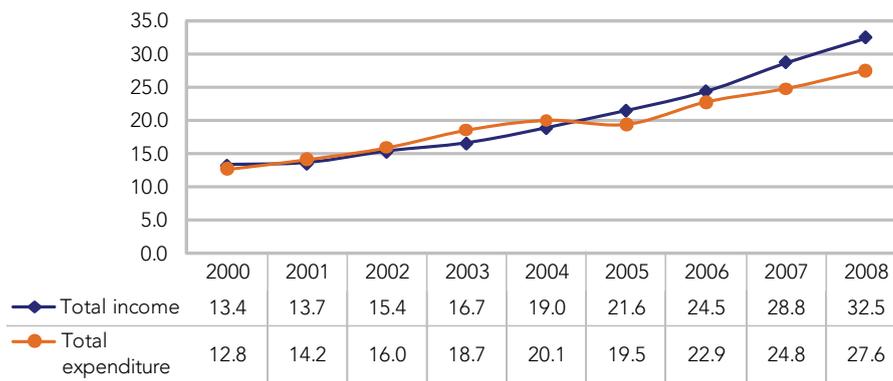


The average annual growth rates between 2000 and 2008 in these research outputs are: research publication units 5.0%, research master's graduates 4.0% and doctoral graduates 2.6%. These rates are well above the 1.5% average annual growth rate in permanent academic staff, which implies that the research productivity of academic staff improved between 2000 and 2008.

4. INCOME AND EXPENDITURE

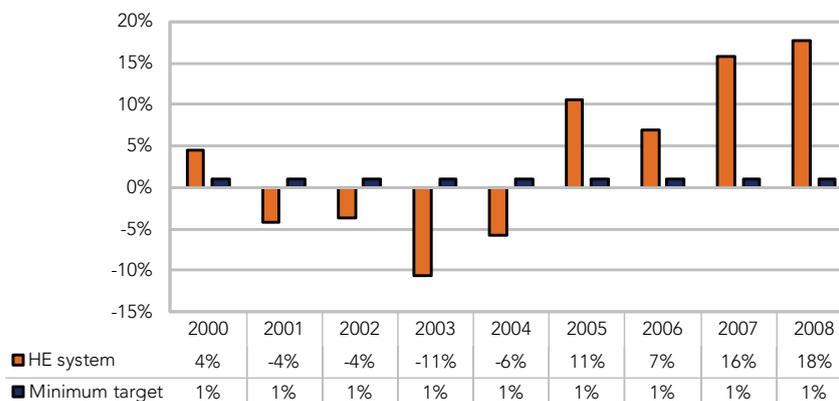
Graph 14 compares the public higher education system's total income from all sources to its total expenditure on all activities. The two totals include all categories recorded in the income statements of individual institutions, and in particular council-controlled, designated or special purposes, student and staff accommodation.

Graph 14 Income from all sources and expenditure from all sources (Rands billions)



The graph shows that the expenditure of the higher education system exceeded its total income during four years of this nine-year period. Details of these deficits and of the surpluses generated in the period 2000-2008 can be seen in Graph 15. The minimum target in Graph 15 is based on 'good practice guidelines', which suggest that a public higher education institution should aim at an annual surplus of at least 1%.

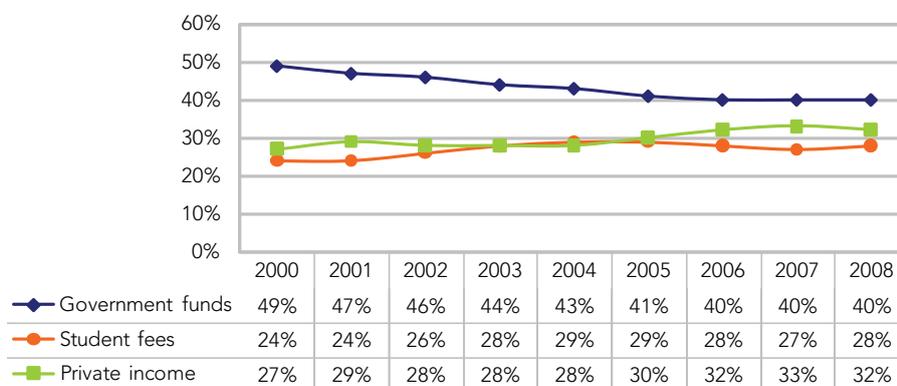
Graph 15 Surpluses/deficits on all activities



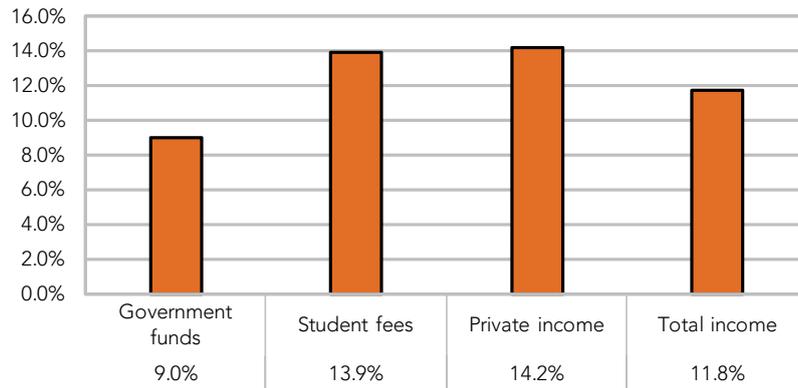
The two graphs show that this funding period 2000-2008 fell into two distinct parts. In the five-year period 2000-2004 the total income of the public higher education system grew at an average annual rate of 9.1% and expenditure at an average annual rate of 12.0%. These differences in growth rates resulted in the deficits recorded in Graph 15. During the second five-year period 2004-2008, there were major changes in these growth rates. Total income increased at an annual average rate of 14.4%, due mainly to increased government allocations. These included increases in subsidy funds, new grants for the re-capitalisation of institutions with problematic balance sheets, restructuring funds for merging institutions, and new grants for buildings and equipment. Expenditure did not keep pace with this growth in income. The average annual growth in expenditure during the period 2004-2008 was 8.2%.

Graph 16 shows what the public higher education system's major sources of funding were during the period 2000-2008. The most notable change is that of the share which government funds had of the income of the private higher education system. This share fell from 49% in 2000 to 40% in 2008. This drop reflects the different growth rates in these sources, as can be seen in Graph 17.

Graph 16 Sources of income

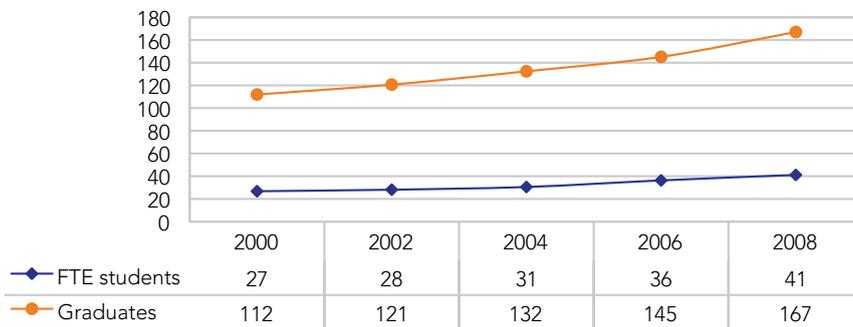


Graph 17 Average annual increases in income by source in the period 2000–2008



Graph 18 presents what could serve as a proxy for the cost of the teaching services involved in producing one graduate and enrolling one FTE student. The graph assumes that all income from subsidies and fees will be spent each year on the delivery of direct and indirect teaching services to both undergraduate and postgraduate students. The income total used for the graph is restricted to that derived from government subsidies and student fees, because private income is most often designated for purposes other than the teaching of students.

Graph 18 Total expenditure per FTE student and per graduate (Rands thousands)



Graph 18 shows that the average cost of delivering teaching services in the public higher education system rose from R27 000 per FTE student in 2000 to R41 000 in 2008, an average annual increase of 5.3%. The average cost per graduate rose from R112 000 in 2000 to R167 000 in 2008, an average annual increase of 5.5%. These average annual increases are below the average inflation rate for the period, which implies that unit funding for teaching services dropped in real terms between 2000 and 2008.

SUMMING UP

1. Student inputs

- 1.1 The public higher education system's head count student enrolment grew from 557 000 in 2000 to 799 000 in 2008; an average annual growth rate of 4.6%. The 2008 student enrolment total was only 2% below the Ministerially-approved target of 816 000 for 2010.
- 1.2 The system remained a predominantly undergraduate one between 2000 and 2008. In 2008, 86% of all students were enrolled in undergraduate programmes, 8% in postgraduate programmes below master's level, and 6% in master's and doctoral programmes.
- 1.3 Some shifts occurred in the fields of study for which students were enrolled. The proportion of humanities, including education, majors fell from 46% in 2000 to 43% in 2008. Business and management majors increased from 25% in 2000 to 29% in 2008. The proportion of science and technology students remained constant at around 28%.
- 1.4 Major shifts occurred in the public higher education system's profile by race and gender. In 2000 African students held a 58% share of head count enrolments, and a 65% share in 2008. The proportion of White students dropped from 30% in 2000 to 22% in 2008. The proportion of female students in the system grew from 52% in 2000 to 56% in 2008.

2. Student outputs

- 2.1 The public higher education system's student outputs improved over the period 2000–2008. The contact university's average success rates in courses rose from 73% in 2000 to 77% in 2008. Unisa's success rate increased from 51% in 2000 to 55% in 2008. The total of graduates produced increased at an average annual rate of 5.0% between 2000 and 2008, which was above the average annual increase of 4.6% in head count enrolments.

3. Staff

- 3.1 In 2000 the public higher education system employed a total of 43 300 permanent staff members, of whom 14 200 were members of the academic staff. The totals in 2008 were 45 000 for all staff (an average annual increase of 0.5%), and 15 900 for permanent academic staff (an average annual increase of 1.5%).
- 3.2 Because the average annual increases in both permanent and FTE academic staff were less than a third of the increases that occurred in student enrolments between 2000 and 2008, student-to-academic staff ratios rose over this period. The overall FTE student-to-FTE academic staff ratio rose from 20:1 in 2000 to 26:1 in 2008.
- 3.3 The productivity of permanent academic staff members in the public higher education system improved over the period 2000–2008. For example, the output of research publication units increased at an average annual rate of 5.0% between 2000 and 2008, compared to the average annual increase of only 1.5% in the permanent academic staff total.

4. Income and expenditure

- 4.1 The public higher education system's income from all sources increased from R13 400 million in 2000 to R32 500 million in 2008; an annual average increase of 11.8%. However the funding period 2000–2008 fell into two distinct parts. In the five-year period 2000–2004 total income grew at an average annual rate of 9.1% and expenditure at an average

annual rate of 12.0%. This resulted in the system as a whole generating substantial deficits in the period 2001–2004. During the second five-year period 2004–2008, total income increased at an average annual rate of 14.4%. Because the average annual growth in expenditure during the period 2004–2008 was 8.2%, the system generated substantial surpluses during the period 2005–2008.

- 4.2 The government funding share of the public higher education system's total income fell from 49% in 2000 to 40% in 2008. This drop resulted mainly from different growth rates in the system's three main sources of income between 2000 and 2008. The average annual growth in government funding was 9.0%, in student fees 13.9%, and in private income 14.2%.
- 4.3 The use of the proxy of subsidy plus fee income shows that the average cost of delivering teaching services in the public higher education system rose from R27 000 per FTE student in 2000 to R41 000 in 2008, an average annual increase of 5.3%. The average cost per graduate rose from R112 000 in 2000 to R167 000 in 2008, an average annual increase of 5.5%.