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The cost of fiscal subsidies to higher education students in South Africa: A comparison between 2000 and 2006¹

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ABSTRACT

In this analysis the expenditure (subsidy) on higher education institutions (HEIs) in South Africa is compared for 2000 and 2006. The analysis was done with headcounts of students as well as with full-time equivalent student numbers. A second method was followed where a distinction was made between the number of students enrolled in the social sciences and those enrolled in the natural sciences. It is found that Subsidies of the African, coloured and Indian students in general deteriorated slightly compared to the subsidy levels of whites. However, with the calculations for contact full-time equivalent students according to field of study it was found that either the other racial groups' relative situation improved over time or they received higher subsidies than the white group.

Keywords: Government subsidies, National government expenditure, Education
JEL codes: H2, H5, I2

¹ This study was undertaken as part of a fiscal incidence study conducted by Prof. Servaas van der Berg on behalf of the National Treasury. The paper is also available on the website of the National Treasury: <http://www.treasury.gov.za/publications/other/Fiscal%20Incidence%20Study/default.aspx>

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1. Introduction

In this analysis the expenditure (subsidy) on higher education institutions (HEIs) in South Africa is compared for 2000 and 2006. In 2000 the HE sector was divided into 21 universities and 15 technikons, but after 2004 the number of HEIs was reduced to 23. This makes comparisons between 2000 and 2006 impossible if you want to compare the previous system with the one in 2006. Even comparisons between individual institutions in most cases do not make sense due to the mergers that took place in 2004 and left very few institutions unchanged. The best comparison one can make is to look at average subsidies for the whole system and to compare it between racial groups. This is what will be presented in this analysis.

2. Method of analysis

The analysis was done with headcounts of students as well as with full-time equivalent student numbers. Although headcounts can portray the overall picture, it may give the wrong impression. A full-time student taking the full complement of modules prescribed for an academic programme in a specific year will have a full-time equivalent (FE) value of one. If only one or two modules are followed the FE value will be much smaller than one. Students are subsidized on their FE-values and not headcounts. The first method assumed that all students received the same subsidy at a specific institution, irrespective of their field of study or racial group. The analysis is done for all institutions and distinguishes between racial groups.

A second method was followed where a distinction was made between the number of students enrolled in the social sciences and those enrolled in the natural sciences. This distinction is made because subsidies in natural sciences are much larger than those paid to students in the social sciences. Different fields of study are subdivided into 21 CESM (classification of educational subject matter) categories. These categories are subdivided into four funding groups with the ratio of the size of the subsidy between these funding groups being equal to 1:1.5:2.5:3.5, but the four funding groups are not strictly divided into social and natural sciences (See Diagram 1). A rule of thumb is that the subsidy of natural sciences is on average approximately 2.55 times the subsidy paid to a student in the social sciences. In this analysis it was thus assumed that the per capita subsidy of a student in natural sciences is 2.55 times as large as the subsidy paid to students in social sciences.

Diagram 1

Classification of education subject matter (CESM) into funding groups

Funding group	CESM categories included in funding group
1	07 Education, 13 Law, 14 Librarianship, 20 Psychology, 21 Social Services/Public Administration
2	04 Business/Commerce, 05 Communication, 06 Computer Sciences, 12 Languages, 18 Philosophy/Religion, 22 Social Sciences
3	02 Architecture/Planning, 08 Engineering, 10 Home Economics, 11 Industrial Arts, 16 Mathematical Sciences, 19 Physical Education
4	01 Agriculture, 03 Fine and Performing Arts, 09 Health Sciences, 15 Life and Physical Sciences

In the last instance calculations were done for contact students only because distance students get a smaller subsidy than contact students. The assumptions made in the analysis will be presented as the results are discussed.

In 2000 an amount of R437 million was awarded by government for the National Student Financial Aid Scheme (NSFAS) to help needy students and in 2006 this amount increased to R926 million. In 2000 this amount was equal to 6.2% of the subsidies paid to HEIs and in 2006 it was equal to 8.2% of that amount. NSFAS awards were not included in this analysis, because these funds are not subsidies to HEIs but payments to help needy students to pay their debt at HEIs. Keep in mind that if these amounts are added to the subsidies paid to HEIs and because 85% of NSFAS awards are paid to African students, the average subsidy of African students would increase notably. However, because it is relative small amounts the overall results will not differ that much whether it is included or not. The government's subsidies paid to HEIs used in this report does not include NSFAS awards.

3. Analysis for 2000

In 2000 the Higher Education Institutions (HEIs) in South Africa were still divided into universities and technikons. The subsidies paid to universities were substantially higher than those paid to technikons and the 21 universities received 72.6% of the funds paid to HEIs while the 15 technikons received the remaining 27.4%. One must keep this in mind when the results of the analysis are evaluated because the HE playing field changed completely in 2004. The analysis will therefore be done for the whole HE system to make the results between 2000 and 2006 comparable.

Total Expenditure on Higher Education in South Africa was taken as the amount in Vote 15 of Estimates of National Expenditure, 2001 (2002: 302-303). An amount of R30 million was earmarked for restructuring, but because it could not be linked to a specific institution it was not included in the analysis. This amount was less than 0.5% of the funds paid to HEIs.

3.1 Headcount

Headcount numbers in HEIs were taken from Education at a Glance 2000 (2002: 24). These numbers are available according to the four main racial groups per institution. It was assumed that no distinction was made on racial grounds with regards to expenditure patterns at HEIs. Expenditure per student (irrespective of race) in each institution was therefore the same. The amount spent on a specific racial group at all institutions was added and the accumulated total was then divided by the total number of students of that racial group at all the HEIs.

There was not much difference between the per capita expenditure for the four racial groups, as can be seen in Table 1. Keep in mind that certain differences cannot be seen in the aggregate numbers. For example, the average per capita subsidy for a university student in 2000 was R11 652, while the corresponding figure for technikons was only R8 846. Throughout the analysis the whites will be used as the control group and their average per capita subsidy will be given an index value of 100. This method is followed because whites were the dominant group in higher education in the past who received the most funds. Subsidies paid to Africans and whites are the most important because they represented more than 88% of the headcount students in 2000 and just under 88% of the subsidy expenditure was spent on them.

Table 1
Subsidy paid to Higher Education Institutions (all headcount students): 2000

	African	Indian	Coloured	White	Total
Enrollment %	60.9	6.6	5.3	27.2	100
Subsidy %	61.2	6.9	5.5	26.4	100
Per capita subsidy	R10 769	R11 306	R10 995	R10 413	R10 720
Subsidy: Index value	103.4	108.5	105.6	100.0	102.9

Included in Table 1 is the data for Unisa and Technikon South Africa that provided education almost exclusively to only distance students. Another calculation was done where these two institutions was omitted. The reason for this is that distance students receive only half the subsidy of contact students. By excluding these two institutions, student numbers decreased by 28.8%

from 610 131 to 434 712, but total expenditure only decreased by 10.6% from R6 540 million to R5 844 million.

Table 2

Subsidy paid to Higher Education Institutions (excluding Unisa & Technikon SA): 2000

	African	Indian	Coloured	White	Total
Enrollment %	63.4	5.7	5.3	25.6	100
Subsidy %	62.0	6.7	5.5	25.8	100
Per capita subsidy	R13 147	R15 825	R13 914	R13 557	R13 445
Subsidy: Index value	97.0	116.7	102.6	100.0	99.2

Except for Indians who received 17.7% more than the national average subsidy of R13 445 per student there was very little difference between the per capita expenditure for the other racial groups. This is to a large extent explained by the relative high subsidy per student that the University of Durban Westville received, as well as the fact that 41% of Indian students studied through Unisa (who received a relative small per student subsidy, but was excluded in this calculation). As expected the subsidy is also notably higher than the calculations done for all the students including Unisa and Technikon South Africa.

3.2 Full-time equivalent students

Like with the previous method, HE expenditure was taken as the amount in Vote 15 of Estimates of National Expenditure, 2001 (2002: 302-303). The full-time equivalent (FE) student numbers were taken from the Research Report by Steyn and De Villiers (2006: 184) for the Council of Higher Education - Higher Education Monitor No 4. It was then assumed that the racial composition of the FE student numbers was identical to the headcount numbers. In this way the total FE numbers could be converted to the number of students of each racial group at each institution. It was also assumed that the expenditure per student in each institution was identical irrespective of race. The amount spent on a specific racial group at all institutions was added and the grand total was then divided by the total number of students of that racial group at all the HEIs. In this way an average per capita subsidy per racial group could be calculated.

There is not much difference between the calculations with headcounts and this that was done with FE student numbers, because to a large extent FE students are a constant fraction of the headcounts. The subsidy per student between the four racial groups did not differ much (as can be seen in Table 3). For example, Africans received only 1% less than the national average of R15 866 and Indians received 5% more than this average. Once again the aggregate numbers disguise

certain differences between the individual HEIs. The subsidy in the university sector was R17 513 per student - 17.7% higher than the per capita average of R12 705 for the technikon sector.

Table 3
Subsidy paid to Higher Education Institutions (all FE students): 2000

	African	Indian	Coloured	White	Total
Enrollment %	61.8	6.6	5.4	26.1	100
Subsidy %	61.2	6.9	5.5	26.4	100
Per capita subsidy	R15 701	R16 644	R15 965	R16 040	R15 866
Subsidy: Index value	97.9	103.8	99.5	100.0	98.9

The analysis was repeated by excluding distance students and subtracting their subsidy from the total subsidy paid to HEIs. By excluding the distance students it is obvious that the average subsidy per student will increase. This is evident from Table 4.

Table 4
Subsidy paid to Higher Education Institutions (contact FE students): 2000

	African	Indian	Coloured	White	Total
Enrollment %	63.6	6.1	5.7	24.5	100
Subsidy %	61.9	6.8	5.6	25.7	100
Per capita subsidy	R19 002	R21 625	R19 168	R20 532	R19 548
Subsidy: Index value	92.6	105.3	93.4	100.0	95.2

The difference between the per capita expenditure per racial group is now larger but not substantial. Africans received 2.8% less than the national average of R19 548 per student while Indians on average received 10.6% more than this amount. Once again keep in mind that the per capita expenditure in the university sector was R22 043 per student, but only R15 068 in the technikon sector.

3.3 Full-time equivalent students per field of study (all students)

The expenditure on HE and the number of FE students is identical to the values used in section 3.2. The FE student numbers of both the university and technikon sector were converted to numbers according to race per field of study by means of the number of unduplicated student enrolments per race group at each institution (Department of Education website-Hemis data).

Table 5
Subsidy paid to Higher Education Institutions (all FE students): 2000

	African	Indian	Coloured	White	Total
Enrollment %	59.8	6.8	5.3	28.0	100
Subsidy %	56.7	7.7	5.2	30.4	100
Per capita subsidy	R15 041	R17 992	R15 523	R17 178	R15 867
Subsidy: Index value	87.6	104.7	90.4	100.0	92.4

The first analysis was done for all FE students. Indians received a per capita subsidy that was 13.4% higher than the national average of R15 867, while Africans received a subsidy that was 5.2% lower than this average. This is partly explained by the fact that 38.9% of Indians studied in the natural sciences, but only 26% of Africans (See Table 6). Whites, who received a fairly high subsidy of R17 178 per student, had 35.5% of the students studying in the natural sciences with only 29.6% of Coloured students studying in the natural sciences. Except for the fairly high per capita subsidy per Indian student, there was not that much difference between the subsidies that the other racial groups received.

Table 6
Students studying in Social and Natural Sciences (all FE students): 2000

Per cent of each racial group					
	African	Indian	Coloured	White	Total
Social Sciences	74.0	61.1	70.4	64.5	70.3
Natural Sciences	26.0	38.9	29.6	35.5	29.7
Per cent of total number of students					
Social Sciences	63.0	5.9	5.3	25.7	70.3
Natural Sciences	52.3	8.9	5.3	33.5	29.7
Total	59.8	6.8	5.3	28.0	100.0

As can clearly be seen from Table 7 there was a vast difference between the per capita subsidies paid to universities and technikons. The average subsidy (for studies in both natural and social sciences) paid to technikon students was only 73% of the value of the subsidy paid to university students. Note that Unisa and Technikon South Africa (with the majority of distance students) received much smaller per capita subsidies than the other universities and technikons respectively. The average subsidy for Unisa students was only 44% of the value of the average subsidy of university students, while the subsidy for students at Technikon South Africa was only 53% of the value of the average subsidy paid to technikon students. Differences between the different institutions and racial groups are also portrayed in Table 7.

Table 7
Average per capita subsidy according to field of study, racial group and institution
(all FE students): 2000

Panel A

	Soc Sc	Nat Sc	Total	African	Indian	Coloured	White
<i>UCT</i>	14 592	37 210	23 798	24 967	25 497	22 482	23 307
<i>Durban W</i>	14 476	36 914	22 005	20 459	24 468	23 494	24 994
<i>Fort Hare</i>	18 989	48 421	23 842	23 824	n/a	n/a	27 982
<i>Free State</i>	13 155	33 544	20 336	19 143	20 716	19 516	21 245
<i>Medunsa</i>	21 104	53 815	52 950	52 910	53 609	52 906	51 515
<i>Natal</i>	13 530	34 501	20 554	20 152	20 892	19 254	21 108
<i>The North</i>	15 073	38 437	22 146	22 121	29 091	21 749	26 755
<i>North West</i>	12 628	32 202	18 077	18 082	16 543	17898	17 522
<i>UPE</i>	13 442	34 277	15 601	14 431	21 226	19 283	21 389
<i>Potch</i>	11 921	30 399	16 802	15 987	16 802	15 362	17 358
<i>Pretoria</i>	13 631	34 758	20 814	16 977	24 730	19 505	23 884
<i>RAU</i>	14 299	36 461	17 875	16 096	18 161	17 151	19 434
<i>Rhodes</i>	15 090	38 479	21 623	20 284	28 255	19 745	21 530
<i>Stellenbosch</i>	13 104	33 415	20 972	16 263	26 123	20 778	21 853
<i>Transkei</i>	21 205	54 073	29 423	28 895	50 525	n/a	39 465
<i>Unisa</i>	6 418	16 367	7 430	7 472	7 461	7 337	7 386
<i>Venda</i>	9 576	24 419	14 904	14 920	n/a	n/a	n/a
<i>Vista</i>	12 474	31 808	14 518	14 521	13 564	14 882	13 321
<i>UWC</i>	14 530	37 050	19 365	18 595	24 329	19 479	21 034
<i>Wits</i>	14 149	36 079	25 228	23 401	28 184	23 277	25 985
<i>Zululand</i>	15 605	39 793	21 131	21 242	17 484	15 605	20 404
<i>Univ Tot</i>	11 728	34 183	17 513	17 068	18 587	17 088	18 003
Border Tech	10 743	27 396	16 654	16 545	27 396	23 681	23 392
Cape Tech	8 724	22 246	15 507	14 554	15 786	14 659	16 580
F S Tech	9 955	25 386	14 234	13 004	16 568	13 920	16 339
Mango Tech	9 647	24 600	17 769	17 755	20 328	24 600	21 881
ML Sultan	8 579	21 877	15 435	14 405	17 631	17 434	15 153
Natal Tech	9 326	23 782	16 665	15 082	19 502	16 664	19 208
N Gaut Tech	9 488	24 195	14 473	14 473	13 165	15 371	13 165
Pen Tech	9 902	25 251	16 602	16 083	19 936	17 392	18 903
PE Tech	8 891	22 672	14 907	14 275	16 133	14 345	16 314
Pretoria	7 522	19 182	11 296	10 303	14 444	12 058	14 541
Tech SA	4 874	12 429	6 700	6 539	7 477	6 413	7 267
N West Tech	10 600	27 030	14 336	14 341	10 600	10 600	10 600
E Cape Tech	9 488	24 195	15 239	15 179	24 195	22 094	24 195
Vaal T Tech	7 806	19 904	13 352	13 129	17 299	12 255	14 736
Wits Tech	9 522	24 282	17 280	16 561	20 109	16 699	19 791
<i>Tech Tot</i>	7 706	21 093	12 706	12 229	15 713	13 210	13 887
TOTAL	10 500	28 522	15 867	15 041	17 992	15 523	17 178
Index value	-	-	92.4	87.6	104.7	90.4	100.0

Table 7 (continued)**Panel B**

	Social Sc	Index Value	Natural Sc	Index Value
African	10 577	101.4	27 747	94.2
Indian	10 076	96.6	30 434	103.4
Coloured	10 392	99.6	27 976	94.1
White	10 432	100.0	29 445	100.0

3.4 Full-time equivalent per field of study of contact students

The last analysis was done for only full-time contact students (total number of students minus distance students). The FE student numbers were taken from a research report by Steyn and De Villiers (2006: 186-187). The subsidy paid to distance students was subtracted from the total subsidy each HEI received by taking into account that distance students only received half the subsidy of residential students. It was assumed that the split between natural and social sciences of distance students was the same as for the total number of students (as was assumed in Section 3.3). This analysis gives the best estimation of the subsidies paid to the contact students of the different racial groups. As expected the subsidy per contact student in Table 8 is higher than the subsidy per total FE student (that includes distance students) in Table 5.

Table 8**Subsidy paid to Higher Education Institutions (FE contact students): 2000**

	African	Indian	Coloured	White	Total
Enrollment %	61.9	6.2	5.6	26.3	100.0
Subsidy %	57.4	7.6	5.3	29.7	100
Per capita subsidy	R18 125	R23 821	R18 727	R22 052	R19 548
Subsidy: Index value	82.2	108.0	84.9	100.0	88.6

Once again the per capita expenditure on Indian students was the highest and they received 21.8% more than the national average of R19 548. African students, on the other hand received 7.3% less than this national average. As can be seen in Table 8 there is quite a difference in the per capita subsidy paid to the different racial groups, although the low value for Africans tends to indicate that they are more likely than the other groups to study part-time and thus receive a smaller subsidy.

Table 9
Students studying in Social and Natural Sciences (FE contact students): 2000

Per cent of each racial group					
	African	Indian	Coloured	White	Total
Social Sciences	69.9	48.5	64.8	56.3	64.7
Natural Sciences	30.1	51.5	35.2	43.7	35.3
Per cent of total number of students					
Social Sciences	66.9	4.7	5.6	22.9	64.7
Natural Sciences	52.7	9.1	5.5	32.6	35.3
Total	61.9	6.2	5.6	26.3	100.0

Table 10
Average per capita subsidy according to field of study, racial group and institution
(FE contact students): 2000

Panel A

	Soc Sc	Nat Sc	Total	African	Indian	Coloured	White
<i>UCT</i>	14 592	37 210	23 798	24 967	25 497	22 482	23 307
<i>Durban W</i>	14 476	36 914	22 005	20 459	24 468	23 494	24 994
<i>Fort Hare</i>	18 989	48 421	23 842	23 824	n/a	n/a	27 982
<i>Free State</i>	13 796	35 180	21 327	20 076	21 726	20 467	22 281
<i>Medunsa</i>	21 104	53 815	52 950	52 910	53 609	52 906	51 515
<i>Natal</i>	14 955	38 136	22 720	22 276	23 094	21 283	23 333
<i>The North</i>	15 073	38 437	22 146	22 121	29 091	21 749	26 755
<i>North West</i>	12 628	32 202	18 077	18 082	16 543	17 898	17 522
<i>UPE</i>	16 393	41 802	19 027	17 600	25 886	23 516	26 085
<i>Potch</i>	13 131	33 484	18 507	17 610	18 508	16 921	19 115
<i>Pretoria</i>	15 294	39 000	23 354	19 048	27 747	21 885	26 799
<i>RAU</i>	16 017	40 844	20 023	18 030	20 344	19 212	21 770
<i>Rhodes</i>	15 090	38 479	21 623	20 284	28 255	19 745	21 530
<i>Stellenbosch</i>	13 503	34 434	21 612	16 759	26 919	21 411	22 519
<i>Transkei</i>	21 205	54 073	29 423	28 895	50 525	n/a	39 465
<i>Unisa</i>	12 851	32 769	14 876	14 961	14 938	14 689	14 788
<i>Venda</i>	9 576	24 419	14 904	14 920	n/a	n/a	n/a
<i>Vista</i>	15 215	38 798	17 708	17 712	16 544	18 152	16 249
<i>UWC</i>	14 530	37 500	19 365	18 595	24 329	19 479	21 034
<i>Wits</i>	14 149	36 079	25 228	23 401	28 184	23 277	25 985
<i>Zululand</i>	15 605	39 793	21 131	21 242	17 484	15 605	20 404
<i>Univ Tot</i>	14 805	37 743	22 043	20 879	25 680	20 835	23 400

Table 10 (continued)

	Soc Sc	Nat Sc	Total	African	Indian	Coloured	White
Border Tech	10 743	27 396	16 654	16 545	27 396	23 681	23 392
Cape Tech	8 740	22 287	15 535	14 580	15 815	14 686	16 610
F S Tech	9 950	25 373	14 226	12 997	16 560	13 913	16 330
Mango Tech	9 647	24 600	17 769	17 755	20 328	24 600	21 881
ML Sultan	8 612	21 959	15 493	14 460	17 697	17 499	15 210
Natal Tech	9 326	23 782	16 665	15 082	19 502	16 664	19 208
N Gaut Tech	9 488	24 195	14 473	14 473	13 165	15 371	13 165
Pen Tech	9 902	25 251	16 602	16 083	19 936	17 392	18 903
PE Tech	8 891	22 672	14 907	14 275	16 133	14 345	16 314
Pretoria	8 570	21 853	12 869	11 737	16 456	13 738	16 566
Tech SA	n/a	n/a	n/a	n/a	n/a	n/a	n/a
N West Tech	10 600	27 030	14 336	14 341	10 600	10 600	10 600
E Cape Tech	9 488	24 195	15 239	15 179	24 195	22 094	24 195
Vaal T Tech	7 806	19 904	13 352	13 129	17 299	12 255	14 736
Wits Tech	9 522	24 282	17 280	16 561	20 109	16 699	19 791
Tech Tot	9 170	23 201	15 068	14 426	18 254	15 701	16 975
TOTAL	12 999	31 548	19 548	18 125	23 821	18 729	22 052
Index value	-	-	88.6	82.2	108.0	84.9	100.0

Panel B

	Social Sc	Index Value	Natural Sc	Index Value
African	12 763	93.8	30 581	92.9
Indian	13 782	101.2	33 269	101.1
Coloured	12 651	92.9	29 921	90.9
White	13 612	100.0	32 908	100.0

From Tables 8 and 9 it is clear that the higher per capita subsidy of Indians can be explained by the fact that although they represented only 6.2% of contact student numbers, they were responsible for 9.1% of all students studying in natural sciences. This can also be explained by the fact that 39.5% of Indian students in social sciences were studying at Unisa. The result was that 51.5% of contact Indian students were studying in natural sciences. Also with white students we see a high percentage studying in natural sciences. While only 27.1% and 34.2% of African and Coloured students respectively studied in natural sciences, no less than 43.7% and of white students studied in natural sciences.

Differences between individual institutions and racial groups are summarized in Table 10. Once again the difference between technikons and universities is clear with the size of the average subsidy of a technikon student equaling only 70% of the subsidy paid per university student. The average subsidies per student paid to Unisa and Venda is much lower than the other universities

and can be explained by the above-average percentage of their students that studied in social sciences. Pretoria Technikon received the smallest subsidy per student of the technikons, but it was not out of line with the other technikons.

4. Analysis for 2006

In 2004 the 21 universities and 15 technikons merged into 23 institutions (16 comprehensive universities, 6 universities of technology and one technikon). Therefore the results between 2000 and 2006 are not directly comparable - even for individual institutions due to the mergers that took place and left very few HEIs unchanged. An analysis was also done separately for the comprehensive universities and the universities of technology and the one technikon, but due to the mergers there was little difference between the results of these two types of institutions (except for the last calculations done with contact FE students according to field of study). Therefore the results will mainly be restricted to the total education sector and will not distinguish between the comprehensive universities and the rest of the education system.

Total expenditure on Higher Education was taken as the amount in Vote 14 of Estimates of National Expenditure, 2006 (2006: 271). An amount of R636.7 million was earmarked for restructuring or unallocated. This amount is less than 6% of total expenditure on HE institutions and because it could not be linked to a specific institution it was not taken into consideration for the analysis.

4.1 Headcounts

Headcounts in HEIs was taken from Education at a Glance 2006 (2007: 24). It was assumed that the expenditure per student in each institution was identical irrespective of race. The amount spent on a specific racial group at all institutions was added and then divided by the total number of students of that racial group at all the HEIs. The calculated amounts were also deflated by the CPI to 2000 prices to make it comparable to the analysis of 2000.

Table 11
Subsidy paid to Higher Education Institutions (all headcount students): 2006

	African	Indian	Coloured	White	Total
Enrollment %	60.9	7.4	6.6	25.1	100
Subsidy %	59.7	7.4	7.0	25.9	100
Per capita subsidy <i>[2000 prices]</i>	R13 275 <i>[R9 914]</i>	R13 565 <i>[R10 131]</i>	R14 521 <i>[R10 845]</i>	R13 994 <i>[R10 451]</i>	R13 559 <i>[R10 126]</i>
Subsidy: Index value	94.9	96.9	103.8	100.0	96.9

From Table 11 it is evident that there was no big difference between the spending patterns on each of the four racial groups. The lowest per capita expenditure was on Africans with R13 275 per student and the highest expenditure was on coloureds at R14 521 per student. This boils down to the highest expenditure per student (on coloureds) that was only 8.6% higher than the lowest (on Africans).

The procedure was repeated for headcounts of contact students. The institutions with the most distance students were Unisa (226 769), North West University (10 819) and University of Pretoria (7 584). By excluding the distance students the number of students decreased from 740 173 to 475 033. As one would expect the average subsidy paid to contact students was much higher than the ones calculated for contact and distance students - R18 391 compared to R13 559 (See Table 12). If one looks at the average subsidy per racial group, the subsidy for Indians was the highest while the subsidy for Africans was the lowest. In this case the difference is a more substantial 16.2%.

Table 12

Subsidy paid to Higher Education Institutions (headcount contact students): 2006

	African	Indian	Coloured	White	Total
Enrollment %	60.6	7.1	6.5	25.8	100
Subsidy %	57.9	7.3	7.4	27.4	100
Per capita subsidy <i>[2000 prices]</i>	R17 557 <i>[R13 112]</i>	R20 947 <i>[R15 644]</i>	R19 048 <i>[R14 225]</i>	R19 525 <i>[R14 582]</i>	R18 391 <i>[R13 735]</i>
Subsidy: Index value	89.9	107.3	97.6	100.0	94.2

4.2 Full-time equivalent students

With this analysis the FE students were taken from Education Statistics in South Africa 2006 (2007: 38) and it was then assumed that the racial composition of FE student numbers was identical to the headcount numbers (used in Section 4.1). In this way the racial breakdown of FE students could be calculated. The first calculation was done for all FE students (contact and distance students). The results as summarized in Table 13 show a remarkable consistency with a fairly small difference between the highest subsidy value of R21 208 (for Coloureds) and the lowest value of R19 463 (for Africans).

Table 13
Subsidy paid to Higher Education Institutions (all FE students): 2006

	African	Indian	Coloured	White	Total
Enrollment %	61.2	7.2	6.7	24.9	100.00
Subsidy %	59.7	7.4	7.0	25.9	100.0
Per capita subsidy <i>[2000 prices]</i>	R19 463 <i>[R14 670]</i>	R20 847 <i>[R15 569]</i>	R21 208 <i>[R15 839]</i>	R20 961 <i>[R15 654]</i>	R20 162 <i>[R15 058]</i>
Subsidy: Index value	93.7	99.5	101.2	100.0	96.2

The next calculation was done for FE contact students only. The amount spent on each institution was reduced by subtracting the amount paid to distance students. The results are shown in Table 14. From the table it is clear that the per capita subsidy for the racial groups did not differ that much. For example, Indians received 12% more per student than the national average of R23 928 average while Africans received 4% less than this average.

Table 14
Subsidy paid to Higher Education Institutions (FE contact students): 2006

	African	Indian	Coloured	White	Total
Enrollment %	62.5	6.3	7.0	24.2	100.00
Subsidy %	60.0	7.1	7.2	25.7	100.0
Per capita subsidy <i>[2000 prices]</i>	R22 961 <i>[R17 147]</i>	R26 837 <i>[R20 043]</i>	R24 740 <i>[R18 476]</i>	R25 426 <i>[R18 989]</i>	R23 928 <i>[R17 870]</i>
Subsidy: Index value	90.3	105.5	97.3	100.0	94.1

4.3 Full-time equivalent according to field of study (all students)

The headcount of unduplicated student enrolment per racial group and institution was taken from the website of the Department of Education under the Hemis comprehensive statistics. The breakdown between the students studying in social sciences and natural sciences is also given. The percentage of the total number of students taking natural and social sciences as represented by each racial group in each institution was then calculated. The full-time equivalent enrolments according to field of study for all HEIs were taken from Education Statistics in South Africa (2006: 38). These enrolments were not given according to racial group and it was assumed that the proportions of FE student numbers according to racial group were the same as those calculated from the headcounts (given in the website of the Department of Education). In this way it was calculated how many FE students of each racial group at each institution took social sciences and natural sciences.

It was assumed that the subsidy for natural sciences per student is 2.55 times the subsidy paid to students in social sciences. The next step was to calculate the size of the subsidy in each institution that was paid to natural sciences and social sciences. Using FE student numbers and by making the split between students in natural and social sciences is more accurate than the first method, especially if one takes into account that in 2006 29.9% of the total number of students studied courses in natural sciences and 70.1% in social sciences.

As can be seen from Table 15 Africans received 58.6% of the funds although they were 61.3% of the students. Conversely whites, for example, who represented 24.8% of the students, received 26.9% of the funds. This can be directly linked to the number of students studying in natural sciences (that received a higher subsidy). Only 27.7% of coloured and 28.1% of African students studied in natural sciences, while the corresponding figures for Indians and whites were 33.2% and 33.8% respectively. With this method Indians received the highest subsidy of R22 041 per student and Africans the lowest of R19 256 per student. The difference between the lowest and highest subsidy values was 12.6%, slightly higher than the difference calculated with headcounts. Compared to the national average, the lowest value was 4.5% lower than that value and the highest subsidy was 9.3% higher than the national average.

Table 15
Subsidy paid to Higher Education Institutions (all FE students): 2006

	African	Indian	Coloured	White	Total
Enrollment %	61.3	7.2	6.7	24.8	100
Subsidy %	58.6	7.8	6.7	26.9	100
Per capita subsidy <i>[2000 prices]</i>	R19 256 <i>[R14 381]</i>	R22 041 <i>[R16 461]</i>	R20 125 <i>[R15 030]</i>	R21 867 <i>[R16 331]</i>	R20 162 <i>[R15 058]</i>
Subsidy: Index value	88.1	100.8	92.0	100.0	92.2

In Table 16 it can clearly be seen that although Indian students were 7.2% of the total number of students they represented 8.0% of the students taking courses in natural sciences. Also whites who were 24.8% of the total number of students represented 28.1% of the students taking courses in natural sciences. This can be explained by the higher percentage of white and Indian students that took courses in the natural sciences.

The last table in this section (Table 17) summarises the differences between the different institutions, racial groups and field of study.

Table 16

Students studying in Social and Natural Sciences (all FE students): 2006

Per cent of each racial group					
	African	Indian	Coloured	White	Total
Social Sciences	71.9	66.8	72.3	66.2	70.1
Natural sciences	28.1	33.2	27.7	33.8	29.9
Per cent of total number students					
Social Sciences	62.9	6.8	6.9	23.4	70.1
Natural Sciences	57.7	8.0	6.2	28.1	29.9
Total	61.3	7.2	6.7	24.8	100

Table 17

**Average per capita subsidy according to field of study, racial group and institution
(all FE students): 2006**

Panel A

	Soc Sc	Nat Sc	Total	African	Indian	Coloured	White
CAPUT	12 158	31 002	20 524	20 712	21 372	19 610	21 481
UCT	18 180	46 359	29 699	31 198	30 439	28 857	28 880
FS UT	13 157	33 549	21 452	20 939	22 948	20 271	24 069
DUT	14 071	35 880	23 284	21 968	26 598	24 435	27 991
UFH	18 005	45 912	23 696	24 063	23 326	19 456	19 724
UFS	16 909	43 119	25 158	24 239	23 791	21 049	27 116
UJ	14 216	36 251	20 765	21 334	19 847	18 813	19 790
UKZN	17 830	45 467	26 888	26 612	27 868	23 603	26 184
UL	17 154	43 744	28 305	27 988	40 188	39 502	38 233
NMMU	15 666	39 947	22 996	22 051	23 072	22 410	25 485
NWU	13 501	34 427	18 552	17 518	17 436	16 997	20 354
UP	15 655	39 919	25 221	22 549	28 072	25 186	27 359
RU	18 658	47 577	25 948	25 631	33 145	22 746	25 558
UNISA	7 516	19 166	8 781	8 828	8 749	8 524	8 752
US	16 898	43 089	27 384	25 364	33 760	27 719	27 451
TUT	14 354	36 603	22 710	21 874	25 290	21 228	28 369
UV	12 695	32 371	18 581	18 588	17 142	n/a	15 569
VUT	10 987	28 017	18 586	18 490	21 040	14 811	21 298
WSUT	12 573	32 061	17 825	17 723	30 747	26 060	26 889
UWC	17 242	43 967	26 802	26 936	31 929	24 626	39 071
UW	18 489	47 148	31 375	30 728	32 745	29 337	31 796
UZ	14 796	37 731	18 217	18 165	19 881	18 230	19 899
MTECH	9 821	25 042	17 480	17 476	21 510	19 564	21 510
TOTAL	12 994	36 974	20 162	19 256	22 041	20 125	21 867
<i>2000 prices</i>	<i>9 704</i>	<i>27 613</i>	<i>15 058</i>	<i>14 381</i>	<i>16 461</i>	<i>15 030</i>	<i>16 331</i>
Index value	-	-	92.2	88.1	100.8	92.0	100.0

Table 17 (continued)**Panel B**

	Social Sc	Index Value	Natural Sc	Index Value
African	12 844 [9 592]*	96.8	35 626 [26 607]	92.1
Indian	13 031 [9 732]	98.2	40 182 [30 009]	103.9
Coloured	13 403 [10 009]	101.0	37 648 [28 117]	97.3
White	13 266 [9 907]	100.0	38 685 [28 891]	100.0

* Values in brackets are in 2000 prices.

4.4 Full-time equivalent according to field of study of contact students

This method is identical to the previous method except that distance students were removed from the data. The data of full-time equivalent distance students was taken from Education Statistics in South Africa 2006 (2008: 38). These FE distance students were then deducted from the total FE student numbers that was used in Section 4.3. The FE contact students was then converted to racial numbers by once again assuming that their distribution was the same as the headcounts that were available according to racial group per institution.

Distance students are normally subsidized at 50% of the amount for contact students (except master and doctoral degrees). The subsidy paid to the different institutions was thus adjusted and the amount for distance students was subtracted from the total subsidy paid to each institution.

Table 18**Subsidy paid to Higher Education Institutions (FE contact students): 2006**

	African	Indian	Coloured	White	Total
Enrollment %	62.4	6.3	6.9	24.4	100
Subsidy %	58.5	7.6	6.8	27.1	100
Per capita subsidy [2000 prices]	R22 610 [R16 886]	R28 931 [R21 606]	R23 529 [R17 572]	R26 809 [R20 021]	R24 098 [R17 997]
Subsidy: Index value	84.3	107.9	87.8	100.0	89.9

With this method the subsidy per student ranges from R22 610 for Africans to R28 931 for Indians. There is thus a substantial difference of 21.8% between the lowest and the highest per capita subsidy. Africans received only 6.2% less than the national average of R24 098, while Indians received 20% more than the national average of R24 098. The difference in subsidy can

to a large extent be explained by the percentage of students studying in the natural sciences (as portrayed by Table 19).

Table 19

Students studying in Social and Natural Sciences (FE contact students): 2006

Per cent of each racial group					
	African	Indian	Coloured	White	Total
Social Sciences	66.1	54.9	66.5	57.3	63.3
Natural Sciences	33.9	45.1	33.5	42.7	36.7
Per cent of total number students					
Social Sciences	65.1	5.5	7.3	22.1	63.3
Natural Sciences	57.6	7.8	6.3	28.3	36.7
Total	62.4	6.3	6.9	24.4	100.0

The biggest difference between this and the previous method is the distance students of Unisa (109 120 students out of the total of 127 269 distance students) that was excluded from the calculations. The only other institution where a substantial number of distance students was excluded is North West University that had 5 107 FE distance students.

While less than 34% of African and Coloured students studied in the natural sciences, the percentages for white and Indian students are 42.7 and 45.1 per cent respectfully. Because the subsidy per student in the natural sciences is more than 2½ times the subsidy of students in social sciences, it is obvious that the per capita subsidy per student for White and Indian students will be higher than for the other two racial groups. Another factor is the number of students studying at universities of technology and the only remaining technikon who received a smaller subsidy per student than the comprehensive universities. With this last analysis of contact students the average subsidy paid to students at comprehensive universities was 21.4% higher than the subsidy paid to the other students (and was consistently higher for all racial groups). As was mentioned earlier, this was not the case with the other calculations.

Table 20 summarises the differences between the different institutions, racial groups and field of study.

Table 20

**Average per capita subsidy according to field of study, racial group and institution
(FE contact students): 2006**

Panel A

	Soc Sc	Nat Sc	Total	African	Indian	Coloured	White
CAPUT	12 169	31 031	20 530	20 745	21 504	19 493	21 630
UCT	18 180	46 359	29 699	31 394	30 533	28 757	28 782
FS UT	13 243	33 768	21 733	21 108	23 587	20 301	25 007
DUT	14 071	35 880	23 284	21 609	27 760	24 795	29 761
UFH	18 347	46 785	24 447	24 764	24 124	20 611	20 863
UFS	17 311	44 143	26 265	25 401	24 975	22 306	28 067
UJ	14 302	36 471	20 962	21 609	19 927	18 773	19 864
UKZN	18 530	47 251	28 836	28 564	29 792	25 520	28 140
UL	17 154	43 744	28 305	27 956	42 028	41 202	39 684
NMMU	16 390	41 794	25 151	24 086	25 235	24 492	27 874
NWU	14 574	37 163	20 877	19 745	19 653	19 162	22 775
UP	16 118	41 100	26 971	24 142	29 865	26 935	29 153
RU	18 734	47 771	26 137	25 848	32 529	23 169	25 781
UNISA	14 963	n/a	14 963	14 963	14 963	14 963	14 963
US	16 898	43 089	27 384	25 287	34 087	27 733	27 454
TUT	14 611	37 257	23 592	22 688	26 360	21 987	29 617
UV	12 695	32 371	18 581	18 591	16 608	n/a	14 587
VUT	10 987	28 017	18 586	18 471	21 619	14 224	21 948
WSUT	12 692	32 365	18 139	18 037	30 453	26 112	26 890
UWC	17 273	44 046	26 813	26 922	30 902	24 995	36 184
UW	18 489	47 148	31 375	30 632	32 965	29 049	31 862
UZ	14 796	37 731	18 217	18 160	20 052	18 231	20 072
MTECH	9 821	25 042	17 480	17 474	25 042	21 103	25 042
TOTAL	15 374	39 116	24 098	22 610	28 931	23 529	26 809
<i>2000 prices</i>	<i>11 482</i>	<i>29 212</i>	<i>17 997</i>	<i>16 886</i>	<i>21 606</i>	<i>17 572</i>	<i>20 021</i>
Index value	-	-	89.9	84.3	107.9	87.8	100.0

Panel B

	Social Sc	Index Value	Natural Sc	Index Value
African	14 896 [11 125]*	91.7	37 629 [28 102]	91.8
Indian	17 198 [12 844]	105.9	43 191 [32 256]	105.3
Coloured	15 636 [11 677]	96.3	39 206 [29 280]	95.6
White	16 245 [12 132]	100.0	40 999 [30 619]	100.0

* Values in brackets are in 2000 prices.

5. Concluding remarks

The results of this analysis are summarized in Tables 21 to 23. Table 21 gives an indication how average subsidies of the different racial groups compared to that of whites (because they are used as the control group with an index value of 100), Table 22 portrays the total subsidy amounts paid to the different racial groups, while Table 23 gives an indication whether the average subsidies kept up with inflation.

Table 21
Index of average subsidy according to racial group

	Method used					
	Headcount	Headcount (contact)	FE	FE (contact)	FE (Ns&Ss)	FE (Ns&Ss contact)
African 2000	103.4	97.0	97.9	92.6	87.6	82.2
African 2006	94.9	89.9	93.7	90.3	88.1	84.3
Indian 2000	108.5	116.7	103.8	105.3	104.7	108.0
Indian 2006	96.9	107.3	99.5	105.5	100.8	107.9
Coloured 2000	105.6	102.6	99.5	93.4	90.4	84.9
Coloured 2006	103.8	97.6	101.2	97.3	92.0	87.8
White 2000	100.0	100.0	100.0	100.0	100.0	100.0
White 2006	100.0	100.0	100.0	100.0	100.0	100.0
Total 2000	102.9	99.2	98.9	95.2	92.4	88.6
Total 2006	96.9	94.2	96.2	94.1	92.2	89.9

The overall picture of Table 21 is that the subsidies of the African, coloureds and Indian students in general deteriorated slightly compared to the subsidy levels of whites. However, with the calculations for contact FE students according to field of study (last column in Table 21) it was found that either the other racial groups' relative situation improved over time or they received higher subsidies than the white group. The same conclusion can be made for all FE students according to field of study. With the calculations for contact students the results indicate that Indian students in general received the highest subsidies, but never more than 8% above the subsidies of whites. White and Indian students received the highest subsidies when field of study is taken into consideration. To a large extent this can be explained by a larger percentage of these two racial groups that took programmes in natural sciences who received a subsidy 2½ times that of students in social sciences. With these calculations it was also found that Africans on average received the lowest subsidies, slightly lower than those of coloureds. The biggest

difference between African and white subsidies (FE contact students with field of study incorporated) was the 17.8% in 2000, but that gap decreased to 15.7% in 2006. Another explanation for the difference in subsidies received by the respective racial groups can be found in the higher subsidies that were paid to universities relative to technikons in 2000. In the new education setup the different subsidies paid to the comprehensive universities and the universities of technology and the remaining technikon did not play as an important role although it was significant in the calculation of the subsidies of contact FE students according to field of study.

Table 22
Total subsidy paid to racial groups

	Method used					
	Headcount	Headcount (contact)	FE	FE (contact)	FE (Ns&Ss)	FE (Ns&Ss contact)
African 2000	4 001 926 070	3 623 717 599	4 001 926 070	3 428 662 165	3 709 984 902	3 180 586 682
African 2006	5 988 674 845	5 054 131 111	5 988 674 845	5 315 217 685	5 877 771 665	5 223 764 662
<i>[2000 prices]</i>	<i>4 472 498 018</i>	<i>3 774 556 468</i>	<i>4 472 498 018</i>	<i>3 969 542 707</i>	<i>4 389 672 632</i>	<i>3 901 243 213</i>
Indian 2000	454 265 275	392 581 436	454 265 275	377 079 574	504 890 689	421 611 678
Indian 2006	744 164 206	648 219 741	744 164 206	630 883 026	786 050 088	679 413 397
<i>[2000 prices]</i>	<i>555 761 170</i>	<i>484 107 349</i>	<i>555 761 170</i>	<i>471 159 840</i>	<i>587 042 635</i>	<i>507 403 582</i>
Coloured 2000	358 412 545	320 766 110	358 412 545	311 752 678	340 052 570	295 132 562
Coloured 2006	704 834 510	638 041 427	704 834 510	637 054 980	668 665 524	603 770 881
<i>[2000 prices]</i>	<i>526 388 730</i>	<i>476 505 920</i>	<i>526 388 730</i>	<i>475 769 216</i>	<i>499 376 791</i>	<i>450 911 785</i>
White 2000	1 725 893 110	1 507 831 855	1 725 893 110	1 425 837 833	1 985 568 839	1 646 001 328
White 2006	2 598 229 438	2 395 966 820	2 598 229 438	2 281 861 912	2 703 415 733	2 420 964 353
<i>[2000 prices]</i>	<i>1 940 425 271</i>	<i>1 789 370 291</i>	<i>1 940 425 271</i>	<i>1 740 153 780</i>	<i>2 018 981 130</i>	<i>1 808 039 098</i>
Total 2000	6 540 497 000	5 844 897 000	6 540 497 000	5 543 332 250	6 540 497 000	5 554 332 250
Total 2006	10 035 903 000	8 736 359 099	10 035 903 000	8 865 017 602	10 035 903 000	8 927 913 292
<i>[2000 prices]</i>	<i>7 495 073 189</i>	<i>6 524 540 029</i>	<i>7 495 073 189</i>	<i>6 620 625 543</i>	<i>7 495 073 189</i>	<i>6 667 597 679</i>

As stated above, Table 22 gives the total subsidies that were paid to the different racial groups with the different calculation methods used. The figures in 2006 are also given in 2000 prices to make it directly comparable with the values calculated for 2000. When the data for 2000 and 2006 (in constant 2000 prices) are compared it is clear that in real terms the education subsidy for all racial groups increased during this time period. This may give the impression that the relative financial position of students improved over time. This, however, overlooks the important issue of what happened with student numbers during this same period.

This variable is incorporated in Table 23 where the average subsidy per racial group for the two years is portrayed. Values for 2006 are given in constant 2000 prices. The general message from Table 22 is that in real terms subsidies per student decreased almost across the board. Although there are a few exceptions, subsidies to students at HEIs in South Africa did not keep up with inflation. This had the effect that, in order to balance their books, HEIs in South Africa increased tuition fees by more than the inflation rate (see research report by Steyn and De Villiers, 2006). This makes access to and the affordability of higher education for the poor a contentious issue. Although this issue falls outside the scope of this report, it is not something that can be ignored.

Table 23
Value of average subsidy according to racial group (in constant 2000 prices)

	Method used					
	Headcount	Headcount (contact)	FE	FE (contact)	FE (Ns&Ss)	FE (Ns&Ss contact)
African 2000	10 769	13 147	15 701	19 002	15 041	18 125
African 2006	9 914	13 112	14 670	17 148	14 381	16 886
Indian 2000	11 306	15 825	16 644	21 625	17 992	23 821
Indian 2006	10 131	15 644	15 569	20 043	16 461	21 606
Coloured 2000	10 995	13 914	15 965	19 168	15 523	18 727
Coloured 2006	10 845	14 225	15 839	18 476	15 030	17 572
White 2000	10 413	13 557	16 040	20 532	17 178	22 052
White 2006	10 451	14 582	15 654	18 989	16 331	20 021
Total 2000	10 720	13 445	15 866	19 548	15 867	19 548
Total 2006	10 126	13 735	15 058	17 870	15 058	17 997

The overall picture is that white and Indian students received in general higher subsidies than African or coloured students. It can, however, to a large extent be explained by field of study and if more African and coloured students study in natural sciences the subsidy levels will move even closer to each other. What we see here in higher education is to a large extent a result of what is happening in the school system. Not enough African and coloured learners take mathematics and science to qualify to study courses in natural sciences. Before this issue is not corrected at school level, average subsidies of Indian and white students will stay higher than that of African and coloured students.

Appendix A

Number of students per racial group

	Method used					
	Headcount	Headcount (contact)	FE	FE (contact)	FE (Ns&Ss)	FE (Ns&Ss contact)
African 2000	371 618	275 630	254 884	180 434	246 662	175 480
African 2006	451 108	287 878	304 875	231 487	305 243	231 039
Indian 2000	40 179	24 808	27 294	16 264	28 061	17 699
Indian 2006	54 859	30 946	35 696	23 508	35 663	23 484
Coloured 2000	32 597	23 054	22 449	17 437	21 906	15 758
Coloured 2006	48 538	33 497	33 234	25 751	33 225	25 660
White 2000	165 737	111 220	107 600	69 445	115 586	74 642
White 2006	185 668	122 712	123 955	89 744	123 628	90 305
Total 2000	610 131	434 712	412 227	283 581	412 216	283 580
Total 2006	740 173	475 033	497 759	370 489	497 759	370 488