RESEARCH AND DEVELOPMENT OF A HIGHER EDUCATION PRICE INDEX FOR SOUTH AFRICA

Study commissioned by

HIGHER EDUCATION SOUTH AFRICA (HESA)

Study conducted by

BUREAU OF MARKET RESEARCH
College of Economic and Management Sciences
University of South Africa

BMR project CR055 **October 2014**

UNISA bureau of market research

RESEARCH AND DEVELOPMENT OF A HIGHER EDUCATION PRICE INDEX FOR SOUTH AFRICA

Study commissioned by

HIGHER EDUCATION SOUTH AFRICA (HESA)

Study conducted by

CJ van Aardt (DBA)
R Olivier (BCom)

BUREAU OF MARKET RESEARCH
College of Economic and Management Sciences

Pretoria
October 2014

EXCLUSION OF CLAIMS

Despite all efforts to ensure accuracy in the assembly of information and data or the compilation thereof, the Bureau of Market Research or Unisa is unable to warrant the accuracy of the information, data and compilations as contained in this report. Readers are deemed to have waived and renounced all rights to any claim against the abovementioned institutions and their officers for any loss or damage of any nature whatsoever arising from the use or reliance upon such information, data or compilations.

ACKNOWLEDGEMENTS

The following people and institutions are acknowledged for their inputs during the various phases of the research project:

- Higher Education South Africa (HESA) for awarding the study to the BMR and for the trust placed in the BMR research team.
- Dr Marianne Engelbrecht from HESA for her project management on behalf of HESA and for managing the data collection process.
- Dr Berene Kramer from HESA for her project management on behalf of HESA during the later stages of the project.

Bureau of Market Research

- Ms Erna Koekemoer for typing the research proposal and project report.
- Ms C Kemp for editing the research proposal and project report.

TABLE OF CONTENTS

CHAPTER 5: OVERVIEW, CONCLUDING REMARKS AND RECOMMENDATIONS

LIST OF TABLES AND FIGURES

Table **Page**

Figure

CHAPTER 1

INTRODUCTION, OBJECTIVE AND METHODOLOGY

1.1 INTRODUCTION

Prices on goods and services seldom remain static for long periods of time. Price inflation and price deflation happen continuously with the result that the prices of commodities, goods and services changes continuously. The Ministerial Committee for the review of the funding of universities (DHET 2013) indicated in this regard that such price increases have a strong impact on higher education institutions, and here especially in light of the fact that price increases at higher education institutions are often higher than the general CPI.

Price indices are being used worldwide to determine price inflation or deflation on various commodities, products and services. Such price inflation or deflation is brought about by a large number of factors which could be broadly classified into two main categories, namely (1) *demand driven* price inflation and (2) *supply driven* price inflation. Universities are also subject to both demand and supply driven price inflation or inflation, i.e. supply driven price increases resulting from higher rates and taxes and demand driven inflation resulting from paper price increases due to higher consumer demand for paper driving up prices. Upon determining price increases or decreases by higher education institutions, the question could be asked as to which price indices should be used to determine the velocity of such increases. The one option is to use the national consumer price index (CPI). This could, however, be problematic due to the fact that a specific higher education institution's price growth could be substantially higher or lower than the CPI. The other option is the praxis option where price increases are determined solely by supply and non-supply driven increases or decreases in the prices of commodities, goods and services used by higher education institutions. This could be problematic due to the fact that the praxis option often gives rise to diminished market share due to service prices increasing quicker than market clearing prices. With this in mind this study will focus on determining the actual price indices of the various higher education institutions in South Africa to determine the level thereof as well as whether such increases are higher, lower or equal to CPI increases in South Africa.

1.2 OBJECTIVE

The Bureau of Market Research (BMR) at Unisa over the years developed expertise in constructing and populating higher education institution price indices, i.e. the BMR has developed and populated a Unisa Price Index (UPI) for the past seven years. The UPI is based on the guidelines of the United Nations' International Labour Organization (ILO) for the compilation of price indices. Such guidelines are being used by statistical agencies, economic research units and economists worldwide to calculate price inflation indices. The UPI is based on three sources of data, namely Unisa's actual or budgeted expenditure per expenditure category, the contribution of each of the expenditure categories to total expenditure and price growth per expenditure category. The UPI is calculated by calculating the sum of the contribution of each expenditure category times the price growth of each expenditure category. The UPI over the seven years it has been calculated has been found to be a good predictor of price inflation and/or deflation and as being of high value in determining the level of student fee and government subsidy increases required to ensure sufficient funds to cover Unisa expenditures.

For the purposes of this study the ILO (United Nations) price index methodology as applied to the UPI was applied to all higher educational institutions in South Africa in order to arrive at higher education price indices per higher education institution as well as a combined price index for all higher education institutions together in South Africa. Not only was a higher education price index compiled for 2013 but also for the period 2004 to 2012 based on the 2013 price index results.

In terms of the Terms of Reference Provided by Higher Education South Africa (HESA) the aim to be achieved by the Higher Education Price Index was as follows:

> *Vice Chancellors of Higher Education South Africa (HESA) and its Finance Executives Forum (FEF) have expressed concern regarding the disparity between the rise of operating costs compared to government subsidies and the rise in student fees. International evidence and local anecdotal substantiation show that inflation as calculated using the Consumer Price*

Index (CPI)is usually lower than actual cost increases in higher education. This suggests that if the CPI is used to adjust nominal operational funds, including government subsidies, then the real purchasing power of these funds decline over time.

Such a higher education price index, which is input-based, will provide HESA with the information it requires when negotiating with government on the funding needed to deliver the same level of services as before. However, if it is decided to use the salary cost supplied by the HEIs in the index (this is the largest cost item), government could raise the concern that the index is self-referential. In this case, it is proposed that consideration be given to also provide an alternative version of the index, where the salary cost is sourced independently of HEIs.

1.3 METHODOLOGY

In order for the information needs of HESA to be addressed and for the price index which was developed for the purposes of this project to be acceptable to the Department of Higher Education, the National Treasury and the Price statistics specialists at Statistics South Africa, the final price index has to comply to a few basic minimum guidelines, namely:

- It has to be compiled in terms of the ILO Consumer Price Index manual which provides guidelines on international standards pertaining to the construction of price indices.
- Each higher education institution's expenditure and budget data has to be obtained in a sufficiently detailed level so that the meaning of each expenditure category, each expenditure group and each expenditure line item are clear.
- The expenditure groups have to be reconstructed from the line item data provided by the different higher educational institutions according to the Classification of individual consumption expenditure according to purpose (COICOP) structure.
- The expenditure and price definitions used in this study are based on the

System of National Accounts (SNA).

- The resulting index has to be econometrically identified against other available price statistics to ensure an end result of greatest likelihood.

As indicated above the methodology used in the proposed index construction was based on the ILO (United Nations) price index construction methodology as described above. The ILO methodology has been described in detail in a 2004 ILO report entitled *Consumer price index manual: theory and practice* and is being applied worldwide as indicated above. In terms of this manual a price index is an index that reflects the rate at which prices of goods and services change from period 1 to period 2. The ILO indicates that the usual way for calculating a price index is by taking the average of period-to-period price changes for different expenditure groups while using as weights the average amount spent per expenditure group.

This methodology was operationalised in this study by firstly obtaining the detailed expenditure figures from all the higher education institutions in South Africa for 2011, 2012 and 2013 as well as budgeted figures for 2014. Such data was perused and cleaned for modelling purposes.

This process entailed the following: During November and early December 2013 the Bureau of Market Research (BMR) compiled a detailed higher education expenditure matrix, which was to be populated by all higher education institutions. The HESA office distributed this matrix for perusal and comment to all higher education institutions during middle of January 2014 so that this matrix could be finalised and sent out to all higher education institutions for completion as expeditiously as possible. Because very few responses were obtained by the end of January 2014, the HESA Office sent a reminder which ensured that by early February 2014 a sufficient number of responses were obtained to revise the template based on comments received. The said expenditure template was dramatically revised based on the comments received.

The revised template was discussed with various Higher Education Institutions during February 2014 and was submitted to the 3 March HESA Financial Executives Forum

for discussion. During this discussion valuable inputs were obtained which were then used to finalise the Higher Education Expenditure Template. The said template was finalised during March 2014 where after it was distributed by the HESA office to Higher Education Institutions for completion. Up to Friday 24 April 2014 a total of 18 completed templates were received, one promise was received for the submission of a completed template by 29 April 2014 with only four templates still outstanding (see details in table 1 below).

All provinces containing higher education institutions are well covered with the exception of KwaZulu-Natal where only one of the four higher education institutions submitted responses after repeated follow-ups. This makes it difficult to extrapolate provincial trends in the case of KwaZulu-Natal and to compare these with the higher education price results of the other provinces, where high response rates per province were obtained.

Even though all completed templates have not been received, the 18 templates received by 24 April were thoroughly scrutinised to ensure that they comply with the requirements for well completed templates. Although some problems were identified with the way in which some templates were completed, a decision was taken not to return those templates for revision but rather for the BMR to adapt these completed templates to ensure that the current positive level of buy-in from Higher Education Institutions is not compromised.

During May 2014 the actual data analysis and composition of a Higher Education Price Index, based on the completed templates received, was completed. The results were presented to the HESA Financial Executive Committee meeting on 2 June 2014 for final feedback. After this presentation, the feedback received from the Financial Executive Committee meeting on 2 June 2014 was used by the BMR to compile this first draft project report during June 2014. This report, based on comments received during July 2014 will be reworked during July 2014 with the aim of submitting a revised draft report to HESA by middle August 2014, which will allow the HESA Financial Executive Committee to peruse and comment on this document before the Higher Education Price Index report can be finalised by September 2014.

TABLE 1.1

HIGHER EDUCATION EXPENDITURE TEMPLATE FEEDBACK RECEIVED ON THE UNIVERSITY EXPENDITURE TEMPLATE

	Institution	Data received
1.	Nelson Mandela Metropolitan University	Yes
2.	North-West University	Yes
3.	Rhodes University	Yes
4.	University of Cape Town	Yes
5.	University of Ford Hare	Yes
6.	University of Johannesburg	Yes
7.	University of KwaZulu-Natal	No
8.	University of Limpopo	Yes
9.	University of Pretoria	Yes
10.	University of South Africa	Yes
11.	University of Stellenbosch	Yes
12.	University of the Free State	Yes
13.	University of the Western Cape	Yes
14.	University of the Witwatersrand	Yes
15.	University of Venda	Yes
16.	University of Zululand	No
17.	Walter Sisulu University	Yes
18.	Cape Peninsula University of Technology	Yes
19.	Central University of Technology, Free state	Yes
20.	Durban University of Technology	No
21.	Mangosuthu University of Technology	Yes
22.	Tshwane University of Technology	Yes
23.	Vaal University of Technology	No

Having obtained the data the next step was to calculate the relative contribution of each expenditure group to the total expenditure of each university. This was done in terms of chapter 15 of the System of National Accounts (SNA) which provides equations and guidelines for determining the relative contribution of each expenditure group. Multi-year expenditure data is required for chaining the expenditure groups year-on-year per higher education institution to ensure a continuous rebasing of expenditure group weights.

The third step in the process was to obtain price growth statistics per expenditure group. This was obtained from the detailed Statistics South Africa Consumer Price Index (CPI) and Producer Price Index (PPI) data tables which are provided by Statistics South Africa in Spreadsheet format. Such price growth statistics were then used in the model in conjunction with the expenditure group data and expenditure group weights discussed above to produce the required higher education price indices. The necessary econometric analyses were conducted as described in the Terms of Reference to determine linkages between the HEPI and the CPI.

1.4 OUTLINE OF THE REPORT

In this chapter the background to this report, the objective of the study and the methodology used were shown. In chapter 2 a theoretical and empirical background to price indices will be supplied while chapter 3 focuses on the higher education baskets and chapter 4 provides an overview and discussion of the price index results of this study. Some concluding remarks are being provided in chapter 5.

CHAPTER 2

THEORETICAL AND EMPIRICAL BACKGROUND TO PRICE INDICES

2.1 INTRODUCTION

As indicated in the previous chapter the ILO (United Nations) price index construction methodology was used in this study to ensure a valid and reliable higher education price index as end product. This price index compilation methodology finds its expression in the United Nations, ILO, IMF, OECD, Statistical Office of the European Communities, World Bank and Office of National Statistics (2009) price index compilation guidelines as set out in their *Practical Guide to producing consumer prices.* According to the United Nations *et al* (2009) price indices measure changes over time in the prices of goods and services that households (including institutional households such as Higher Education Institutions) acquire for the purpose of use/consumption.

According to the United Nations *et al* (2009) price indices have various uses which are of relevance to the study under discussion. Maybe the most important use for the purpose of this study is that a price index is calculated for a specific group of households (i.e. institutional households such as higher education institutions) representing an index of price growth among such households.

2.2 THE ILO (UNITED NATIONS) PRICE INDEX COMPILATION GUIDELINES

According to the United Nations *et al* (2009) households (including institutional households) comprise of one or more individuals living together and sharing resources. The expenditures of such households including expenditure on accommodation, living costs and all other costs incurred by such households should be included in the price index calculated with respect to such households.

As the basis for the compilation of the expenditure baskets of institutional households the Classification of Individual Consumption According to Purpose (COICOP) taxonomy is being used. In terms of this expenditure basket taxonomy the top level (divisions) are groupings of expenditure reflecting purposes while the

lowest level (classes) presents the aggregation of expenditure items as product types. All COICOP items are classified as services, non-durable products, semi-durable products or durable products.

One of the major benefits of the COICOP classification structure is that it has become the international standard for price index structures which links up with the System of National Accounts (SNA). In the study under discussion expenditure groups were reconstructed from Higher Education Institution expenditure line items according to the COICOP structure. Furthermore, the expenditure and price definitions used in this study are based on the System of National Accounts (SNA). The completed price index was econometrically identified against other available price index statistics to ensure an end result of greatest likelihood. According to the United Nations *et al* (2009) such checks are required to ensure that reliable and valid price index results are generated by means of the price index compilation process.

2.3 APPLYING THE ILO (UNITED NATIONS) GUIDELINES IN THIS STUDY

The United Nations *et al* (2009) price index calculation guidelines were meticulously followed in this study to ensure that the final price index results conform to international price index standards. The actual process of compiling the 2013 Higher Education price index for South Africa was as follows:

- An expenditure matrix was constructed to be populated by the different HEIs.
- Detailed expenditure figures were obtained from all the higher education institutions in South Africa for 2011, 2012 and 2013 as well as budgeted figures for 2014.
- The relative contribution of each expenditure group to the total expenditure of each university was calculated.
- Price growth statistics per expenditure group were obtained from available CPI, PPI and wage growth sources.
- Price growth statistics were used in the higher education price index model in conjunction with expenditure group data and expenditure group weights discussed above to produce the required higher education price indices.

- The higher education price index outcome per institution was perused to determine whether the obtained results are estimates of greatest likelihood.
- The overall higher education price index was also checked for validity, reliability and structural integrity.

2.4 CONCLUDING REMARKS

In this chapter an overview of the United Nations *et al* (2009) price index calculation method was shown and discussed with respect to the way in which it was applied in the current study. The results obtained by means of this methodology will be provided in the following chapters.

CHAPTER 3

HIGHER EDUCATION EXPENDITURE BASKETS

3.1 INTRODUCTION

The price index results obtained by means of the expenditure matrix sent to higher education institutions for completion will be shown and discussed in this chapter as well as in chapter 4. While the focus in this chapter will be on the structure of the expenditure baskets of higher education institutions, the focus in chapter 4 will be on providing higher education price growth estimates of greatest likelihood for 2013 as well as historical higher education price growth statistics for the period 2004 to 2012.

3.2 THE EXPENDITURE BASKET STRUCTURE OF HIGHER EDUCATION INSTITUTIONS IN SOUTH AFRICA

Based on the results of 18 higher education institutions that provided the BMR with usable and detailed expenditure statistics, it was calculated that their total expenditure in 2013 was R31 768 billion (see table 3.1). It appears from this table that 6.1% of their expenditure was on non-durable goods, 1.9% on semi-durable goods, 1.9% on durable goods, 25.9% on services, 3.8% on fixed capital formation, 53.5% on staff expenses and 6.9% on other goods and services. While the average score for staff expenses as a percentage of total expenditure was at 53.5%, the staff expense shares for the responding higher education institutions differed between 28.1% and 78.4%. Of these institutions 7 of 18 (38.9%) showed staff expense to expenditure ratios below 0.6, 8 of 18 (44.4%) showed staff expense to expenditure ratios between 0.6 and 0.7, and 3 of 18 (16.7%) showed staff expense to expenditure ratios above 0.7.

TABLE 3.1

EXPENDITURE BASKETS OF HIGHER EDUCATION INSTITUTIONS WITH THE 'OTHER' CATEGORY NOT REDISTRIBUTED TO OTHER EXPENDITURE CATEGORIES AND WITH THE 'OTHER' CATEGORY REDISTRIBUTED

Expenditure category	HEIs ZAR	With other %	Without other %
Non-durable goods	1 951 728 269	6.1	6.6
Semi-durable goods	597 305 439	1.9	2.0
Durable goods	618 888 105	1.9	2.1
Services	8 222 151 923	25.9	27.8
Fixed capital formation	1 192 879 666	3.8	4.0
Staff expenses	17 006 843 695	53.5	57.5
Other	2 178 799 764	6.9	
Total	31 768 596 861	100.0	100.0

In table 3.2 a comparative analysis is being provided between the expenditure structures of households (to which the consumer price index (CPI)) pertain and the expenditure patterns of higher education institutions. It is evident from the figures provided in table 3.2 that there are large-scale differences in the expenditure baskets of higher education institutions and households, namely where 38.3% of household expenditure goes to non-durable goods (i.e. food, beverages, household fuel and water, household consumer goods, medical and pharmaceutical products and petroleum goods), the comparative figure for higher education institutions is only 6.3%.

While households spend on average 8.2% of their expenditure on semi-durable goods (i.e. clothing, footwear, household textiles, furnishings, glassware, motor car tyres, motor car parts and motor accessories), higher education institutions only spend 2.0% of their expenditure on such items.

For households the largest expenditure category is services (39.2%) while that of higher education institutions is staff expenses. It appears from available statistics that with respect to the majority of higher education institutions, the staff

expenditure to recurring income increased dramatically during the past two decades. In turn, staff expenditure price growth during this period in general was much steeper than that of other expenditure categories applicable to higher education institutions with the implication that price increases at higher education institutions during this period were substantially higher than households at large.

TABLE 3.2

EXPENDITURE BASKET COMPARISON BETWEEN HOUSEHOLDS AND HIGHER EDUCATION INSTITUTIONS, 2013

Expenditure category	HEIs (%)	Households (%)
Non-durable goods	6.6	38.3
Semi-durable goods	2.0	8.2
Durable goods	2.1	6.8
Services	27.8	39.2
Fixed capital formation	4.0	1.6
Staff expenses	57.5	6.0
Total	100.0	100.0

It is interesting to compare the expenditure basket of South African higher education institutions with such institutions worldwide. While staff expenses made up 57.5% (see table 3.2) of total expenses at South African universities, lower percentage contributions of staff expenditure to total expenditure were found at some international universities, i.e. during 2013 this percentage was 51.3% at the University of Oxford (2014), 49.2% at Macquarie University (2014) in Australia, 44.0% at Cambridge University (2014) and 41.3% at the University of Glasgow (2014). The implication of this is that, with staff expenses being a high price growth item, the price inflation of international universities should be somewhat lower than is the case in South Africa. However, the staff expenditure percentage of South African universities is comparable to some international universities i.e. 58.9% at the University of Sydney (2014) and 57.1% at the University of Chicago. The relatively high staff expenditure ratio in many United States universities also gave rise to above CPI increases at universities for a long period of time. Wadsworth (2012) indicates in

this regard that, while US CPI increased by 3% per annum on average during the period 1985 to 2011, higher education prices increased by an average of 7% per annum over this period. He indicates that while the overall US CPI during the period 1986 to 2011 increased by 115%, tuition CPI increased by 498%.

On request of the HESA's June 2014 Financial Executive's Forum a comparison was made of small, medium-sized and large higher education institutions. Originally enrolled funded credits with respect to students were considered as breakdown criteria into small, medium and large institutions. A breakdown of such credits per higher education institution is shown in table 3.2.

TABLE 3.3

ENROLLED FUNDED CREDITS BY HIGHER EDUCATION INSTITUTION, 2012

Code	Higher education institution	Abbre-viation	Contact	Distance	Total
H01	Cape Peninsula University of Technology	CPUT	24 706	142	24 848
H02	University of Cape Town	UCT	19 925	0	19 925
H03	Central University of Technology, Free State	CUT	9 561	184	9 745
H04	Durban University of Technology	DUT	18 159	0	18 159
H05	University of Fort Hare	UFH	9 967	0	9 967
H06	University of the Free State	UFS	20 237	3 082	23 320
H07	University of Johannesburg	UJ	37 349	0	37 349
H08	University of KwaZulu-Natal	UKZN	29 675	2 033	31 708
H09	University of Limpopo	UL	18 678	0	18 678
H10	Nelson Mandela Metropolitan University	NMMU	18 660	785	19 445
H11	North West University	NWU	28 264	11 347	39 611
H12	University of Pretoria	UP	35 272	4 871	40 143
H13	Rhodes University	RU	6 114	0	6 114
H14	University of South Africa	Unisa	56	172 248	172 304
H15	University of Stellenbosch	SU	22 193	0	22 193
H16	Tshwane University of Technology	TUT	35 932	919	36 850
H17	University of Venda	UNIVEN	8 122	0	8 122
H18	Vaal University of Technology	VUT	14 457	50	14 507
H19	Walter Sisulu University	WSU	20 347	0	20 347
H20	University of the Western Cape	UWC	15 366	0	15 366
H21	University of the Witwatersrand	Wits	22 644	0	22 644
H22	University of Zululand	UNIZUL	15 583	0	15 583
H25	Mangosuthu University of Technology	MUT	7 372	0	7 372
Total			**438 639**	**195 662**	**634 301**
Note: Contact students at Unisa is Huguenot College students, contract being phased out.					

Based on the enrolled funded credit information provided in table 3.3 above it was not possible to conduct a reliable and valid size breakdown of higher education institutions. To affect such a breakdown the 2013 expenditure information submitted by the various higher education institutions was used to affect the following breakdown in terms of size:

- smaller HEIS: annual 2013 expenditure less than R1 billion;
- medium-sized: annual 2013 expenditure of between R1 and R2 billion; and
- large: annual 2013 expenditure exceeding R2 billion.

Based on such expenditure criteria the size by higher education institution expenditure basket distribution as shown in table 3.4 was obtained. It appears from table 3.4 that higher education institutions with expenditure above R2 billion per annum spend percentage-wise more or services than small and medium-sized institutions while spending percentage-wise less on staff expenditure.

TABLE 3.4

PERCENTAGE EXPENDITURE BREAKDOWN BY SIZE OF INSTITUTION

Expenditure category	Expenditure R0-1 bn	Expenditure R1-2 bn	Expenditure R2+ bn	Total
Non-durable goods	5.6	6.2	6.4	6.3
Semi-durable goods	2.5	1.7	2.0	2.0
Durable goods	3.0	1.8	2.0	2.1
Services	17.6	18.8	32.0	27.9
Fixed capital formation	4.2	5.2	3.7	4.0
Staff expenses	67.1	66.3	53.8	57.7
Total	100.0	100.0	100.0	100.0

3.3 CONCLUDING REMARKS

In this chapter the focus was placed on the expenditure basket results from the responding higher education institutions. In chapter 5 the emphasis will be placed on the higher education price index results obtained by linking the expenditure basket information reflected in this chapter with available price growth statistics.

CHAPTER 4

OVERALL HIGHER EDUCATION PRICE INDEX RESULTS

4.1 INTRODUCTION

This chapter will focus on the higher education price index results obtained in the study under discussion. A specific focus will be placed on the price index results of different size institutions in order to reveal the impact of size and different expenditure distributions on higher education price growth (see table 3.4).

4.2 HIGHER EDUCATION PRICE INDEX RESULTS

The higher education price index results obtained from the research study under discussion are shown in tables 4.1 and 4.2 below. It appears from table 4.1 that the median price index score obtained for the 18 higher education institutions who provided the BMR with usable 2013 expenditure data was 7.62%, the mean score was 7.73% while the **higher education price index score** for these institutions was 7.5%. This provides a clear reflection that the 2013 higher education price index of 7.5% was substantially higher than the 2013 CPI of 5.7% (Statistics South Africa 2014). It further appears that 64% of the 18 responding institutions showed price index scores between 7.19% and 8.28% which are all substantially higher than the 2013 CPI figure shown above.

TABLE 4.1

HIGHER EDUCATION PRICE INDEX DESCRIPTIVE STATISTICS

Statistic	Percentage
Median	7.62
Mean	7.73
Standard deviation	0.55
64% minimum	7.19
64% maximum	8.28
HEPI	**7.50**

A breakdown of the higher education price index mean score and the overall higher education price index score by institution size is shown in table 4.2 below. It appears from this table that the highest mean scores and higher education price index scores were obtained with respect to smaller higher education institutions where the staff expenditure to expenditure ratios were the highest.

TABLE 4.2

MEAN HIGHER EDUCATION PRICE INDEX SCORES AND HIGHER EDUCATION PRICE INDEX SCORES BY INSTITUTION SIZE

Higher education institution 2013 expenditure category	Mean score	Higher education price index
Expenditure R0 – 1 billion	7.8	7.6
Expenditure R1 – 2 billion	7.7	7.5
Expenditure R2+ billion	7.6	7.4
Total	**7.7**	**7.5**

Having shown the higher education price index outcomes in the tables above, the question could be asked whether this index result differs from the consumer price index (CPI) which is often used for budgetary purposes. It appears from figures 4.1 and 4.2 below that historically there were large-scale differences between the CPI and the higher education price index which in practice meant that should higher education price and subsidy increases have been purely based on the CPI, higher education institutions would in effect have become much less well funded compared to the situation in 2005. As can be seen from figure 4.2 compared to 2004 there was already an 18 points (11.3%) price gap between the CPI and the higher education price index. The implication of this figure for higher education institutions is that for each year that the price growth of higher education institutions are in nominal terms higher than the CPI, the CPI-higher education price index gap will keep on widening to the detriment of the financial positions of higher education institutions. Although this funding gap can potentially be bridged by those higher education institutions with divergent and growing alternative income streams, higher education institutions with less divergent and growing alternative income streams will be under mounting pressure.

FIGURE 4.1

CPI AND HEPI OUTCOMES, 2005 TO 2014

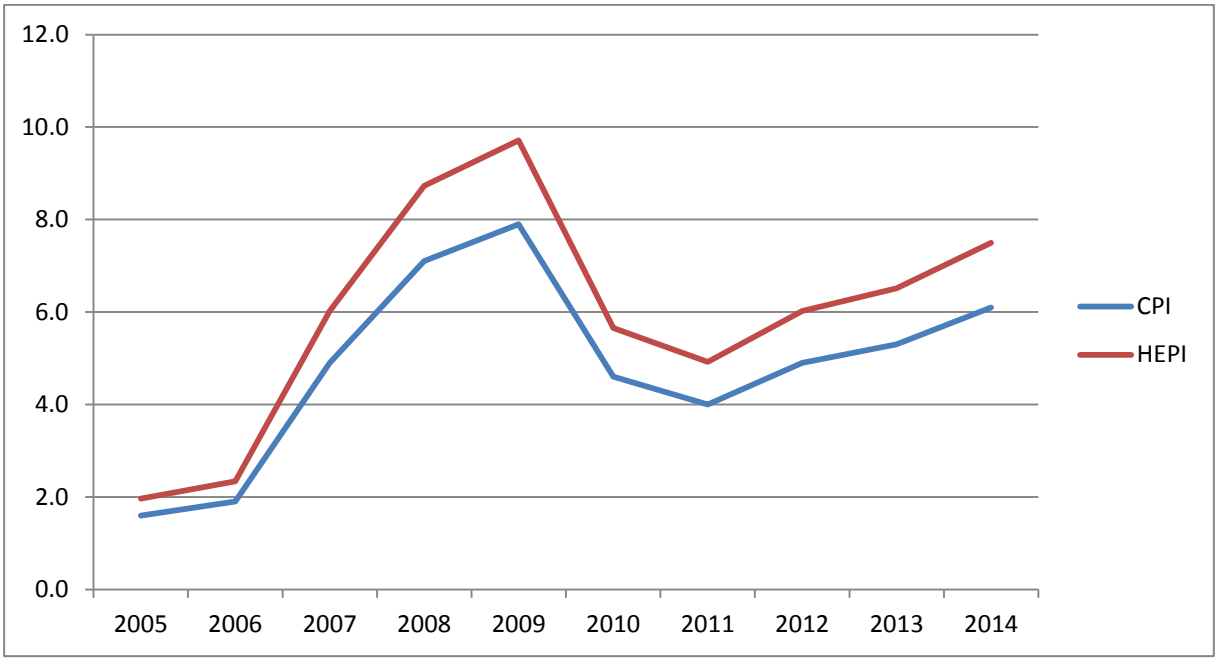
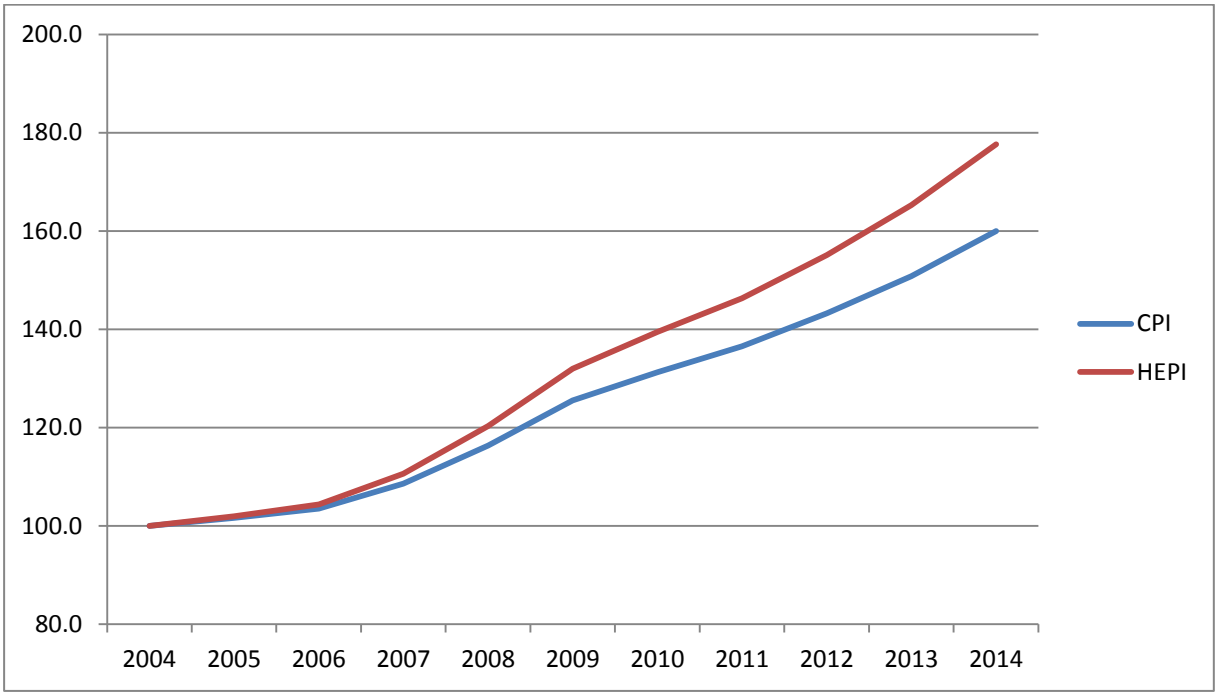


FIGURE 4.2

CPI AND HEPI OUTCOMES, 2004 TO 2014 (2004 AS BASE YEAR = 100)



4.3 DISCUSSION OF HIGHER EDUCATION PRICE INDEX RESULTS

It is evident from the higher education price index of 7.5 provided for the 18 responding higher education institutions that higher education price inflation is substantially higher than the national 2013 CPI of 5.7. This finding has various important implications for higher education institutions, namely:

- higher education institutions should ensure that their income streams are sufficiently growing and diversified to ensure that sufficient finances are available to cover continuous above CPI price growth;
- given the central place of higher education in the National Development Plan (NDP) in order to ensure higher levels of employment and economic growth as well as poverty reduction and given the plan to increase the number of university entrants dramatically over the next ten years as mooted in the June 2014 State of the Nation address, sufficient financial resources should be provided by the National Treasury to cater for both rapid higher education price and enrolment increases; and
- above CPI price increases at higher education institutions bring about systematic risks which need to be mitigated. The rapid growth in staff expenditure to recurring income ratios at the majority of higher education institutions as well as the decreasing reserve margin between income and expenditure at such institutions are indicative of increasing solvency risks at higher education institutions.

4.4 IMPLICATIONS OF HIGHER EDUCATION PRICE INDEX RESULTS

The first implication of the relatively high higher education price index is that something needs to be done to address increasing cost-push risks to higher education institutions in South Africa. The interventions required should come from the higher education institutions, the government as well as the interface between higher education institutions and government. An example of this is the fact that while the National Treasury indicated that the University education budget allocation will increase from R30.448 billion in 2014/2015 to R34.616 billion in 2016/2017 (constituting a 13.4% increase over this period), in terms of the higher education

price index information shown in this report the increase should have been to R35.186 billion in 2016/2017 constituting a 15.6% increase over this period (National Treasury 2014). The implication of such lower than required provision over the long-term would impact negative towards the attainment of a variety of unemployment reduction, poverty reduction, higher GDP growth, stepped-up human capital formation and a larger highly skilled skills pool in South Africa as envisaged by the NDP.

The second implication is that higher education institutions are increasingly underfunded, creating systemic (political, economic and social) problems for South Africa as a whole, given the pressing need for mass education to urgently address the NDP's triple challenge of poverty, inequality and unemployment. It appears from the Quarter 2, 2014 Quarterly Labour Force Survey (Stats SA 2014) that, while the labour market absorption rate of the higher educated was 77.5% in Quarter 2, 2014, the comparable figure was 50.4% for people with a matric as highest qualification. This clearly shows the positive impact of higher education on labour absorption. Among graduates the labour absorption rate was even higher, as is reflected by the very low unemployment rate of about 5% among graduates in 2013 (Van den Berg 2013).

The third implication is that chronic underfunding could impact negatively on demographic transformation within the higher education sector. While it is widely known that there are still a fairly limited number of black full professors within higher education institutions and the demographic transformation of higher education institutions is being strongly driven by the Department of Higher Education and Training, sufficient funds should be available to boost such transformation. Additional funding in this regard is of vital importance to drive stepped-up skills development, mentorships, cooperative education, exposure to international research opportunities and sitting-by-Nellie human resources practices.

A fourth implication is that chronic underfunding also impacts negatively on innovation activities at universities. In terms of the Industrial Policy Action Plan (IPAP) developed by the Department of Trade and Industry (dti), innovation is of vital importance to ensure commodity beneficiation in South Africa in order to stimulate

growth in the manufacturing sector. Innovation and manufacturing have been stagnating in South Africa for quite some time for a number of reasons, including chronic underfunding giving rise to below-optimal economic and employment growth in South Africa.

The final implication, which links up with recommendations made in the report of the Ministerial Committee for the review of the funding of universities (DHET 2013), is that not all universities are equally underfunded. Higher education institutions could be placed on a spectrum from fairly well-resourced universities to completely underfunded universities struggling to survive financially. However, due to the fact that higher education inflation is substantially higher than CPI, as was indicated in this report, some of the more well-resourced universities are slipping on the said spectrum in the direction of underfunding. As pointed out by the DHET (2013) the state budget for higher education as a percentage of GDP was 0.75% during 2011, which is substantially lower than the OECD percentage of 1.21% and the world average of 0.84%. Given the higher education transformation agenda and given the NDP development imperatives and the role that the higher education sector plays in realising such imperatives, a higher state higher education budget to GDP ratio is of great importance.

4.5 CONCLUDING REMARKS

The focus in this chapter was on the higher price index results obtained by means of the research conducted for the purposes of this study. This report will conclude with an overview, concluding remarks and recommendations being provided in chapter 5.

CHAPTER 5

OVERVIEW, CONCLUDING REMARKS AND RECOMMENDATIONS

5.1 OVERVIEW

In terms of the Terms of Reference Provided by Higher Education South Africa (HESA) the aim to be achieved by the Higher Education Price Index project was to investigate anecdotal evidence that higher education price increases are substantially higher than the national CPI by constructing a higher education price index and comparing the higher education price index results with national CPI figures. To address HESA's higher education price index information needs and to ensure that the price index which developed for the purposes of this project is acceptable to the Department of Higher Education, the National Treasury and the Price statistics specialists at Statistics South Africa, the final price index had to comply to a few basic minimum guidelines which were indicated earlier in this report but include inter alia that that it had to be compiled in terms of the United Nations Consumer Price Index manual which provides guidelines on international standards pertaining to the construction of price indices.

This methodology was operationalised in this study by firstly obtaining the detailed expenditure figures from all the higher education institutions in South Africa for 2011, 2012 and 2013 as well as budgeted figures for 2014. Such data was perused and cleaned for modelling purposes. Having obtained the data the next step was to calculate the relative contribution of each expenditure group to the total expenditure of each university. The third step in the process was to obtain price growth statistics per expenditure group. This was obtained from the detailed Statistics South Africa Consumer Price Index (CPI) and Producer Price Index (PPI) data tables which are provided by Statistics South Africa in Spreadsheet format. Such price growth statistics were then used in the model in conjunction with the expenditure group data and expenditure group weights discussed above to produce the required higher education price indices.

Based on the results of 18 higher education institutions that provided the BMR with usable detailed expenditure statistics, it was calculated that their total expenditure in

2013 was R31 768 billion. About 6.1% of their expenditure was on non-durable goods, 1.9% on semi-durable goods, 1.9% on durable goods, 25.9% on services, 3.8% on fixed capital formation, 53.5% on staff expenses and 6.9% on other goods and services. While the average score for staff expenses as a percentage of total expenditure was at 53.5%, the staff expense shares for the responding higher education institutions differed between 28.1% and 78.4%. Of these institutions 7 of 18 (38.9%) had staff expense to expenditure ratios below 0.6, 8 of 18 (44.4%) had staff expense to expenditure ratios between 0.6 and 0.7 and 3 of 18 (16.7%) had staff expense to expenditure ratios above 0.7.

It appears from a comparative analysis between the expenditure structures of households (to which the consumer price index (CPI) pertain) and the expenditure patterns of higher education institutions that there are large-scale differences in the expenditure baskets of higher education institutions and households, i.e. where households' largest expenditure category is services (39.2%) that of higher education institutions is staff expenses.

It appears from the higher education price index results shown in this report that the median price index score obtained for the 18 higher education institutions which provided the BMR with usable 2013 expenditure data was 7.62%, the mean score was 7.73% while the higher education price index score for these institutions was 7.5%. This provides a clear reflection that the 2013 higher education price index of 7.5% was substantially higher than the 2013 CPI of 5.7%. It further appears that 64% of the 18 responding institutions showed higher education price index scores between 7.19% and 8.28% which are all substantially higher than the 2013 CPI of 5.7%. This finding has various important implications for higher education institutions, i.e. higher education institutions should ensure that their income streams are sufficiently growing and diversified to ensure that sufficient finances are available to cover continuous above CPI price growth while higher than CPI price increases at higher education institutions bring about systematic risks which need to be mitigated.

5.2 CONCLUDING REMARKS AND RECOMMENDATIONS

Having provided the background to the higher education price index study as requested by HESA, the methodology used as well as the results of this study in this report, the question remains as to the ways in which the information supplied can be useful to higher education institutions. Based on past experience regarding the use of price index information the following can be recommended:

- This report needs to be peer reviewed by price index compilation experts together with the data on which it is based.
- The final report needs to be submitted to the various higher education institutions, the DHET and the National Treasury for perusal and comment.
- There should be engagements between HESA, the DHET and the National Treasury to ensure that the results of this report find implementation in national budgeting practice.
- Follow-up research should be conducted to monitor the CPI-HEPI gap and the implications of this gap for the financial stability of higher education institutions.

BIBLIOGRAPHY

Cambridge University. 2014. *Consolidated income and expenditure account for the year ended 31 July 2013.* Cambridge: Cambridge University.

Department of Higher Education and Training. 2013. *Report of the Ministerial Committee for the review of the funding of universities.* Pretoria: DHET.

DHET, see Department of Higher Education and Training.

Macquarie University. 2014. *Income statement.* North Ryde: Macquaire University.

National Treasury. 2014. *Budget 2014: Estimates of national expenditure.* Pretoria: National Treasury.

Statistics South Africa. 2014. *Consumer price index 2014.* Pretoria: Statistics South Africa.

Statistics South Africa. 2014. *Quarterly Labour Force Survey Quarter 2, 2014.* Pretoria: Statistics South Africa.

Stats SA, see Statistics South Africa.

United Nations, ILO, IMF, OECD, Statistical Office of the European Communities, World Bank and Office for National Statistics United Kingdom. 2009. *Practical guide to producing consumer price indices.* New York and Geneva: United Nations.

University of Chicago. 2014. *Consolidated statements of activities: Years ended June 30, 2013 and 2012.* Chicago: University of Chicago.

University of Glasgow. 2014. *Consolidated income and expenditure account for the year ended 31 July 2013.* Glasgow: University of Glasgow.

University of Oxford. 2014. *Consolidated income and expenditure statement.* Oxford: University of Oxford.

University of Sydney. 2014. *Income statement for the year ended 31 December 2013.* Sydney: University of Sydney.

Van den Berg, S. 2013. *Graduate unemployment in South Africa: A much exaggerated problem.* Parktown: The Centre for Development and Enterprise.

Wadsworth, GH. 2012. *Sky rocketing college costs.* [Online]. Available: www.inflationdata.com