THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Commentary on issues of higher education and research

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It's time to start investing properly in our universities

In the first issue of *Commentary* (www.auckland.ac.nz/commentary) we considered the characteristics of leading research universities, why some such institutions ought to be supported and encouraged in New Zealand and the significant investment they require. The reality in New Zealand, however, is that over the last two decades we have seen a marked decline in investment per student in our university system. That reduction in annual investment has now reached close to a quarter of a billion New Zealand dollars a year which, if it continues, will inevitably impact on quality. University funding must reflect the true costs of these institutions if we are to create genuinely world class universities.

The recent history of university funding in New Zealand can be divided into two periods. From 1990 to 2000, government tuition subsidy rates fell consistently in real terms. University Councils had the opportunity to increase student fees to compensate for reducing government funding, though they rarely did so to the extent required to maintain a stable funding base because of pressures from student representatives and concern about the impact of increased fees on students. Since 2000, government has controlled both subsidy rates and the maximum tuition fees universities may charge students (the "the fees maxima"), and has used estimates of the Consumer Price Index (CPI) as a guide in adjusting them. However, while this is an improvement on earlier policies, the CPI underestimates university costs and its use has contributed to the continued diminution of university funding in real terms. It is important to understand why this is so given that many people, both inside and outside government, continue to advocate for the CPI as the appropriate measure of university cost inflation. The same effect has been apparent in the polytechnics and wānanga, making this a system-wide issue, though our analysis will be concerned with the universities.

Why CPI underestimates university costs

The Consumer Price Index measures the rate of change in the prices of goods and services purchased by households. It does this by obtaining, from retail outlets in fifteen urban centres, the prices of a representative basket of household goods and services. The composition of the basket is determined by weightings derived mainly from the Household Economic Survey[1]. After a review in 2006, the weightings shown in Table 1 were adopted.

There is obviously some overlap between the goods and services purchased by households and those purchased by universities. However, several areas of expenditure which are significant for households – food, alcohol and tobacco, and recreation, for example – hardly feature at all as costs for universities, while some of a university's most significant costs – books and academic journals, scientific equipment, chemicals and consumables, and photocopying, for example – are not common household purchases. More importantly, salaries do not feature at all in the CPI, yet just under 60 percent of costs in New Zealand universities, polytechnics

Table 1: CPI weightings	
Food	17%
Alcohol and tobacco	7%
Clothing and footwear	5%
Housing and household utilities	20%
Household contents and services	5%
Health	5%
Transport	17%
Communication	3%
Recreation and culture	10%
Education	2%
Miscellaneous goods and services	7%
Total	100%

1 www2.stats.govt.nz/domino/external/pasfull/pasfull.nsf/4c2567ef00247c6a4c2567be0008d2f8/4c2567ef00247c6acc257203001390a4?OpenDocument

and wānanga are salaries and related costs[2]. Similar figures are reported from Australia[3].

Because, as the Table 2 shows, labour costs are expected to move at a higher rate than CPI, it seems obvious that university costs must also increase at a rate greater than the CPI. And, indeed, this is the case.

In 2005, the government's Tertiary Advisory Monitoring Unit (TAMU) showed that personnel costs in New Zealand universities increased at 1.95 times the rate of the CPI from 1996 to 2005 (see Graph 1). A second study, conducted by The University of Auckland, used Statistics NZ data from the Quarterly Employment Survey (QES) for tertiary institutions specifically[12] and compared tertiary institution salaries with CPI over that period. Graph 2 on page 3 shows the movements since 1989 in the two indices. In 13 out of 16 years, earnings of tertiary education employees increased by more than the CPI and, since 1990, earnings have increased by 1.96 times the CPI overall. More recently, the multiplier has been close to 2.3.

A third study, by Scott and Scott[13] – often cited in support of the argument that CPI measures university costs – argued that "university" salaries increased at a lower rate relative to the CPI than the other studies. However, their results are likely to be less accurate than the other two studies, because: they included the highly inflationary period of the 1980s; they used data from the Labour Cost Index, which does not measure changes in labour costs arising from changes in the composition, skills, performance or productivity of a workforce; and they used data that covered a range of employment groups of which university employees constituted only a minority[14].

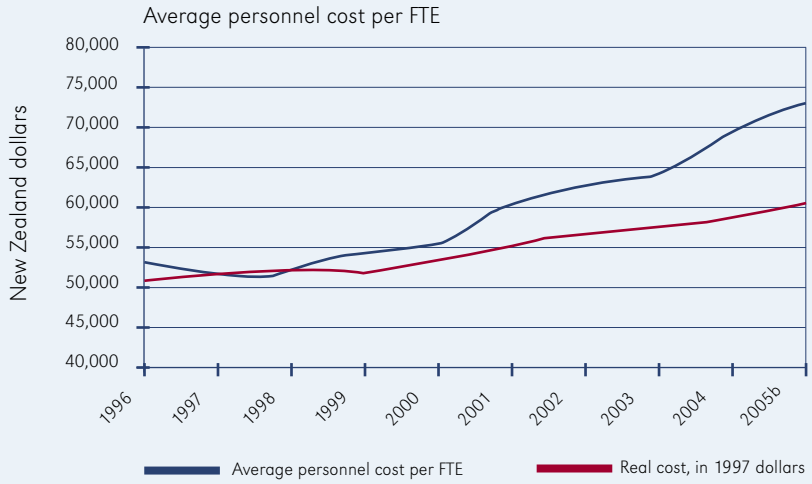
If salaries and related costs (60 percent of the total) increase at approximately twice the rate of the CPI, and other costs (40 percent of the total) are assumed to increase at approximately the same rate as the CPI[15], then university costs overall can be shown to be increasing at 1.6 times the rate of the CPI, ie: (60% x (2 x CPI)) + (40% x CPI) = 1.6 x CPI

It follows that when income is indexed to the CPI or below, these labour-intensive organisations are not being compensated for the real inflationary costs they face. University income is thus falling in real terms. This has been happening for 20 years despite agreement by university management, unions and government alike that salaries in the university sector are low, particularly for academic staff.

Table 2: Recent forecasts of CPI and wages movements

Source	Year to:	CPI forecast	Wages forecast	Wages multiple of CPI
Business NZ – June 07 Business Planning Forecast [4]	Jun 07	1.6-2.2%	3.1-3.2%	1.5-1.9
Westpac July 07 NZ Economic Overview [5]	Dec 07	2.6%	3.2%	1.2
BNZ Weekly Overview 16 August 07 [6]	Dec 07	3.0%	5.2%	1.7
National Bank July 07 Economic Forecasts [7]	Dec 07	2.5%	4.5% [8] 5.2% [9]	1.8 2.1
Reserve Bank June 07 Monetary Policy Statement [10]	Dec 07	2.5%	3.0%	1.2
Treasury May 07 BEFU [11]	Mar 08	2.7%	4.1%	1.5

Graph 1: Average personnel cost have increased 37 percent since 1996 – 19 percent is inflation and 18 percent is real growth



Inflation averaged 1.85 percent per year from 1996-2004. It would have had to have been 3.45 percent for the increase in personnel cost per FTE to be due solely to inflation.

2 Spreadsheet '2006 Performance by Individual TEI', available at www.tec.govt.nz/upload/downloads/tamu-performance-individual-tei-2006.xls

3 Spreadsheet 'Finance 2005' compiled by the Department of Education, Science and Training, available at www.dest.gov.au/sectors/higher_education/publications_resources/profiles/finance_2005_stats.htm

4 www.businessnz.org.nz/file/1270/070806%20Sep%2007%20Forecast.pdf

5 www.westpac.co.nz/olcontent/olcontent.nsf/content/FM_Economic_Overview_Q2/$FILE/QEOJul07.pdf

6 www.bnz.co.nz/binaries/W160807.pdf

7 www.nbnz.co.nz/economics/forecasts/pdf/QEF_Jul_2007.pdf

8 Private sector.

9 Public sector.

10 www.rbnz.govt.nz/monpol/statements/sep07.pdf

11 www.treasury.govt.nz/forecasts/befu/2007/

12 Average total (Ordinary + Overtime) Hourly Earnings for ANZSIC Industry N834100 Higher Education For New Zealand.

13 'University Income and Student Numbers between 1980 and 2002', W. G. and H. M. Scott, 2004.

14 The populations of workers whose wage movements are measured in the various indices used by Scott and Scott were: Dec 1980-Dec 1992: Central government sector, professional, technical and related workers; Dec 1992-Jun 2001: Teaching professions, all sectors combined; Jun 2001-Dec 2002: Education, all sectors combined.

15 Scott and Scott present data for the Producer Price Inputs Index for Education from its inception in 1996 to 2002, and show that over that period it increased at approximately the same rate as the CPI.

The effect of under-indexation since 1991

Table 3 shows changes in revenue from government tuition funding and student fees, and cost structure, for all universities during the periods 1991-2000, 2000-2006 and 1991-2006. Revenue from the Performance Based Research Fund (PBRF) is included in the 2006 figures because it was created by a transfer of government tuition subsidies.

During the 1990s, government policy led to the tuition subsidy per equivalent full time student (henceforth "student") falling by 14 percent in nominal terms (and much more in real terms). University Councils compensated for this by more than doubling student fees, but the combined effect was an increase in revenue per student of only 7 percent over the decade, against an estimated increase in university costs of 25 percent. In effect, university funding per student was cut by nearly 20 percent in real terms. To maintain total revenue per student at the same level in real terms over this period, fees would have had to rise to $5,059 per student, or by a further $1,749. Fees increases were almost exactly half the level that would have maintained revenue at the same level in real terms.

In the current decade, while it is recognised that there has been some attempt to reduce the rate of erosion of funding, this has been insufficient. Real revenue per student has continued to fall, but at a slower rate. Over 2000-2006, revenue per domestic student rose by 26 percent, 8 percent ahead of the CPI for the same period of time, but still 2 percent less than the estimated increase in university costs. Government funding per student rose by 33 percent, 15 percent more than the CPI and 5 percent more than university costs[18]. This limited real gain in revenue has, however, been more than offset by a 15 percent reduction in the real level of student fees, which have increased by only 13 percent per EFTS over this time compared with university costs increasing by 28 percent.

Because of the revenue lost through under-indexation of base subsidy rates and real reductions in student fees, real funding levels have continued to fall from 2000 to 2006 despite various government initiatives. The net result has been a real loss of revenue to the University sector of approximately $120m ($20m[19] annually) over the period 2000-2006.

Graph 2: CPI and QES (Tertiary Education) 1989-2005

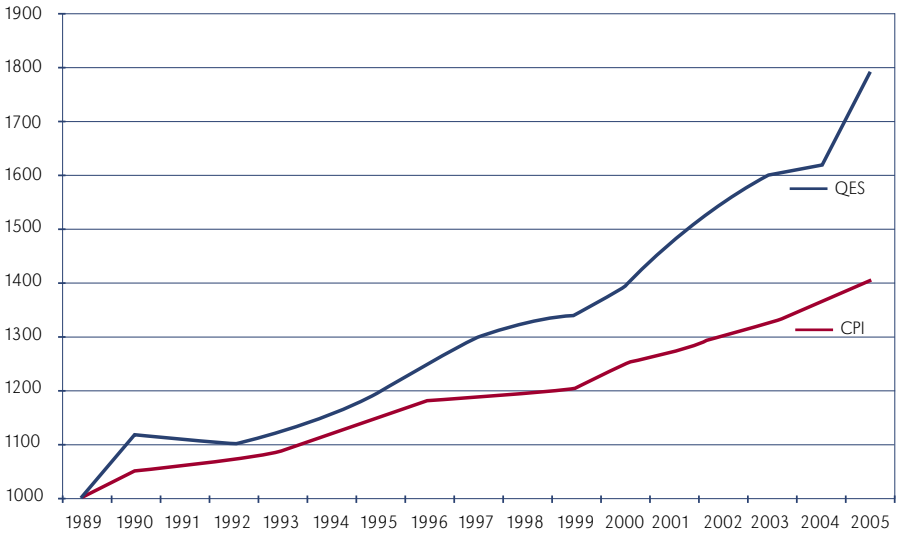


Table 3: Government funding and student Fees 1991, 2000 and 2006[16]

	1991	2000 [17]	Change 1991-2000	2006	Change 2000-2006	Change 1991-2006
Tuition subsidies	$508.3m	$672.0m		$842.8m		
PBRF revenue	–	–		$109.5m		
Total government	**$508.3m**	**$672.0m**	+ 32%	**$952.4m**	+ 42%	+ 87%
Domestic fees	$97.5m	$321.6m	+ 230%	$388.4m	+ 21%	+ 298%
Total government plus fees	**$605.8m**	**$993.6m**	+ 64%	**$1340.8m**	+ 35%	+ 121%
Domestic EFTS	63,234	97,164	+ 54%	103,684	+ 7%	+ 64%
CPI (June)	736	849	+ 15%	1,000	+ 18%	+ 36%
Estimated increase in University costs (1.6 x CPI)			+ 25%		+ 28%	+ 57%
Revenue per domestic EFTS:						
Government	$8,038	$6,916	- 14%	$9,185	+ 33%	+ 14%
Student	$1,542	$3,310	+ 115%	$3,746	+ 13%	+ 143%
Total	**$9,580**	**$10,226**	+ 7%	**$12,931**	+ 26%	+ $35%

Table 4 shows what revenue per student and in total would have been in 2006 if government subsidy rates and student fees had each been indexed to increases in university costs since 1991.

16 Data for 1991 and 2000 are sourced from the Scott and Scott report. Data for 2006 are sourced from the TAMU collation of all universities' financial statements. AUT is included in the data for 2000 and 2006, but not 1991.

17 Although the Government changed in 1999, funding rates and student fees for 2000 were set under the policies established by the former National Government. It is therefore the last year of that era, and the base year against which the effect of the current Government's policies should be measured.

18 This increase includes annual funding increments, additional increments early in the present government's term to offset the freezing of fees increases, increases resulting from the Funding Category Review, new funding injected through the PBRF, and the first instalment of Tripartite funding, which was intended to address the low salaries in New Zealand universities.

19 $1340.8m – ($1,340.8m/1.26*1.28)

Table 4: Revenue changes through under-indexation, 1991-2006				
		Actual Revenue in 2006	Revenue in 2006, if indexed from 1991 base	(Loss)/Gain in Revenue
(a) Revenue per EFTS	Government	$9,185	$12,651	- $3,466
	Student	$3,746	$2,427	$1,319
	Total	**$12,931**	**$15,078**	**- $2,146**
(b) Total revenue	Government	$952m	$1,312m	- $359m
	Student	$388m	$252m	$137m
	Total	**$1,341m**	**$1,563m**	**- $223m**

University income was, in 2006, $2,146 per student or $223m per annum lower than it would have been if income had been indexed to university costs since 1991. This is because successive reductions in government funding reached $359m per annum by 2006. Of this, $137m per annum (38 percent) was passed on to students in the form of higher fees, and $223m (62 percent) was a real funding cut to institutions. As a result, the university sector is now carrying a funding shortfall each year slightly greater than the total domestic student funding and tuition fees of an institution the size of the University of Otago.

Having already lost just under a quarter of a billion dollars to under-indexation, the universities now face the prospect of substantial further losses if funding decisions continue not to recognise the real rate of increase in university costs. From an aggregate revenue base of $1,341m[20] in 2006, the difference between a CPI-based revenue adjustment for 2008 (assuming a CPI increase of 2.6 percent, as currently forecast by the Treasury[21]) and an increase based on university cost movements (2.6% x 1.6 = 4.2%) is $21m per annum. Extrapolated over five years the difference would rise to $120m annually, and over 10 years to $282m each year (approximately the same amount as the current domestic funding and tuition fees of Victoria University of Wellington and the University of Canterbury combined) – or $1.4 billion in total over the next decade.

The effect of this continued reduction in investment per student must inevitably be to reduce quality in the New Zealand university system. As the New Zealand Vice Chancellors' Committee has pointed out[22], New Zealand has a low level of investment per student by international standards, which impacts on our ability to attract and retain top staff, to create the kinds of innovative research that will be critical to this country's economic development and to enhance participation among under-represented groups. Yet the same analysis also demonstrates very clearly the positive association between investment per student and a variety of measures of quality.

International evidence shows unequivocally that increased levels of investment per student lead to lower student:staff ratios (and hence improved teaching and learning), improved research quality and impact (and hence a positive effect on economic development), and improved world rankings of universities (which in turn impact on opportunities for international collaboration, and on international education). None of this is surprising, but it is not the pattern of investment that New Zealand universities have experienced. In order to avoid the major disinvestment experienced continuously since 1991 becoming even more severe in the immediate future, government must recognise the need for indexation of university funding in a manner that reflects the real costs of world class universities.

20 www.tec.govt.nz/upload/downloads/tamu-performance-individual-tei-2006.xls

21 www.treasury.govt.nz/forecasts/befu/2007/pdfs/befu07-add.pdf

22 New Zealand Vice Chancellors' Committee (2006) An Investment Approach to Public Support of New Zealand's Universities. Available on-line at www.nzvcc.ac.nz

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