An Investment Approach to Public Support of New Zealand's Universities

Submission on behalf of The New Zealand Vice-Chancellors' Committee

August 2006

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Executive summary

The Government is considering a package of tertiary reforms that are intended to support its economic transformation agenda.[1] These reforms focus around the concept of 'investment' – i.e. the desire of Government to maximise returns to the nation from the application of public funds to tertiary education. The New Zealand Vice-Chancellors' Committee (NZVCC) supports the Government's approach. This paper, on behalf of NZVCC, takes a research-based approach to what is a critical issue of public policy, and demonstrates the following:

There is a need to increase the current level of investment in universities

New Zealand's public investment in tertiary education as a proportion of GDP is above the OECD average. However, an unusually high proportion of that investment is devoted not to the support of quality tuition but to the financial support of students. While this is worthy public expenditure, it does not contribute to institutional funding and quality.

At the same time, uncontrolled and non-strategic growth of tertiary education provider funding has seen per annum investment in the non-university tertiary sector increase by a remarkable $456 million between 2000 and 2004, while per annum investment in the universities increased by only $165 million over the same period. This is reflected in OECD comparisons which show that New Zealand's participation, and hence investment, in non-degree level education is high and internationally anomalous.

The majority of New Zealand's tertiary education provider funding is now going into the non-university sector, with New Zealand's universities further penalised by a funding model which does not recognise adequately the statutory obligations of universities to teach in a research-rich environment.

As a result, New Zealand universities have a very low income (and hence expenditure) per student compared with similar universities overseas.

Increasing the level of investment will produce significant benefits

There is considerable evidence from around the world that well resourced universities are the key to increasing the national skill base, creating new knowledge/patents, and acting as a magnet for innovative companies – in short, to promoting economic development.

Increasing investment in universities increases both private benefit (and, in New Zealand, at a much higher rate than investing in other types of tertiary education) and public benefit. The public benefit arises through the development of intellectual and social capital, the graduation of professionals and other highly-skilled and flexible graduates, and through increased salaries and hence tax returns to government. Increased investment in universities will also enable the further development of research-based initiatives to improve participation in education of Māori and

[1] 'Tertiary Education Reforms: Overview Cabinet Paper' (released 27 July 2006). Page 1, paragraph 1: '…the changes to planning, funding, quality and monitoring of tertiary education will work together to create an investment system which supports the Government's social and economic goals, and in particular the economic transformation agenda.'

Pasifika peoples, and those who are of low socioeconomic status - a critical component of realising New Zealand's aspirations for economic transformation.

New Zealand's eight universities are responsible for generating approximately half of this country's $2 billion international education exports. The ability to maximise the opportunity presented by this industry requires recognition of the relationship between internationally comparable levels of investment and quality. Well resourced systems such as those in the United States, Australia and the United Kingdom are recognised internationally as being of high quality and have a greater proportion of universities ranked as among the best in the world. That they do so is no accident, for income per student is positively correlated with overall university quality, staff research impact and low student: staff ratios. Conversely, inadequate investment per student will ultimately lead to a decreasing number of academic staff members per student – that is, to higher student: staff ratios, less support for academic staff, larger classes and an inevitable decline in quality.

There is a strong relationship between investment in universities and research citations (a proxy for quality), a relationship which reaps positive economic rewards for nations. Increasing investment would enable a significant shift in the international competitiveness of New Zealand's universities; greater investment would improve the ability to adequately hire, remunerate and support top quality academics in an international marketplace, and allow for greater expenditure by the universities on the infrastructure demanded by outstanding staff and by effective and productive teaching, learning and research environments.

Government must act boldly

In view of the Cabinet directive that the reformed tertiary education system is to cost no more than the current system – i.e. that this is a 'zero sum game'- the Government has a responsibility to ensure that its current investment is used in the most appropriate manner possible. It is the view of NZVCC that the problem is not one of investment in universities versus other types of tertiary education institution, but rather of ensuring that New Zealand's investment in tertiary education is consistent with its aspirations for individual and national growth.

Government needs to recognise that it must correct the imbalance in its investment profile; the purpose of this paper is to provide the evidence that explains why it is necessary to change the current distribution, and to encourage the kind and level of investment in education and research which is likely to bring the greatest returns for all New Zealanders.

The overriding concern of Government must be to rebalance its investment in sub-degree level versus degree level and above. Some of has already begun to occur as a result of lower than expected student enrolments, and through Government moves to reduce sub-degree and adult and community education provisions.

The key for this Government is to ensure that such 'savings' are not simply absorbed, or redirected towards low returning investment in the tertiary sector, but are instead reinvested in areas of high quality and performance, particularly to increase investment in research-led degree and postgraduate-level education. In this way, the potential of the New Zealand universities to contribute to the Government's agenda for economic and social transformation will be fully realised.

1. Introduction

On 4 April 2006, the Minister for Tertiary Education, Hon. Dr Michael Cullen, announced a major review of tertiary funding, with emphasis on improving the quality and relevance of tertiary provision, and maximising the return to the government on its investment in the tertiary sector. The accompanying Cabinet paper stated that the reformed system will cost no more than the current system, making it clear that this is intended to be a process of redistribution. In that and subsequent announcements, tertiary sector organisations were invited to respond to the Government's proposals. This document represents a response from the New Zealand Vice Chancellors' Committee (NZVCC), particularly regarding the component of the reforms that is concerned with investment and funding. Other issues will be addressed in separate submissions.

NZVCC welcomes this review and the focus on maximising the return on taxpayer investment in tertiary education. We have argued for some time that a greater focus on 'investment' would reduce wastage in the tertiary sector and ensure that the public dollar was spent to greatest effect. As we will demonstrate in this paper, it is clear that New Zealand under-invests (both absolutely and relative to other parts of the tertiary sector) in its universities, and as a result those institutions are precluded from achieving their (and the Government's) objective of providing world-class university education, research and community service. It is also clear that a considerable proportion of the funding currently being sunk into sub-degree level education in other parts of the tertiary sector, and particularly the increased funding over the period 2000-2005, is not delivering an appropriate return on investment. Thus a real opportunity exists for the Government to transfer its investment from areas of low return to those promising higher returns. This is an opportunity which the Government *must* grasp, boldly and quickly, if we are to avoid our university system and our economy lagging even further behind the rest of the developed world.

2. The Problem: A need to increase the level of investment in universities

The problem which Government must address can be defined quite simply: *If New Zealand wishes to have universities of genuinely international quality – and we see no reason why New Zealanders should be forced to settle for a second class system – then this country must invest in its university sector at an appropriate level.*

Since most of the controls on the level of investment in universities (e.g. those on student component funding, on student tuition fees, on public funding of research) are in the hands of Government, a significant part of the solution to this problem must also lie with Government.

The evidence that New Zealand under-invests in its university system has been addressed at length elsewhere and will not be repeated in all its detail here.[2] However, a brief summary of the key points is appropriate.

2.1 Investment in New Zealand universities versus those in other countries

Deloitte (2005) showed that government funding per equivalent full time student (EFTS) received by New Zealand universities is approximately 20% below that of all Australian higher education institutions, and more than 40% below that of the Australian Group of Eight (Go8) universities.[3] Comparison with the Go8 is, in our view, an appropriate benchmark for the New Zealand university system which is research-led and separate from the polytechnic sector.

A more detailed comparison of public investment and total income per EFTS is shown in Table 1. It should be noted here that income of a university is closely related to expenditure, because universities do not make a significant operating surplus (typically 3% of revenue in New Zealand, all of which is then ploughed back into the institution). Thus Table 1 illustrates the markedly lower expenditure per student in New Zealand *adjusted for purchasing power parity.*

Table 1: Public investment and total income per EFTS in $US adjusted for purchasing power parity (2004) [4]

Country	Public investment per EFTS	Total income per EFTS
New Zealand	$5,480	$11,690
Australia – all universities	$6,990	$15,890
Australia – Go8	$10,000	$21,910
United Kingdom	$7,410	$21,490

Gaining comparable estimates for the United States and Canada is difficult due to differences in the reporting of equivalent full-time students. However on a *per student* basis, 2003/04 federal

[2] See: Scott, G and Scott, H (2004) *University Income and Student Numbers between 1980 and 2002*; Deloitte (2005) *Staff Remuneration and Resourcing;* OECD (2005) *Education at a Glance;* NZVCC, AUS, PSE and ASTE (2005) *Paper to the Universities Tripartite Forum Working Group* [As supplied to the Minister and TEC, December 2005].
[3] Deloitte (2005) *Staff Remuneration and Resourcing*. Note: The Deloitte study excludes Auckland University of Technology.
[4] Deloitte (2005) *Staff Remuneration and Resourcing*. PPP used is a simple average of World Bank PPP, Big Mac PPP and OECD PPP (2004). UK data based on a small number of comparable institutions.

and provincial government (i.e. public) investment in Canada approximated US$9,360 per student (adjusted for purchasing power), and US$12,000 in the United States.[5] And, of course, these are the figures for public universities – not for the fabulously endowed private institutions that exist in the US and in other countries.

To illustrate further the significantly different environments within which New Zealand's universities are operating, Table 2 details the differences in total income per EFTS for New Zealand universities and selected members of the *Universitas 21* (U21) network of public research universities in New Zealand, Australia, Canada, the United Kingdom and the United States. With a significantly lower base of public investment, and despite the fact that many attract relatively high levels of research and consultancy revenue, New Zealand universities operate with only 42% (Auckland University of Technology) to 80% (Lincoln University) of the income per EFTS received by the nearest (poorest) U21 institution – and less than a third that of the wealthiest (The University of Virginia).

Table 2: Total income per EFTS in NZ and selected U21 universities in $US adjusted for purchasing power parity (2003/04) [6]

Country	University	Total income per EFTS
New Zealand	Auckland University of Technology	$8,060
	Victoria University of Wellington	$9,069
	Canterbury University	$9,647
	The University of Waikato	$10,301
	Massey University	$10,361
	The University of Auckland (U21)	$13,679
	University of Otago	$14,148
	Lincoln University	$15,065
Australia	The University of Queensland	$19,822
	The University of New South Wales	$21,416
	The University of Melbourne	$24,101
Canada	The University of British Columbia	$27,778
	McGill University	$28,886
United Kingdom	The University of Nottingham	$19,048
	The University of Birmingham	$19,279
	The University of Glasgow	$22,860
	The University of Edinburgh	$29,137
United States	The University of Virginia	$49,410

As will be explored in detail later in this paper, the long-term effects of lower levels of public investment are difficult to overcome. They have far reaching consequences for the ability of universities to attract and retain the best staff, to undertake and support leading research, and to provide the infrastructure and teaching environment that will attract and nurture the best students. Without this strong foundation of public investment, the ability to derive income from alternative sources is also eroded.

[5] University Affairs (February 2005). Available online: http://www.universityaffairs.ca/issues/2005/feb/us_public_uni_02.html

[6] *Universitas 21* is an international network of research-intensive universities. Data for NZ and Australian universities, and the University of Birmingham sourced from Deloitte (2005). Other data were obtained from member universities' Annual Reports (2003/04 for the US, Canada and the UK) and supplemented from information contained on members' websites. PPP used is a simple average of World Bank PPP, Big Mac PPP and OECD PPP (2004).

3. The Solution: Better balanced investment in a constrained environment

It is commonly argued that New Zealand does not invest sufficiently in tertiary education. In fact, this country invests at a high rate – the issue is the balance of its investment. Achieving high returns to the nation requires that the investment be placed appropriately.

3.1 New Zealand's pattern of investment in tertiary education

New Zealand's public expenditure on tertiary education, at 1.7% of GDP, is above the OECD average (1.3%) and higher than that of the United States, United Kingdom and Australia. Indeed, of 30 OECD nations, only Canada, Denmark, Finland, Norway and Sweden invest at a higher rate than New Zealand.[7]

However, total public expenditure on tertiary education (all forms) combines financial support of students with investment in institutions. While financial aid to students is worthy public expenditure, it does not contribute to institutional performance and quality.[8] As shown in Table 3, New Zealand commits an exceptionally high proportion – 44% – of its public expenditure on tertiary education to financial aid to students.[9]

Table 3: The pattern of investment in tertiary education in New Zealand compared to some benchmark countries and the OECD average (2002) [10]

Investment in tertiary education	New Zealand	Australia	Canada	United Kingdom	United States	OECD Average
Public expenditure as a percentage of GDP [11]	1.7%	1.2%	2.0%	1.1%	1.4%	1.3%
Distribution of public expenditure:						
- Direct expenditure on institutions[12]	56%	65%	79%	76%	82%	83%
- Financial aid to students	44%	35%	19%	24%	18%	17%
- Other	-	-	2%	-	-	-
Public expenditure as a percentage of GDP:						
- Direct expenditure on institutions	0.9%	0.8%	1.6%	0.8%	1.2%	1.1%
- Financial aid to students	0.8%	0.4%	0.4%	0.3%	0.2%	0.2%

[7] OECD (2005) *Education at a glance*. Data quoted in this paper are from the 2005 OECD publication, which is the most recent available. It contains data for 2002. In some cases data for the US or Canada were not available, and 2000 data have been used instead.

[8] Financial aid to students that is attributable to institutions, such as student loans for tuition fees, is included in the figures for expenditure on institutions.

[9] It should be noted that these figures precede the Government's policy of providing interest-free loans to students. Were the costs of that scheme to be taken into account, we estimate that public expenditure on tertiary education would rise to 2.0% of GDP, with 55% spent on aid to students (up from 44% in 2002, Table 3) and 45% spent on tuition (down from 56% in 2002).

[10] OECD (2005) *Education at a glance*. Tables B4.1 and B5.2.

[11] Public expenditure on tertiary educational institutions plus student support (including subsidies for living costs).

[12] Includes financial support of students which is directly attributable to educational institutions.

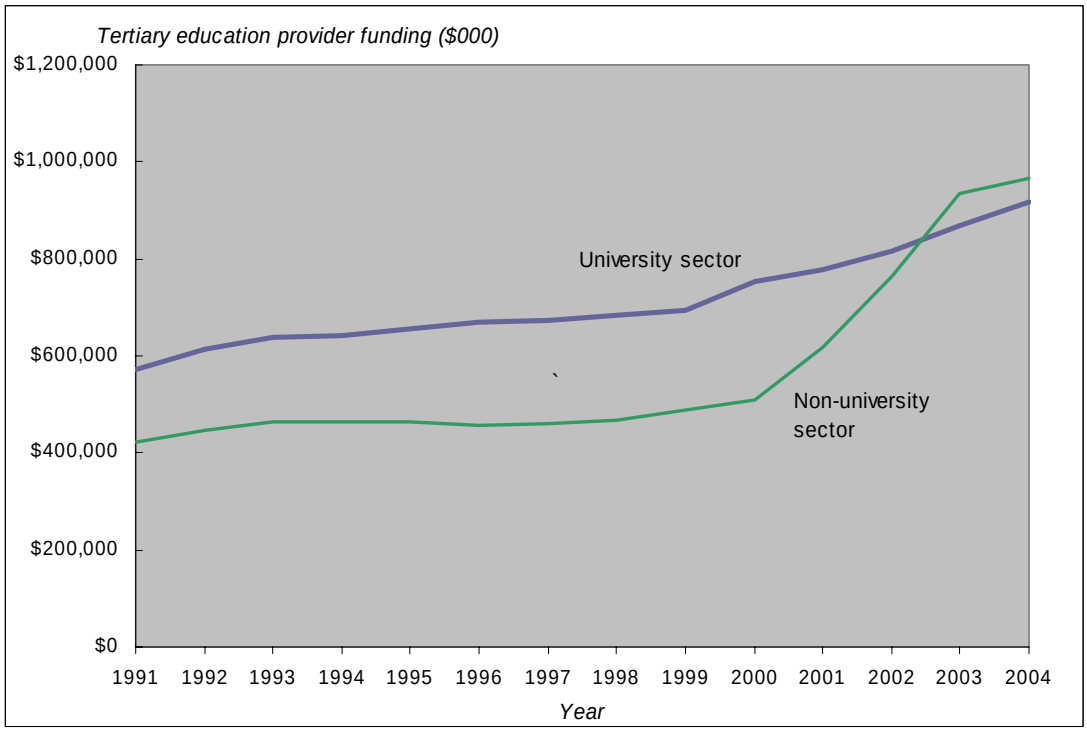
Not only is this almost three times the OECD average and by far the highest proportion in the OECD, but only three other countries reach even 30% - Australia (35%), Norway (33%) and Denmark (31%). Conversely, the proportion devoted to student tuition via direct investment in the institutions (56%) is the lowest in the OECD, and one third less than the OECD average: Australia spends 65% of its public investment in tertiary education on the institutions, the United Kingdom 76%, Canada 79% and the United States 82%.[13]

New Zealand has thus demonstrated the capacity and the will to invest in tertiary education by providing relatively high levels of student support (i.e. at a high level in relation to GDP), but it has not done the same in terms of investment in tuition-related activities of the universities. Thus the main problem is not one of total investment, but rather the pattern of that investment. That said, it is of concern that Government tertiary expenditure as a percentage of GDP has been declining since 2002/03.[14]

3.2 The pattern of investment as a function of educational level and type

It must also be acknowledged that New Zealand's total investment in the tertiary sector has increased markedly over the past 15 years, from $993 million in 1991 to $1,883 million in 2004. However, as shown in Figure 1, most of this increase has been in the non-university tertiary sector.

Figure 1: Government tertiary education funding by provider type, including research top-ups, PBRF allocations, base grants and student component funding (1991-2004) [15]



[13] OECD data are for all tertiary education, not universities alone, and may conceal variations at the sector level.
[14] Ministry of Education (2005) *Profile and Trends 2004.* Figure 6.2, page 61.
[15] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.* Non-university sector includes ITPs, Colleges of Education, Wananga, OTEPs and PTEs.

When adjusted for inflation, the trend lines displayed in Figure 1 flatten somewhat, but the shift toward the non-university sector is no less dramatic.[16] As detailed in Table 4, real government investment in universities increased by only 25% (from $735m to $918m) between 1991 and 2004, despite a 63% increase in EFTS during this time (from 63,234 to 102,761). Meanwhile real investment in the non-university tertiary sector increased by 78% (from $541m to $965m) as EFTS nearly trebled (from 50,876 to 144,972).

Table 4 shows the changes in EFTS and real funding received by universities and the non-university tertiary sector over the period 1991 – 2004.

Table 4: EFTS and real government tertiary education provider funding, CPI-adjusted in constant 2004 dollars (1991-2004) [17]

	University sector		Non-university sector	
Year	**EFTS**	**Funding (Constant 2004 $000)**	**EFTS**	**Funding (Constant 2004 $000)**
1991	63,234	$735,272	50,876	$541,922
1992	68,521	$780,793	55,967	$566,097
1993	72,142	$797,645	60,812	$578,995
1994	75,702	$781,675	64,225	$564,670
1995	77,976	$775,483	64,302	$550,725
1996	80,809	$772,478	64,122	$527,417
1997	81,981	$769,694	65,828	$527,770
1998	83,705	$780,599	67,451	$533,837
1999	89,115	$786,420	80,465	$553,373
2000	97,016	$820,648	78,689	$555,321
2001	98,250	$834,549	95,410	$661,933
2002	99,977	$851,983	119,261	$796,196
2003	101,192	$891,284	144,863	$959,735
2004	102,761	$917,640	144,972	$965,189

Much of the increase in total expenditure can be attributed not to an increase in real investment per student, but to growth in the size of the sector. It is self-evident, but will be demonstrated later in this paper, that the quality of university education is determined to a considerable degree by the level of expenditure (i.e. investment) per student. Thus New Zealand has, over the last 15 years (and particularly in the last five years), markedly increased participation in the tertiary (and university) sector, but it has done so by emphasising quantity over quality.

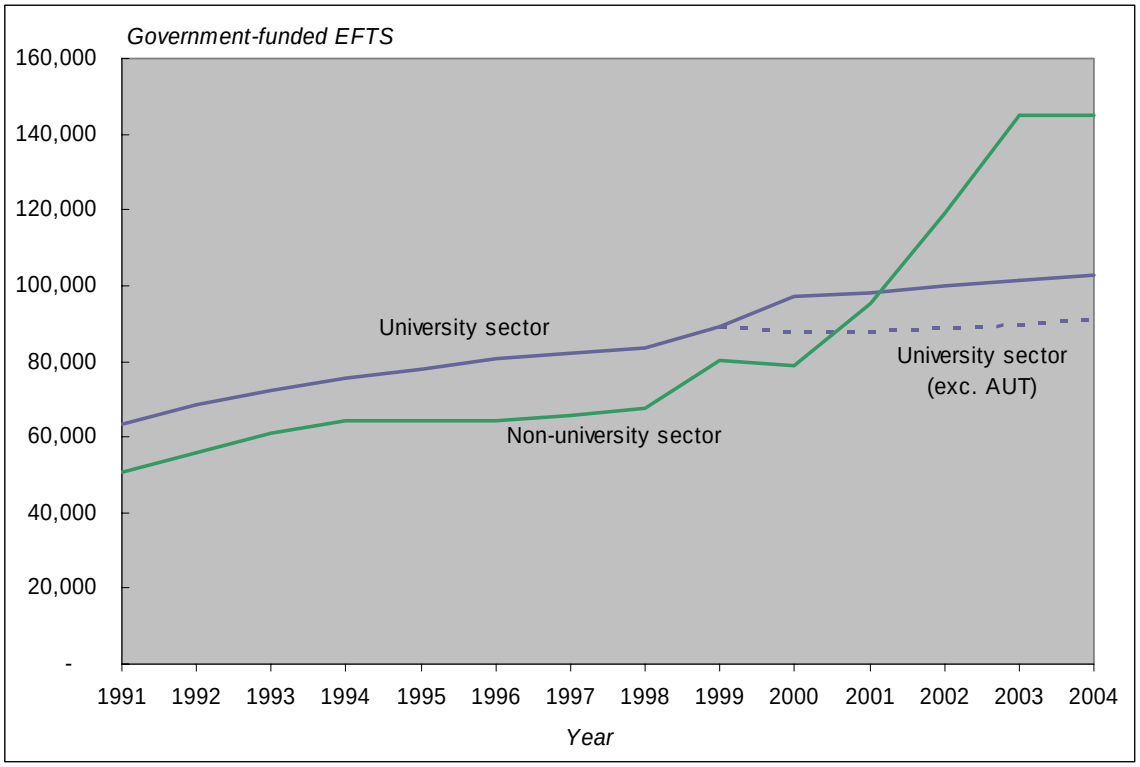
Figure 2 shows clearly that student numbers have been the driver of increased investment by successive governments since 1991. Government funded EFTS have more than doubled, from 114,110 in 1991 to 247,733 in 2004. Between 2000 and 2004 alone, government-funded EFTS in

[16] As has been argued previously, traditional CPI adjustment is not generally considered valid for the university sector, as the goods and services consumed by a university in its operations vary considerably from the basket of goods consumed by the general population. For example. the US Higher Education Price Index that the price of goods and services consumed by US universities and colleges increased by 4.6% in 2004, compared with an increase in the CPI of 2.2%. CPI has been employed here in the absence of an agreed index for the New Zealand tertiary sector.

[17] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.* Adjusted for CPI (constant 2004 dollars). The significant increase in university EFTS in 2000 (along with a decline in non-university EFTS) is due to the granting of university status to Auckland University of Technology (previously AIT).

the non-university tertiary sector nearly doubled (84%), from 78,689 EFTS to 144,972 EFTS.[18] Much of this increase occurred in courses at a very low level and characterised by low completion rates. For example, in 2004 more than half (52%) of all government funded students in New Zealand's tertiary education institutions were enrolled in level 1 - 3 certificate study.[19] According to the same source, students enrolled in this level of study have the highest first-year attrition rate (44%), while less than a third (32%) will have completed their certificate programme within five years. This again represents a very poor quality of investment on behalf of the Government (and of students who pay fees for such courses). The quality of the investment is even poorer for Adult and Community Education courses of dubious relevance.[20]

Figure 2: Government-funded EFTS in the university sector and non-university tertiary sector (1991 – 2004) [21]



[18] Between 2000 and 2004, EFTS in the universities grew by 5.9% compared with 84.2% among the non-university providers. Source: Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.*

[19] Ministry of Education (2005) *Profile and Trends 2004.* Pages 74 and 75.

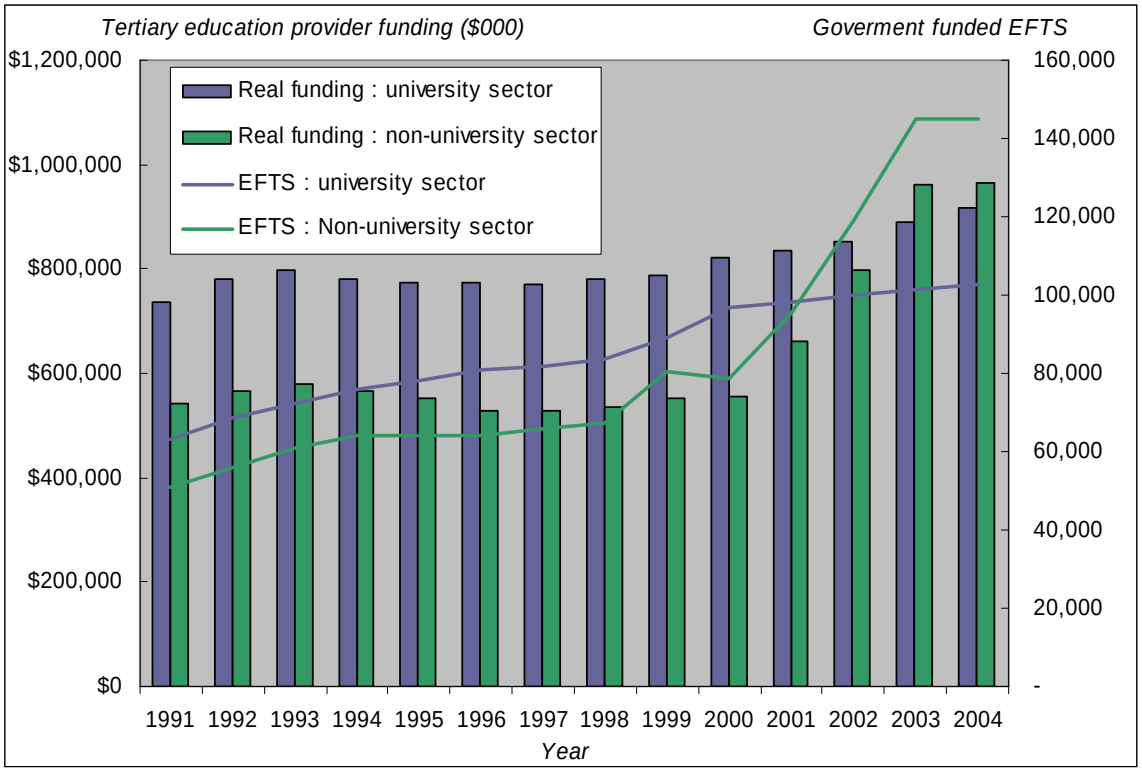
[20] Examples include the $12.9 million received by the Christchurch Polytechnic Institute of Technology for the 'COOL IT programme' (2004). While the Government and TEC are obviously working hard with providers to avoid reoccurrences of this nature, if the annual cost of such poor quality programmes approximates to even a fraction of the $177.8 million allocated in the 'Quality Reinvestment Fund', these funding decisions continue to be to the detriment of real investment opportunities elsewhere in the tertiary sector.

[21] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.* The dotted line shows the university sector without the impact of Auckland University of Technology achieving university status. Mergers of universities with polytechnics and colleges of education during this time have not been excluded from the data.

During the same period (2000-04), government-funded EFTS in the university sector increased by only six percent and, as shown in Figure 2, if it were not for the granting of university status to AUT, would have grown by only two percent since 1999.

The impact of this growth in non-university EFTS on the government's overall investment in tertiary education becomes obvious when we combine EFTS growth with expenditure patterns over the past 15 years.

Figure 3: Government-funded EFTS and real funding in the university sector and non-university tertiary sector (1991 – 2004) [22]

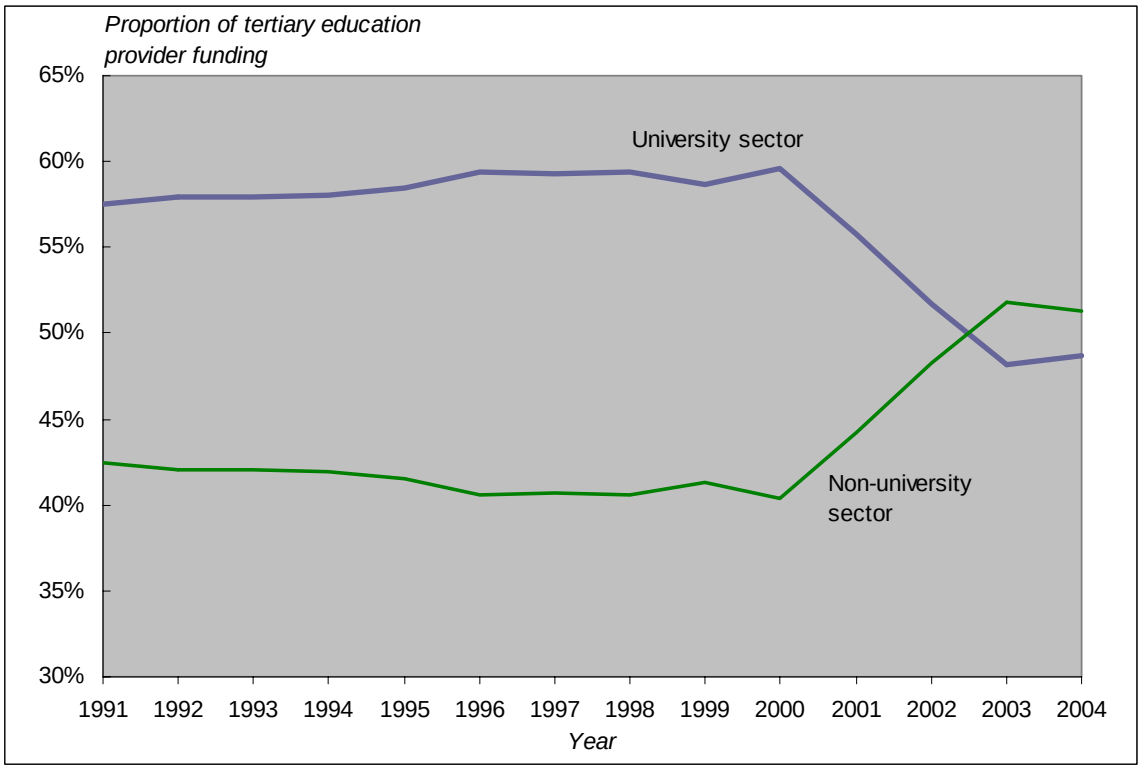


As Figure 3 demonstrates, real investment in the non-university tertiary sector has undergone massive growth, surpassing the total invested in the university sector for the first time in 2003.

In 1991, 58% of all government institutional expenditure in the sector was invested in the universities. This proportion was relatively constant over the next nine years, before dropping dramatically to 49% by 2004 (see Figure 4).[23] This was a consequence of expenditure in the non-university tertiary sector (including Institutes of Technology and Polytechnics (ITPs), Wānanga, Private Training Establishments (PTEs) and Other Tertiary Education Providers (OTEPs)) rising from 40% in 2000 to 51% in 2004.[24]

[22] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.*
[23] It should be noted that an analysis of total expenditure in the university sector masks the impact of structural changes within the broader tertiary sector. Greater investment in the 'university sector' during this time includes the granting of university status to AUT, and mergers with institutions that were previously colleges of education or polytechnics.
[24] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.*

Figure 4: Proportion of total government tertiary education provider funding invested in the university sector and non-university tertiary sector (1991 – 2004) [25]



The dramatic growth in the non-university sector between 2000 and 2004 is immediately apparent: non-university tertiary sector investment increased by $456 million during this time, while investment in the universities increased by only $165 million. This change in the distribution of funding - away from the universities, and towards the non-university institutions - has been the consequence of a volume-based funding model with inadequate oversight and quality control, rather than a deliberate and sensible investment decision on behalf of Government. The result is ultimately to the detriment of New Zealand.

NVZCC recognises that many of the ITPs, Wānanga and PTEs have been very successful in providing effective access to individuals who might otherwise have not had the opportunity to participate and achieve in tertiary education. It also acknowledges that in some areas, growth of sub-degree programmes is in direct response to historical or current failings in the secondary school sector. That said, it is impossible to reconcile the investment pattern shown in Figure 4 with the Government's desire for an internationally competitive and advanced 'knowledge society'.

While an increasing proportion of the Government's investment over the past five years has been directed toward low-level programmes often with unclear benefits, other nations have been recognising the relationship between universities and economic growth, and investing accordingly (see section 4.1 for a discussion of the strong evidence for a link between university research and economic development). For example, between 1999/2000 and 2004/05, the

[25] Ministry of Education and the Tertiary Education Commission, Table A1.2 *Tertiary Education Provider Funding Summary (includes Research Top-ups, PBRF Allocations, Base Grants and Student Component Funding) 1991 – 2004.*

Australian Commonwealth Government's expenditure on tertiary education increased by 11%. During this period, and despite significant growth in vocational education and training, the proportion of Commonwealth expenditure that was allocated to 'higher education' (i.e. to universities, as distinct from Vocational and other Tertiary Education) has stayed relatively constant – between 75% and 78%.[26]

New Zealand's pattern of investment does not just differ from that of Australia. OECD data suggest that New Zealand's participation and, consequently, investment in tertiary-type B programmes (programmes based on practical, technical or occupational skills for direct entry into the labour market), looks different from that of just about every other OECD nation. In 2002, New Zealand invested 0.3% of GDP in tertiary-type B education - three times as much, relative to GDP, and 2.8 times as much, relative to its total expenditure on tertiary education, as other nations did on average. [27] New Zealand's entry rate into such programmes is 3.3 times the OECD average. Only South Korea is known to invest more in this form of education and, given further growth in New Zealand's non-university tertiary sector since 2002 (the latest available OECD data), our internationally anomalous investment in this form of education is unlikely to have been reversed. New Zealand's higher participation rate in tertiary type-B programmes is likely to be at least partly responsible for our relatively lower graduation rates in advanced research programmes. With advanced research graduates representing only 0.9% of the population (at the typical age of graduation), New Zealand sits well below Australia and the United States (both 1.3%), the United Kingdom (1.6%), Switzerland (2.6%) and Sweden (2.8%).[28]

For New Zealand, the adverse effects of this continued move toward poor-performing investment may be beginning to be felt. In May 2006, it was reported that New Zealand's global competitiveness (the ability to create and sustain enterprise competitiveness) has fallen – from 16th in the world to 22nd. Meanwhile, Australia has continued to improve its competitiveness – from 9th to 6th in the world.[29]

3.3 The pattern of investment relative to participation rates

When comparing investment in tertiary education internationally, it must be noted that participation rates vary. Two nations that expend the same amount on tertiary education will spend differing amounts per EFTS, and will thus likely achieve differing quality standards, if their participation rates are different. Expenditure per EFTS cannot be compared directly, since this is amongst the indicators for which New Zealand has provided no data to the OECD. There are indicators, however, which suggest that New Zealand has significantly higher participation rates than the OECD average.

In particular, New Zealand's average consumption of tertiary education, at 3.5 years per capita, is seventh in the OECD and 25% higher than the OECD average (Table 5).

[26] Commonwealth Education Funding Statistics (2005) Commonwealth General Government Expenses on Education, 1999-2000 to 2004-05. Available on-line: http://www.aph.gov.au/library/intguide/sp/edfunding.htm#Higher_Education
[27] OECD (2005). *Education at a Glance.* Based on 2002 data. Comparative figures unavailable for Canada, the UK and the US.
[28] OECD, (2005). *Education at a Glance*. Based on 2002 data. Tables A3.1, C1.3 and C2.1.
[29] National Business Review, (11 May 2006). 'Steep drop in NZ global competitiveness'.

Table 5: Participation in tertiary education (2002) [30]

Participation in tertiary education	New Zealand	Australia	Canada	United Kingdom	United States	OECD Average
Expected years in tertiary education	3.5	3.6	2.8	2.9	4.1	2.8

Since consumption per capita is 25% higher than average, then expenditure in relation to GDP per capita should also be 125% of the average. The data in Table 3, however, indicate that public expenditure on tuition in institutions (as a percentage of GDP per capita) is only 82% of the OECD average, or 66% of the level that would be required for expenditure per EFTS in relation to GDP per capita to match the OECD average.

A further consideration in this context is the fact that the present funding formula fails completely to recognise the higher cost structures that attach to the statutory obligations of universities to ensure that *they are primarily concerned with more advanced learning; their research and teaching are closely interdependent and most of their teaching is done by people who are active in advancing knowledge;* and *they meet international standards of research and teaching (s.162(4) Education Act 1989).* Thus the universities are expected to maintain a research-rich teaching environment based on the same level of investment (particularly at undergraduate level) as polytechnics and other non – research active institutions enjoy.[31] The Performance Based Research Fund is obviously intended to at least partially address this anomaly and, as such, is a welcome addition to the New Zealand tertiary funding system. However, the vast majority of public investment still lies in student component funding.

The net effect of this pattern of investment – in financial support for students versus tuition-related costs, in average consumption per student, in tertiary-type B versus type A programmes, and in the non-university sector versus in universities – is that New Zealand universities operate at a very low level of investment per student compared with other countries. The obvious question that arises is: ***what could be achieved by the New Zealand universities, and by the nation, if the level of investment was increased to something approximating international norms?***

[30] OECD (2005). *Education at a Glance.* Table C1.1. In some cases data for the US or Canada were not available, and 2000 data have been used instead.

[31] One simple example of university overhead costs which do not impact to the same extent on other types of tertiary institution is provision for libraries. The most recent information published on university libraries shows a trend of increasing opening hours, increased provision of electronic resources and access, that the total budget for library materials in universities per year is $50 million, that total library staff per FTE user has been declining since 1996 and the proportion of library budgets spent on staffing (40% on average) is lower than in Australian university libraries overall (46%).

4. The Justification: How increasing the level of investment will produce benefits to the nation

4.1 Improved economic development

In New Zealand, the majority of public sector research is undertaken by the universities and Crown Research Institutes. Here we consider only the role of the universities, but improved investment in university research and education also benefits collaboration with, and education of staff for, the Crown Research Institutes.

As discussed in the previous section, the pattern and level of New Zealand's investment in tertiary education differs significantly from that of peer OECD nations. If a key component of the tertiary sector reforms is the desire of Government to ensure that tertiary education aids New Zealand's economic development, then what is required now is careful and appropriate investment decision-making based on solid evidence about the type of education and research that is likely to make the greatest difference to the nation.

There is a strong body of international evidence that investment in universities will benefit economic development. Universities, through training and research, and their contribution to, and interface with, communities, business and industries, are an essential (although not sufficient) component of economically competitive cities, regions and countries.

A 2004 study of competitive European cities determined that there are a small number of factors that really matter when it comes to ensuring competitiveness – a skilled workforce, innovation in firms and organisations, internal and external connectivity, economic diversity, and strategic decision-making capacity.[32]

The role of universities as the educators of a highly-skilled workforce is well established in New Zealand, where universities are characterised as maintaining, advancing, disseminating, and assisting the application of knowledge, and developing intellectual independence.[33] University graduates are of considerable economic value to a nation, with the advanced research training available at a university producing 'highly skilled people with research experience and the ability to transfer knowledge and know-how to companies'. [34] Supporting this, a recent study of innovation and commercialisation in the United States during the 1990s found that 'increasing the number of science and engineering doctorates exerts a strong and statistically significant positive effect on … grant funds and venture capital investments in a community'.[35]

However, the role of universities in the creation of a skilled workforce does not stop here. Universities, by nature of their academic offerings, their research, and opportunities for knowledge transfer, actually import skilled and talented people (and their knowledge and innovative ideas) into their cities and regions.[36] Universities play a 'magnetic role in the attraction

[32] Office of the Deputy Prime Minister (2004). *Competitive European Cities: Where do the Core Cities Stand.*
[33] Education Act 1989 s164.4(b)(iii)
[34] Adams, J and Smith, D (2004). *Research and Regions: An overview of the distribution of research in UK regions, regional research capacity and links between strategic research partners.*
[35] Rosenbloom, JL (2005). *The Geography of Innovation Commercialization in the United States during the 1990s (Draft, 21 September 2005). Available on-line: http://people.ku.edu/~jrosenbloom/workingpapers/innov5.pdf*
[36] *ibid*

of talent' i.e. 'good people attract other good people, and places with lots of good people attract firms who want access to that talent, creating a self-reinforcing cycle of growth'.[37]

Within the United States, the relationship between university research and economic growth is well documented - 'Without question, the most important institution in American basic research is the research university. The research university system has become the nation's largest basic research enterprise as a result of large and sustained federal funding throughout the post-World War II period.'[38] Further, 'since the end of World War II, university research funded by the federal government and industry has improved the quality of life for every American through inventions and innovations. This university research is one of the driving forces behind the United States' rise to its position as the world's only superpower'.[39]

Studies into the impact of education on US economic growth between 1929 and 1969 found that more than half of the economic growth could be found to be the result of growth in education.[40] More recently, the US Committee for Economic Development found that total R&D (of which 'the most important American institutions conducting basic research are the nation's 200 major research universities') accounted for 12 to 25 per cent of the annual growth in productivity since the end of the Second World War.[41]

A 2006 study into regional performance in the UK confirms the economic impact of higher education, observing the importance of 'highly qualified labour in knowledge driven economies', correlating degree level qualifications and patent applications, and supporting the proposition that 'dynamic knowledge driven economies that rely on ideas, innovation, institutional and organisational change and adaptability need high calibre human capital'. Indeed, the study's authors found that 'almost all of the high performing cities [in the UK] produced more patent applications than almost all of the low performing cities'.[42] Cementing the importance of a highly-skilled workforce, the OECD found in its 2001 study of 'Cities and Regions in the New Learning Economy' that, with few exceptions, 'very patent-intensive regions have a population with high levels of educational attainment'.[43]

While it is noted that 'high levels of educational attainment' can be achieved at other forms of tertiary education (not just universities), further studies support the proposition that universities are particularly integral to the promotion of innovation and commercialisation. Validation of the role of universities in driving innovation is provided by Mansfield (1991), who noted that while the results of academic research are so fundamental, subtle, and widespread as to be difficult to measure, the extent to which technological innovations in industry have been based on university research is considerable.[44] According to the companies in this US study, it would have taken at least eight years longer, on average, for the products and processes (including electrical, chemical, information processing, drugs, metals and oil industries) to have been developed were it not for published academic research. Indeed, a full 10% of these innovations 'could not have been developed (without substantial delay) in the absence of recent academic research'.

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[37] Florida, R (1999). *The Role of the University: Leveraging Talent, Not Technology.*
[38] Committee for Economic Development (1998). *America's Basic Research: Prosperity through Discovery.*
[39] Lynch, T and Aydin, N (2004). *Literature Review of the Economic and Social Impact of Higher Education Research Funding.*
[40] Denison, E (1974). *Accounting for United States Economic Growth, 1929-1969.*
[41] Committee for Economic Development (1998). *America's Basic Research: Prosperity through Discovery.*
[42] Office of the Deputy Prime Minister, (2006). *State of the English Cities.*
[43] OECD (2001). *Cities and Regions in the New Learning Economy*, p48.
[44] Mansfield, E (1991). *Academic Research and Industrial Innovation.*

Wherever it is conducted, basic research provides the technological and intellectual foundation for innovation and economic prosperity. However, in Europe, against a backdrop of concerns about underperforming economies, evidence is mounting that that development of research capability is most successful when housed within vibrant and well-resourced universities. The European problem has been defined as follows: 'Publicly funded research in Europe in recent decades has been weighted towards specialised non-university institutions, often with a strategic research imperative. Programmes have largely been determined through a top-down process, and rigorous peer review has not been implemented. Such institutions have rarely succeeded in competing effectively with the great research universities in which most US research is located'.[45] Those same leading US research universities are acknowledged and celebrated as engines of economic and social growth: 'The most important American institutions conducting basic research are the nation's 200 major research universities. These institutions are characterized by highly competitive allocation of funds, a tradition of excellence, and a brains trust of highly trained and motivated faculty, post-doctoral fellows, and graduate students. The wide, unrestricted dissemination of research results has been important to the broad benefits of university-based basic research for our society.'[46]

A 2003 study of the economic impact of Boston's eight research universities (including Harvard) found that even more important than the universities' role as major industries in themselves, 'is the role that the research universities play in supporting the development of the region's other leading growth industries… Academic research is especially effective…precisely because it takes place not in an ivory tower, but in a complex network of relationships between universities, hospitals, other affiliated institutions, corporations and entrepreneurs'.[47] The report concluded that the universities are 'the intellectual infrastructures that supports the continued growth of the other leading clusters' within the Metropolitan Boston Area.

The regional economic impact of universities in the Boston area is not unusual; a 2004 literature review of the economic and social impact of higher education research funding found that developing 'leading edge research centres and educational institutions are critical long-term economic growth strategies for states and metropolitan areas'.[48] This is confirmed by other studies which found that 'basic research performed in major research universities is typically correlated with strong economic activities in their neighbouring locales'.[49]

Access to facilities, instrumentation, associated techniques and university expertise has been found to be of considerable importance to the realisation of important spin-off relationships between universities and industry.[50] Indeed, it is often an important determinant of the choice of location for a company. Varga (1997) found that access to knowledge transfer from universities is a strong influence on company location in the biotechnology sector: 'University researchers affiliated with firms as either founders or chairs of advisory boards are likely sources of technology transfer. It is found that companies where university researchers hold such positions locate near the universities. Furthermore, it was evidenced that a university scientist having been

[45] League of European Research Universities, (2005). *Growth, research-intensive universities and the European Research Council.*
[46] Committee for Economic Development (1998). *America's Basic Research: Prosperity through Discovery.*
[47] Appleseed inc, New York (2003). *Engines of Economic Growth: The Economic Impact of Boston's Eight Research Universities on the Metropolitan Boston Area.*
[48] Lynch, T and Aydin, N (2004). Literature Review of the Economic and Social Impact of Higher Education Research Funding.
[49] Committee for Economic Development (1998). *America's Basic Research: Prosperity through Discovery.*
[50] Office of Science and Technology (2001). *The Economic Returns to Basic Research and the Benefits of University-Industry Relationships: A literature review and update of findings.*

awarded a Nobel Prize significantly increases the probability that biotechnology firms locate near the university.'[51]

This observation, however, is likely to extend beyond biotechnology and other high-tech industries. A 2001 European study has concluded that the spatial clustering of SMEs (small and medium-sized enterprises) can be found to be related directly to the presence of universities, not just in high-tech sectors but in all sectors.[52] For firms with their own research and development capability, it is an additional attractor - proximity to a research university has been found to be the fifth most important determinant (out of 20 factors) when deciding where to locate corporate R&D facilities.[53] And increasingly, companies are performing research and development outside of their organisations – including in universities. It has been estimated that, in the United States, external manufacturing research and development (that performed outside the parent organisation, but still within the US) is growing at a faster rate than internal R&D.[54]

These findings reflect what innovative and successful industries already know – that bright people and innovative ideas are the most important resources, especially in a rapidly expanding knowledge-based economy.[55] Further, that investing in a system in which universities flourish can act as a magnet for good people and exciting ideas – 'universities are sought-after parties with unique facilities of their own, and external partners may invest alongside them in particular development projects to access those facilities, the skills of their employees and to recruit their graduates'.[56]

The returns from such an investment obviously extend well beyond those to be gained by private industry – 'since advances in fundamental knowledge tend to be widely dispersed and exploited in innovations that deliver substantial economic benefits over a lengthy period.[57]

4.2 An increased contribution from international education

International education is an important component of the economic development issue. The Government has, for some time, recognised the potential of international (export) education as a contributor to the New Zealand economy. With international education exports totaling $1.9 billion in 2005 (making it this country's fourth largest export industry) that contribution can now scarcely be in doubt.[58]

The value that international students bring to New Zealand is, of course, far greater than just as a source of current and future export earnings. As noted by the Ministry for Economic Development, 'international students are also a potential source of future skilled migrants for New Zealand and contribute to the transfer of knowledge and ideas as well as the expansion of international networks.'[59]

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[51] Varga, A (1997). *Regional Effects of University Research: A Survey.*
[52] Rodriguez-Pose, A, and Refolo, M C (2001). *The Link between Clusters of SMEs and Public and University Research in Italy.*
[53] Lund, L (1986). *Locating Corporate R&D Facilities.*
[54] Swedish Institute for Growth Policy Studies (2006).*The Internationalization of Corporate R&D.*
[55] Florida, R (1999). *The Role of the University: Leveraging Talent, Not Technology.*
[56] Benneworth, P and Arbo, P (2006). *Understanding the Regional Contribution of Higher Education Institutions: A Literature Review*.
[57] Committee for Economic Development (1998). *America's Basic Research: Prosperity through Discovery.*
[58] Hon Dr Michael Cullen, (17 August 2006). 'International education: the way forward'. *Media Statement.*
[59] Ministry of Economic Development (2005). *Growth through Innovation: Economic Development Indicators 2005.*

The majority of this benefit is realised in higher levels of education, and particularly in New Zealand's university sector. Some 73% of last year's international education exports were generated by public and private tertiary institutions, and 49% ($937 million) by the eight universities alone.[60]

This Government has already recognised that attracting the best international students is a critical component of an economic transformation agenda.[61] Outstanding international students, particularly those pursuing higher research degrees, are attracted to universities with superior facilities, leading academic staff, and international reputations for excellence in teaching and research. All of these require internationally comparable levels of investment to ensure that New Zealand universities are of competitive quality (and seen to be so). This is becoming all the more important as the United States begins to encourage the return of international students following a prolonged downturn post-September 2001.[62]

4.3 Enhanced participation among under-represented groups

Māori and Pasifika students, and those from low socio-economic backgrounds, are currently under-represented in tertiary education at degree-level and above. For example, in 2004, 16% of Māori tertiary students were enrolled at degree-level compared with 28% across all ethnic groups. Only 2.8% of all Māori and Pasifika tertiary students were enrolled at postgraduate-level, compared with 7.5% of European students.[63]

These statistics are slowly improving, due in part to the innovative programmes all New Zealand universities now have in place to encourage and support higher levels of participation. However, with limited public investment and a great many other priorities, these initiatives cannot meet the needs of the whole spectrum of under-represented groups. With higher levels of investment, universities would be able to develop and implement more extensively research-based programmes designed to enhance the participation and success of a greater number of Māori, Pasifika and lower socio-economic students in university-level education.

Given the anticipated changes in New Zealand's demographic make-up over the next 50 years, significantly improving Māori and Pasifika participation in university education will be particularly critical to realising New Zealand's aspirations for economic transformation: 'In contemporary economies, where knowledge and wealth go together, social mobility cannot be achieved unless young people from all walks of life have the opportunity to fulfil their potential, and gain the high levels of skill and adaptive learning that will be rewarded in a changing workplace.'[64]

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[60] Education NZ, March 2006. *2005 Final International Education Economic Value.* The figure for tertiary institutions excludes English language institutes.
[61] Hon Dr Michael Cullen, 17 August 2006. 'International education: the way forward', *Media Statement.*
[62] Guardian, 18 April 2006. *International Rescue*. 'British universities benefited from a shift following the 9/11 terror attacks in 2001, when the US became a much less welcoming place for foreign students, especially from the Middle East. That policy has since changed, following frantic lobbying by American universities, and the numbers of overseas students is starting to creep up again.'
[63] Ministry of Education (2005). *Profiles and* Trends 2004. Pages 122 and 133.
[64] Professor Dame Anne Salmond (2004). 'What sort of future society do we want?' (speech). PPTA Conference April 2004.

4.4 Improved taxation and employment-related returns to government

Universities' role in human capital can be seen to perform two key functions on a national level: first, universities supply skills of the highest level for the economy; and, second, 'they can increase the upwards drive within the general population for a process of upskilling that will help produce economic growth'.[65]

Specifically, and considering only one form of return that is relatively easy to measure, the increased income tax payable by university graduates can be seen to provide improved overall returns to government. In 2002, a study undertaken by the Melbourne Institute of Applied Economic and Social Research attempted to estimate the net benefit to the Australian Commonwealth Government of investment in higher education (essentially, 'the government outlays that are used to finance teaching in universities').[66] It showed that for every dollar invested by the Government in the education of students, an average of $1.11 (discounted) was returned in additional taxes resulting from the higher salaries of graduates. This result supports other studies, such as those conducted by the OECD, which confirm that money spent (by individuals and by governments) on obtaining qualifications brings returns higher than real interest rates.

OECD data demonstrate quite clearly that investment in university/degree level (OECD type-A) qualifications produces greater increases in earnings than investment in vocational/ occupational (OECD type-B) programmes.[67] Indeed, what is particularly striking about the OECD data is that in New Zealand, type-B qualifications result in earnings only 1% greater than the earnings of people whose highest level of educational achievement is upper secondary school. Elsewhere in the OECD countries we have used as a benchmark in this paper, the increase in earnings over upper secondary associated with type-B qualifications is typically 10-28%. The very low earnings advantage accruing to holders of type-B qualifications in New Zealand may reflect concerns expressed by the OECD that, in this country,'the very rapid expansion of post secondary education…reflects a proliferation of courses that are of low quality and/or in subjects that have only remote career relevance'.[68]

In New Zealand, type-A courses result in a 50% earnings advantage over upper secondary school, a stark contrast to the 1% for type-B qualifications. While increases in earnings are only one measure of the benefit of tertiary education, they do reflect the value of the individual to an employer and his/her organisation – and by inference the expected value of that individual to the growth and performance of the employing organisation. Seen in this light, the 50% increase in earnings for holders of type-A (primarily university) qualifications versus the 1% increase for

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[65] Benneworth, P and Arbo, P (2006). *Understanding the Regional Contribution of Higher Education Institutions: A Literature Review*.

[66] John, D and Wilkins, R (2002) Melbourne Institute of Applied Economic and Social Research, The University of Melbourne. *The Net Benefit to Government of Higher Education: A "Balance Sheet Approach"*.

[67] OECD (2005). *Education at a Glance.* Type-A are largely theory based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Tertiary-type A programmes have a minimum cumulative theoretical duration (at tertiary level) of three years' full-time equivalent, although they typically last four or more years. Tertiary-type B programmes are typically shorter than those of tertiary-type A (minimum duration of two years) and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes.

[68] OCED (2005). *Economic Survey of New Zealand 2005: Human Capital and Labour Utilisation*

type-B (vocational/occupational) qualifications is a revealing statistic indeed, and demonstrates again the relative value of investment (public and private) in a university education.

Further, it is of concern that the returns to type-B education are worse in New Zealand than in other benchmark OECD nations. As Table 6 illustrates, it appears that not only are we investing a greater amount in this form of education, but the quality and relevance of that education is not sufficient to reap benefits of the kind that other nations enjoy.

Table 6: Relative earnings of the population from income from employment, upper secondary education = 100 (2002) [69]

	Level of educational attainment	
Country	**Tertiary Type-A**	**Tertiary Type-B**
New Zealand	150	101
Australia	142	110
Canada	161	113
United Kingdom	178	128
United States	191	121

4.5 Increased university performance and quality

In order to justify a rebalancing of public investment in tertiary education, it is also necessary to address the question, *"If the Government shifts its investment towards the universities, will it achieve the increased quality of outcomes it desires?"*

Demonstrating this directly is, of course, very difficult, since it involves an element of predicting the future (i.e. of predicting how the New Zealand university system would be different if it had a greater level of public investment). However, there is a considerable body of evidence to support the assertion that a higher level of investment is associated with increased quality, and no reason to think that the relationship would not apply here. The following sections describe some of the associations that exist internationally between level of investment and quality of the university or system.

4.5.1 International market perceptions of quality

It is well known in the international marketplace that students regard the North American and UK universities as high quality and therefore able to command a high price, and the Australian and New Zealand universities as moderate quality and therefore only capable of commanding a relatively lower price. This perception of quality is doubtless related in part to the different levels of investment countries make in their university systems (Table 1) and partly to the reputational effect in North America and the UK of universities that are regarded as being of the 'first rank' internationally.

International ranking systems use a variety of key performance indicators to rank different universities according to quality. The most commonly cited ranking system is the Shanghai Jiao Tong Academic Ranking of World Universities (SJT), which is based on articles published in

[69] OECD (2005). Education at a Glance 2005. Data are 2002 figures. Table A9.1a. Weighted average for males and females aged 25 – 64 years.

leading international journals, citation rates, academic performance with respect to the size of an institution, and on the numbers of Nobel Prize and Fields Medal winners on staff.[70]

Another often cited ranking model is produced by the Times Higher Education Supplement (THES).[71] This system uses six components to determine final rankings: peer review, number of citations per faculty (i.e. academic staff) member, student: staff ratio, recruiter reviews, international faculty as a percentage of total faculty and international students as a percentage of total students.

Table 7 shows the number of universities by country in the top 50 and 200 as ranked by the SJT and the THES (both 2005). Under the SJT system, New Zealand has no universities in the top 200 while Australia has six. Under the THES ranking, New Zealand has no universities in the top 50, whereas Australia again has six.

Table 7: Number of universities, by country, ranked in the top 50 and top 200 in the world

	Shanghai Jiao Tong 2005		Times Higher Education Supplement 2005	
Country	**Number of universities in top 50**	**Number of universities in top 200** [72]	**Number of universities in top 50**	**Number of universities in top 200**
New Zealand	0	0	0	3
Australia	0	6	6	17
Canada	2	8	3	8
United Kingdom	5	19	8	24
United States	37	90	20	54

[70] Studies of Nobel Prize winners clearly show the continued dominance of US universities. While between 1900 and 1909, only 3% of Nobel winners were affiliated with US institutions, by the 1960s it was 48%, and between 2000 and 2002, a total of 70% of Nobel Prize winners in chemistry, economics, physiology or medicine, and physics were affiliated with one or more US universities. Source: The Sutton Trust, (2003). *Nobel Prizes: The Changing Pattern of Awards*. Available on-line: http://www.suttontrust.com/reports/nobel.doc.

[71] Times Higher Education Supplement World University Rankings 2005. Available on-line: http://www.thes.co.uk/worldrankings/

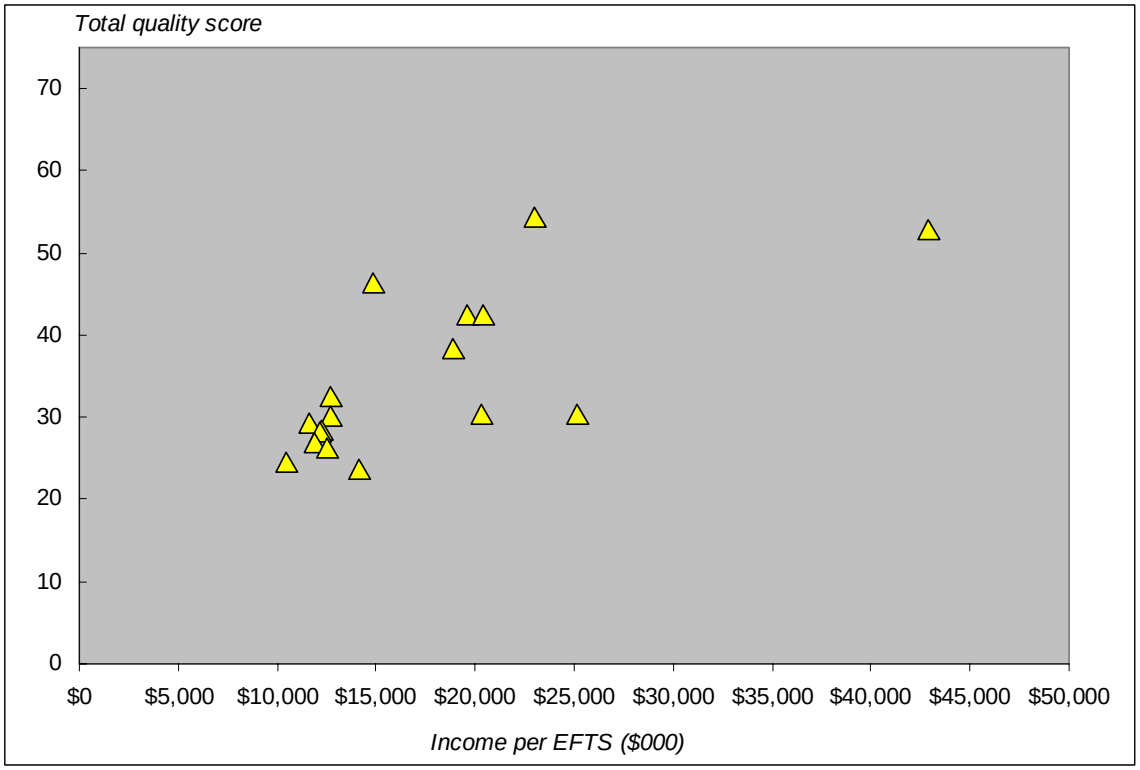
[72] Shanghai Jiao Tong Academic Ranking of Universities (2005) ranked universities in bands from 100 onwards. Universities ranked from 1 – 202 are included here. Available on-line: http://ed.sjtu.edu.cn/ranking2005.htm

4.5.2 Quality scores versus income per student

Reinforcing the proposition that a high level of investment per student is required if a nation wishes to have highly ranked universities – which is to say universities of high quality by international standards - the following figures demonstrate the clear relationship between total income per student, and THES 2005 total (quality) scores, scores for citations, and scores for student:staff ratio.

First, as shown in Figure 5, the total quality score awarded by THES to Australian universities exhibits a strong positive relationship with income per EFTS. This relationship persists even if the outlier (Australian National University) is removed. [73]

Figure 5: Australian universities THES 2005 total quality score versus income per EFTS [74]

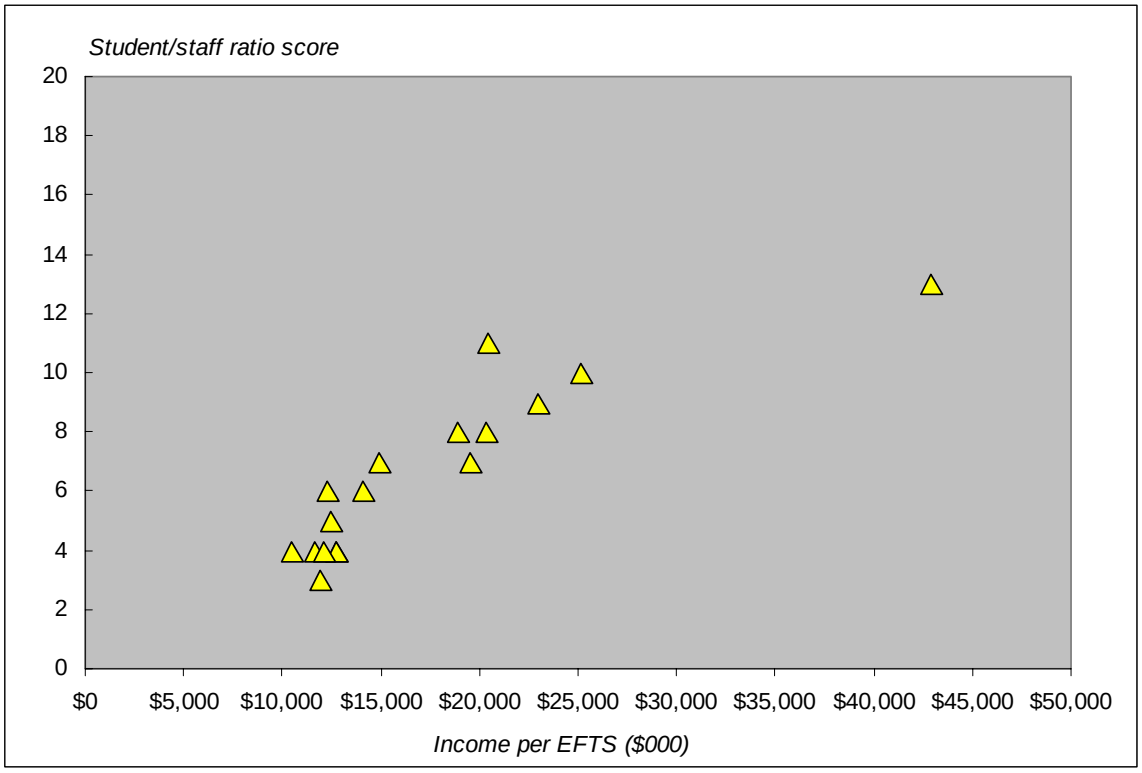


[73] Only Australian universities have been included in this analysis because they, unlike New Zealand universities, have sufficient data points in the top 200.

[74] Total quality score is the final score attributed to universities through the THES ranking system – the composite measure of peer review (40%), number of citations per faculty (i.e. academic staff) member (20%), student: staff ratio (20%), recruiter reviews (10%), international faculty as a percentage of total faculty (5%) and international students as a percentage of total students (5%).

Second, and consistent with the argument advanced earlier, Figure 6 reveals that well resourced universities tend to have more favourable student:staff ratios. There is a strong correlation (r = 0.89) between income per EFTS and the score given by THES to student:staff ratios for Australian universities. Note that a high score is the opposite of a high (undesirable) student: staff ratio.

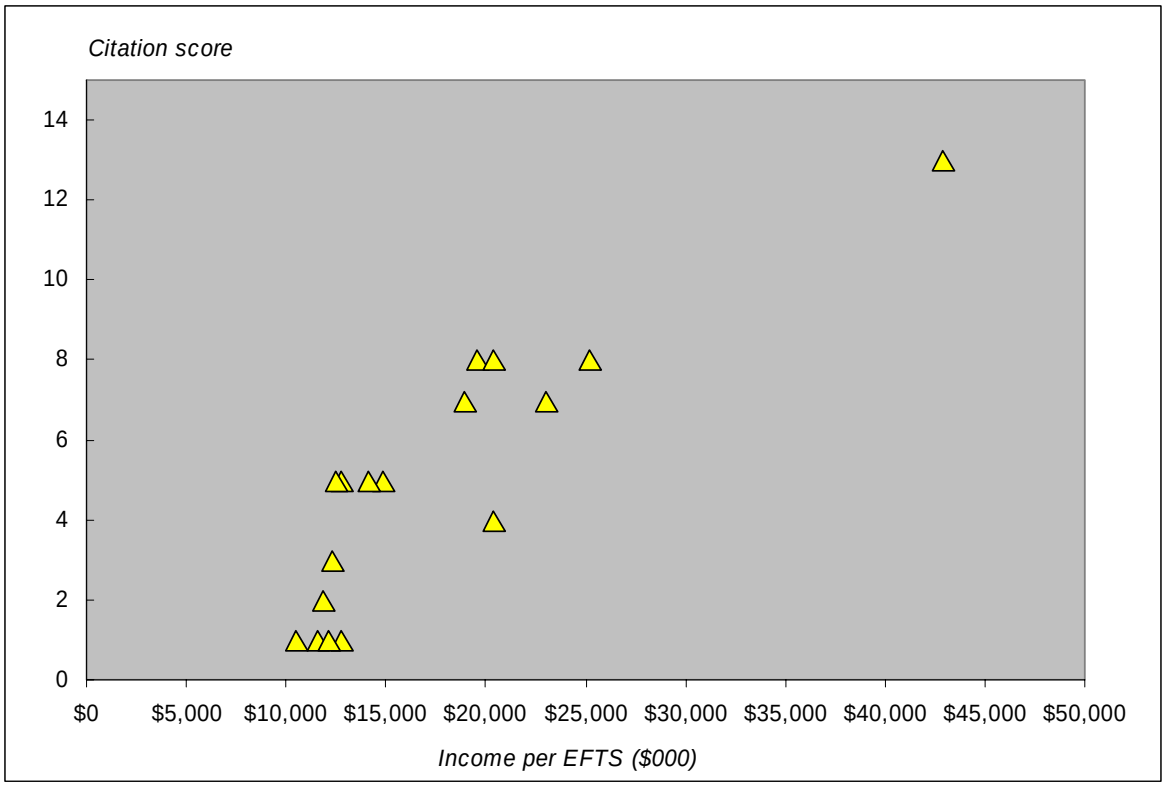
Figure 6: Australian universities THES 2005 student:staff ratio score versus income per EFTS[75]



[75] Student: Staff Score is a measure of the student to academic staff ratio of a university (compared with other THES-ranked universities). Note: There is an inverse relationship between student:staff ratios and student:staff scores.

Finally, as shown in Figure 7, and as will be explored in greater detail below, citation score (which measures the research impact of staff in each institution) also shows a strong positive correlation (r = 0.88) with income per EFTS. In short, those academics producing research of the highest impact tend to be based in the better-resourced institutions.

Figure 7: Australian universities THES 2005 citation score versus income per EFTS [76]



4.5.3 Publications, citations rates and investment

The link between citations and investment is an important relationship. Ensuring New Zealand's international competitiveness will require sufficient and sustainable investment in that research which has the potential to make the greatest contribution to social and economic development. In this light, the relatively high output (i.e. publication) rate of New Zealand's scientists is worthy of celebration[77], and the government's commitment to recognising and investing in quality research (through the Performance Based Research Fund) is encouraging.[78]

On the international stage, measures of citation (i.e. credit or reference to another document or source) can be a useful indicator of a nation's research output– 'almost a dipstick of current standing'.[79] In the United Kingdom, the relationship between citations and quality has been analysed through studies of the Research Assessment Exercise (RAE – a quality rating for research across all disciplines) and has been found to be strong; Smith and Eysenck concluded in

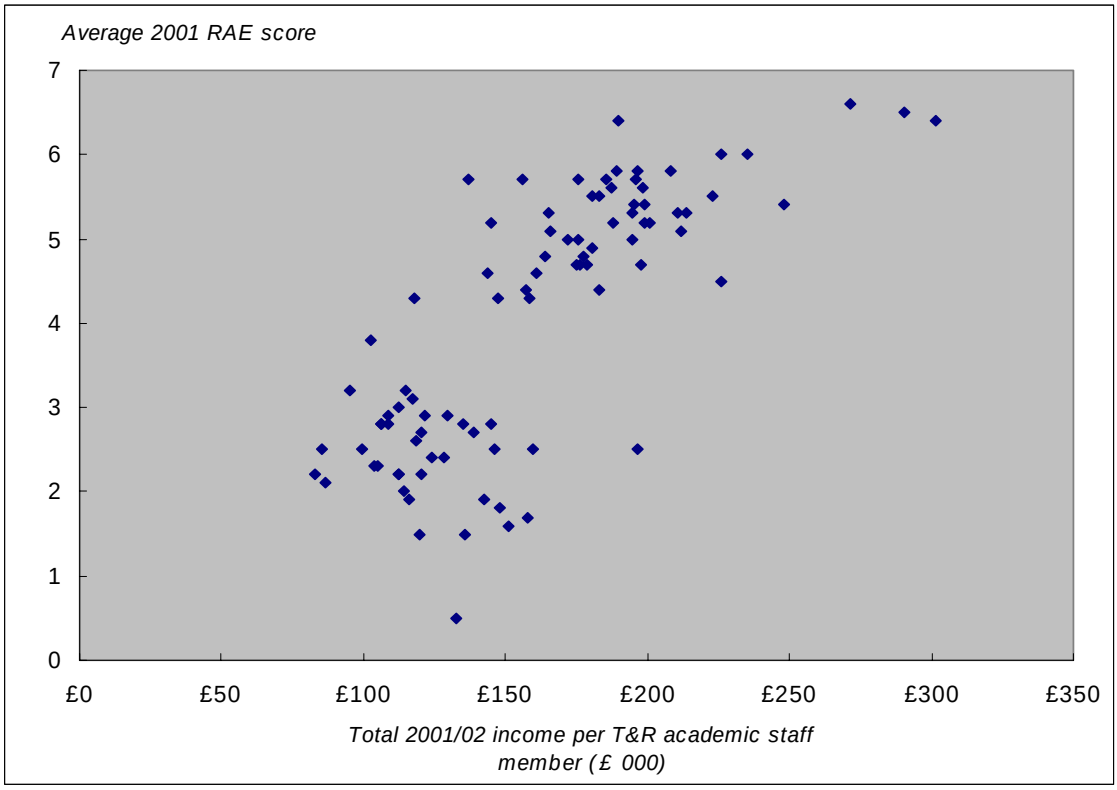
[76] Citation Score is a measure of research output and quality, assessed here as the number of citations per member of academic staff. This component was collated through the Essential Scientific Indicators database.
[77] Young, E (2004) 'Time to think smart: New Zealand overview'. Published in *New Scientist*, 17 July 2004.
[78] Although, as stated elsewhere, moves away from competitive research funding are considerably less inspiring.
[79] Adams, J (2001). 'RAE results reflect world standing'. Published in the *Guardian*, 14 December 2001.

2002 that 'RAE and citation counting measure broadly the same thing';[80] and Norris and Oppenheim confirmed in 2003 a 'high statistically significant correlation between the RAE result and citation count'.[81]

Hence, while the correlation between citation and research quality is not predictive, it is strongly positive, and citation rates per publication (or 'impact factors') are one of a range of indicators that can help identify 'the most widely cited ideas and individuals'.[82] It is these ideas and individuals that will ultimately benefit New Zealand's social and economic development.

Reinforcing the relationship shown earlier in Figure 7 between THES citation scores and investment, in the UK a strong relationship can be demonstrated between universities' average RAE scores (as a proxy for quality) and income per academic staff member (as a proxy for investment). As demonstrated in Figure 8, those universities with the highest income per academic staff member recorded the highest average RAE quality scores per staff member in 2001, i.e. better resourced universities are able to recruit, retain and adequately support academic staff with greater research impact.

Figure 8: UK 2001 average RAE scores by university versus total 2001/02 income per teaching-and-research academic staff member [83]



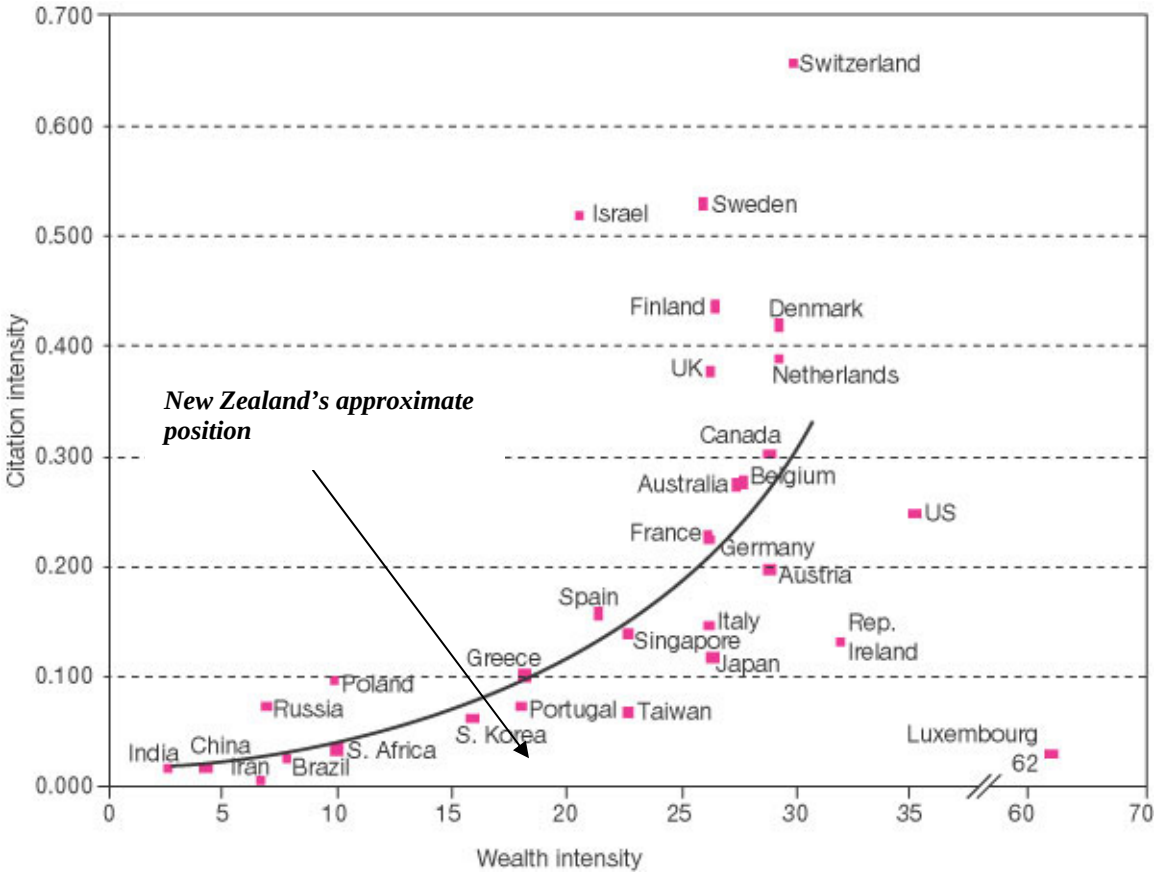
[80] Smith A.T and Eysenck, M (2002). *The correlation between RAE ratings and citation counts in psychology.*
[81] Norris, M and Oppenheim, C (2003). 'Citation counts and the Research Assessment Exercise'. Published in the *Journal of Documentation*, Vol. 55. No. 6.
[82] King, D A. (2004). 'The scientific impact of nations: What different countries get for their research spending'. Published in *Nature*, Volume 430, 15 July 2004.
[83] 2001 RAE and 2001/02 income per institution data from HESA. Total teaching-and-research academic staff data for each institution sourced from Association of University Teachers, (2004). *Gender and research activity in the 2001 Research Assessment Exercise*.

Given this relationship, and perhaps not surprisingly, the United States and the United Kingdom tend to dominate international comparisons of citation rates per publication. However, smaller nations with a strong emphasis on investing in R&D for economic growth, such as Switzerland, Denmark and the Netherlands, also fare well and are beginning to snap at the heels of the US, the UK, Germany, France and Italy.[84]

4.5.4 Economic and scientific wealth

Despite ranking relatively highly in terms of the number of scientific papers produced (relative to GDP, R&D expenditure and population), the impact of New Zealand's research (as measured by citation rates) is comparatively low.[85] The likely outcome of this is all too evident in Figure 9, where the link between science citation intensity and the wealth of a nation is explored.

Figure 9: Comparing economic and scientific wealth [86]



[84] King, D A. (2004). 'The scientific impact of nations: What different countries get for their research spending'. Published in *Nature*, Volume 430, 15 July 2004.

[85] MoRST (2001). *A Bibliometric Profile of the New Zealand Science System.*

[86] Reprinted from King, D A. (2004). 'The scientific impact of nations: What different countries get for their research spending'. Published in *Nature*, Volume 430, 15 July 2004. National science citation intensity is measured as the ratio of the citations to all papers to the national GDP, shown as a function of the national wealth intensity (GDP per person). GDP and wealth intensity are given in thousands of US dollars at 1995 purchasing-power parity.

Although not shown in the chart as published, the arrow indicates approximately where New Zealand would be positioned.[87]

Hence, the positive relationship between citations (as a proxy for quality) and investment appears to be an important one, in terms of both individual institutional performance, and the overall economic performance of a nation. New Zealand universities publish a comparatively high number of papers and other publications, however our citation intensity remains low. On the above graph, we would appear to be positioned below South Korea and Portugal, two other nations with (historically) low citation rates and economic wealth. New Zealand's position remains poor despite successive Governments' stated commitment to wealth creation and the knowledge economy.

To improve New Zealand's wealth, we need to improve the impact of our research. This means we need to increase the quality, and to do so requires additional investment. What is important to note is how well New Zealand has done here, despite our low citation intensity. Our high publication rate on a low level of investment would suggest a high level of efficiency – efficiency which is likely to reap greater economic benefits than other countries from an incremental increase in investment (and hence quality) per academic staff member.

4.5.5 Improved infrastructure and facilities

As the previous sections suggest, better resourced universities are able to offer salary packages and the infrastructure necessary to attract, support and retain the best staff, produce the highest quality research, and provide students with an effective and conducive learning environment. If additional investment was to be made into the New Zealand university sector, similar increases in competitiveness could be expected based on analysis of the Group of Eight (Go8) Australian universities.

So what would a higher level of investment mean for New Zealand's universities? Table 8 shows the 2004 total and average balance sheets of the Australian Go8 universities, and the New Zealand universities, in NZ dollars.[88]

[87] As measured by average citation rates 1995 – 1999, and 1999 GDP in 1995 $US PPP. Between 1995 and 1999, there were 3.2 citations per New Zealand scientific publication on average each year (source: MoRST (2001) *A Bibliometric Profile of the New Zealand Science System*).

[88] Source: Deloitte (2005). *University Remuneration and Resourcing.* New Zealand total excludes AUT.

Table 8: Comparison of Australian (Go8) and New Zealand universities' balance sheets (2004) [89]

	Australian universities (Go8)		New Zealand universities		
$NZ 000	**Total**	**Average**	**Total**	**Average**	**% of Go8 average**
Current assets	$1,496,597	$187,075	$410,624	$58,661	31%
Fixed assets:	$10,637,513	$1,329,689	$3,534,122	$504,875	38%
- *Land and Buildings*	$7,586,891	$948,361	$2,763,330	$394,761	42%
- *Plant and equipment*	$556,583	$69,573	$253,260	$36,180	52%
- *Library and IT*	$1,351,466	$168,933	$382,132	$54,590	32%
- *Other*	$1,142,573	$142,822	$135,400	$19,343	14%
Other non-current assets	$4,717,975	$589,747	$96,027	$13,718	2%
Total assets	**$16,852,085**	**$2,106,511**	**$4,040,773**	**$577,253**	**27%**
Current liabilities	$938,842	$117,355	$427,912	$61,130	52%
Term liabilities	$2,392,962	$299,120	$138,301	$19,757	7%
Total liabilities	**$3,331,804**	**$416,475**	**$566,213**	**$80,888**	**19%**
Accumulated funds	$4,603,924	$575,490	$2,409,413	$344,202	60%
Reserves and revaluations	$8,916,276	$1,114,535	$1,065,147	$152,164	14%
Total equity	**$13,520,200**	**$1,690,025**	**$3,474,560**	**$496,366**	**29%**
EFTS / EFTSU [90]	207,269	25,909	111,229	15,888	61%

The results show the vast difference between the infrastructure and facilities available to prospective and current staff and students in Australia, as compared with New Zealand. In particular, despite having 61% of the EFTS enrolled by Australian counterparts, the average New Zealand university's fixed assets base is only 38% that of the Go8 university average. While average liabilities are higher for the Australian institutions, the average working capital (current assets to current liabilities) ratio is significantly better for the Go8 universities (1.59 compared with 0.96 for the New Zealand institutions).

However, it is at the level of individual institutions that the impact of low levels of investment in New Zealand universities can best be observed. For example, in 2004, The University of Auckland's total EFTS were 77% those of The University of Melbourne's (28,158 EFTS compared with 36,499 EFTSU). The amount of investment that The University of Auckland received from Government was 34% of that received by The University of Melbourne (in NZ$ from both Commonwealth and State sources), and Auckland's total revenue was 51% of Melbourne's total revenue. Per EFTS, Auckland's revenue from Government was 41% that of Melbourne's, and its total revenue was only 60% that of Melbourne's.[91]

[89] Source: Deloitte (2005). *University Remuneration and Resourcing. New Zealand total e*xcludes AUT.
[90] EFTSU = Equivalent full-time student units (measure of EFTS used in Australia)
[91] The University of Auckland's total income for 2004 included $4.6 million in PBRF funds received.

For University of Auckland staff and students, the effects of this funding and overall income differential are clear:

- 77% of the EFTS, but only 55% the staff (i.e. higher student : staff ratios)
- Less than a third the net assets (only 29% of Melbourne's net assets) [92]
- Only 40% of Melbourne's total property, plant and equipment. This equates to 48% of Melbourne's infrastructure per EFTS, and 67% per academic FTE (i.e a poor base on which to support teaching, learning and research).
- Lower surpluses for reinvestment.

Hence, increased investment in the university sector could be used to increase the quality and contribution of New Zealand universities through more competitive academic salaries, improved general to academic staff ratios, improved student to staff ratios, better infrastructure for teaching and learning, and investment in the plant, equipment, technology and buildings needed to enable the research that will most benefit New Zealand's social and economic development.

4.5.6 Improved staffing levels and quality

A low level of investment per student has a number of consequences, most obviously in staffing. Table 9 shows the academic salaries (corrected for purchasing power) in several countries with which we compete for staff. Not surprisingly, better resourced systems offer superior remuneration to academic staff.

Table 9: Academic salaries by country (in US$ adjusted for purchasing power parity) [93]

Rank	New Zealand	Australia	Canada	United Kingdom	United States	New Zealand as a % of Australia
Lecturer/ Asst Prof	$38,300	$51,900	$60,000	$40,500	$60,800	74%
Senior Lecturer	$51,400	$63,200	n/a	$49,000	n/a	81%
Associate Professor	$60,900	$73,500	$74,500	$57,700	$70,800	83%
Professor [94]	$66,100	$89,700	$92,400	$65,200	$96,500	74%

Similarly, a recent study of academic staff salaries by the Association of Commonwealth Universities (ACU) found that New Zealand was fourth out of six nations surveyed in terms of salaries, coming in behind Australia, Canada, and the United Kingdom.[95] New Zealand had slipped from third to fourth place since 2001-02, and is below average for each of the academic categories.

It might be argued, of course, that this simply represents the generally lower remuneration that exists in New Zealand compared to overseas. However, several other facets of this situation need to be understood.

[92] It is noted that this will partly be affected by the higher property values observed in Melbourne relative to Auckland, and also the lower levels of research infrastructure in place at The University of Auckland.
[93] Deloitte, (2005). *Staff Remuneration and Resourcing* .
[94] Represents minimum for Australia, United Kingdom and New Zealand
[95] Kubler, J and Roberts, L. *Association of Commonwealth Universities 2004-05 Academics Staff Salary Survey*

First, universities have very high proportions of international academic staff, and thus are very vulnerable to a chronic inability to meet international salary norms. For example, at The University of Auckland, approximately half of academic staff are from countries other than New Zealand. A similar pattern exists at the other universities where around half of the staff are either from overseas or are New Zealanders with overseas postgraduate qualifications. These expatriates are part of the international academic market and, while sentiment may play a part, in order to continue attracting this group back salary levels will need to match those available internationally.

Low salaries and total remuneration make New Zealand an obvious and vulnerable target for other countries seeking to recruit academic staff. The United Kingdom is estimated to require an additional 19,000 academics over the next 8 - 10 years to replace retiring staff, and a further 17,000 if the government's student participation goals are realised.[96] Canada has already identified New Zealand as a key source for the recruitment of the 40,000 new academic staff it will require by 2011 to replace retiring professors and to respond to growth in enrolments.[97] While salaries are only one component of attracting and retaining academic staff, comparatively low remuneration places New Zealand's universities at a serious disadvantage in an intensely competitive employment market.

Second, while in the Tripartite process the Vice-Chancellors (in the interests of promoting cooperation with union leaders) accepted a union argument for the case that general staff salaries should also rise, we need to make clear here our view (also expressed to the unions) that the greatest pressure is undoubtedly on the salaries (and related conditions) of academic staff. By and large, universities know that they have to meet the local market if they wish to employ quality general staff, and they do so. The market for academics is, however, an international one and as Table 9 illustrates we presently find it impossible to consistently meet that market, particularly for top quality staff.[98]

Third, in an environment characterised by low investment in our universities, Vice-Chancellors are forced to trade off several unsatisfactory outcomes with respect to staffing. Not only is income per student low, but it is increasing at a rate lower than costs per academic staff member (the details of this argument are contained in the Tripartite paper and will not be repeated here). [99] Although New Zealand universities have, to date, typically dampened this effect (i.e. sought to maintain student: academic staff ratios, see Table 10) by minimising their expenditure on general staff and other sources of expenditure, cost compression cannot continue indefinitely. Inadequate investment per student will ultimately lead to a decreasing number of academic staff members per student – that is, to higher student: staff ratios, larger classes and an inevitable decline in teaching quality.

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[96] Hugo, G, Daysh, S, Morriss, A and Rudd, D (2004). *Demography and Academic Staffing: An international perspective*.

[97] Association of Canadian Universities and Colleges of Canada, (15 October 2002). "Canadian Universities Face Big Challenges in the Next Decade". Available online: http://www.aucc.ca/publications/media/2002/10_15_e.html

[98] Remuneration is not the only area in which New Zealand is falling behind other countries in terms of attractiveness for academic staff. Superannuation and other provisions such as paid parental leave compound the problems of the pay differential. According to the Deloitte report, Australia, England and Canada have university superannuation schemes that provide for higher employer contribution levels (i.e. 14%, 16% and 8.5%-11.5%) than exist in New Zealand (i.e. 6.75%). The Association of University Staff has estimated a minimum 11% difference in non-salary benefits provided by Australian and New Zealand universities.

[99] NZVCC, AUS, PSE and ASTE (2005). *Paper to the Universities Tripartite Forum Working Group* [as supplied to the Minister and TEC, December 2005].

Table 10: Ratio of student EFTS to academic staff FTE in New Zealand universities (1991 - 2003) [100]

Year	EFTS [101]	Academic FTE [102]	Student: staff ratio
1991	67,703	3,768	18.0
1992	71,057	3,859	18.4
1993	75,870	4,088	18.6
1994	79,781	4,411	18.1
1995	83,864	4,692	17.9
1996	86,297	4,818	17.9
1997	90,048	4,867	18.5
1998	91,845	4,973	18.5
1999	95,180	5,008	19.0
2000	105,791	5,935	17.8
2001	109,765	6,103	18.0
2002	116,308	6,365	18.3
2003	123,224	6,562	18.8

The impact of reduced expenditure on general staff is considerable; fewer general staff inevitably mean that academic staff are less well supported, required to spend more of their time on non-academic activities (which they are not trained to perform), and are therefore less efficient. In addition, New Zealand universities are constrained by very poor capital development, high deferred maintenance, and a low level of investment in research equipment.

To summarise: New Zealand has an inappropriately low level of public investment per student in its universities. This reflects not a low investment (relative to GDP) in tertiary education, but rather a distribution problem – too high a proportion of that investment being diverted to the financial support of students and to the non-university tertiary sector. In particular, over the last five years there has been a massive, unintended and non-strategic allocation of public funding to low-level tertiary courses. This pattern of 'investment' must be rebalanced if New Zealand is to have an internationally competitive university system.

Clear evidence exists that the increased level of investment in universities overseas produces quality and productivity benefits of the kind that the New Zealand Government seeks. There is every reason to believe that increased investment in New Zealand universities would produce the same kinds of increase in quality and that this would be of benefit to the country.

[100] Source: NZVCC (EFTS from universities' annual reports; FTE academic staff numbers from Ministry of Education statistics, 31 July series (discontinued)). Series includes AUT from 2000.
[101] Includes all EFTS (domestic and international).
[102] Excludes research-only staff.

5. The Actions: What is required to better balance the pattern of investment?

In view of the Cabinet directive that the reformed tertiary education system cost no more than the current system – i.e. that this is a 'zero sum game' – the Government must act to ensure that its current investment is used in the most appropriate manner possible.

It is abundantly clear that the current pattern of investment is not optimal.

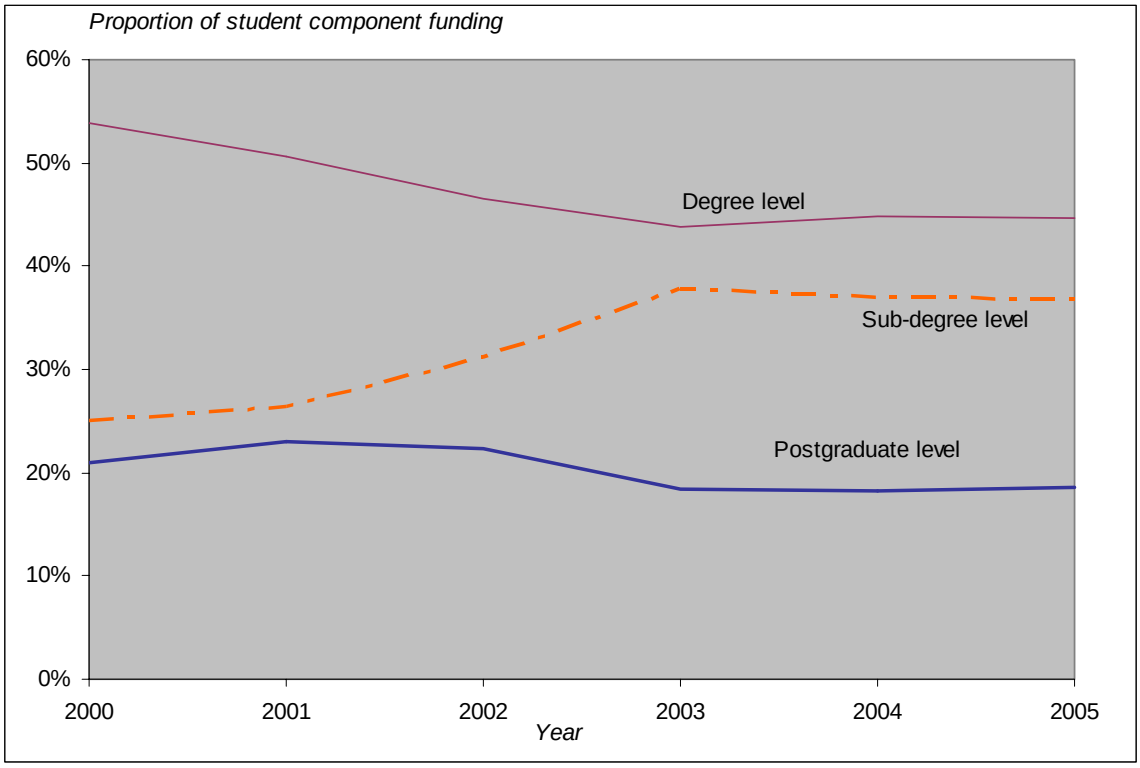
First, New Zealand spends too high a proportion of its total tertiary investment on the financial support of students, even though this targets few of the students (Māori, Pasifika, low socio-economic background) most in need of financial relief. However, we accept that, at least in the current political climate, this is unlikely to change.

Second, the last five years has seen a massive and non-strategic growth in funding of the non-university sector. That change is clearly seen as inappropriate – were it not, the current reforms would not be underway. However, the solution is not simply to strip funding out of the non-university tertiary sector in an arbitrary manner. While growth has not always been strategic, an equally non-strategic approach to correcting the Government's investment portfolio would hardly be desirable at this point.

The problem is not one of investment in universities versus other forms of tertiary education, but rather of ensuring that New Zealand's investment in tertiary education is consistent with its aspirations for individual and national growth. As discussed previously, investment in tertiary-type A programmes (roughly defined as degree level and above) reaps the greatest rewards. As also noted, New Zealand's investment in tertiary-type B programmes (roughly, shorter programmes below degree level) is considerably out of line with most other OECD nations.

As Figure 10 illustrates, this pattern of 'investment' over the last five years, with a substantial increase in investment in sub-degree courses and a relative reduction in emphasis on degree and postgraduate courses, cannot be reconciled with any logical investment strategy. Rather, it is an accident of the 'bums on seats' model – more specifically of the underlying assumption that every bum is of equal value from an investment viewpoint. As we have shown, that is clearly not the case.

Figure 10: Student component funding by level (2000 – 2005)



Having recognised that a redirection of investment toward universities will be required to correct the current imbalance in its investment profile, the Government will need to decide how to deliver that investment in order to ensure it achieves the kinds of outcomes it desires. In this respect, NZVCC wishes to make the following comments.

The overriding concern of Government must be to establish an investment system for universities different from that for non-university tertiary institutions, and we understand (and support) that to be one of the outcomes of the current reform process. The fact that the current student component funding system provides the same support for tuition of a student in a university (where there is a statutory obligation for staff to carry out research) and in other tertiary institutions (where no such obligation exists) cannot be justified. Failure by successive governments to recognise the cost of creating and maintaining a research-rich environment has led to the aberrant investment patterns which characterise New Zealand's tertiary sector (see sections 2 and 3) and to the need for ad hoc investments such as those contemplated by the Tripartite process. A sensible approach to investing in university tuition, and in particular recognition of the costs of research and research-active staff, would have avoided the need for such adjustments.[103] No previous government has had the courage to differentiate the investment system in this way – the present Government must!

[103] As will be discussed further in a subsequent NZVCC paper, such systems are not unusual internationally. New Zealand stands with Canada and the United States in having a joint system of funding for both universities and polytechnic or vocationally-based courses. In other jurisdictions, higher education funding models provide far greater differentiation for mission and costs. (Source: Scottish Executive, (2005). *Funding for Learners Review: Funding Available to Learners in Tertiary Education – An International Comparison).*

In addition to establishing a separate funding/investment system for the universities, the Government must rebalance its investment in sub-degree versus degree level and above. In 2000, 25% of student component investment was in sub-degree level education, 54% in degree and 21% in postgraduate level education. Today the ratios are 37%, 45% and 19% respectively, representing a massive overinvestment in sub-degree education at the expense of degree and postgraduate programmes. Were the 2000 proportions to be applied today, the distribution would be as shown in Table 11:

Table 11: Student component investment by level (2000 and 2005) [104]

Level	2000 Actual	%	2005 Actual	%	2005 Modelled on 2000 distribution	%
Sub-degree	$313,515,710	25%	$679,357,350	37%	$462,973,166	25%
Degree	$ 674,916,200	54%	$825,412,886	45%	$996,658,477	54%
Postgraduate	$263,473,257	21%	$343,936,161	19%	$389,074,754	21%
Total	$1,251,905,167	100%	$1,848,706,396	100%	$1,848,706,396	100%

The net result would be over $200 million freed up from sub-degree courses and available for re-investment in degree and postgraduate-level education. This should be the Government's immediate target for rebalancing its investment.

It is recognised that the task of retrieving this investment in sub-degree education will not be easily achieved, nor can it occur immediately in all institutions. However, some level of urgency is required if New Zealand is to have a chance to reverse the current distribution, and ensure this country has the foundation for social and economic transformation.

Encouragingly, some of the $200 million identified above is already beginning to be freed up for alternative investment. A decline in domestic EFTS across many tertiary institutions in 2006, while not necessarily desirable, is likely to have provided a significant portion of the aforementioned $200 million. The Government's own Budget Estimates suggest that government-funded EFTS places are expected to decline by 0.2% in 2006 and by a further 5.0% in 2007.[105]

Specifically, the Supplementary Estimates of Appropriation for 2005/06 provide that a total of $92.5 million was saved in 'Tertiary Education and Training' over the past year, due in the main to lower than expected numbers of students, changes to the average cost per student, the movement of adult and community education out of student component funding, and the 'managing of volumes of sub-degree provision' (i.e. downwards), along with reduced provision for PTEs.[106]

Reflecting the commentary provided by Dr Cullen throughout the current reform process, the Government's 2006/07 Estimates for Vote Education suggest that further reduced investment in sub-degree education is anticipated in the near future.

[104] Based on Ministry of Education and TEC individualised data requests (May and June 2006). Student component funding is inclusive of GST and fee stabilisation SSG between 2001 and 2003. It excludes base grants, Disability SSG, Māori and Pasifika SSG, and PBRF payments.
[105] Budget 2006/07 Estimates: Vote Education. B.5 Vol. I. Page 372, Note 33: 'The proportion of sub-degree EFTS will decline from 51.2% of all EFTS in 2005, to 49.9% in 2007.'
[106] Budget Supplementary Estimates 2005/06 B.7. P153

On the back of a $14.2 million decrease in 'Tertiary Education Sub-Degree Provision: Student Component Funding' expenditure in 2005/06 (much of which was then invested back in through the 'Managing the Change and Reinvestment' provision), the Government is anticipating further decreases of $25.5 million in 2006/07, $25.3 million in 2007/08 and $17.2 million in 2008/09.[107] Investment in Adult and Community Education is also expected to decline substantially over this period. These are encouraging signs and, as summarised in Table 12, the net effect is significant.

Table 12: Anticipated savings in Tertiary Education and Training (TET) expenditure (2006/07 - 2008/09) [108]

Year	Savings in TET expenditure (from base of 2004/05)	Planned reinvestment	Net savings (from base of 2004/05)
2006/07	$107.7 m	$66.5 m	$41.2 m
2007/08	$131.7 m	$61.1 m	$70.6 m
2008/09	$150.3 m	$59.5 m	$90.8 m

By 2008/09, the Government will be saving approximately $150 million per annum (compared with 2004/05) as a result of reduced TET expenditure in sub-degree and adult and community education provisions. Currently, nearly $60 million of this is designated to be reinvested; worryingly $40 million is expected to go *back* into adult community education and sub-degree courses (along with $18 million in training for designated groups and $2 million in bureaucracy). At a minimum, the remaining $90 million represents a significant proportion of the $200 million identified above, with no additional change required in the sector.

The key for this Government is to ensure that such 'savings' are not simply absorbed, or redirected towards low returning investment in the tertiary sector, but are then reinvested in areas of high quality and performance. Specifically, gains as a result of lower numbers of students in sub-degree programmes of study should be retained and utilised to increase investment in research-led degree and postgraduate-level education. Only then will the Government begin supporting the universities in a manner that will lead to the kind of economic and social transformation it seeks.

[107] Budget 2006/07 Estimates: Vote Education. B.5 Vol. I. Page 392-393.
[108] Budget 2006/07 Estimates: Vote Education B5. Vol. I. Pages 392-393. Savings due to lower investment in sub-degree and adult community education provision.