

# 12 RESEARCH IN THE TERTIARY EDUCATION SECTOR

## AN OVERVIEW

The research performance of the tertiary sector improved in several areas in 2008. In the area of research training, enrolments in doctoral degrees increased substantially. The amount of study at doctoral level, in terms of equivalent full-time student units, accounted for 2.4 percent of all tertiary education enrolment in 2008. The latest increase in the number of doctoral students was driven by a significant increase in international enrolments, which occurred in response to a change in government policy in 2006 to allow for international doctoral students to be funded on the same basis as domestic students.

The amount of research contract income earned by the universities per academic staff member rose in real terms between 2007 and 2008.

Total research output increased at five out of the six universities that reported research output in 2008. The academic impact of research by the New Zealand universities relative to the world average increased between 1998 to 2002 and 2003 to 2007 in eight out of the 10 broad subjects monitored. Three subject areas – health, medicine and public health; mathematics; and informational sciences and technology – had an academic impact above the world average in 2003 to 2007.

## 2009 YEAR

The Ministry of Education released two reports analysing the research performance of the tertiary education system. One of these reports – *Making an impact* – contained an analysis of the academic impact of New Zealand university research between 1994 and 2007. The report found that the share of world indexed publications produced by New Zealand university authors, and the number of associated citations, has increased since the Performance-Based Research Fund was introduced. Between 2003 and 2007, the relative academic impact of New Zealand university research was higher than the group of eight research-intensive universities in Australia (G8) in three out of 10 broad subject areas. Between 2003 and 2007, the relative academic impact of New Zealand university research was also higher than the non-G8 Australian universities in eight out of 10 broad subject areas.

Another report – *Promoting quality research* – used data from the Performance-Based Research Fund quality evaluations to analyse the factors associated with the likelihood of university academics being promoted between 2003 and 2006. The report found that staff with higher levels of research quality and those who had submitted higher levels of research outputs had a greater likelihood of being promoted. While research quantity decreased in importance as a factor in higher academic ranks, research quality had an increasingly important relationship to the likelihood of promotion in more senior academic ranks.

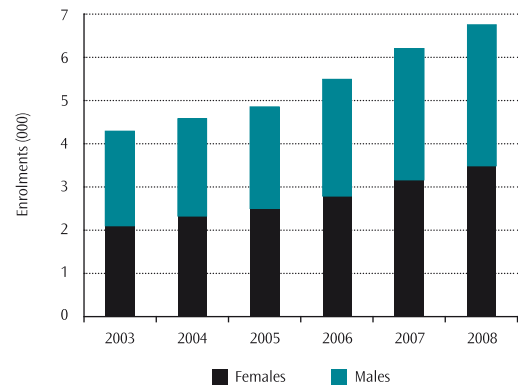
## DOCTORAL ENROLMENTS

The number of doctoral enrolments continued to rise in 2008. Women represented 52 percent of all doctoral students' enrolments.

### Doctoral enrolments in 2008:

Total	6,720	(up 8.9% on 2007)
Females	3,460	(up 10% on 2007)
Males	3,260	(up 7.4% on 2007)

Figure 12.1: Doctoral enrolments by gender



## DOCTORAL ENROLMENTS BY SELECTED GROUPS

The number of international, Māori and Pasifika students enrolled in doctorates increased in 2008. The largest increase was for international students and this was partly a result of a change to the funding regime for new international doctoral students in 2006.

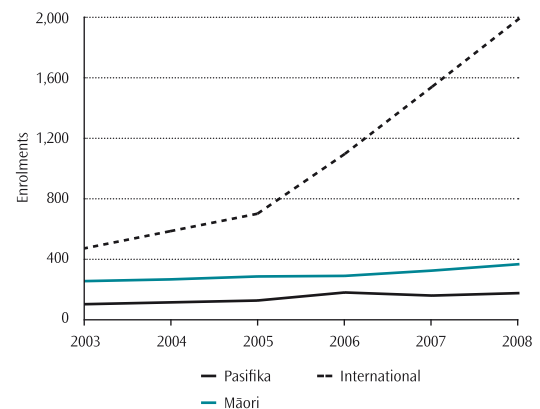
### Doctoral enrolments by selected groups in 2008:

Māori	350	(up 13% on 2007)
Pasifika	158	(up 9.0% on 2007)
International	1,970	(up 29% on 2007)

#### Notes:

1. Each student is shown in each ethnic group he/she identified with.
2. Pasifika enrolments include domestic and international students.

Figure 12.2: Doctoral enrolments by selected groups



## DOCTORAL COMPLETIONS

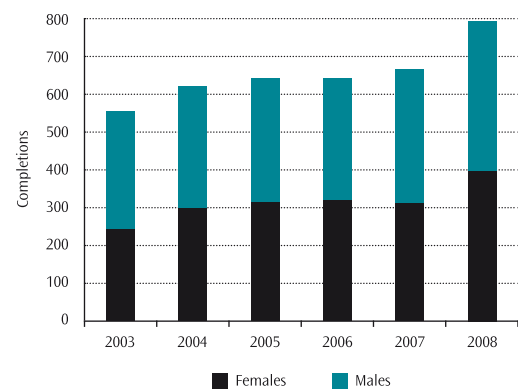
The number of students completing a doctoral degree increased in 2008. Over the last five years, the number of students gaining a doctoral qualification has increased by 7.5 percent, on average, per year.

Doctoral completions by women increased significantly from 2007 to 2008. Since 2003, female students qualifying for a doctoral degree increased by 10 percent, on average, per year. For male students, the corresponding figure was 5.1 percent.

### Doctoral completions in 2008:

Total	792	(up 20% on 2007)
Females	396	(up 28% on 2007)
Males	396	(up 13% in 2007)

Figure 12.3: Doctoral completions by gender



### DOCTORAL COMPLETIONS BY SELECTED GROUPS

The number of doctoral completions by Māori and international students increased in 2008, while the number of completions by Pasifika students fell. The large increase in doctoral completions by international students is partly a result of increased enrolments following the change to the funding regime for new international doctoral students in 2006.

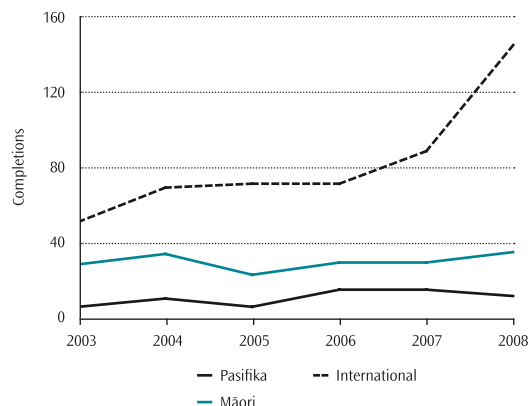
#### Doctoral completions by selected groups in 2008:

Māori	34	(up 17% on 2007)
Pasifika	11	(down 21% on 2007)
International	143	(up 63% on 2007)

**Notes:**

- Each student is shown in each ethnic group he/she identified with.
- Pasifika enrolments include domestic and international students.

Figure 12.4: Doctoral completions by selected groups



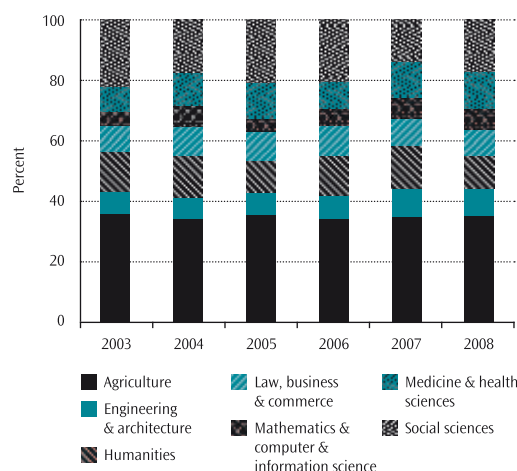
### DOCTORAL COMPLETIONS BY FIELD OF STUDY

The largest proportion of students completing doctorates in 2008 studied in the areas of the biology/biological sciences and social sciences.

#### The proportions of doctoral completions by subject area in 2008:

Agriculture, food, forestry & environment	3.3%	(3.0% in 2007)
Biology/biological sciences	19%	(19% in 2007)
Engineering & architecture	9.1%	(9.4% in 2007)
Humanities	11%	(14% in 2007)
Law, business & commerce	8.7%	(9.1% in 2007)
Mathematics & computer & information science	7.0%	(7.0% in 2007)
Medicine & health sciences	12%	(12% in 2007)
Physical sciences	13%	(13% in 2007)
Social sciences	17%	(14% in 2007)

Figure 12.5: Doctoral completions by field of study



### DOCTORAL STUDENTS PER ACADEMIC STAFF MEMBER

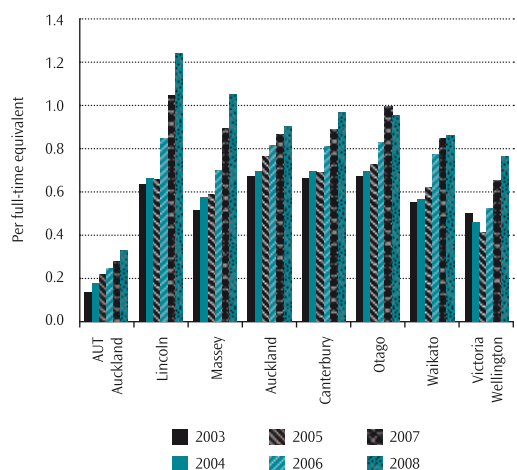
The ratio of doctoral enrolments per academic staff member rose substantially across almost all universities in 2008. This increase was mainly a result of the rise in international enrolments.

#### The ratios of doctoral enrolments to academic staff in 2008:

All universities	0.86	(up 7.7% on 2007)
Auckland University of Technology	0.33	(up 18% on 2007)
Lincoln University	1.25	(up 19% on 2007)
Massey University	1.05	(up 17% on 2007)
University of Auckland	0.91	(up 4.2% on 2007)
University of Canterbury	0.97	(up 8.4% on 2007)
University of Otago	0.96	(down 4.0% on 2007)
University of Waikato	0.86	(up 2.0% on 2007)
Victoria University of Wellington	0.76	(up 16% on 2007)

Note: Data for colleges of education has been merged with the universities.

Figure 12.6: Ratio of doctoral enrolments to academic staff



**COMPLETIONS PER ACADEMIC STAFF MEMBER**

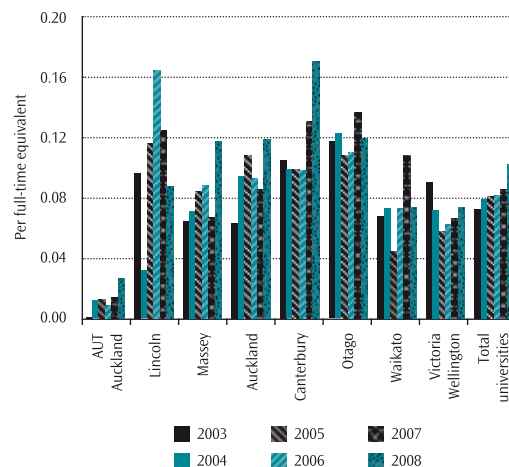
While the ratio of doctoral completions per academic staff member rose overall for the universities in 2008, three universities exhibited a fall in the number of doctoral completions per academic staff member.

**The ratio of doctoral completions to academic staff in 2008:**

All universities	0.10	(up 19% on 2007)
Auckland University of Technology	0.03	(up 97% on 2007)
Lincoln University	0.09	(down 30% on 2007)
Massey University	0.12	(up 75% on 2007)
University of Auckland	0.12	(up 39% on 2007)
University of Canterbury	0.17	(up 30% on 2007)
University of Otago	0.12	(down 12% on 2007)
University of Waikato	0.07	(down 32% on 2007)
Victoria University of Wellington	0.07	(up 10% on 2007)

*Note:* Data for colleges of education has been merged with the universities.

**Figure 12.7: Ratio of doctoral completions to academic staff**



**UNIVERSITY RESEARCH OUTPUT**

Auckland University of Technology, the University of Canterbury, the University of Otago, the University of Waikato and Victoria University of Wellington reported an increase in research output in 2008, while research output fell at Lincoln University.

**The number of research outputs reported for 2008:**

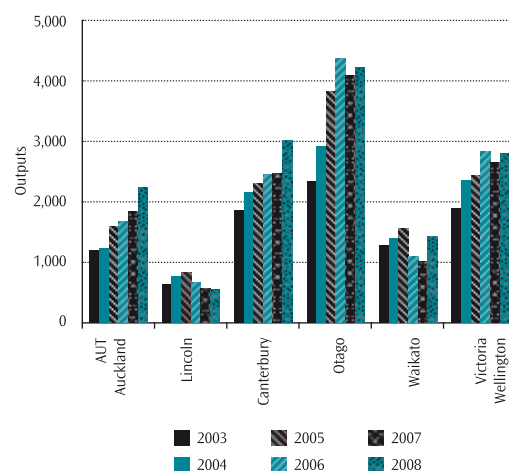
Auckland University of Technology	2,240	(up 22% on 2007)
Lincoln University	558	(down 2.6% on 2007)
University of Canterbury	3,010	(up 22% on 2007)
University of Otago	4,230	(up 3.7% on 2007)
University of Waikato	1,420	(up 40% on 2007)
Victoria University of Wellington	2,800	(up 5.9% on 2007)

**Notes:**

1. Data for colleges of education has been merged with the universities. 2. Care should be used when comparing the research output of the universities due to differences in the counting methods. 3. The counts of research outputs for 2008 are preliminary in some cases. 4. Not all universities are included in this table as they either do not report research output counts or do so in a manner that does not allow for trend analysis.

*Source:* Annual reports and research reports of the universities.

**Figure 12.8: Reported research outputs of selected universities**



**UNIVERSITY RESEARCH PRODUCTIVITY**

The number of research outputs per academic staff increased in 2008 at Auckland University of Technology, the University of Canterbury, the University of Waikato and Victoria University of Wellington. The number of research outputs per academic fell at Lincoln University and the University of Otago.

**Ratio of reported research outputs per academic staff for 2008:**

Auckland University of Technology	2.3	(up 19% on 2007)
Lincoln University	2.5	(down 3.1% on 2007)
University of Canterbury	3.9	(up 24% on 2007)
University of Otago	3.6	(down 7.3% on 2007)
University of Waikato	2.2	(up 36% on 2007)
Victoria University of Wellington	3.0	(up 9.7% on 2007)

**Notes:**

1. Data for colleges of education has been merged with the universities. 2. Care should be used when comparing the research output of the universities due to differences in the counting methods. 3. The counts of research outputs for 2008 are preliminary in some cases. 4. Not all universities are included in this table as they either do not report research output counts or do so in a manner that does not allow for trend analysis.

*Source:* Annual reports and research reports of the universities.

**Figure 12.9: Reported research outputs of selected universities per academic**

