



CHAPTER NINE

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AN OVERVIEW

For the first time in recent years, there was a decline in students enrolled in bachelors-level and higher study in 2006. While numbers in bachelors and masters-level study decreased, there was a significant increase in doctorate students. The main contributor to the overall decline in numbers was a decrease in international students, particularly from Asia, for the first time since 1998. In comparison, domestic student numbers remained relatively unchanged in 2006.

Universities continued to dominate bachelors-level and higher provision in 2006, with four in every five students studying at a university. Universities and private training establishments were the only types of providers to experience an increase in students in 2006. There was a continued decline in domestic students aged 25 years and over enrolled in bachelors-level and higher study in 2006. In comparison, the number of domestic students aged under 25 years continued to rise.

The number of students completing a bachelors-level or higher qualification increased slightly in 2006. This was due in part to an increase in the five-year completion rate for those domestic students who started study in 2002. Level 8 qualifications¹ experienced the largest increase in domestic students completing qualifications. The five-year completion rates were highest for European and Asian domestic students in 2006.

The University of Auckland economist Dr Sholeh Maani recently explored the relationship between parental income during adolescent years and the tertiary education choices of New Zealand youth at age 18 years. The study by Maani showed that while parental income did not have a statistically significant influence on participation in tertiary education overall, it did significantly influence participation at university. Academic performance at school and peer influence were the most important influences on participation in tertiary education. A summary of Dr Maani's study is provided later on in this chapter.

THE 2007 YEAR

Early indications suggest that student numbers at bachelors-level and higher study will increase in 2007 due to an increase in the number of domestic students aged 17 to 20 years enrolling in bachelors degrees. This trend is consistent with the 'baby blip' that has begun to move into tertiary education and which is predicted to peak in 2007 and 2008. This increase is expected to be moderated by a further fall in the number of domestic students aged 25 years and over and a flattening out of international students in bachelors-degree study.

Early indications also suggest that growth in doctorate students will continue into 2007. Increases in the Performance-Based Research Fund and the 2006 policy change to treat international doctorate students as domestic are likely to exert a positive influence on enrolments at this qualification level.

From 1 January 2007, the remaining two colleges of education became part of the university sub-sector, leaving the universities, institutes of technology and polytechnics, and wānanga as the remaining three types of public provider offering bachelors-level and higher qualifications.

Bachelors-level and higher qualifications are largely theoretically-based qualifications which make up four levels of the New Zealand Register of Quality Assured Qualifications. Level 7 is made up of bachelors degrees, graduate certificates and diplomas, and certificates of proficiency. Level 8 qualifications comprise postgraduate certificates and diplomas, and bachelors degrees with honours. Level 9 qualifications are masters degrees. Level 10 qualifications are doctoral degrees, including doctor of philosophy, professional doctorates and higher doctorates.

ANALYTICAL TABLES: An associated set of tables on the students in bachelors and postgraduate provider-based qualifications is available on the Education Counts website, Tables ENR1-40, EFT1-38, PPN1-13, PRG1-15, COM1-36, CSC1-10 and ARN1-18. Detailed technical information on the data presented here can be found in chapter 18.

1. This category covers bachelors degrees with honours, postgraduate certificates and postgraduate diplomas.

STUDY AT BACHELORS LEVEL AND HIGHER

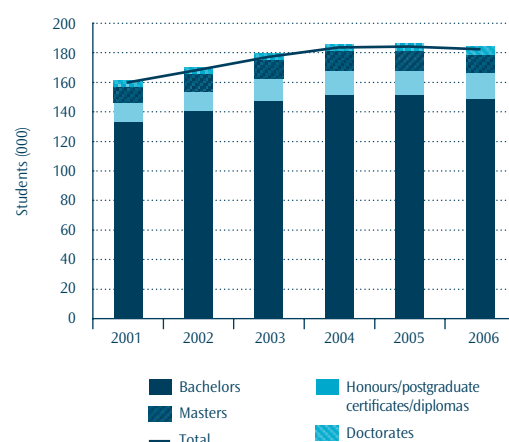
For the first time in recent years there was a decrease in 2006 of students enrolled in bachelors-level and higher study. However, increases in student numbers occurred in honours/postgraduate qualifications and doctorates, which had the highest increases of all qualifications levels in 2006. The rise in doctoral enrolments was influenced by cohort effects of larger intakes of international doctoral students.

Students enrolled in bachelors-level and higher study in 2006:

Total	182,000	(down 1.0% on 2005)
Bachelors	149,000	(down 1.8% on 2005)
Honours/postgraduate certificates/diplomas	17,800	(up 5.5% on 2005)
Masters	12,400	(down 5.4% on 2005)
Doctorates	5,470	(up 13% on 2005)

Expressed as equivalent full-time students, enrolments at bachelors-level and higher totalled 136,000 in 2006 (down 1.6 percent on 2005).

Figure 9.1// Participation in bachelors-level and higher study



DOMESTIC/INTERNATIONAL

Figure 9.2// Distribution of domestic and international bachelors-level and higher students

A significant decrease in international students during 2006 resulted in their making up a lower proportion of students at bachelors level and higher. Enrolments by domestic students remained virtually unchanged in 2006, although the participation rate decreased slightly.

Students enrolled in bachelors-level and higher study in 2006:

Domestic:

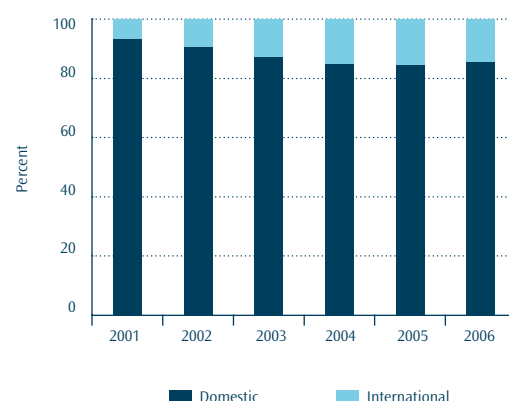
Total enrolments	156,000	(no change from 2005)
Participation rate ²	4.8%	(down from 4.9% in 2005)
Expressed as equivalent full-time students	115,000	(no change from 2005)

Thirty-five percent of all domestic students were enrolled in bachelors-level or higher study.

International:

Total enrolments	26,300	(down 7.0% on 2005)
Expressed as equivalent full-time students	21,500	(down 10% on 2005)

Fourteen percent of all bachelors-level and higher students were international.



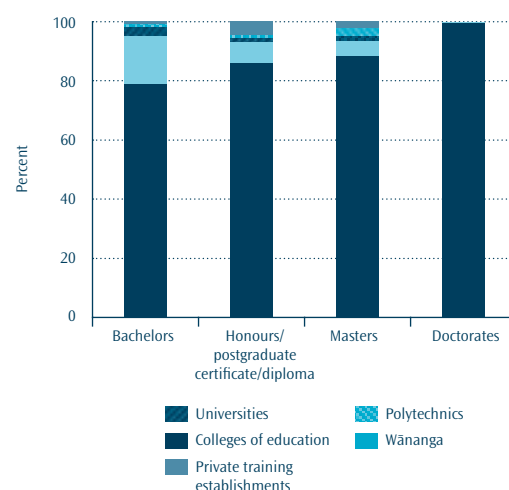
TYPE OF PROVIDER

Figure 9.3// Distribution of domestic bachelors-level and higher students by type of provider

Universities continued to dominate the provision of bachelors-level and higher study, with four in five domestic students studying there in 2006. Students enrolled in higher-level qualifications such as doctorates and masters were much more likely to be studying at a university.

Domestic students enrolled in bachelors-level and higher study in 2006:

Universities	126,000	(up 0.7% on 2005)
Polytechnics	22,300	(down 2.2% on 2005)
Colleges of education	4,100	(down 11% on 2005)
Wānanga	1,600	(down 5.7% on 2005)
Private training establishments	2,900	(up 6.4% on 2005)



2. The participation rate is the percentage of New Zealanders aged 15 years and over enrolled at this level.

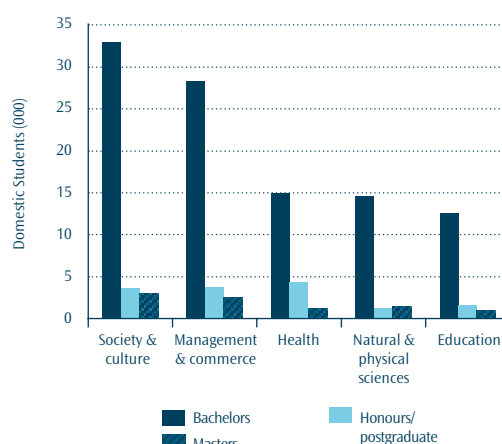
FIELD OF STUDY

Figure 9.4// Top five fields of study for domestic bachelors-level and higher students

The most common fields of study for domestic students enrolled in bachelors-level and higher study in 2006 continued to be society and culture, and management and commerce. Other fields of study that drew large numbers of enrolments were health, science and education. Together these five fields constituted 81 percent of all enrolments at these levels.

Domestic students enrolled in bachelors-level and higher study in 2006:

Society and culture	39,600	(down 1.0% on 2005)
Management and commerce	34,200	(up 1.6% on 2005)
Health	20,400	(up 2.6% on 2005)
Natural and physical sciences	17,300	(up 0.9% on 2005)
Education	15,200	(down 7.6% on 2005)



ETHNIC GROUP

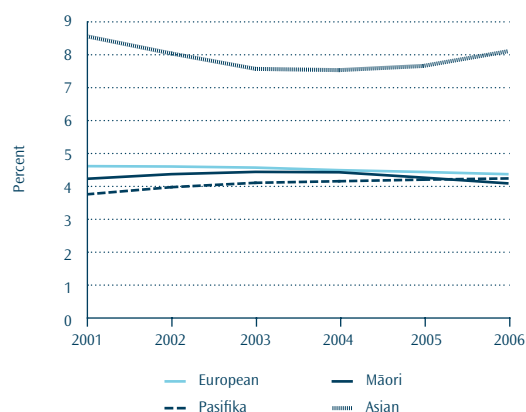
Figure 9.5// Age-standardised participation rates in bachelors-level and higher study by ethnic group

Despite a decrease in European students for the third consecutive year, they still made up almost 70 percent of all domestic students enrolled in bachelors-level and higher study in 2006. Participation rates in bachelors-level and higher study increased for Asians and remained unchanged for Pasifika in 2006.

Domestic students enrolled in bachelors-level and higher study in 2006:

European	109,000	(down 1.0% on 2005)
Māori	17,000	(down 2.4% on 2005)
Pasifika	7,850	(up 4.0% on 2005)
Asian	24,800	(up 8.7% on 2005)
Other	8,950	(no change from 2005)

Asian students had the highest participation rate at 8.0%.



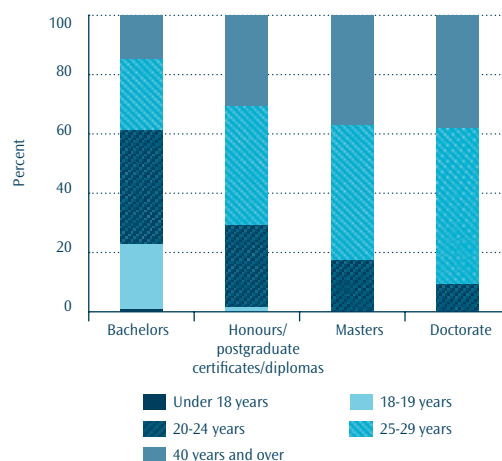
AGE AND GENDER

Figure 9.6// Distribution of domestic bachelors-level and higher students by age group

There was a continued decline in domestic students aged 25 years and over enrolled in bachelors-level and higher study in 2006 while the numbers aged under 25 years increased slightly by 2.6 percent. Domestic students enrolled in higher levels of bachelors-level and higher studies were, on average, older than those enrolled in lower levels.

Domestic students enrolled in bachelors-level and higher study in 2006:

Under 18 years	1,170	(down 2.1% on 2005)
18 to 19 years	28,200	(up 4.3% on 2005)
20 to 24 years	54,600	(up 1.9% on 2005)
25 to 39 years	43,300	(down 3.1% in 2001)
40 years and over	28,400	(down 2.6% on 2005)
Female	94,100	(no change from 2005)
Male	61,500	(no change from 2005)



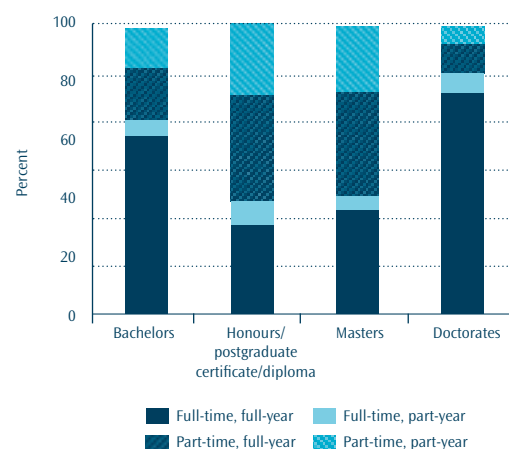
STUDY TYPE

Figure 9.7// Distribution of domestic bachelors-level and higher students by study type

There were significant differences in study type among students in bachelors-level and higher study in 2006. Bachelors and doctorate students were more likely to be studying full-time.

Domestic students enrolled in bachelors-level and higher study in 2006:

Full-time, full-year	89,800	(down 0.4% on 2005)
Full-time, part-year	9,050	(down 0.4% on 2005)
Part-time, full-year	32,400	(down 0.9% on 2005)
Part-time, part-year	24,400	(up 2.8% on 2005)
Extramural	23,800	(up 5.5% on 2005)



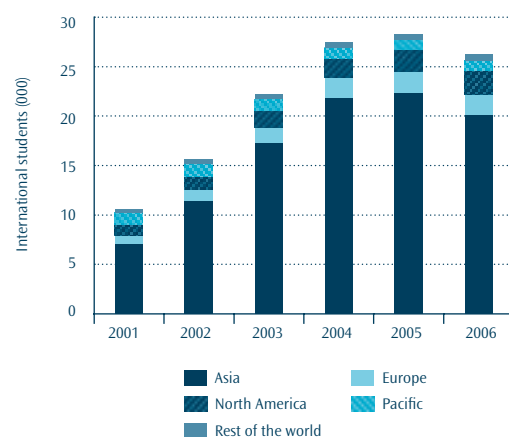
INTERNATIONAL STUDENTS

Figure 9.8// International students in bachelors-level and higher study by region of origin

Students from Asia made up over three-quarters of all international enrolments in bachelors-level and higher study, despite a large decline in their numbers in 2006.

International students enrolled in bachelors-level and higher study in 2006 by region of origin:

Asia	20,200	(down 10% on 2005)
Europe	2,370	(up 7.0% on 2005)
North America	2,030	(down 3.8% on 2005)
Pacific	1,010	(up 5.8% on 2005)
Rest of the world	704	(up 21% on 2005)



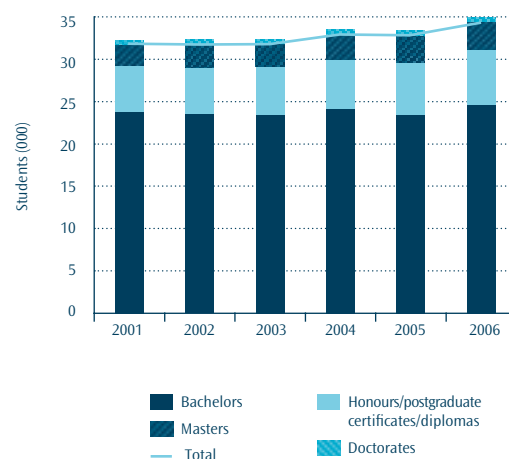
COMPLETION OF QUALIFICATIONS

Figure 9.9// Domestic students completing bachelors-level and higher qualifications

While more domestic students completed a bachelors-level and higher qualification in 2006, this increase was highly influenced by a 5 percent increase in students completing bachelors-level qualifications.

Domestic students completing a bachelors-level or higher qualification in 2006:

Total	34,200	(up 4.7% on 2005)
Bachelors	24,600	(up 5.0% on 2005)
Honours/postgraduate certificates/diplomas	6,580	(up 6.9% on 2005)
Masters	3,240	(no change from 2005)
Doctorates	570	(no change from 2005)



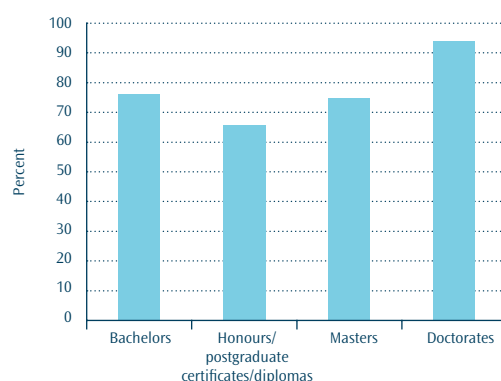
FIRST-YEAR RETENTION

First-year retention rates decreased across all bachelors-level and higher qualifications in 2006, except for masters, which increased by two percentage points.

Domestic students who started study in 2005 and either completed or continued study in 2006:

Total	76%	(78% in 2005)
Bachelors	76%	(78% in 2005)
Honours/postgraduate certificates/diplomas	66%	(68% in 2005)
Masters	75%	(73% in 2005)
Doctorates	94%	(96% in 2005)

Figure 9.10// First-year retention rates in bachelors-level and higher study



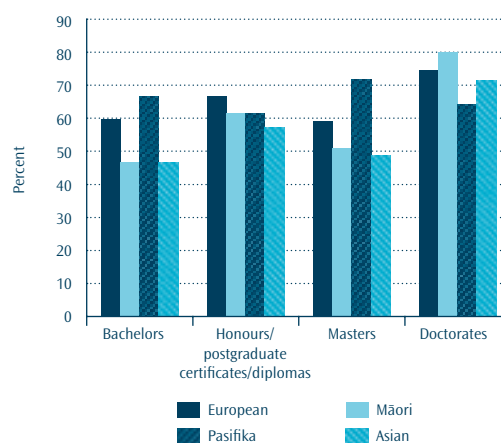
FIVE-YEAR RETENTION

The five-year retention rates, which overall remained around 60 percent in 2006, were highest for domestic European and Asian students.

Domestic students who started study in 2002 and had either completed or continued studying in 2006:

Total	61%	(60% in 2005)
European	62%	(61% in 2005)
Māori	49%	(48% in 2005)
Pasifika	47%	(48% in 2005)
Asian	69%	(68% in 2005)
Other	60%	(58% in 2005)

Figure 9.11// Five-year retention rates in bachelors-level and higher study by ethnic group



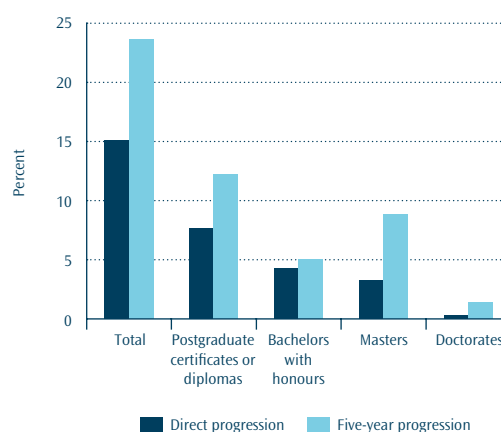
PROGRESSION TO HIGHER-LEVEL STUDY

Almost a quarter of all domestic students who completed a bachelors degree in 2001 progressed to further study at a higher level by 2006. Half of these progressed to postgraduate certificate or diploma study.

Domestic students completing a bachelors degree in 2001 who progressed to postgraduate study by 2006:

Total	24%	(23% in 2005)
Postgraduate certificates/diplomas	12%	(12% in 2005)
Bachelors with honours	5.0%	(4.7% in 2005)
Masters	8.8%	(9.9% in 2005)
Doctorates	1.4%	(1.3% in 2005)

Figure 9.12// Higher progression rates for domestic students who completed a bachelors degree in 2001



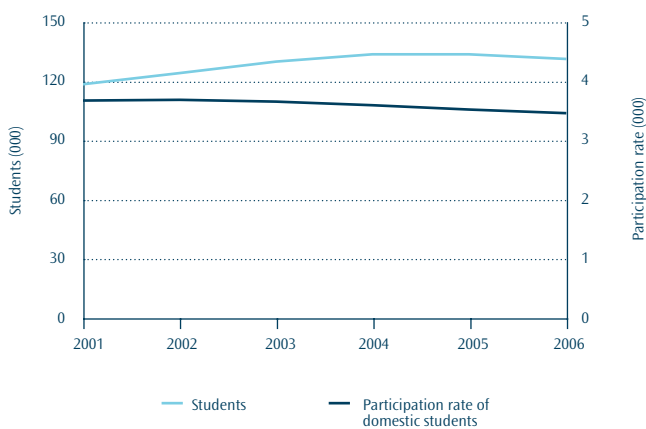
BACHELORS-DEGREE STUDENTS – A MIXED STORY

For the first time in over 10 years, the number of students enrolled in bachelors degrees decreased in 2006. After steady growth in bachelors-degree students until 2004, the numbers remained relatively unchanged in 2005 and then declined by 2,570 students or 1.9 percent to reach 131,000 students in 2006. Over 80 percent of the 2006 decrease in bachelors-degree enrolments was attributable to a fall in international enrolments.

The overall decrease in bachelors-level students masks the full picture of what has happened with these enrolments. When the numbers are broken down, the 2006 decline in bachelors-degree study was in fact due to decreases in the numbers of international students and domestic students aged 25 years and over, while the number of traditional bachelors-degree students – those aged under 25 years – continued to increase in 2006. This is consistent with the fact that the population bulge from people born around 1990 is now reaching the age for tertiary education.

In relation to domestic students, 3.4 percent of the New Zealand population aged 15 years and over participated in bachelors-degree study in 2006, down from 3.5 percent in 2005 and down from 3.7 percent in 2002, when participation peaked. In comparison,

Figure 9.13 // Participation in bachelors-degree study



the participation of people aged 15 to 24 years in bachelors-degree study increased from 12.3 percent in 2005 to 12.4 percent in 2006.

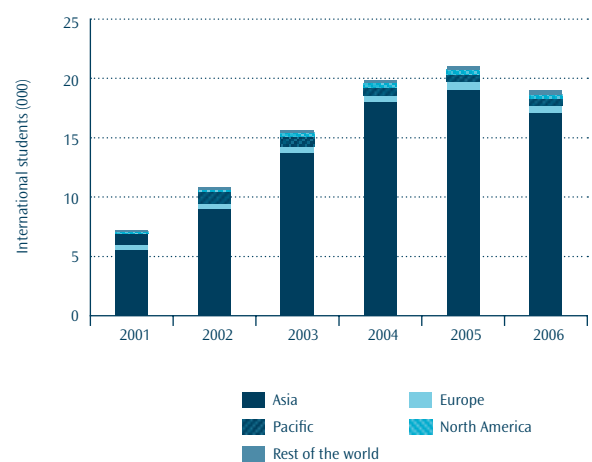
While other qualification levels experienced a greater decline in student numbers than bachelors degrees in 2006, bachelors-degree study experienced the slowest growth in student numbers of all qualification levels in the five years from 2001 to 2006.

Reduction in international student numbers

For the first time since 1998, the number of international students enrolled in bachelors-degree study decreased. In 2006 there were 19,000 international students enrolled in bachelors-degree study, a decrease of 10 percent from 2005. While there was annual growth of between 20 and 50 percent between 2000 and 2004, there was a significant slowdown in 2005, when international student numbers increased by 6.1 percent.

The 2006 decline in international students came from all the major regions of citizenship represented in bachelors-degree study. Student numbers from Asia, North America, Europe and the Pacific all decreased by around 10 percent. Only students from the Middle East increased in 2006. Asian students continued to make up over 90 percent of all international bachelors-degree students in 2006.

Figure 9.14 // International students enrolled in bachelors-degree study by region of citizenship



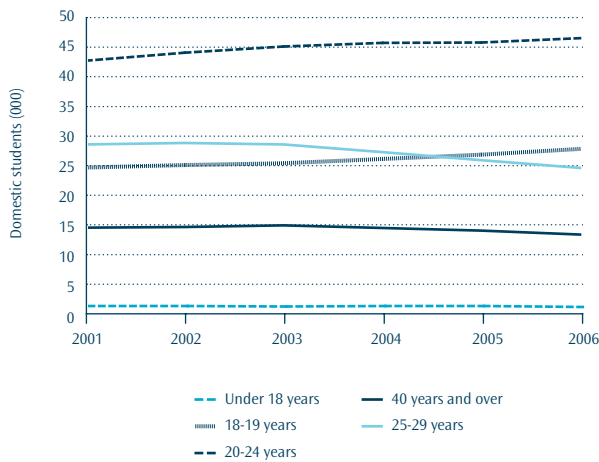
This latest decline in the number of bachelors-degree international students should not come as a surprise. After strong growth in all international student enrolments in tertiary education in New Zealand between 1999 and 2002, growth slowed in 2003 and 2004 and numbers declined in 2005 and 2006. Given the longer duration of bachelors degrees compared with non-degree qualifications, international students who first arrived in New Zealand to study in the peak years of 2002 and 2003 would have only been finishing their degrees in 2005 and 2006. Therefore the slowdown in international students which first hit the New Zealand tertiary education sector in 2003 would have been expected to have only hit bachelors-degree study in 2005.

The decline in first-year international students enrolled in bachelors-degree study between 2003 and 2006 also signalled the slowdown. First-year international student enrolments peaked at 2,670 in 2003 but have been declining since then and numbered 1,540 in 2006.

Fewer mature students

Since reaching a peak of 43,300 in 2003, the number of domestic students aged 25 years and over enrolled in bachelors degrees declined by over 14 percent to 37,200 in 2006. From 2005 to 2006, these enrolments decreased by 5.6 percent. In comparison, domestic students aged under 25 years increased by 5.7 percent from 2003 to 2006.

Figure 9.15 // Domestic bachelors-degree students by age group



2006 and by 2.4 percent from 2005 to 2006. In 2001, students aged 25 years and over made up 39 percent of all domestic bachelors-degree students, but this decreased to 33 percent in 2006.

There are two likely explanations for this decrease in mature students in bachelors-level study. Firstly, the improving employment conditions which existed during this period led to more people taking on employment and reducing or leaving tertiary study. Secondly, the proportion of the population aged 25 years and over with bachelors-level or higher qualifications had risen significantly up to 2005. In 2005, 25 percent of the New Zealand population aged 25 to 39 years had a bachelors or higher qualification, compared to 10 percent in 1991. One driver of this increase was the rise in tertiary participation of mature students that occurred in the late 1990s. It would be unrealistic to assume that this growth in participation and the resultant continued increase in the tertiary-qualified population are sustainable in the longer term.

The 2006 decrease in domestic bachelors-degree students aged 25 years and over occurred across all ethnic groups except for Asian students. The number of Asian students increased by 7.2 percent on 2005 and compared to 2001 these were up 25 percent. Māori student numbers decreased by 9.6 percent in 2006, the third consecutive year that numbers decreased. However, Māori people aged 25 years and over continue to have the highest participation rate in bachelors-degree study at 2.1 percent.

The 2006 reduction of enrolments in bachelors-degree study by people aged 25 years and over affected men and women equally. Women aged 25 years and over continued to outnumber men enrolled in bachelors-degree study by two to one.

While the decrease of mature domestic students enrolled in bachelors-degree study has occurred across all types of providers in 2006, proportionally the largest decreases occurred at wānanga and private training establishments.

More bachelors students under 25 years of age

The number of young domestic students enrolled in bachelors degrees continued to increase in 2006. There were 75,000 domestic students aged under 25 years enrolled in bachelors-degree study in 2006, an increase of 2.4 percent on 2005. As well as being driven by the population bulge that is currently reaching tertiary education age, this increase in younger students is a result of increased participation by younger people

in bachelors-degree study in recent years. In 2006, 22.9 percent of the New Zealand population aged 18 or 19 years were enrolled in bachelors-degree study, up from 22.0 percent in 2001. Additionally, 15.9 percent of the New Zealand population aged 20 to 24 years was also enrolled in bachelors degrees, against 16.5 percent in 2001.

For more information on the transition of young students from secondary school into tertiary education see the article titled *Transitions into tertiary education* in chapter 8.

Bachelors-degree study in 2007

Early indications show that the trend in bachelors-degree study in 2006 has continued in 2007. Growth in the number of domestic students aged 25 years and under has continued and increased in some regions, and the number of domestic students aged 25 years and over has continued to decline. The early indications also show that the number of international students enrolled in bachelors-degree study has flattened out.

PARENTAL INCOME AND THE CHOICE OF PARTICIPATION

It is a widely accepted theory that youth from disadvantaged families are less likely to participate in tertiary education. The Ministry of Education's school leaver statistics show that students from high-decile schools are considerably more likely to proceed directly to tertiary education after leaving school and to enrol in a degree course. While previous New Zealand studies³ have used school decile as a proxy for parental income or socio-economic status in testing this theory, studies which use rich parental income data for New Zealand youth have been limited to date.

The University of Auckland economist Dr Sholeh Maani recently explored the relationship between parental income during adolescent years and the tertiary education choices of New Zealand youth at age 18 years. The study by Maani (2006) examined the tertiary education choices of youths, using the *Christchurch Health and Development Surveys*, a longitudinal dataset with extensive socio-economic and academic information from people born in Christchurch in 1977. The use of this dataset allowed Maani to include a number of relevant factors in her study that are not commonly available for studies of this type. These factors included, for example, childhood IQ, academic performance at secondary school and parents' qualifications, as well as parental resources. The size of the cohort used in this study was 586.

Maani developed two models to look at the participation of New Zealand's youth in tertiary education at age 18 years. The first model looked at the factors that influenced participation in any type of tertiary study. The second model looked at the factors that influenced the choice of tertiary education provider against the other labour market choices of employment and unemployment.

Summary statistics

Figure 9.16 summarises the study data to show the percentage of 18 year-olds who participated in tertiary education by their parental income quintile.⁴ There were significant differences in the tertiary participation rates among the parental income quintiles, particularly participation at a university. Around a quarter of youths from the lowest parental income quintile participated in tertiary education at age 18, compared to 80 percent of youths from the highest parental income quintile. Youths from the highest parental income quintile were seven times more likely to attend a university than youths from

3. See, for example, Choat (1998).

4. A proportion of a ranked distribution that contains one-fifth of the total cohort.

the lowest parental income quintile. Youths from the three lowest parental income quintiles were more likely to study at a non-university provider than at a university.

Figure 9.16 // Participation in tertiary education by income quintile



Source: Maani (2006).

Participation in tertiary education

Results from Maani’s first model indicate that, if people continue at school at age 16, participation in tertiary education is not significantly influenced by parental income. Rather, it is largely influenced by academic performance at secondary school, peer influence and intentions expressed at age 16 to attend university or polytechnic. The effect of a one-grade increase in average school certificate⁵ mark (for example from C to B) is associated with a 13 percentage points increase in the probability of participating in tertiary education at age 18 years, while holding all other factors constant. In addition, the effect of having passed sixth form certificate increased the probability by 15 percentage points.

This means that the strong relationship between parental income and participation in tertiary education as shown in Figure 9.16 is not statistically significant once factors such as academic performance at secondary school and peer influence are controlled for. This result is not as surprising as it may first seem, given that there is a strong relationship between academic performance at secondary school and

parental income. A further study on this dataset by Maani and Kalb (2006) looked at the factors that influenced academic performance in year 11 of secondary school. This study found that academic performance is influenced by many personal and family factors, including parental income in adolescent years. Hence, it is possible to conclude that parental income has an indirect influence on participation in tertiary education at age 18 years through academic performance at secondary school.

Other variables that did not have a significant influence on participation in tertiary education were gender and ethnicity. Any of the observed differences among these groups can be explained by controlling for academic performance at secondary school. Private schooling also did not show a statistically significant influence on participation in tertiary education.

Choice of post-school activity

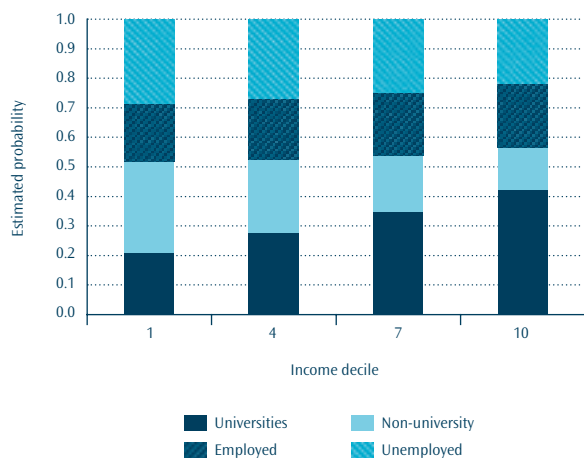
Maani’s second model⁶ analysed the influence of the factors included in model one on the choice of tertiary education provider and on entering employment on leaving school, in relation to a base category of unemployment. The results from this model show that the parental income decile during adolescence has a statistically significant influence on participation at university. While the study showed that parental income did not have a statistically significant influence on participation in employment or non-university study, there were other family resource variables that did. The probability of choosing employment over other post-school choices was negatively influenced by the amount of financial assistance received from whānau or family – people who received less financial support from their families were more likely to choose employment. The more siblings a youth had, and potentially less parental financial assistance available, the more likely they were to choose employment as a post-school option.

Figure 9.17 shows that the estimated probability of attending university increased for youths whose parental income deciles were higher. For youths with a parental income decile of 1, the probability of attending a university was 21 percent, compared to 42 percent for decile 10. The reverse is true, in terms of the probability of attending a non-university provider, with youths from parental income decile 1 more likely to attend than youths from decile 10. The probability of entering employment was similar for all youths irrespective of their parental income deciles.

5. The cohort used in this study would have attended secondary school in the early to mid-1990s, before the introduction of the National Certificate in Educational Achievement. The average School Certificate mark achieved and whether a student passed Sixth Form Certificate were therefore used as indicators of academic performance at school.

6. The pseudo R² for both models in the study was around 0.25.

Figure 9.17 // Estimated probabilities of post-school choices by parental income



Source: Maani (2006).

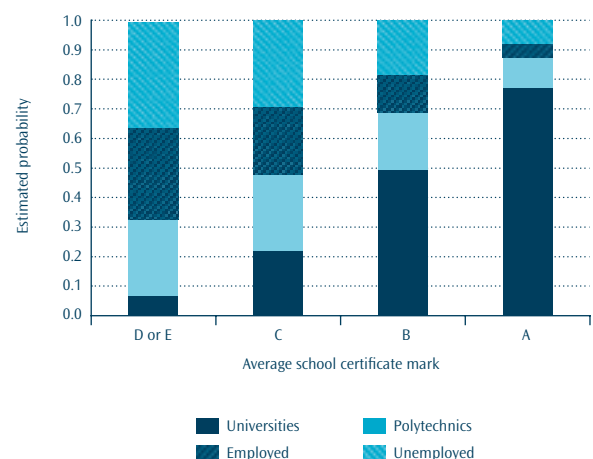
Note: The estimated probability levels are for specific choices in model two, while placing all other explanatory variables at their mean value.

The study results showed that participation at a university is influenced significantly by academic performance at secondary school as measured by both the average school certificate grade and a pass in sixth form certificate. However, academic performance at secondary school did not significantly influence attendance at tertiary education providers other than universities. Entering employment is negatively influenced by passing sixth form certificate. If a youth passed sixth form certificate, the probability of entering employment at age 18 years decreased by 19 percent. The study results also showed that the IQ at age eight years was also a statistically significant factor, indicating that early innate academic ability influenced post-school choices.

Figure 9.18 highlights the strong relationship between academic performance at secondary school and post-school choices. The probability of attending university increased significantly with an improvement in the average school certificate mark. It was estimated that one in five of the youths with an average school certificate mark of C would choose to attend a university, compared to three out of four for youths with an average mark of A. Similarly, the estimated probabilities of undertaking non-university study, entering employment or becoming unemployed decreased with an increase in the average school certificate mark.

It is possible to see how lower school grades can limit the post-school choices of youth. Youths with an average school certificate mark of C, D or E are less likely to attend a university and more likely to enter employment or become unemployed at age 18. Additionally, those youths with an average school certificate mark of D or E are more likely to be unemployed than they are to either participate in tertiary education or enter employment.

Figure 9.18 // Estimated probabilities of post-school choices by academic performance at secondary school



Source: Maani (2006).

Note: The estimated probability levels are for specific choices in model two, while placing all other explanatory variables at their mean value.

Maani also presented a number of multiple-effect scenarios that further emphasised the role that academic performance at secondary school plays in predicting post-study choices. Youths who achieved an A, on average, as their school certificate mark and passed sixth form certificate, as well as having all of their year 11 peers continue to year 12, had an estimated probability of attending a university of 84 percent. This compares with an estimated probability of attending a university of 20 percent for youths who achieved an average school certificate mark of C, did not achieve sixth form certificate and had no year 11 form peers continue to year 12. The estimated probability of being unemployed for this group was 54 percent.

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