



CHAPTER FOUR

OUTCOMES OF TERTIARY EDUCATION // 35-50

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AN OVERVIEW

The number of people in the New Zealand population with a tertiary qualification is rising. In 2006, more than one in every three New Zealanders was tertiary qualified, while the proportion without a qualification has fallen significantly. The proportion of people with a bachelors or higher qualification has increased in all ethnic groups, although in some groups the proportion has increased more than in others. The proportion of women who are tertiary qualified is increasing.

A strong economy, coupled with a tighter labour market, has significantly reduced unemployment at all qualification levels. Nevertheless, the tertiary qualified have a higher level of participation in the labour force. As more women become tertiary qualified, their participation in the labour market participation is likely to increase.

The earnings premium for those with a tertiary qualification decreased in 2006, compared with those with no qualification. This fall in the tertiary qualification premium reflects the strength of the labour market which currently is providing greater access to employment for those with no or lower-level qualifications. Despite the strong labour market, a significant earnings advantage continued to exist in 2006 for those with tertiary qualifications.

The findings of studies using the integrated dataset for *Student Loan Scheme Borrowers* suggest that participation in tertiary education can lead to a significant earnings advantage in the years following study. In particular, completion of a qualification increased earnings. Recent studies showed that the earnings advantage persisted over time. A summary of these studies is included later on in this chapter.

Information from New Zealand's latest population census confirms that an increasing proportion of people hold a tertiary qualification. The higher knowledge and skill levels of the New Zealand population in 2006 – reflecting an increase in the human capital of the economy – was due to a higher participation rate in tertiary education over the last decade, coupled with higher levels of migration. The census data showed that younger adults – those under 35 years – hold more higher-level tertiary qualifications than people in older age groups. One in every two people aged 25 to 34 years in 2006 held a tertiary qualification. Proportionately, there were also more women than men with a tertiary qualification in this age group in 2006. Also, proportionately more women than men held a higher-level tertiary qualification in this age group. Among the ethnic groups, younger people were also more qualified than those in older age groups.

The unemployment rate in the population with higher-level tertiary qualifications has fallen to below 3 percent. The 2006 census data showed that differences in earnings decrease between individuals as their qualification levels increase. Another census finding showed that those with a higher-level tertiary qualification earn more, on average. A summary of the 2006 census information is provided later on in this chapter.

THE 2007 YEAR

Recent increases in enrolments by New Zealand's younger aged population in 2007 is expected to lift the proportion of the population with a tertiary qualification further. New Zealand is moving towards a knowledge-based economy and a further widening of its knowledge and skill base is expected. Both increased participation in tertiary education and increased migration are expected to contribute to the growth in New Zealand's knowledge and skills base. The demand for vocational and technical qualifications in the areas of health, education, information technology, creative arts, and engineering and related studies is likely to rise further.

The tighter labour market is expected to continue in the near future and, with it, the recent low unemployment rates. More people with a vocational or technical non-degree qualification are expected to enter the labour market. Also, more women with a higher-level tertiary qualification are likely to enter full-time employment as the proportion of women with a tertiary qualification is rising more rapidly than that of men. The prospects of better opportunities and higher living standards are greater for those with a tertiary qualification.

RISING TERTIARY QUALIFICATIONS

Figure 4.1//Working-age population (June quarter) by highest qualification

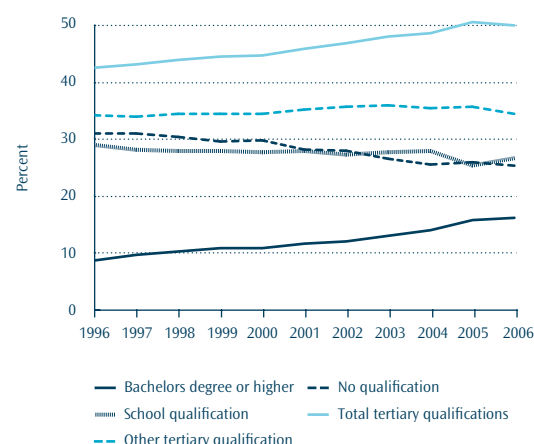
Survey data shows that the proportion of the New Zealand working-age population holding a tertiary qualification increased in 2006 and nearly one in every two New Zealanders is now tertiary qualified. On the other hand, the proportion without a qualification has fallen steadily in recent years, down to 25 percent in 2006.

The proportions of the working-age population with a tertiary qualification in 2006:

Total tertiary qualifications	49%	(45% in 2001)
Bachelors degree or higher ¹	15%	(11% in 2001)
Other tertiary qualification ²	34%	(34% in 2001)
School qualification	26%	(27% in 2001)
No qualification	25%	(28% in 2001)

Note: The proportion with a tertiary qualification from the *Household Labour Force Survey* is based on a sample and it is higher than the figure from the 2006 census. While the census is based on the entire population not everyone completed the census question on qualifications and as a result the proportion with a tertiary qualification from the census is lower.

Source: Statistics New Zealand (2006), *Household Labour Force Survey*.



HIGHER QUALIFICATIONS AND AGE

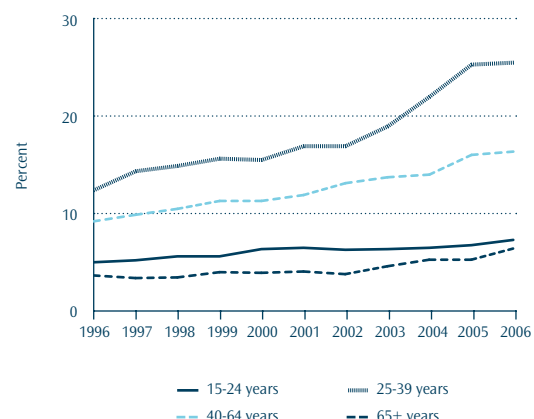
Figure 4.2//Working-age population (June quarter) with a bachelors degree or higher qualification by age group

The proportion of the population with a bachelors degree or higher qualification increased slightly in 2006. After significant growth since 2002, the proportion aged 25 to 39 years with a bachelors or higher qualification remained flat in 2006.

The proportions of the working-age population with a bachelors or higher qualification in 2006:

15 years and over	15%	(11% in 2001)
15-24 years	7.0%	(6.2% in 2001)
25-39 years	25%	(17% in 2001)
40-64 years	16%	(12% in 2001)
65 years and over	6.1%	(3.8% in 2001)

Source: Statistics New Zealand (2006), *Household Labour Force Survey*.



OTHER TERTIARY QUALIFICATIONS AND AGE

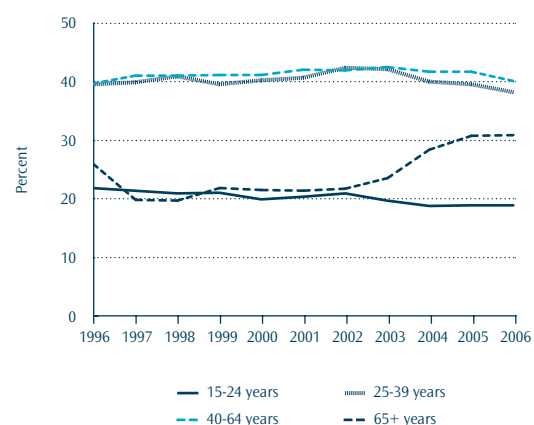
Figure 4.3//Working-age population (June quarter) with other tertiary qualifications by age group

The proportion of the population holding other tertiary qualifications has been steady at 34 percent in recent years. In the various age groups, the proportions have been declining – except for an offsetting increase in other tertiary qualifications gained by those aged 65 years and over.

The proportions of the working-age population with other tertiary qualifications in 2006:

15 years and over	34%	(34% in 2001)
15-24 years	18%	(20% in 2001)
25-39 years	38%	(40% in 2001)
40-64 years	40%	(42% in 2001)
65 years and over	30%	(21% in 2001)

Source: Statistics New Zealand (2006), *Household Labour Force Survey*.



1. 'Bachelors degree or higher' qualifications include postgraduate degrees, certificates or diplomas.
 2. 'Other tertiary qualifications' include university, teaching and nursing certificates or diplomas, New Zealand certificates or diplomas, technician's certificates, local polytechnic certificates or diplomas, and trade certificates or advanced trade certificates.

TERTIARY QUALIFICATIONS AND ETHNIC GROUP³

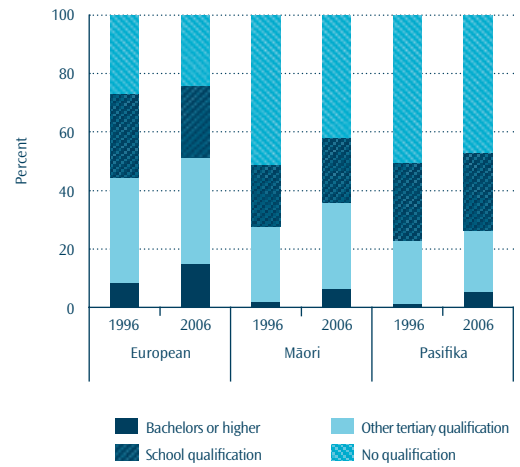
Figure 4.4//Working-age population (June quarter) by highest qualification and ethnic group

The proportion of the working-age population with tertiary qualifications increased for Europeans, Māori and Pasifika between 1996 and 2006. In each of these ethnic groups, the proportion with a bachelors degree or higher qualification increased. However, the proportion of Māori and Pasifika with tertiary qualifications remained significantly below that of Europeans in 2006.

The proportions of the working-age population with tertiary qualifications by ethnic group in 2006:

	Bachelors degree or higher		Other tertiary qualification	
	2006	1996	2006	1996
	%	%	%	%
European	15	8.5	36	36
Māori	6.2	1.9	30	26
Pasifika	5.3	1.2	21	22
Others	30	23	26	20

Source: Statistics New Zealand (2006), Household Labour Force Survey.



TERTIARY QUALIFICATIONS AND GENDER

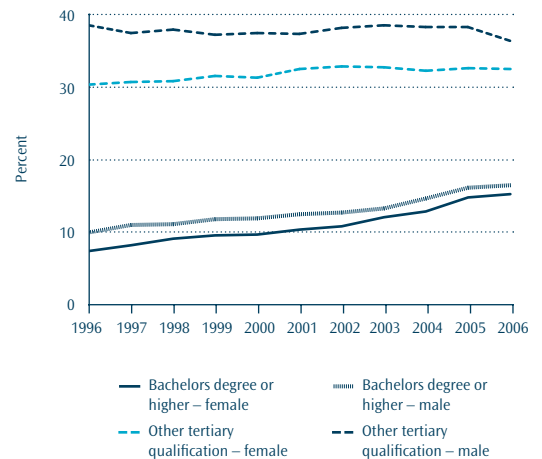
Figure 4.5//Working-age population (June quarter) with a tertiary qualification by gender

Although more men than women held tertiary qualifications, the gap between them continued to narrow in 2006.

The proportions of the working-age population with a tertiary qualification by gender in 2006:

Bachelors degree or higher – female	15%	(10% in 2001)
Bachelors degree or higher – male	16%	(12% in 2001)
Other tertiary qualification – female	32%	(32% in 2001)
Other tertiary qualification – male	36%	(37% in 2001)

Source: Statistics New Zealand (2006), Household Labour Force Survey.



LOWER UNEMPLOYMENT FOR THE TERTIARY QUALIFIED

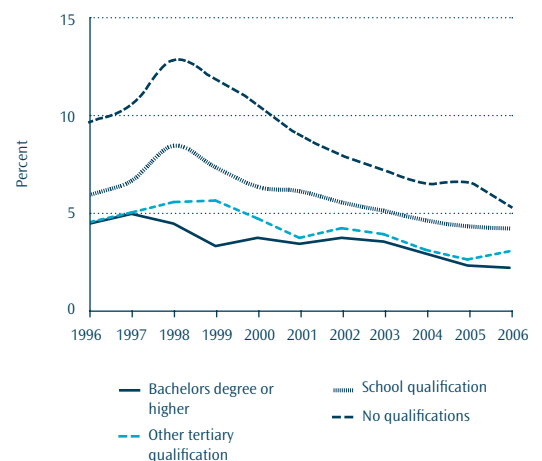
Figure 4.6//Unemployment rates (June quarter) for the working-age population by highest qualification

Although people with tertiary qualifications had lower levels of unemployment than those without tertiary qualifications, the gap between them continued to narrow in 2006. However, during times of economic recession people with tertiary qualifications are more likely to be retained in employment than those without tertiary qualifications.

The unemployment rate of the working-age population by highest qualification in 2006:

All qualification levels	3.5%	(5.2% in 2001)
Bachelors degree or higher	2.1%	(3.3% in 2001)
Other tertiary qualification	2.9%	(3.6% in 2001)
School qualification	4.1%	(6.0% in 2001)
No qualification	5.2%	(8.9% in 2001)

Source: Statistics New Zealand (2006), Household Labour Force Survey.



3. The sampling errors for the smaller ethnic groups such as Māori and Pasifika are generally larger requiring caution to be exercised in interpreting changes in this data over time.

LABOUR FORCE PARTICIPATION

Figure 4.7//Labour force participation rates (June quarter) by qualification level and gender

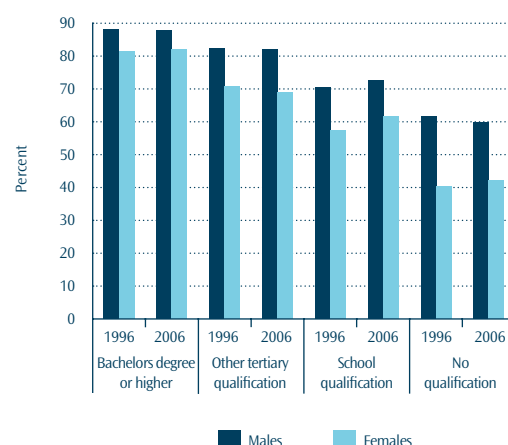
The tertiary qualified have a higher level of participation in the labour force. Also, the gap in the participation rate between men and women narrows for those with tertiary qualifications.

Between 1996 and 2006, the labour force participation rates of those with tertiary qualifications remained relatively stable, with the exception of the rate for women with other tertiary qualifications, which fell slightly.

The labour force participation rates of the working-age population by highest qualification in 2006:

	Females		Males	
	2006	1996	2006	1996
	%	%	%	%
Bachelors degree or higher	82	82	88	88
Other tertiary qualification	69	71	82	82
School qualification	62	57	73	71
No qualification	42	40	60	62

Source: Statistics New Zealand (2006), Household Labour Force Survey.



HIGHER EARNINGS FOR THE TERTIARY QUALIFIED

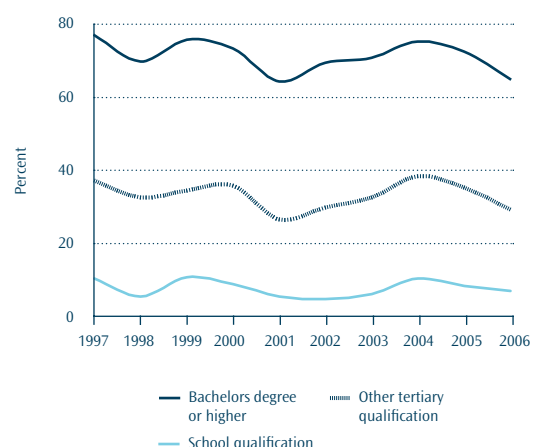
Figure 4.8//Median hourly earnings premiums (June quarter) by highest qualification compared with those with no qualification

The median hourly earnings premium for those with tertiary qualifications, compared with those with no qualification, decreased in 2006. This reduction reflects the strength of the labour market, which currently provides greater access to employment for those with low or no qualifications. However, a significant earnings advantage continued to exist for those with tertiary qualifications.

Median hourly earnings premiums by highest qualification compared, in relation to no qualification, in 2006:

Bachelors degree or higher	64%	(76% in 1997)
Other tertiary qualification	29%	(37% in 1997)
School qualification	6%	(10% in 1997)

Source: Statistics New Zealand (2006), Household Labour Force Survey.



YOUTH INACTIVITY

Figure 4.9//The proportion of youths not in employment or formal study, or in a caregiving role, by gender and age group

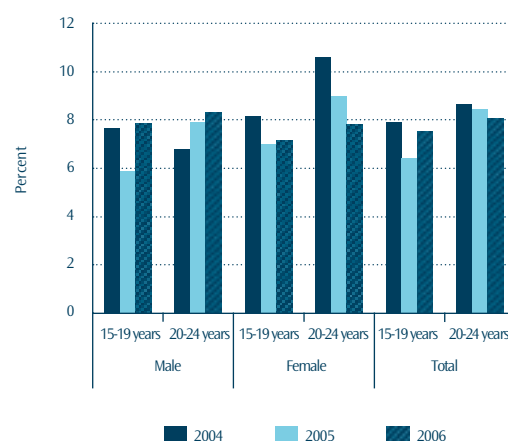
The proportion of the youth population not in employment, not in formal study and not in a caregiving role increased for 15 to 19 year-olds and decreased for the 20 to 24 year-olds in 2006.

The proportion of women aged 20 to 24 years not in employment, not in formal study and not in a caregiving role has declined noticeably since 2004, while the proportion of men in this category has increased.

The proportion of youth not in employment, not in formal study and not in a caregiving role in 2006:

	Males		Females		Total	
	2006	2004	2006	2004	2006	2004
15-19 years	7.8%	7.7%	7.2%	8.1%	7.5%	7.9%
20-24 years	8.3%	6.8%	7.8%	10.6%	8.1%	8.7%

Source: Statistics New Zealand (2006), Household Labour Force Survey.



THE PAYOFF FROM A TERTIARY EDUCATION

Recent studies by Nair (2007) and Hyatt, Nair and Smyth (2007) applied statistical modelling to the *Student Loan Scheme Borrowers* dataset to analyse the factors that influence the earnings of the borrowers in the years after tertiary study – in this case three and five years. By tracking the earnings of borrowers over time we can analyse the impact of tertiary education on earnings. Further, we can monitor how long any earnings advantage from participation in tertiary education lasts.

This article presents a brief summary of the key findings of the two analytical reports. Firstly, the dataset used in the studies is described, followed by a brief outline of the methodology used, then the summary of the key findings from both studies is presented and, finally, some overall conclusions are drawn.

Data and method

Nair (2007) and Hyatt et al (2007) used the integrated *Student Loan Scheme Borrowers* dataset in their studies. This dataset is maintained by Statistics New Zealand and contains information on the tertiary education of student loan borrowers matched to information on their earnings following study. In the studies, the records of around 97,000 borrowers who left tertiary study between 1997 and 1999 were analysed.⁴

Both studies applied generalised logistic regression to the integrated dataset to model the impact of various demographic and study- and employment-related factors on earnings in the years following tertiary study.⁵ An advantage of using regression analysis is that it allows for the impact of each of the study-related variables to be examined individually, while holding other non-study-related factors⁶ constant.

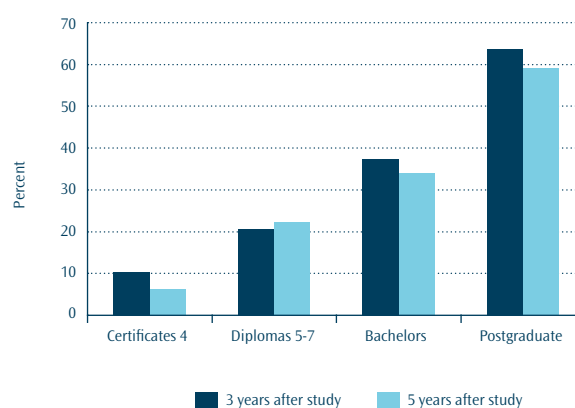
Higher earnings for higher-level qualifications

Nair (2007) examined the effect of the level of tertiary study on earnings three and five years after finishing study. Nair found that those who studied at higher qualification levels had an income advantage over others – the size of the premium increased as the level of the qualification increased, while controlling for other factors.

Figure 4.10 presents the premiums earned three and five years after study for the different levels of study, compared with the earnings of borrowers who studied towards level 1 to 3 certificates. As can be seen in Figure 4.10, the highest premium was earned by borrowers

who studied at postgraduate level. Comparing the premiums earned three and five years after study showed that at most levels of tertiary qualification the premium earned decreased only slightly five years after study. The exception was a slight increase in the premium five years after study for borrowers who studied for level 5 to 7 diplomas.

Figure 4.10 // Earnings premiums by level of study compared with level 1 to 3 certificates



Source: Statistics New Zealand, *Student Loan Scheme Borrowers* dataset.

Higher earnings for completed qualifications

The level of study had a stronger influence on earnings than whether or not individuals were successful in completing a qualification. But after controlling for level of study, there was a premium for completing a qualification. This was measured by comparing the earnings of individuals who completed a qualification with individuals who had studied towards the same qualification without completing. Nair's study found that completing a qualification at specific levels of study had a strong influence on earnings after study.

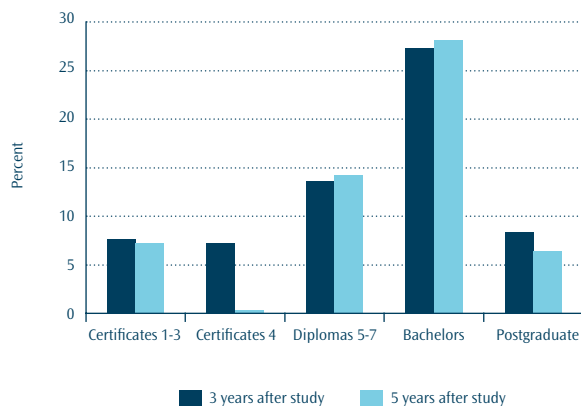
Figure 4.11 presents the earnings premiums three and five years after study for completing a qualification at different levels of study. As can be seen, the highest premium for completing a qualification was for borrowers who studied at bachelors level. Generally, the premium for completing a qualification five years after study was similar to the premium three years after study, with the exception of level 4 certificates, where the premium virtually disappeared.

4. Around 80 percent of full-time tertiary students access a student loan.

5. For a more detailed description of the methodology used see Nair (2007), p7.

6. Such as age and industry of employment.

Figure 4.11 // Earnings premiums for completing a qualification by level of study

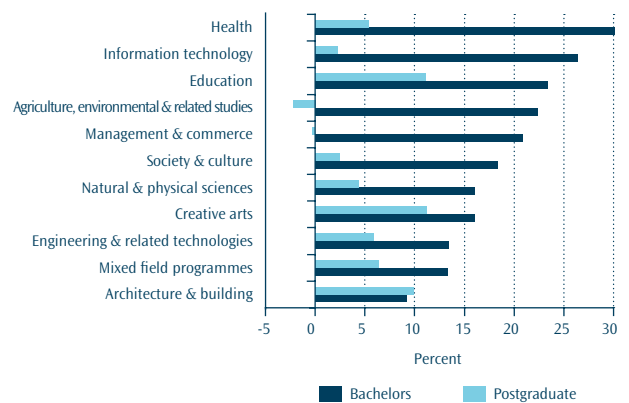


Source: Statistics New Zealand, *Student Loan Scheme Borrowers* dataset.

Premiums for completed qualifications and field of study

Nair’s study also found that the premium for completing a qualification varied by field of study and by level of study. Figure 4.12 presents the earnings premiums five years after study for borrowers who completed a bachelors or higher qualification. The largest premium at the bachelors level was earned by those who studied health, information technology or education. At the postgraduate level, the highest premium for completing a qualification was earned by those who studied in the fields of education, creative arts or architecture.

Figure 4.12 // Earnings premiums 5 years after study for a bachelors or higher qualification by field of study

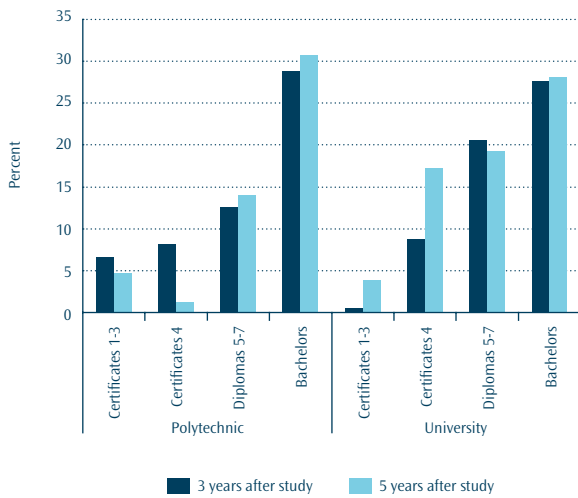


Source: Statistics New Zealand, *Student Loan Scheme Borrowers* dataset.

Premiums for completed qualifications and provider type

The study by Hyatt et al (2007) examined the impact of the provider type on the earnings premium for completing a qualification – with a focus on universities and polytechnics. The study found that the earnings premium five years after study for a bachelors degree or a level 1 to 3 certificate was slightly higher for a borrower who studied at a polytechnic. At the other levels of study, the earnings premium for completing a qualification was higher for borrowers who studied at a university.

Figure 4.13 // Earnings premiums for a completed qualification by level of study and provider type

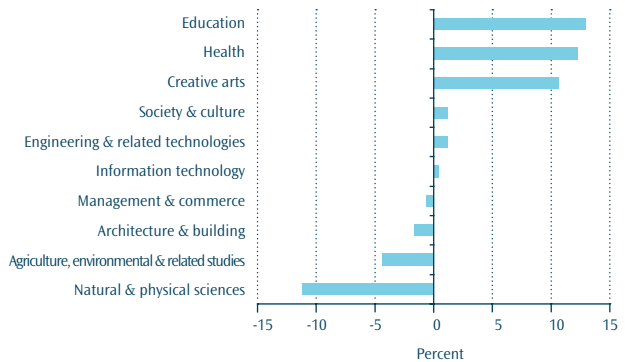


Source: Statistics New Zealand, *Student Loan Scheme Borrowers* dataset.

Earnings premiums varied by field of study and provider type

Hyatt et al (2007) also found that the field of study impacted on the earnings of borrowers, as did the level of study and type of provider. Figure 4.14 presents the earnings premiums five years after study of borrowers who completed a bachelors degree. At this study level, there was a significant earnings advantage for borrowers who had studied at a university in education, health or creative arts. In the area of information technology and of management and commerce there was little difference in the earnings premium based on the provider type. Borrowers who studied at polytechnics in the fields of natural and physical sciences or agriculture, environmental and related studies earned more than those who studied these fields at a university, while controlling for other factors.

Figure 4.14 // Earnings premiums 5 years after study for a bachelors degree from a university relative to a polytechnic by field of study



Source: Statistics New Zealand, *Student Loan Scheme Borrowers* dataset.

Conclusion

The findings of the studies by Nair (2007) and Hyatt et al (2007) suggest that participation in the tertiary education system can lead to a significant earnings advantage in the years following study. In particular, completing a qualification significantly increased earnings. Importantly, the studies showed that the advantage of completing a qualification and attaining higher -level tertiary qualifications persisted over time.

As the *Student Loan Scheme Borrowers* dataset is updated on an annual basis, the analysis of earnings after tertiary study can be repeated over time to monitor whether the advantage of attaining tertiary qualifications continues over the working life of New Zealanders.

NEW ZEALAND'S EXPANDING KNOWLEDGE AND SKILLS RESOURCE

An important contributor to New Zealand's economic and social development is the knowledge and skill level of the working-age population – its human capital. The increased focus on a knowledge-based society in recent years acknowledges the importance of a highly skilled and knowledgeable workforce. An improvement in the stock of human capital leads to benefits to the individual – in the form of higher earnings and better non-financial outcomes – as well as to gains for the wider society.

This report shows how those with tertiary qualifications benefit from their higher-level⁷ education, by examining their post-study outcomes and their likelihood of employment. This study uses data from the *2006 Census of Population and Dwellings* and compares this with the previous censuses held in 2001 and 1996. By analysing the changing trends in the tertiary qualifications of the New Zealand population this study measures the change in the nation's stock of human capital.

More New Zealanders with tertiary qualifications

The New Zealand population is now better qualified than it was 10 years ago. The 2006 census data showed that 36 percent of the population held a tertiary qualification in 2006, compared to 26 percent 10 years earlier.⁸ The proportion of the population with a bachelors or higher qualification increased from 8 percent in 1996 to 14 percent in 2006 (Figure 4.15). Over the same period, those with a non-degree tertiary qualification increased from 18 percent in 1996 to 22 percent in 2006. The proportion of the population with a school qualification remained relatively constant at 31 percent, while the number without a qualification fell from 32 percent in 1996 to 22 percent in 2006. The two main factors responsible for this lift in the population's educational attainment were increased participation by New Zealanders in tertiary education and a significant level of immigration during this period.

The information from New Zealand's Census of Population and Dwellings is of a high quality as it covers the total population. The census collects information on people's highest educational qualifications – both from school and from tertiary study. The tertiary qualification levels reported on here cover non-degree qualifications, that is, level 1 to 4 certificates and level 5 to 6 diplomas; bachelors-level qualifications including level 7 graduate diplomas and certificates; and postgraduate

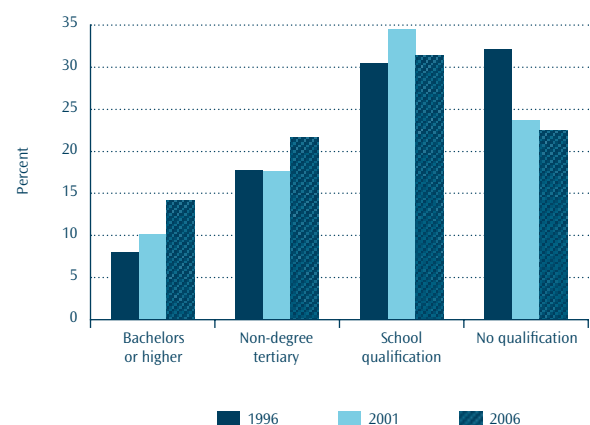
qualifications covering bachelors degrees with honours, postgraduate diplomas and certificates, masters degrees and doctorates. The census also collects information on the field of study of those with tertiary qualifications.

The population referred to in this study is the New Zealand Employed census usually resident population count, aged 15 years and over, unless otherwise specified.

In 1996 and 2001, vocational qualifications were reported as either basic, skilled, intermediate or advanced, while in 2006 these were classified as certificates levels 1 to 3, certificates level 4, and diplomas levels 5 to 6.

Note: The counts of the number of qualifications in this report will in some cases underestimate the actual number of qualifications held by the New Zealand population. This is because some people hold more than one qualification. For example, someone with a postgraduate qualification and a bachelors degree will be included in the counts based on their highest qualification, underestimating the bachelors degree count in this case.

Figure 4.15 // Distribution of the New Zealand population by highest qualification



Source: Statistics New Zealand, *Census of Population and Dwellings*.

7. For more information on tertiary education outcomes see the report by Smart, W. (2006) *Outcomes of the New Zealand tertiary education system – a synthesis of the evidence*, Wellington: Ministry of Education.

8. This analysis does not consider invalid responses such as 'not stated', 'refused to answer' or 'not elsewhere included' when calculating the percentage figures. Hence, the proportions stated in this report may not match with those published by Statistics New Zealand.

More women with higher-level tertiary qualifications

The proportion of women with a bachelors degree more than doubled over the last 10 years, while the proportion of men with this level of qualification increased by 54 percent. In 2006, the proportion of women with a bachelors degree was 11 percent, compared to 9.3 percent for men.

The proportion of women with a postgraduate qualification also increased at a faster rate than men over the last 10 years. From 1996 to 2006, the proportion of women with a postgraduate qualification increased from 2.2 percent to 4.0 percent of the population. Over the same period, the proportion of men with a postgraduate qualification rose from 3.2 percent to 4.4 percent.

In 2006, proportionately more men held a non-degree tertiary qualification than women. Twenty-four percent of men held a non-degree tertiary qualification in 2006, compared to 19 percent of women. The proportion of men with a diploma at levels 5 to 6 remained steady between 1996 and 2006 at just over 7 percent, while for women this proportion remained unchanged at 10 percent. Men with a level 4 certificate increased from 9.2 percent of the population in 1996 to 13 percent in 2006. In contrast, the proportion of women with a certificate at level 4 declined over the last 10 years, from 12 percent to 5.3 percent. The proportion of the population with level 1 to 3 certificates remained virtually unchanged for both men and women. In 2006, the percentage of men in the population with this level of qualification was 3.7 percent and for women this was 4.4 percent.

Figure 4.16 // Distribution of the New Zealand population by highest qualification and gender

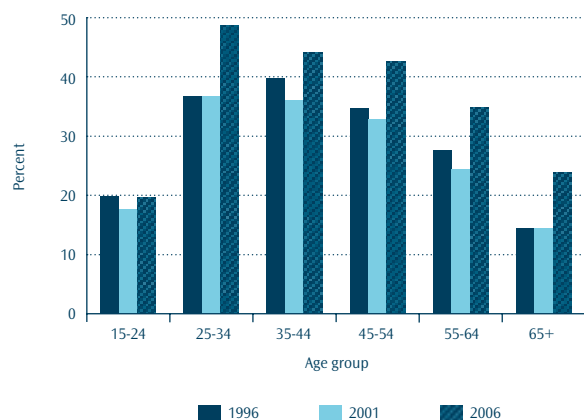


Source: Statistics New Zealand, *Census of Population and Dwellings*.

New Zealand's younger adult population becomes more qualified

Almost one in two New Zealanders aged 25 to 34 years held a tertiary qualification in 2006. In 1996, only 36 percent of the population in this age group were tertiary qualified. From 1996 to 2006, there were significant increases in the proportion of the population with a tertiary qualification for all age groups except those aged 15 to 24 years. Fifteen to 24 year-olds with a tertiary qualification remained unchanged at 20 percent over the last 10 years. The 2006 census data also showed that the proportion of people aged 65 years and over with a tertiary qualification increased from 14 percent in 1996 to 24 percent in 2006, the second biggest increase among the age groups.⁹

Figure 4.17 // Proportion of the New Zealand population with a tertiary qualification by age group



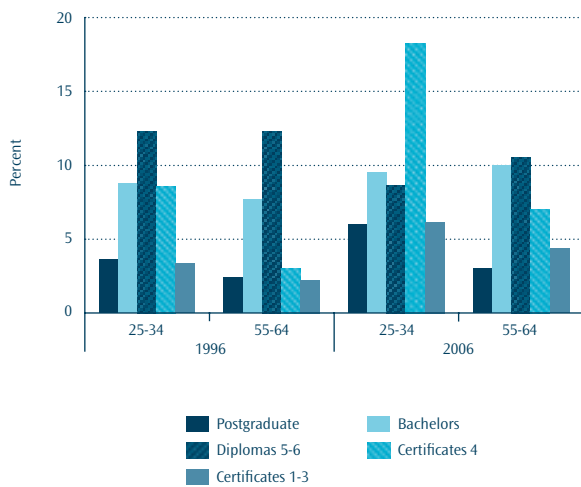
Source: Statistics New Zealand, *Census of Population and Dwellings*.

Note: The proportions graphed here exclude those who did not respond to this question in the census.

Comparing the educational attainment of the population at the various qualification levels showed that in the younger age groups the proportion with a bachelors degree had doubled from 1996 to 2006. The proportion of 25 to 34 year-olds with a bachelors degree rose from 9 percent to 18 percent over this period (Figure 4.18). While the proportion with a bachelors degree also doubled for those aged 55 to 64 years, this increase was of a lower magnitude – 3.0 percent in 1996 and 7.0 percent in 2006.

9. For further details refer to the Census 2006 fact sheet released on the Education Counts website in October 2007.

Figure 4.18 // Distribution of the New Zealand population by highest qualification and age group

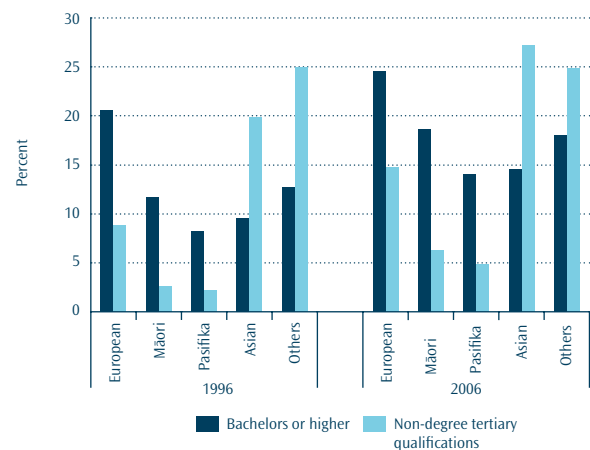


Source: Statistics New Zealand, *Census of Population and Dwellings*.

Ethnic groups and educational attainment

When the census data was disaggregated, the Pasifika group had the highest overall increase in their number with a tertiary qualification as a proportion of the population (Figure 4.19). Ten percent of Pasifika peoples had a tertiary qualification in 1996 and by 2006 this proportion had increased to 19 percent. For Māori the proportion with a tertiary qualification increased from 1996 to 2006, from 14 percent to 25 percent. Asians had the third highest increase in the proportion of their number with a tertiary qualification, followed by Europeans and then the Other ethnic group. The proportion of Asians with a tertiary qualification was 29 percent in 1996 and 42 percent in 2006. For Europeans these proportions were 29 and 39 percent and for the Other ethnic group they were 38 and 43 percent.

Figure 4.19 // Distribution of the population with degree and non-degree qualifications by ethnic group

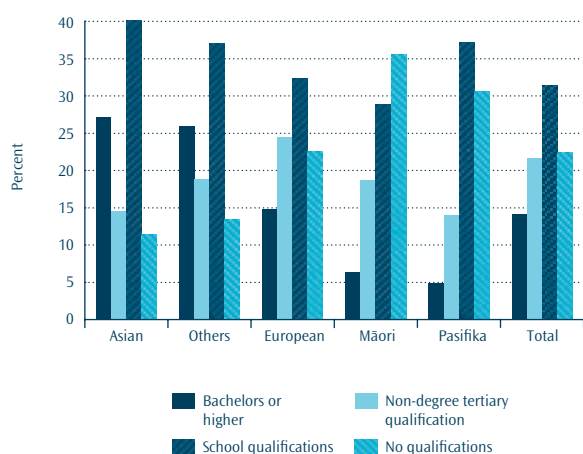


Source: Statistics New Zealand, *Census of Population and Dwellings*.

Of those with a bachelors degree in 2006, Asians had the highest proportion in the population at 27 percent. The Other ethnic group had the next highest proportion, at 25 percent, followed by Europeans (15 percent), Māori (6.3 percent) and Pasifika peoples (4.9 percent). However, from 1996 to 2006, the Māori and the Pasifika ethnic groups showed the biggest percentage growth in their numbers with a bachelors degree. The number of Europeans and Asians with this level of qualification also increased significantly, while the proportion for the other ethnic group with a bachelors degree remained virtually unchanged.

In 2006, the proportion of the population with a non-degree tertiary qualification varied from 15 percent to 25 percent among the ethnic groups (Figure 4.20). Twenty-five percent of Europeans held a non-degree tertiary qualification in 2006, compared to 19 percent for Māori, 18 percent for the Other ethnic group, 15 percent for Asians and 14 percent for Pasifika peoples. The increase from 1996 to 2006 in the proportion of Māori and Pasifika with a non-degree tertiary qualification was larger than that for the Other ethnic group. The proportion of Māori with a non-degree tertiary qualification was 12 percent in 1996 and for Pasifika peoples this was 8 percent.

Figure 4.20 // Distribution of the population by highest qualification and ethnic group



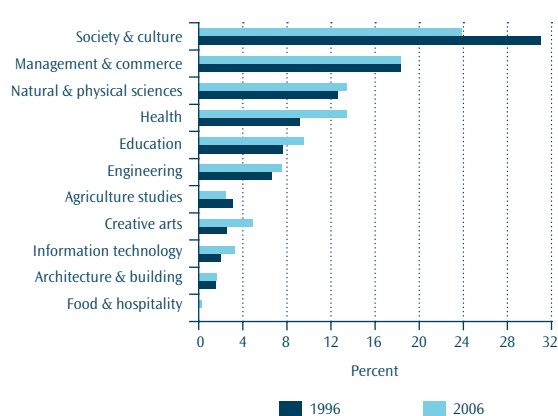
Source: Statistics New Zealand, *Census of Population and Dwellings*.

Between 1996 and 2006, the proportion of the population with a tertiary qualification had increased for all ethnic groups. However, the increase in the proportion of Māori and Pasifika with a non-degree tertiary qualification was significant (Figure 4.20). The proportion of Māori with a non-degree tertiary qualification increased from 12 percent in 1996 to 19 percent in 2006. The comparative figures for Pasifika peoples were 8 percent and 14 percent.

Study of ‘society and culture’ remained the most common in 2006

The most common field of study in 2006 for those with a bachelors or higher qualification was society and culture (Figure 4.21). Twenty-four percent of the population with a bachelors or higher qualification had studied in the field of society and culture, followed by management and commerce (18 percent) and health (14 percent). Younger people with a bachelors or higher qualification most commonly studied in the field of management and commerce. Seventeen percent of those aged 15 to 24 years studied management and commerce and 19 percent of those aged 25 to 44 years. The other most common fields studied by those aged 15 to 44 years in 2006, were natural and physical sciences and engineering and related technologies.

Figure 4.21 // Distribution of the population with a bachelors or higher qualification by field of study



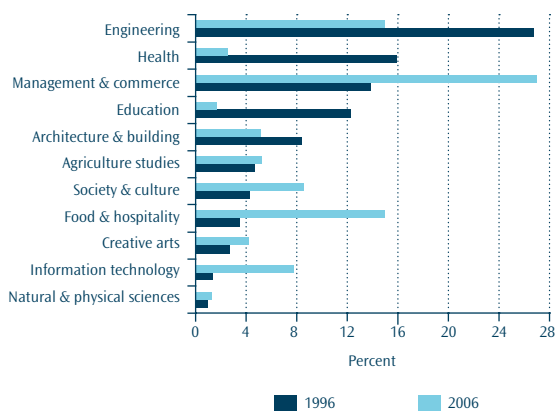
Source: Statistics New Zealand, *Census of Population and Dwellings*.

While society and culture remained the most common field of study in 2006 for those with a bachelors or higher qualification, as a percentage of the population, study in this field decreased by seven percentage points from 31 percent in 1996. Study in the field of health increased from 1996 to 2006, from 9.2 percent to 14 percent of the population with a bachelors or higher qualification.

From 1996 and 2006, there have been significant changes in the field of study of those with non-degree tertiary qualifications, suggesting structural shifts in the New Zealand economy and the changing qualification requirements of industry. There were significant increases in non-degree tertiary study in the field of management and commerce from 1996 to 2006 (up from 14 percent to 27 percent). Study at the non-degree tertiary level also increased in the food and hospitality services from 1996 to 2006 (up from 3.5 percent to 15 percent) and in information technology (up from 1.4 percent to 7.8 percent).

The census recorded a significant decrease in non-degree-level study in the field of engineering and related technologies (down from 27 percent in 1996 to 3 percent in 2006). From 1996 to 2006, there was also a decrease in non-degree-level study in the field of health (down from 16 percent to 3 percent) and education (down from 12 percent to 1.7 percent). These decreases were, however, due to a switch from non-degree to degree-level qualification requirements in these sectors.

Figure 4.22 // Distribution of the population with a non-degree tertiary qualification by field of study



Source: Statistics New Zealand, *Census of Population and Dwellings*.

Some fields of study continued to be dominated by men and others by women in 2006. For instance, engineering and related technologies, architecture and building, information technology, and agriculture and related studies were male-dominated fields. Of those who studied engineering and related technologies in 2006 more than 80 percent were men and in the case of architecture and building, 90 percent of those with level 1 to 4 certificates were men.

The impact of tertiary qualifications on the labour market outcomes for individuals

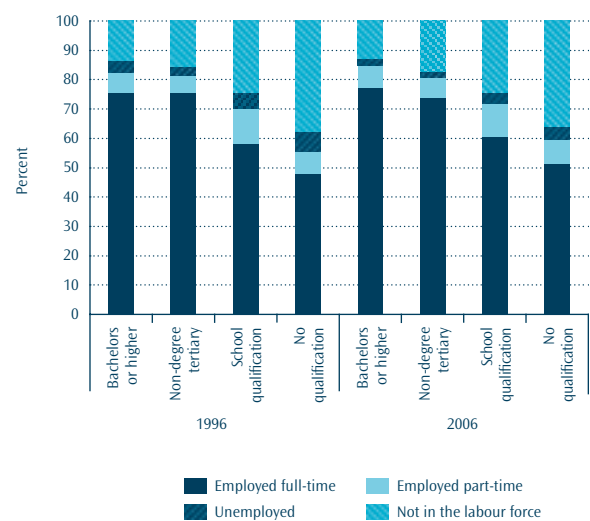
The census data showed that those with tertiary qualifications had a greater likelihood of employment and this was the case for both men and women. Seventy-seven percent of men with a bachelors or higher qualification were in full-time employment in 2006, and 74 percent of men with a non-degree tertiary qualification (Figure 4.23). This compared to 60 percent for men with school qualifications and 51 percent for men with no formal qualifications.

Sixty-one percent of women with a bachelors or higher qualification were in full-time employment in 2006 (Figure 4.24). This compared to 47 percent of women with a non-degree tertiary qualification and 38

percent for women with a school qualification and 24 percent for women with no formal qualification.

The labour force participation rate in the working-age population was highest among the tertiary qualified compared with those who had a school qualification or no qualification. The risk of unemployment was highest among those with no or lower-level qualifications. The census information also showed that women had a slightly higher risk of unemployment than men. However, the recent strong economic growth has lowered the unemployment rate at every qualification level.

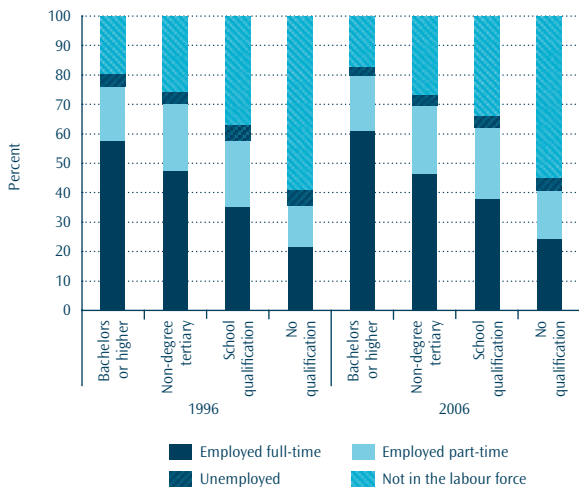
Figure 4.23 // Men in the working-age population by highest qualification and labour force status



Source: Statistics New Zealand, *Census of Population and Dwellings*.

The full-time employment rate was higher for women with a bachelors or higher qualification than for those with a non-degree tertiary qualification. From 1996 to 2006, this rate for women with a bachelors or higher qualification increased from 57 percent to 61 percent in 2006. For men with a bachelors or higher qualification, the full-time employment rate was 77 percent in 2006, up two percentage points from 1996.

Figure 4.24 // Women in the working-age population by highest qualification and labour force status



Source: Statistics New Zealand, *Census of Population and Dwellings*.

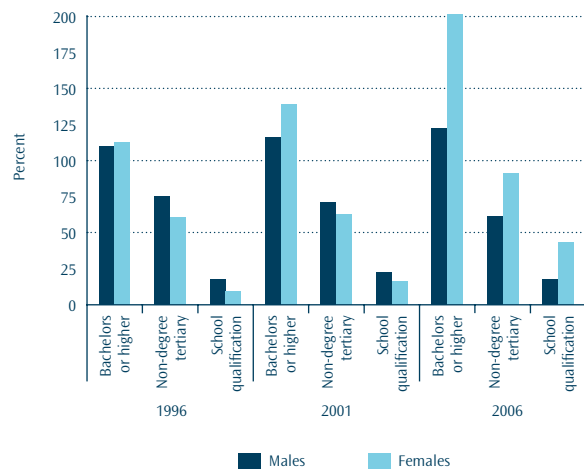
Although women’s participation in full-time employment was considerably lower than that of men, the growth in the number of women in full-time employment from 1996 to 2006 was much higher than that for men. Nevertheless, fewer than 50 percent of women with non-degree tertiary qualifications were employed full-time in 2006, compared to 74 percent of men with this level of qualification. Women also continued to account for the majority of those working part-time, irrespective of their qualification level. In 2006 the proportion of women with a tertiary qualification working part-time remained virtually unchanged compared with 1996.

The unemployment rates from the census showed considerable variation based on the individual’s age, gender, ethnic group, their qualification level and also on the region in which they lived. In the case of men and women with a tertiary qualification, the unemployment rates showed considerable decreases from 1996 to 2006. For women with a bachelors or higher qualification, the unemployment rate went down from 4.2 percent to 2.5 percent. For men with this level of qualification, the unemployment rate decreased, over the same period, from 4.0 percent to 2.3 percent. For those with a non-degree tertiary qualification the decrease in the unemployment rate from 1996 to 2006 was more marginal – for women it fell from 3.7 percent to 3.4 percent and for men it fell from 3.0 percent to 2.1 percent.

The impact of tertiary qualifications on post-study earnings

Median earnings were calculated using the 1996 and 2006 census income bands. Comparing the earnings in 1996 with those in 2006 showed that the premium earned by those with tertiary qualifications, compared those with no qualifications, had increased over this time.¹⁰ Especially for women with a bachelors or higher qualification, the increase in the premium was considerable, as shown in Figure 4.25. The premium for women with a bachelors or higher qualification increased from 113 percent in 1996 to 202 percent in 2006. The comparable figures for men with a bachelors or higher qualification were 110 percent and 123 percent. The larger increase in the premium for women was partly due to their higher full-time participation in the workforce since 1996.

Figure 4.25 // Earnings premium by highest qualification and gender



Source: Statistics New Zealand, *Census of Population and Dwellings*.

It was noticeable that the premium earned for a tertiary qualification by women in 2006 was significantly higher than for men at each qualification level. These differentials were much smaller in 1996. While the earnings premium for women was calculated from a lower base than for men, it does indicate that the earnings advantage for women with tertiary qualifications has increased since 1996.¹¹

The census data showed that the increased rate of employment of women with higher-level tertiary qualifications has closed the gap

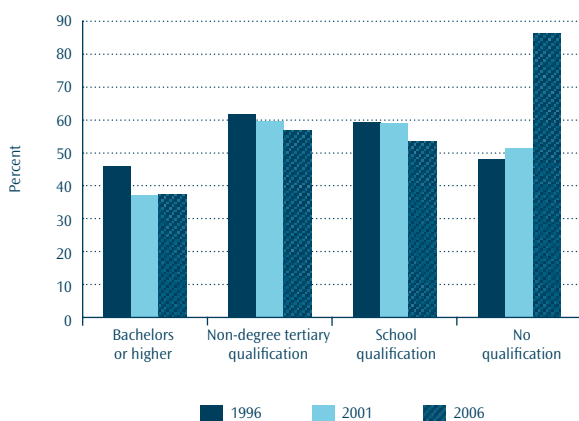
10. The premium was calculated on the median earnings, including income from salaries, wages and bonuses but excluding income from benefits.

11. The relative earnings gap due to gender should be treated with caution because of the lower workforce participation by females.

in median earnings between men and women. Figure 4.26 shows the earnings advantage of males, compared with females, for different qualification levels. In 2006, the median earnings of men with a bachelors or higher qualification were 38 percent higher than the median earnings of women with this level of qualification. The median earnings of men with a non-degree tertiary qualification were 59 percent higher than the median earnings of women. The comparative figure for a school qualification was 58 percent and for no qualification, 86 percent.

When comparing the 2006 figures with those for 1996, it is apparent that the gap in median earnings between men and women has dropped the most for women with a bachelors or higher qualification and to a lesser degree for those with a non-degree tertiary qualification or a school qualification. In contrast, the gap in median earnings between men and women without any qualification increased significantly from 1996 to 2006 (Figure 4.26). These findings illustrated that the inequalities in earnings decrease between individuals as their qualification levels increase.

Figure 4.26 // Earnings premium of men compared with women by qualification level



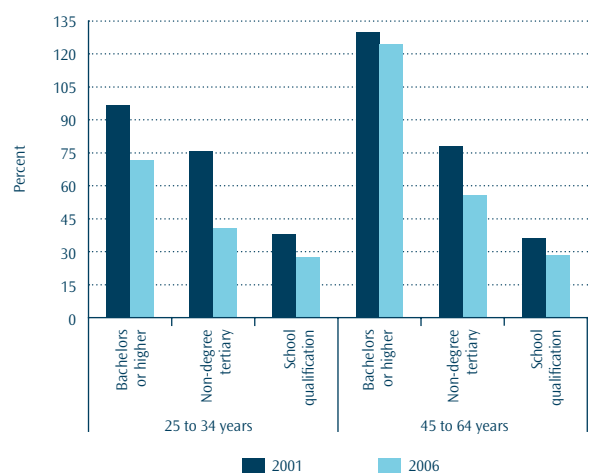
Source: Statistics New Zealand, *Census of Population and Dwellings*.

An analysis of the earnings premium among age groups indicated how tertiary qualifications, combined with work experience, impact on earnings. Figure 4.27 compares the earnings premium of two age groups – 25 to 34 years and 45 to 64 years – at the different qualification levels, compared with those with no qualification.

The census data showed that the earnings premium resulting from educational qualifications decreased from 2001 to 2006 for all age groups and at every level of qualification. This may be attributable to the tighter labour market in recent years, which has lowered the level of unemployment for those with no qualifications and has therefore reduced the premium for higher levels of qualification.

Figure 4.27 shows that there is relatively little difference in the earnings premium between the two age groups for those with a school qualification. In other words, work experience would appear to add little to the earnings premium for those with a school qualification. However, for those with a non-degree tertiary qualification or a bachelors or higher qualification there was a considerable earnings advantage for those aged 45 to 64 years, indicating that tertiary qualifications, combined with work experience, produce an additional premium. In 2006, the earning premium for those aged 45 to 64 years with a bachelors or higher qualification was 124 percent. This compared to an earnings premium of 72 percent for a person with the same level of qualification in the 25 to 34 years age group.

Figure 4.27 // Earnings premium by qualification level and age group, compared with those with no qualification



Source: Statistics New Zealand, *Census of Population and Dwellings*.

Conclusion

The census 2006 data indicated that the knowledge and skill level in New Zealand's economy is increasing. The expansion from 1996 to 2006 of the proportion of the New Zealand working-age population with a tertiary qualification emphasises this fact. The higher participation rate of New Zealanders in tertiary education in the last decade, coupled with increased migration, has contributed significantly to the latest increases in the economy's human capital.

About 50 percent of New Zealand's younger working-age population – those aged 25 to 34 years – held a tertiary qualification in 2006, up 14 percentage points on 1996. There were proportionately more women than men with tertiary qualifications in this age group in 2006. Also, proportionately more women than men held higher-level tertiary qualifications in this age group. Among all ethnic groups, younger people were also more qualified than those in older age groups. More women took up full-time employment in 2006, compared to 10 years earlier, and this is likely to be due to the fact that more women held a tertiary qualification in 2006.

The increase in the skill level of the workforce has also contributed to the recent growth in the New Zealand economy. The unemployment rate for those in the population with bachelors or higher qualifications fell below 3 percent in 2006. The latest census data also enabled comparisons to be made that indicate that as the population's knowledge and skill levels rise, the differences in earnings decrease. The census data also confirmed that people with tertiary education earn more, on average, than those with no qualifications.

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