



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

What young graduates earn when they leave study

The Tertiary Education Occasional Papers provide short reports on research, analysis and statistics relating to tertiary education in New Zealand. These papers include short original works and summaries of published research and analysis.

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1 LOOKING AT THE EMPLOYMENT OUTCOMES OF TERTIARY EDUCATION

KEY FINDINGS

Earnings increase with the level of qualification completed. The biggest jump in earnings is between those with qualifications below degree level and those with degrees.

Earnings remain consistently higher for those with higher qualifications. Those with higher qualifications consistently earn more for the first seven years post study, with no sign of these benefits decreasing.

Employment rates increase with the level of qualification gained. For example, in the first year after study, 54 percent of young bachelors graduates who stayed in New Zealand were in employment and 40 percent were in further study. Of young people who had completed a level 1-3 certificate and stayed in New Zealand, 35 percent were in employment and 48 percent were taking more study.

Very few young people who complete a qualification at diploma level or above are on a benefit in the first seven years after study. For those who stay in New Zealand, the benefit rate is 6 percent for diploma graduates and 2 percent at bachelors level in each of the first seven years after study. But it is around 14 percent for those who graduated with certificates at levels 1-3.

Earnings vary by field of study. Young graduates with bachelors degrees in medicine earn the most of all bachelors graduates. The median income for medical graduates is over \$110,300 five years after leaving study, compared to \$51,600 for all young bachelors graduates. Bachelors degree graduates in creative arts have the lowest earnings among young bachelors graduates after five years and have relatively high rates of benefit receipt.

Some qualification types and some fields are associated with high rates of further study. Around half of all young people who complete a certificate or level 5-7 diploma move into further study the next year. Around 60 percent of young bachelors graduates in natural and physical sciences who stay in New Zealand were in further study one year after completion of a bachelors degree, and 32 percent after five years.

Those who complete graduate certificates and diplomas have very high employment rates. Employment rates are around 80 percent or just below in the first three years after study for those who have completed a graduate certificate or diploma and who remain in New Zealand. Many of these graduates have completed this qualification as a way of improving their employment prospects or are studying while in employment.

The effect of the recession on the earnings of young graduates is still apparent. Although the country as a whole has pulled out of recession, the effects on young people have lingered with graduate earnings continuing to drop in real terms compared to those reported in our first study, for most years after study and at almost all qualification levels. However, there are indications that the rate of decrease in earnings may have been slowing down for recent graduates by the end of the 2012 tax year.

This paper updates the data on the employment outcomes of tertiary education in the reports *Moving on up*¹ and *Looking at the employment outcomes of tertiary education*², adding more recent data.

¹ Mahoney, P., Park, Z., Smyth, R. (2013). *Moving on up: What young people earn after their tertiary education*, Wellington, Ministry of Education, New Zealand. http://www.educationcounts.govt.nz/publications/tertiary_education/115410

Introduction

People choose what to study at a tertiary level for many reasons – what they enjoy, what they are good at, what they are capable of and what will get them started on a career. Good careers are associated with better health, better well-being and more satisfying lives. So, many young people are making their tertiary education choices to gain the skills they need for satisfying and rewarding work. They use a range of information sources and take advice from a range of people to help them make these choices.

The data in this report (and in its two predecessors) adds to the information available to prospective students, their families and those who advise them. It provides statistics on the outcomes of tertiary study for young New Zealanders who complete qualifications in the tertiary education system and who stay in New Zealand. It reports on employment rates and on the likelihood a graduate ends up on a benefit. And it gives data on the earnings of young graduates over the first seven years after finishing study.

This information is not just important to students and to their families. The Government makes a very large investment in tertiary education each year – funding tertiary education providers, providing subsidised student loans and granting student allowances. One major purpose of the Government's investment is to help raise the level of skill in the population – which helps make our society more productive, contributes to the creation of wealth and leads to better social outcomes.

Studying the earnings of graduates is one way of looking at the contribution that the tertiary education system is making to New Zealand's society and economy. So the information in this report contributes to an understanding of the value New Zealand receives for the investment we make in tertiary education.

Refreshing the data

In December 2013, we did a refresh and second update of the data in *Moving on up*. We added earnings and destinations data from the 2012 tax year, which became available in the Integrated Data Infrastructure (IDI) dataset managed by Statistics New Zealand at this time, so that the data now shows what graduates earn and do in the 2011 and 2012 tax years³. And we have traced young people's earnings and destinations for the first seven years after graduation.

The new data is available through Careers New Zealand's on-line query tool *Compare study options*, available at: <http://www.careers.govt.nz/tools/compare-study-options>. Tables showing earnings for young domestic graduates by qualification level and broad and narrow field of study are also included in spreadsheets available for download from www.educationcounts.govt.nz.

What does the new data show

The most important messages that emerge from this data are:

Earnings increase with the level of qualification completed. And for qualifications at bachelors level or below, the size of the premium from gaining a qualification increases with the level of the qualification (see Figure 1a). There is a significant jump in earnings between sub-degree

² Park, Z. Mahoney, P., Smart, W., Smyth, R. (2013). *Looking at the employment outcomes of tertiary education: New data on the earnings of young graduates*. http://www.educationcounts.govt.nz/publications/tertiary_education/looking-at-the-employment-outcomes-of-tertiary-education

³ Note that this means that the graduate cohorts we look at differ for each year after study – see table 4 in the technical notes for exact details.

and degree qualifications⁴. For example, five years after finishing study, the median earnings of young people who complete a bachelors degree is 46 percent above the national median earnings for those aged 15 to 64 years and they are 45 percent above the median for young people who gain a certificate at levels 1-3. Gaining a one to two year long post-graduate qualification also increases the median earnings of young, domestic graduates significantly. Young domestic doctorate graduates gain a sizeable earnings premium again and have the highest median earnings overall.

Earnings remain consistently higher for those with higher qualifications. We now have earnings data for the first seven years after study for young domestic graduates (Figure 1a), and can see that those with higher qualifications consistently earn more over all seven years post study.

Employment rates increase with the level of qualification gained. For example, in the first year after study, 54 percent of young bachelors graduates who stayed in New Zealand were in employment and 40 percent were in further study. Of young people who had completed a level 1-3 certificate and stayed in New Zealand, 35 percent were in employment and 48 percent were taking more study.

Very few young people who complete a qualification at diploma level or above are on a benefit in the first seven years after study. For those who stay in New Zealand, the benefit rate is 6 percent for young, domestic diploma graduates and 2 percent at bachelors level in each of the first seven years after study. But it is around 14 percent for those who graduated with certificates at levels 1-3.

Earnings vary considerably by field of study. The top ten fields of study in terms of median earnings for young domestic bachelors graduates five years after leaving study are: medical studies (\$110,300), pharmacy (\$73,000), radiography (\$70,400), dental studies (\$67,600), civil engineering (\$66,800), manufacturing, engineering and technology (\$63,600), veterinary studies (\$62,300), computer science (\$62,100), banking, finance and related fields (\$61,600) and other information technology (\$59,200). These earnings compare to \$51,600 for all young bachelors graduates. Bachelors degree graduates in creative arts have the lowest median earnings among young bachelors graduates after five years⁵ (\$42,900 on average, ranging from \$37,200 for performing arts to \$44,900 for communication and media studies) and they have relatively high rates of benefit receipt (4 percent in each of the first seven years after study).

Some qualification types and some fields are associated with high rates of further study. Around half of all young people who complete a certificate or level 5-7 diploma move into further study in the next year. Around 60 percent of young bachelors graduates in natural and physical sciences who stay in New Zealand were in further study one year after completion of a bachelors degree, and 32 percent after five years. Similar rates are seen for those who study natural and physical sciences at honours and postgraduate certificates and diplomas level (62 percent after 1 year, and 37 percent after 5 years). Other fields with high rates of continuing study at bachelors level, for young domestic graduates who stay in New Zealand, include society and culture (52 percent in the first year after completion), architecture and building (50 percent) and agriculture, environmental and related studies (47 percent in the first year).

⁴ Note that the age cut-off for a “young” graduate is higher for higher qualifications. For example, the cut-off is 21 years for those who have completed certificates, 23 years for diplomas, 24 years for three year bachelors degrees and 29 years for doctorates. This attempts to control for the differing required lengths of study to ensure that labour market experience of all graduates is similar.

⁵ Note that the earnings reported here are annual earnings and so will be lower if a graduate does not work full-time throughout the year. It is likely that employment related to particular fields of study, for example, performing arts, is more likely to be part-time or available for part of the year only – this will be one reason why earnings for these graduates may be lower. It is also important to reiterate that earnings are only one facet of the many factors that prospective students should consider when deciding upon a course of study.

Graduate certificate and diploma graduates have very high employment rates. Employment rates are around 80 percent or just below in the first three years after study for those who have completed a graduate certificate or diploma and who remain in New Zealand. Many of these graduates have studied either teacher education or law and so may have completed this qualification as a way of improving their employment prospects or were studying while in employment.

The effect of the recession on the earnings of young graduates is still apparent. Although the country as a whole has pulled out of recession, the effects on young people have lingered with graduate earnings continuing to drop in real terms, by around 1 to 2 percent on average, for most years after study and at almost all qualification levels. However, the effect on recent graduates is smaller with the drop in earnings between this update and the previous update smaller than the drop that we observed the year before. Although earnings are still dropping in real terms, the slowing down in the rate of the decrease may indicate that by the end of the 2012 tax year, we were reaching the limit of the downturn's effect on recent young graduates' earnings.

Tables 1, 2 and 3 give some of the important summary data drawn from our analysis of employment outcomes data. The first two tables focus on earnings and the third focuses on whether graduates gain employment or continue on to do further study after they complete a qualification. Figure 1, overleaf, sets out the summary data. It shows the median earnings of young graduates by level of qualification in each of the first seven years following study. To give a sense of the range of earnings, it also shows the upper and lower quartile⁶ earnings.

Table 1

Median and quartile annual earnings of young domestic graduates, one, two and five years after study by qualification level.

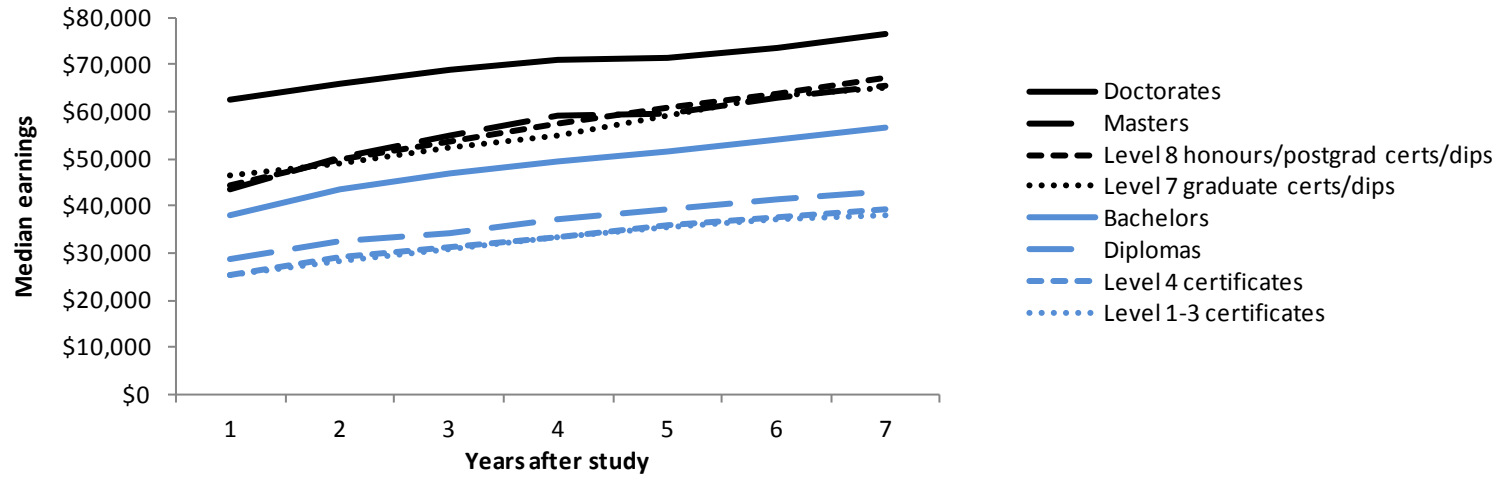
| Level of study | Measure | Years after study | | |
|--|----------------|-------------------|----------|----------|
| | | One | Two | Five |
| Doctorate | Upper quartile | \$72,195 | \$76,125 | \$83,159 |
| | Median | \$62,567 | \$65,812 | \$71,317 |
| | Lower quartile | \$43,367 | \$53,937 | \$49,004 |
| Masters degree | Upper quartile | \$53,920 | \$60,818 | \$74,323 |
| | Median | \$43,595 | \$50,227 | \$59,584 |
| | Lower quartile | \$28,338 | \$36,718 | \$45,213 |
| Level 8 – bachelors honours/pg dip or cert | Upper quartile | \$52,351 | \$58,242 | \$74,808 |
| | Median | \$44,336 | \$49,995 | \$60,612 |
| | Lower quartile | \$31,884 | \$38,687 | \$45,219 |
| Graduate certificate or diploma | Upper quartile | \$50,368 | \$54,007 | \$69,393 |
| | Median | \$46,621 | \$49,116 | \$59,165 |
| | Lower quartile | \$36,342 | \$41,565 | \$41,971 |
| Bachelors degree | Upper quartile | \$46,387 | \$51,010 | \$64,188 |
| | Median | \$37,959 | \$43,486 | \$51,627 |
| | Lower quartile | \$26,569 | \$32,448 | \$38,160 |
| Diploma | Upper quartile | \$36,396 | \$40,819 | \$49,876 |
| | Median | \$28,743 | \$32,457 | \$39,307 |
| | Lower quartile | \$19,393 | \$22,586 | \$27,216 |
| Certificate at level 4 | Upper quartile | \$31,957 | \$35,483 | \$44,404 |
| | Median | \$25,489 | \$29,171 | \$35,713 |
| | Lower quartile | \$17,244 | \$20,543 | \$24,978 |
| Certificate at levels 1-3 | Upper quartile | \$32,618 | \$35,556 | \$44,927 |
| | Median | \$25,324 | \$28,423 | \$35,660 |
| | Lower quartile | \$16,065 | \$19,467 | \$24,607 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that earnings are annual, gross and in 2012 dollars. Only graduates classified in the employment destination are included in these results.

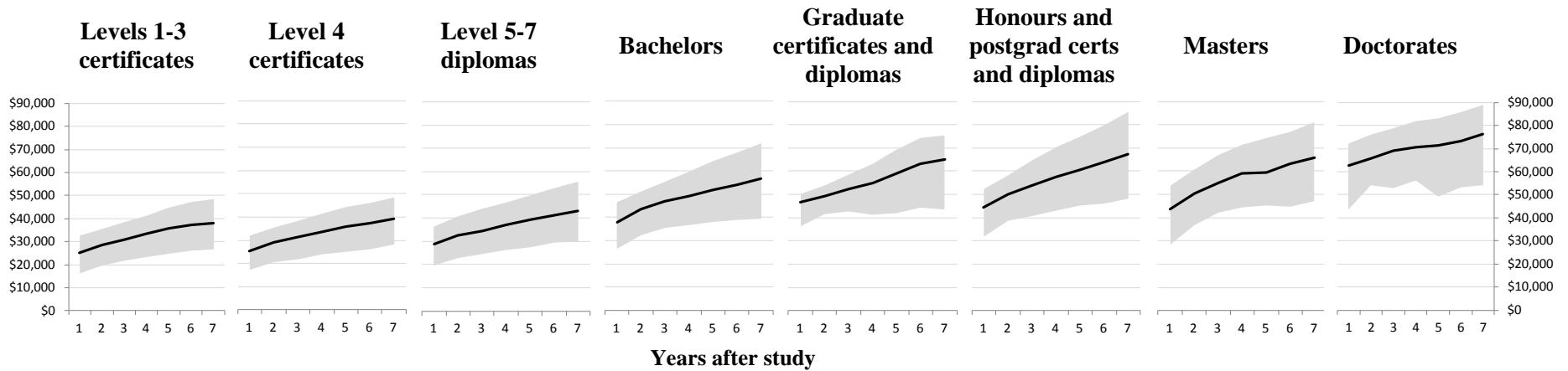
⁶ The top quarter of the group earns above the upper quartile and the bottom quarter earns below the lower quartile.

Figure 1. Young, domestic graduate earnings by qualification level in the 2011 and 2012 tax years.

(a) Median earnings



(b) Median earnings (black line) and lower to upper quartile range in earnings (shaded area).



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that earnings are annual, gross and in 2012 dollars. Only graduates classified in the employment destination are included in these results.

While these tables give data broken down by qualification level, the interactive [Compare study options](#) tool on the Careers NZ website, and the downloadable spreadsheets available on [Education Counts](#), provide results which are classified by qualification level and field of study.

Table 1 and Figure 1(b) show that:

- While we often focus on the median earnings, there is a lot of variation at each level. For instance, the upper quartile of those who complete tertiary qualifications at bachelors level or below is around 25 percent more than the median. On the flip side, five years after completion of their degree, a quarter of young bachelors graduates earn less than \$38,200, which is 26 percent below the corresponding median, and a quarter of young level 1 to 3 certificate graduates earn less than \$24,600 which is 31 percent below the corresponding median.
- These levels of variation in earnings reflect factors such as field of study, industry of employment and occupation. Variation in earnings also reflects individual differences that are not evident in the data – such as motivation and performance on the job. They may also reflect that some graduates work part-time rather than full-time.
- We can also see that earnings for young domestic graduates who study at higher qualification levels (particularly bachelors, graduate certificates or diplomas, or honours or postgraduate certificates or diplomas) tend to become more divergent over time than those who have studied at certificate level or for a level 5-7 diploma. This increased variation likely relates to the wider range of career opportunities which are available to those who study at higher levels. This may be because a qualification has been gained that is a prerequisite for an occupation (for example, as in the case of doctors and lawyers). It also may be because a graduate has obtained sufficient skills and knowledge to earn advancement in their career or because he or she can access a wider range of employment opportunities.
- Comparing upper quartile earnings for young domestic graduates, we can see that by the seventh year after study the top quarter of honours and postgraduate certificate and diploma graduates earn a similar amount to the top quarter of doctorate graduates. This is partly because honours graduates who have studied particular fields of study acquire high levels of specialised skills and knowledge which are highly valued by the labour market and rewarded accordingly. For example, seven years after study, the top quarter of young, domestic graduates who have studied at honours or postgraduate certificate or diploma level in medical studies earn \$138,800 or more, those in banking, finance and related studies earn \$110,800 or more, those in law earn \$108,300 or more, those in mathematical sciences earn \$101,200 or more, and those in economics and econometrics earn \$100,900 or more.

Table 2

Median annual earnings of young domestic graduates, one, two and five years after study, as a percentage of the national median earnings by qualification level.

| Qualification level | Years after study % | | |
|---|---------------------|-----|------|
| | One | Two | Five |
| Doctorate | 177 | 186 | 202 |
| Masters degree | 123 | 142 | 168 |
| Level 8 – bachelors honours, pg dip or cert | 125 | 141 | 171 |
| Graduate certificate or diploma | 132 | 139 | 167 |
| Bachelors degree | 107 | 123 | 146 |
| Diploma at levels 5-7 | 81 | 92 | 111 |
| Certificate at level 4 | 72 | 82 | 101 |
| Certificate at levels 1-3 | 72 | 80 | 101 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that earnings are annual, gross and in 2012 dollars. Only graduates classified in the employment destination are included in these results. Earnings are compared to the 2012 tax year median annual earnings for those aged between 15 – 64 years in New Zealand.

Table 2 shows that:

- More than half of young people who complete a qualification at bachelors or higher earn above the national median earnings in their first year out of study.
- While the median starting earnings for lower-level qualifications is below the national median, people with those qualifications catch up over time. Five years after completing, more than half those young people who finished a level 1-3 certificate will be earning above the national median. To some extent, this reflects young graduates' skills being complemented by experience – meaning they are rewarded by employers as they gain experience in the workforce.
- People with postgraduate qualifications command high earnings – with half of young domestic doctoral graduates earning more than twice the national median in their fifth year out of study, and the median for those who complete a masters, level 8 qualification or graduate certificate or diploma approaching twice the national median.

Table 3

Proportion of young domestic graduates who were in New Zealand who were in employment and in further study in the first and fifth years after study by qualification level.

| Qualification level | One year after study | | Five years after study | |
|---|----------------------|------------------|------------------------|------------------|
| | In employment | In further study | In employment | In further study |
| Doctorate | 80 | 8 | 85 | 5 |
| Masters degree | 68 | 21 | 67 | 21 |
| Level 8 qualification – bachelors honours, pg dip or cert | 56 | 38 | 67 | 23 |
| Graduate certificate or diploma | 80 | 15 | 75 | 13 |
| Bachelors degree | 54 | 40 | 71 | 19 |
| Diploma at levels 5-7 | 43 | 48 | 64 | 23 |
| Certificate at level 4 | 36 | 52 | 54 | 31 |
| Certificate at levels 1-3 | 35 | 48 | 51 | 29 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation.

Table 3 shows that:

- For qualifications at bachelors level and below, employment rates rise with the level of qualification. They also rise over time – a high proportion of young graduates who undertake further study start that in the first year after completion and then continue on to gain employment by the fifth year after completion of their first qualification.
- Around half of young people who complete certificates go on to further study – reflecting the focus of many certificates in providing preparation for people to undertake study at higher levels. Likewise a high proportion of young people who complete a level 5-7 diploma also continue on to further study.

Examining outcomes of selected study fields by qualification levels

Qualifications can open the door to careers in certain industries because they provide the skills employers need. Students often choose their field of study with an eye on improving their employment prospects in a certain field once they've finished. Many study fields (for instance, accounting, automotive engineering, teacher education, law) prepare students for specific occupations in aligned industries. Other fields instead focus on generic skills that can be used in a variety of occupations and industries – biological sciences, behavioural science, office studies and philosophy are examples.

Study can be taken at multiple qualification levels in most subject fields. If prospective students have decided what type of work they want to do and to study to reach these goals, they may need to decide what qualification level they study to fit these aspirations.

The outcomes and earnings data from the IDI allows us to examine common pathways of graduates after study by the level of the qualification attained.

As a general rule, further study rates decline the higher the level of qualification gained. Graduates in some fields take further qualifications after completing an initial one and it is likely that some of these further qualifications enhance graduates' employment prospects and earnings later on.

In most fields of study, employment rates are initially higher at higher levels of study – for example in electrical and electronic engineering, business and management and computer science (see the graphs below). This is partly because at lower qualification levels, initial employment rates are low because graduates are more likely to advance to further study. But that further study is likely to enhance employment prospects in later years.

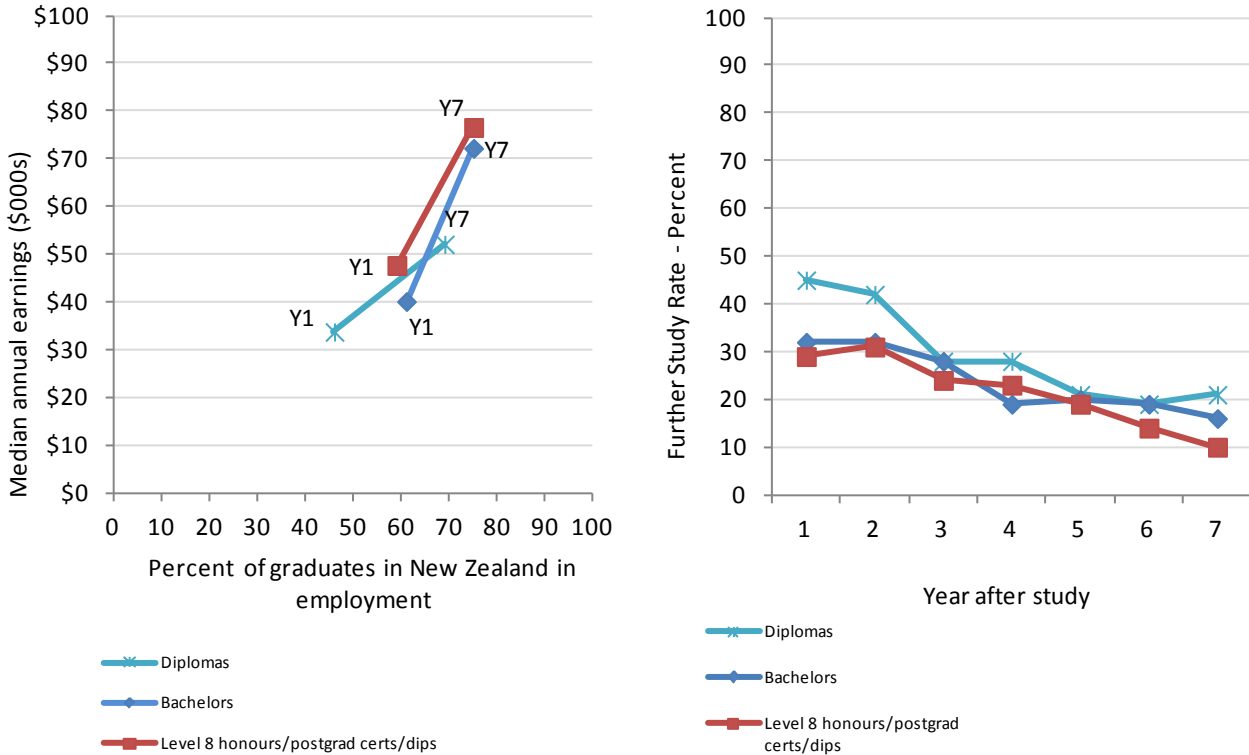
Some jobs require additional study after completion of a bachelors degree, such as graduate and post-graduate qualifications, for entry into professional practice. Examples of these shown below are postgraduate qualifications in accountancy for professional accountants and in law for aspiring barristers and solicitors.

Electrical and electronic engineering and technology

Figure 2 shows electrical and electronic engineering and technology graduates’ earnings and employment rates and further study rates. Graduates at diploma level go on to further study in the first year at higher rates than graduates at bachelors or level 8 levels. They have the lowest employment rates and earnings among graduates in this field in the levels shown. This continues across years after initial study, and while study rates decline and employment rates increase for diploma holders faster than at other levels, diploma graduates’ year 7 earnings are the lowest of the levels shown.

Level 8 graduates’ (bachelors with honours, postgraduate diplomas or certificates) year 7 further study rates are the lowest of those shown and their earnings are highest, and employment rates are comparable to bachelors level qualification graduates’.

Figure 2. Employment rates and earnings for New Zealand-based Electrical and Electronic Engineering and Technology young, domestic graduates 1 and 7 years after study (left) and further study rates (right) by selected qualification level attained

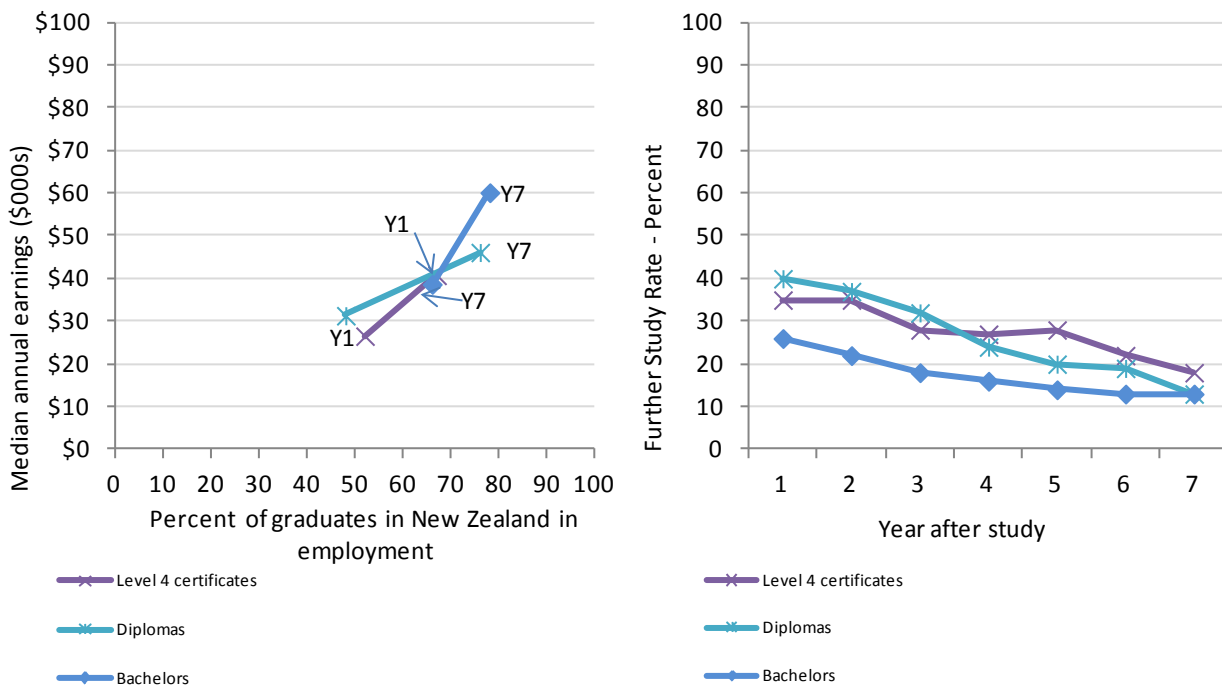


Business and Management

Business and Management graduates' earnings, employment rates and further study rates are graphed below by various levels. The earnings of level 4 certificate graduates are generally the lowest of the levels shown, and level 4 graduates' further study rates are the highest in later years after graduation.

Bachelors graduates have the highest earnings, lowest study rates and highest employment rates. Diploma graduates have high rates of further study in the first years after completion, and their year 7 employment rates are equivalent to bachelors level graduates, although their earnings are lower.

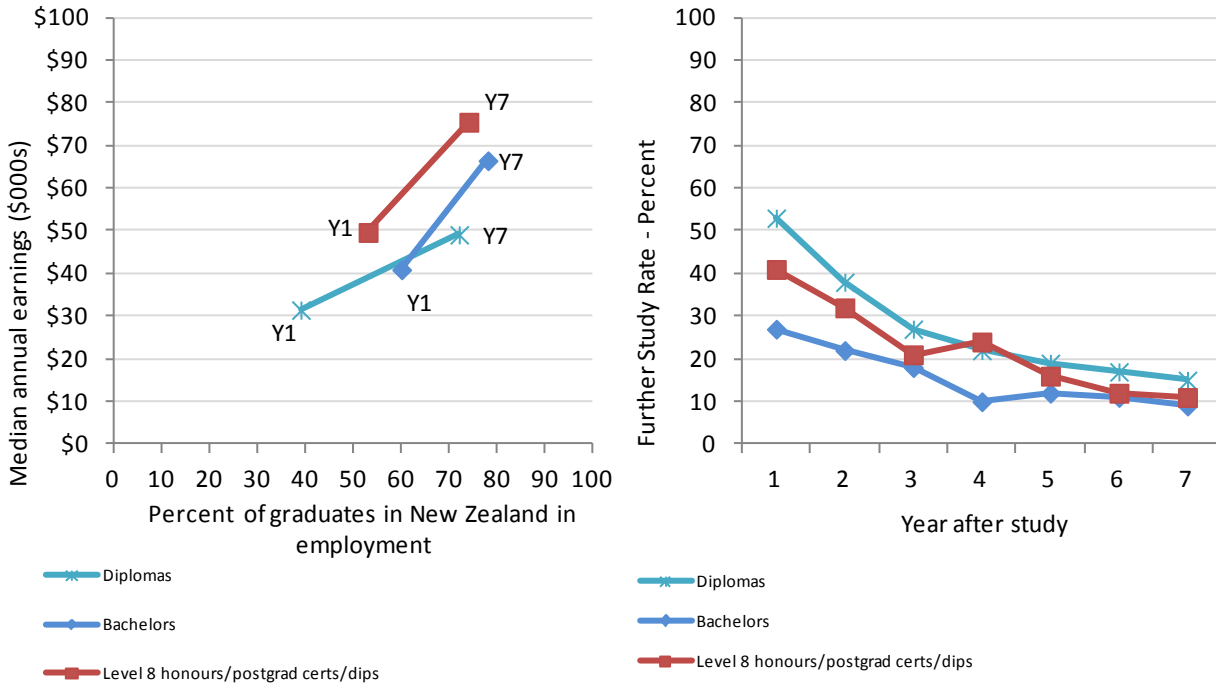
Figure 3. Employment rates and earnings for New Zealand-based Business and Management young, domestic graduates 1 and 7 years after study (left) and further study rates (right) by selected qualification level attained



Computer Science

Computer Science diploma graduates' first year earnings and employment rate are the lowest of those shown in Figure 4, their rate of increase in earnings is lowest and their further study rate highest. But by year 7 after study, their employment rates are roughly equivalent to graduates of the higher level qualifications shown.

Figure 4. Employment rates and earnings for New Zealand-based Computer Science young, domestic graduates 1 and 7 years after study (left) and further study rates (right) by selected qualification level attained



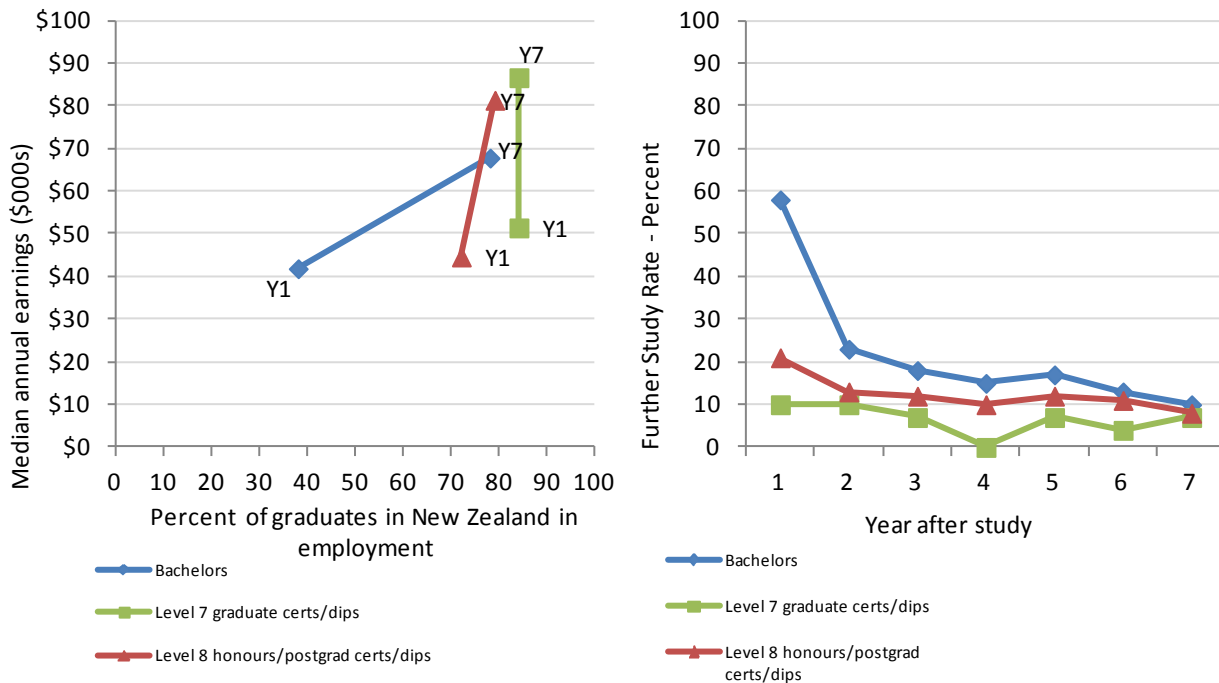
Law

Law bachelors level graduates have the highest further study rates of the qualification levels shown, and they were significantly higher than others in the first year after study.

Their employment rates increased the most between years 1 and 7 after completing their initial qualification, although median earnings increased the least of these groups. This is likely to be because only a proportion of bachelors level law graduates took the pathway into a professional legal career, a graduate certificate (level 7) or postgraduate certificate/diploma (level 8) that confers admittance to barrister status, and earnings shown are a median, so also capture those that did not do their 'professionals'.

Initial employment rates for level 7 and level 8 graduates were very high and changed little by year 7. Further study rates are low for both level 7 and level 8 graduates, indicating that people who are admitted to the bar had good, sustained employment prospects.

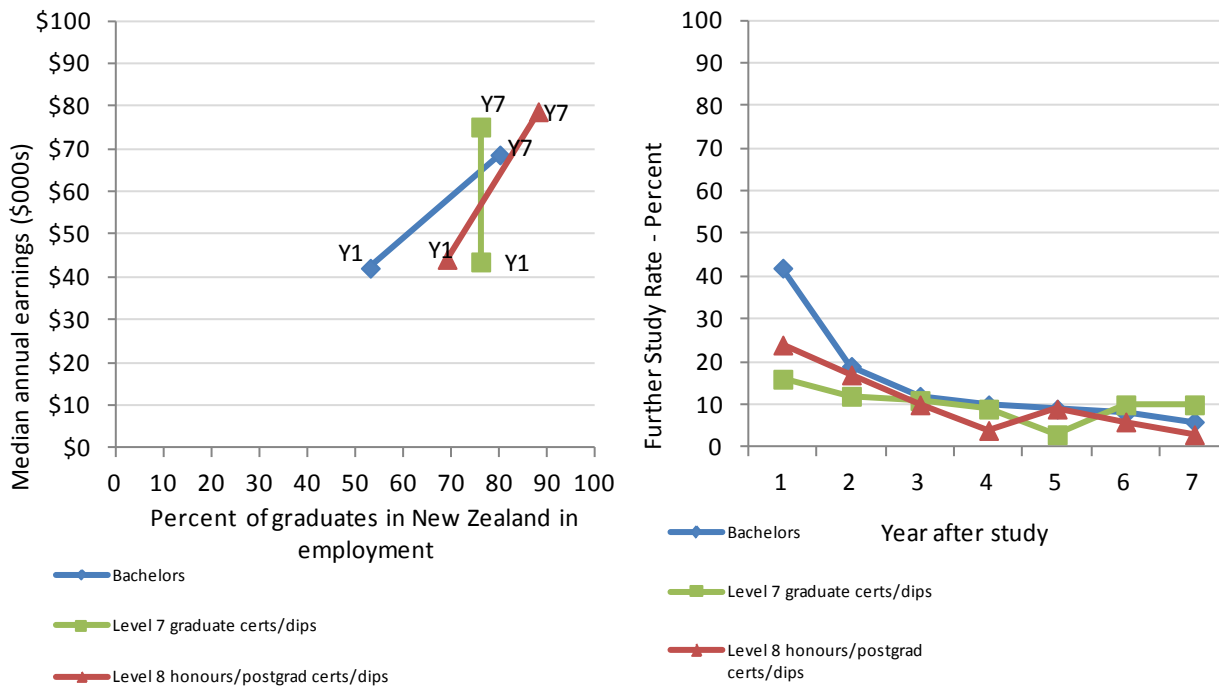
Figure 5. Employment rates and earnings for New Zealand-based Law young, domestic graduates 1 and 7 years after study (left) and further study rates (right) by selected qualification level attained



Accountancy

Students aspiring to be a professional accountant are required to do a three year degree plus a fourth year of degree level study, at either undergraduate level or higher. These data show that bachelors degree graduates have comparatively high rates of further study in their first year compared to higher level qualification graduates. Their earnings increase was lower than for graduates of higher level qualifications, who had already met the entrance criteria for professional accountancy described above.

Figure 6. Employment rates and earnings for New Zealand-based Accountancy young, domestic graduates one and seven years after study (left) and further study rates (right) by selected qualification level attained



Earnings for selected narrow fields of study

Earnings can vary considerably for graduates who complete qualifications in different fields of study even when the study is done at the same qualification level. These differences can be very large and so this is an important factor for students to take into consideration, along with many others, when considering what fields of study they wish to study.

In this section, we look at differences in earnings for bachelors graduates who have studied particular fields of study. We focus on the narrow fields which have the highest number of graduates within each broad field of study. We also compare the median earnings for graduates in particular fields of study to the overall median earnings of \$56,600 for all young, domestic bachelors graduates after seven years. Detailed results for other fields of study and for those at different qualification levels can be found using the [Compare study options](#) tool on the Careers NZ website and also in the associated Excel spreadsheets to this report on the [Education Counts](#) website.

Creative Arts

The median earnings for young, domestic graduates who complete a bachelors degree in any narrow field of study within the broad field of study of creative arts are lower in all seven years after graduation than the median earnings for all young domestic bachelors graduates. The median earnings for those who complete a bachelors degree in performing arts or visual arts and crafts are lowest, reaching \$40,100 and \$41,700 respectively after seven years. But those for graphics and design studies or communication and media studies are highest, reaching \$47,600 and \$53,100 respectively after seven years. There is also some indication that the earnings for communication and media studies graduates may start to increase at a higher rate after five years. These values compare with the overall median earnings for all young, domestic bachelors graduates of \$56,600 after seven years.

Education

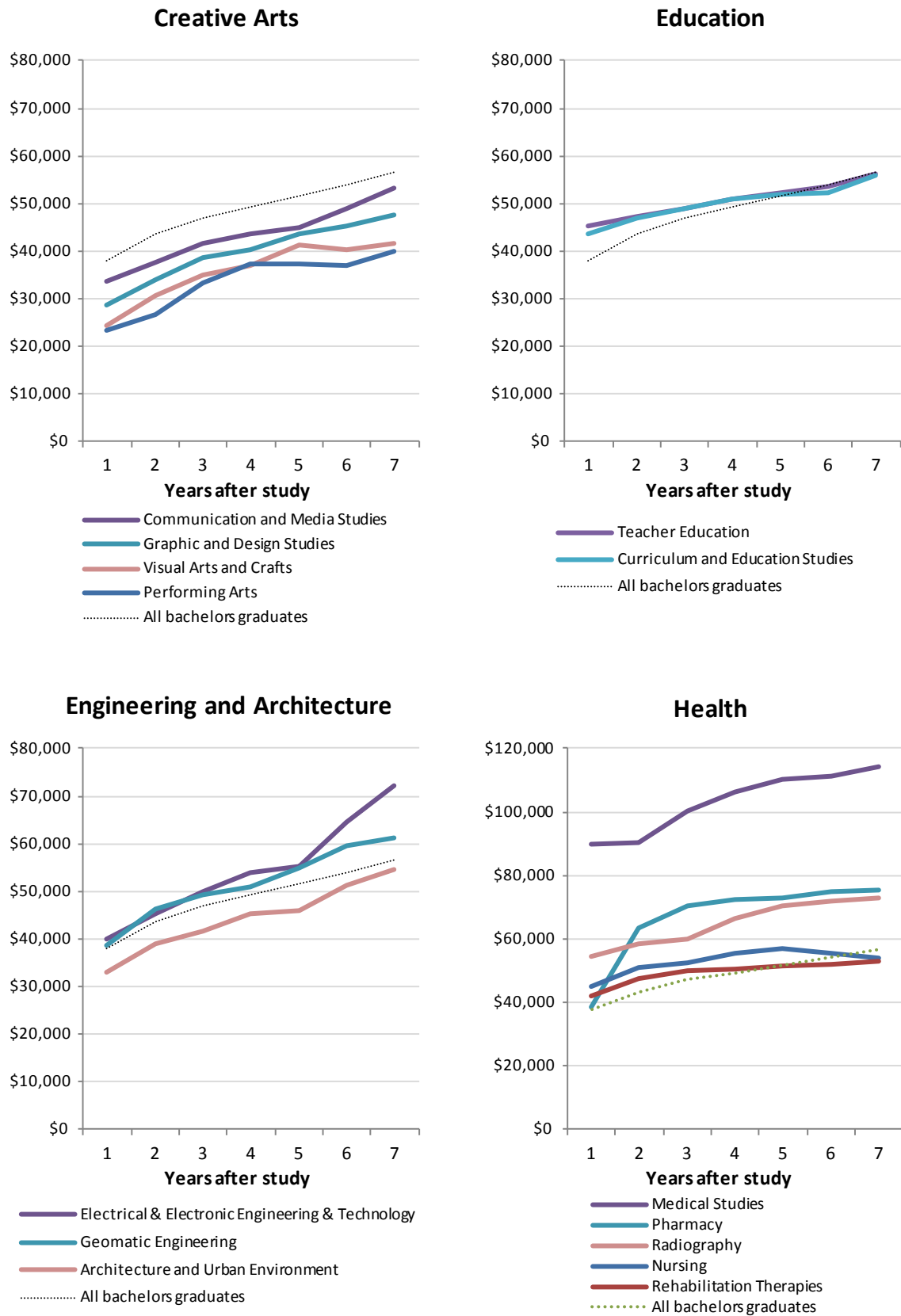
Young domestic graduates who complete a bachelors degree in teacher education or curriculum and education studies have higher median earnings than all young domestic bachelors graduates initially, but this differential decreases gradually over time so that by five years after study, their earnings are very similar to the overall median. The median earnings of young domestic graduates who complete a qualification in curriculum and education studies are slightly lower, reaching \$55,800 after seven years, than for those who complete a qualification in teacher education, reaching \$56,400 after seven years, but the difference is very small in most years after study.

Engineering and Architecture⁷

Young domestic graduates in electrical and electronic engineering and technology, and geomatic engineering have median earnings which are higher than the median earnings for all young domestic bachelors graduates in the first four to five years after study. Their earnings then increase. Those who have studied electrical and electronic engineering and technology reach \$72,200 after seven years while geomatic engineering graduates have a median of \$61,100. In contrast, the median earnings for those who have studied architecture and urban environment are considerably lower than the overall median earnings for young domestic graduates, although they also increase after five years becoming closer to the overall median earnings and reaching \$54,500 after seven years.

⁷ To simplify matters, narrow fields within both of the broad fields of study: engineering and related technologies, and architecture and building are included in the Engineering and Architecture section. Note that many engineering graduates complete a single four year honours level qualification rather than a bachelors degree followed by a 1 year postgraduate qualification. These graduates are thus not included in these earnings figures.

Figure 7. Young, domestic bachelors graduate earnings by selected narrow fields of study within each broad field.



Health

Graduates who complete a bachelors degree in medical studies have the highest earnings of all young domestic bachelors graduates. Median earnings are high from the first year after study at \$89,600 and continue to increase to reach \$114,300 seven years after graduation. Pharmacy, radiography and nursing graduates also have good median earnings with these being above the median earnings for all young domestic bachelors graduates in all or nearly all years after graduation. They reach \$75,600, \$73,000 and \$54,100 respectively seven years after study. Interestingly, the earnings for pharmacy graduates are lowest in the first year after study but then rapidly increase to become consistently highest in the second to seventh years after graduation. Young domestic graduates who complete a bachelors degree in rehabilitation studies earn more than the overall median earnings for bachelors graduates in the three years after study but there is very little increase after this which means that by the fifth year after study, their earnings are less than the overall median. Median earnings after seven years are \$52,800. Median earnings for those who have completed a bachelors degree in nursing decrease from the fifth year after study. Reducing hours of work, perhaps for family care reasons, may be part of the underlying reason for this observation.

Information technology

Young domestic bachelors graduates in all three narrow fields of study within information technology: computer science, information systems and other information technology, have good earnings with these above the overall median earnings for young domestic bachelors graduates in all years after study. The median earnings for information technology graduates also become more divergent from the overall median earnings over time. This is likely due to individuals gaining experience in the workplace. That a high proportion (around 66 percent) of information technology graduates are male and so are less likely to reduce their hours of work for family care reasons five to seven years after completing their studies may also be a contributing factor. Median earnings seven years after study reach \$71,900 (other information technology), \$66,500 (computer science) and \$64,200 (information science).

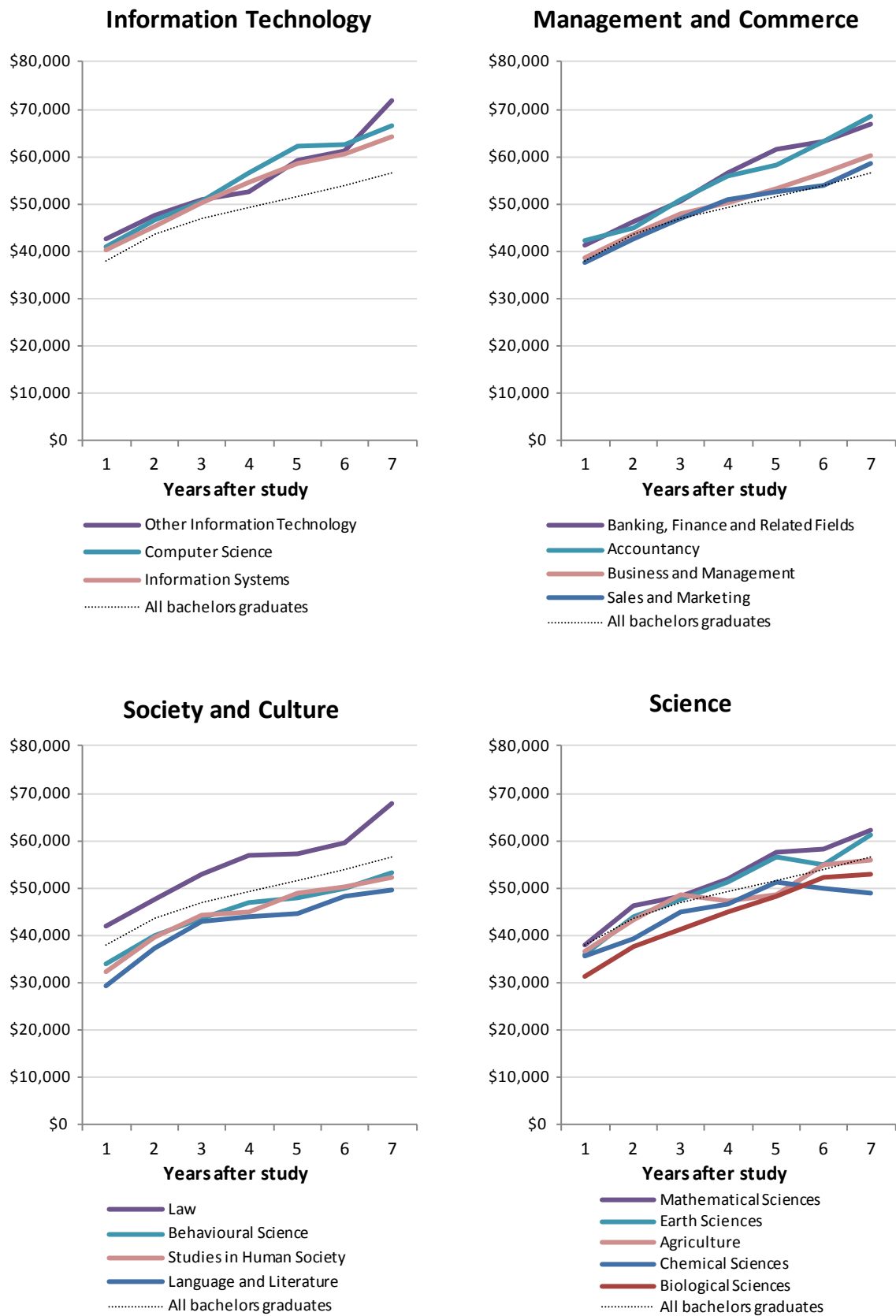
Management and Commerce

Median earnings for young domestic graduates who complete a bachelors degree in banking, finance and related fields or accounting are very similar to each other. Similarly to information technology graduates, their earnings are good: they are above the overall median earnings for all young domestic bachelors graduates in all years after study and become increasing higher over time, reaching \$67,000 and \$68,600 seven years after study respectively. Median earnings for young domestic graduates who complete a bachelors degree in business and management are slightly higher than the median earnings for all young domestic graduates in all years after study, with the difference increasing over time and reaching \$60,100 after seven years, and those for sales and marketing are very similar to the overall values reaching \$58,400 after seven years.

Society and Culture

Young domestic graduates who complete a bachelors degree in law have good earnings in all years after study, with these above the median earnings for all young domestic bachelors graduates. The median earnings increase steeply in the first four years after study, and then again from the sixth to seventh year, reaching \$67,800. In contrast, young domestic graduates who complete a bachelors degree in behavioural science, studies in human society or language and literature have median earnings which are lower than the overall median earnings in all

Figure 7(continued). Young, domestic bachelors graduate earnings by selected narrow fields of study within each broad field.



years after study. Median earnings seven years after study reach \$53,400, \$52,100 and \$49,700 respectively.

Science⁸

The median earnings for young domestic graduates who complete a bachelors degree in mathematical science or earth science are higher than the median earnings for all young domestic bachelors graduates in all years after study. The median earnings for mathematical science graduates reach \$62,300 after seven years and earth science graduates reach \$61,400. Young domestic graduates who complete a bachelors degree in agriculture have similar earnings to the median earnings for all young domestic graduates, although they are lower in the fourth and fifth year after study. They reach \$55,800 after seven years. Those who complete a degree in chemical or biological science have median earnings which are lower than the overall median earnings in all years after study. Median earnings for chemical science graduates are higher than those for biological students in the first five years after study, but then drop to reach \$49,000 after seven years. Median earnings for biological science graduates reach \$53,100 after seven years.

The effects of the recession

Like most developed countries, New Zealand's economy went into recession over the 2008-2009 period. While the country had returned to economic growth in 2010, some recession effects lingered and were still evident in 2012. In our previous update, *Looking at the employment outcomes of tertiary education*, we observed that although the country as a whole has pulled out of recession, there were still observable effects for young people as graduate median earnings had dropped in real terms for most years after study and at almost all qualification levels compared to those in the first report in this series, *Moving on up*.

Although the impact of the recession on the New Zealand economy has been decreasing, with increases in average wages starting to get near pre-recession rates again for the population as a whole, the impact on young graduates (in the period up to the end of the 2012 tax year) has lingered.

- We now have a third set of results available⁹ and so can determine whether graduate median earnings have dropped again since those reported in the previous update¹⁰. For each year after study, we can also compare the annual percentage change in median earnings between the first and second sets of results, and the second and third sets. If there are differences, this may indicate that labour market conditions have changed over this time period.
- Comparing the annual percentage change in earnings between the first and second sets of results, to that between the second and third sets (Figure 8), we can see graduate median earnings have continued to drop in real terms¹¹, for most years after study and at almost all qualification levels. Although conditions have improved across the labour market as a

⁸ To simplify matters, narrow fields within both of the broad fields of study: agriculture, environmental and related studies, and natural and physical sciences are included in the Science section.

⁹ The first set of results relates to earnings reported in *Moving on up*: graduate outcomes in the 2009 and 2010 tax years. The second set of results relates to earnings reported in the first update: graduate outcomes in the 2010 and 2011 tax years. And the third set of results are those in this current update and relate to graduate outcomes in the 2011 and 2012 tax years. Table 5 in the Technical Notes section of this report shows for each set of results, exactly which graduate cohorts are included for each year after study. Note that there is overlap in the cohorts of graduates used for each report: for example, the 2008 cohort of graduates is included in the first year after study results in *Moving on Up*, the second year after study results in the first update, and the third year after study results in this current update.

¹⁰ For comparison purposes, the data in all three reports have been adjusted by the wages and salary component of the Labour Cost Index so that all values are in 2012 dollars.

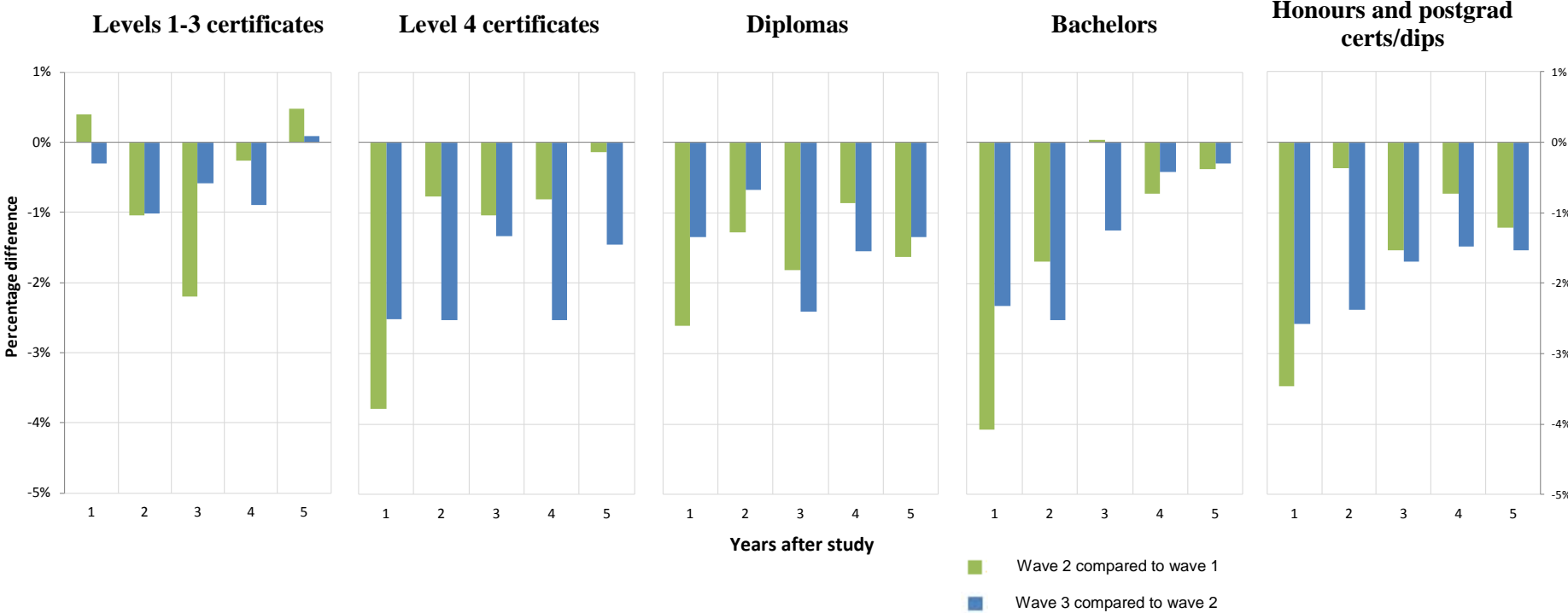
¹¹ By real terms we mean the earnings in 2012 dollars. We do not extend this definition to analyse whether the purchasing power of these earnings has changed.

whole, earnings have not moved to the same extent for young people and in some cases have dropped in nominal terms. These patterns are consistent with the national median earnings figures over this time period for all 20 to 24 year olds, and 25 to 29 year olds, as published by Statistics New Zealand¹².

- The earnings we report are annual earnings covering a whole tax year. A change in earnings may result because the salary that a graduate receives has changed, or the period during which a graduate works may have changed (for example, a graduate may take longer to find work or work may be only available for some parts of the year), or it could reflect changes in the amount of part-time and full-time work that a graduate does. If we look at the first year after study, we see that the annual percentage change in median earnings has dropped between the second to third waves of results. But, in most cases, the drop is smaller than the annual percentage change in median earnings between the first to second waves of results. Although earnings are still dropping in real terms, the slowing down in the rate of the decrease may indicate that by the end of the 2012 tax year, we were reaching the limit of the downturn's effect on young graduates' earnings.
- However, in the second and subsequent years after study, the annual percentage change in earnings between the second and third waves of results is often larger than the annual percentage change in median earnings between the first and second waves, with both differences being negative. This suggests that graduates who were initially most affected by the global financial crisis continue to be affected.

¹² These figures can be found in the Infoshare tables published by Statistics New Zealand: <http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7102>. The figures are based on linked employer-employee data (LEED) augmented with self-employment data. They show that for the 20-24 year old and 25-29 year old age groups, the annual percentage change in total earnings between all tax years from 2009 to 2012 have either dropped, or increased at a lower rate than the wages and salary component of the Labour Cost Index.

Figure 8. Percentage differences in young, domestic graduate median earnings for selected qualification levels. Differences are those between the results previously published in *Moving on Up* (2009 and 2010 tax years) and our first update, *Looking at the employment outcomes of tertiary graduates* (2010 and 2011 tax years), shown in green, and between the first update and this current update (2011 and 2012 tax years), shown in blue.



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the earnings on which the differences have been calculated were all annual, gross and in 2012 dollars. Only graduates classified in the employment destination are included in these results.

Technical notes

Graduate destinations

Destinations are only determined for graduates who are in New Zealand in any particular year. A graduate is regarded as being in New Zealand if, overall, they are in NZ for longer than three months in that tax year.

The graduate destinations used in this report are:

- Further study
- Receiving a benefit
- Employment
- Unknown/Other

Within each leaving cohort, graduates are assigned to only a single destination per year after study using the below business rules. These rules take account of ‘substantiveness’ – how long a graduate is pursuing an activity – and a ‘predominance’ test – what is the ‘main’ activity. Where a graduate meets the criteria for more than one destination, the destination is determined using the order of precedence: further study, receiving a benefit, employment, unknown/other.

Destinations are defined as follows:

- *Further study* – graduates who do any tertiary study in a calendar year.
- *Receiving a benefit* – graduates who are not classified in the Further study category and who are on a benefit for at least 4 months in a tax year and who are not in employment for a longer time than this.
- *Employment* – graduates who are not classified in any of the above categories and who receive wages and salary, paid parental leave and/or ACC compensation for at least four months or more in a tax year and/or receive any self-employment income.
- *Other/Unknown* – graduates who do not meet any of the above criteria, or for whom no matching data can be found in the IDI.

Note that unlike *Moving on up*, the other/unknown and receiving a benefit destinations have not been combined for postgraduates in the updated data.

Completions

The analyses and results in this report only relate to students who have completed a qualification. Enrolments and completions must match by qualification code and level, and provider. Graduates may be included in the results more than once if they have completed a qualification in more than one field of study, or have completed more than one qualification if the qualifications are completed at different levels and/or in different years.

The year that a qualification is completed is assumed to be the last year of enrolment in that qualification. This is because sometimes completions are not recorded in the year that a student actually completes their qualification, for example due to administrative delays or other

peculiarities. Completions are excluded in cases where the recorded completion is shown as having occurred three or more years before the last year of enrolment in that qualification.

Number of years post-study

The number of years post study are defined using tax years for earnings and all destinations except further study where calendar years are used. Table 4 below shows how the aggregated cohorts align with tax and calendar years for each post study year, and table 5 shows how they align for *Moving up up* and the first and current updates.

Table 4

Alignment of cohorts with tax and calendar years

| Cohort | Years post study | Calendar year | Tax year |
|--------|------------------|---------------|-----------|
| 09/10 | 1 | 2010/2011 | 2011/2012 |
| 08/09 | 2 | 2010/2011 | 2011/2012 |
| 07/08 | 3 | 2010/2011 | 2011/2012 |
| 06/07 | 4 | 2010/2011 | 2011/2012 |
| 05/06 | 5 | 2010/2011 | 2011/2012 |
| 04/05 | 6 | 2010/2011 | 2011/2012 |
| 03/04 | 7 | 2010/2011 | 2011/2012 |

Table 5

Alignment of cohorts with tax and calendar years in *Moving on up* and the first and current updates.

| Years post study | Moving on up | | First update | | Second (current) update | |
|------------------|--------------|-----------|--------------|-----------|-------------------------|-----------|
| | Cohorts | Tax years | Cohorts | Tax years | Cohorts | Tax years |
| 1 | 09/10 | 2011/2012 | 08/09 | 2010/2011 | 07/08 | 2009/2010 |
| 2 | 08/09 | 2011/2012 | 07/08 | 2010/2011 | 06/07 | 2009/2010 |
| 3 | 07/08 | 2011/2012 | 06/07 | 2010/2011 | 05/06 | 2009/2010 |
| 4 | 06/07 | 2011/2012 | 05/06 | 2010/2011 | 04/05 | 2009/2010 |
| 5 | 05/06 | 2011/2012 | 04/05 | 2010/2011 | 03/04 | 2009/2010 |

Graduate earnings

Earnings are only presented for graduates who are classified in the 'Employment' destination. Earnings have also been scaled using the Labour Cost Index to normalise differences between the 2011 and 2012 tax years and are presented in 2012 dollars.

Additionally, throughout this report, we have compared graduate earnings to the national median earnings for the 2012 tax year for all workers aged between 15-64 years who have earnings recorded in the IDI, no matter what their qualifications, occupations and hours of work. This value is \$35,373.

Young graduates and qualification level

We report the outcomes only for 'young' graduates. For each qualification level, we set an age range that means we are looking only at those who start that qualification and move to completion before undertaking substantial time in the workforce. We restrict the analysis to young graduates because the aim of the analysis is to support the decision-making of young people. If we mixed the outcomes of young graduates with the outcomes for people who undertake tertiary study after substantial work experience, we would be unable to separate the effects of the qualification from the effects of the work experience.

Young graduates are defined as:

- 21 years or under at certificate level
- 23 years or under at diploma level
- 24 years or under for three-year bachelors degrees, with each year of additional study requirement adding a year to the age cut-off for longer qualifications¹³
- 26 years or under for one year postgraduate study or graduate certificates or diplomas
- 27 years or under for masters
- 29 years or under for doctorate students.

The age of a graduate is based on their age as at 1 July of their last year of enrolment in a qualification.

Field of study

We use the New Zealand Standard Classification of Education (or NZSCED) to classify people's study into various fields of study. NZSCED has three levels of classification – broad field of study, narrow field and detailed field. We determine what field or fields a graduate has pursued by looking at the courses the graduate took while studying and working out what are the predominant fields of study taken. This method uses level of study, field of study, year of study, and study load of each course that a graduate has studied in their last three years of study, usually of the same level as the final year of study or higher, to determine what best constitutes their main field(s) of study – or specialisation(s). It is important to note that this method may give different results to simply using the classification given by the provider.

One consequence of this is that sometimes, less obvious qualifications may be categorised under a particular field of study for some graduates. For example, as expected, Massey University graduates who complete a Bachelor of Veterinary Science are classified under veterinary studies at bachelors level. However, some Bachelor of Agricultural Science and Bachelor of Science graduates at Lincoln University are also included in this field, as are Unitec graduates who complete a Bachelor of Applied Animal Technology. Similarly, under dental studies, at bachelors level we find both University of Otago Bachelor of Dental Surgery graduates and Auckland University of Technology Bachelor of Health Science (Oral Health) graduates.

Most of our analysis is by broad field of study because if we divide our population of graduates too finely, we end up having to suppress more data because it breaches the Statistics New Zealand confidentiality limits. The variation induced from rounding of the underlying graduate counts, as required for confidentiality reasons (see below), also makes the reported percentages for each destination more variable when the number of graduates is smaller.

People graduating in more than one field of study are counted in each of the fields of study. The number of students in each narrow field of study may not sum to the broad field of study total. This is because students can be enrolled in multiple narrow fields of study.

¹³ For example, 25 years and under for law degrees which are four years long, 26 years and under for architecture degrees which are five years long, and 27 years and under for medical degrees as these are six years long. Qualifications with non-whole numbers of years are rounded to the closest number of whole years (rounding upwards if the length is x and a half years).

Field of study is broken down into broad fields using the New Zealand Standard Classification of Education (NZSCED¹⁴):

- Natural and Physical Sciences
- Information Technology
- Engineering and Related Technologies
- Architecture and Building
- Agriculture, Environmental and Related Studies
- Health
- Education
- Management and Commerce
- Society and Culture
- Creative Arts
- Food, Hospitality and Personal Services
- Mixed Field Programmes.

Each broad field of study contains a spread of types of qualifications. For instance, the broad field Health covers *medicine, veterinary science, dentistry, nursing* and qualifications for low level health workers such as nurse-aides. Natural and Physical Sciences covers *mathematical sciences, physics and astronomy, chemical sciences, earth sciences and biological sciences*.

Data is also published at NZSCED narrow field, where numbers permit. This allows, for instance, separation of law from economics and from social work and separation of medicine from nursing.

Confidentiality of data

The results published in this report and in the tables in the corresponding spreadsheets all comply with the Statistics New Zealand's confidentiality requirements. These include a requirement to use graduated random rounding for all total counts, and random rounding to base 3 for counts which underlie percentages. Additionally, when publishing employment rates or earnings, the corresponding provider, enterprise and graduate counts for that qualification level by field of study combination must be higher than prescribed limits. Blanks may also be suppressed in line with Statistic New Zealand's confidentiality rules. Results from a single provider are suppressed in all cases.

Random rounding may result in a total not agreeing with the sum of individual items shown in a table. It also means that the published percentage of graduates in a particular destination may differ to the true percentage. This is important to take into account when comparing percentages as some differences may simply be due to this factor and not to an underlying trend. Examples of the level of variation introduced by random rounding of the underlying graduate counts are:

- If the total number of graduates who remain in New Zealand for a particular qualification level by field of study combination is higher than 50 on average across the seven years after study (which is the case for 82 percent of the published results¹⁵), then sixty-five percent of the published percentages are exact (to the significance level shown), ninety percent are within 1 percentage point, and ninety-five percent are within 2 percentage points.

¹⁴ For the structure of NZSCED, refer to:

http://www.educationcounts.govt.nz/data-services/collecting-information/code_sets/new_zealand_standard_classification_of_education_nzsced

¹⁵ Excluding suppressed values or combinations with no graduates (the latter are reported as zeroes). Also note that two cohorts of graduates are aggregated together for each year after study's results.

- However, if the total number of graduates who remain in New Zealand is between 20 to 50 for a particular qualification level by field of study combination, then only one-third of the published percentages are within 1 percentage point, sixty percent are within 3 percentage points, seventy-five percent are within 4 percentage points, and ninety-five percent are within 9 percentage points.

Please refer to Chapter 12 of *Moving on up* for more technical details about the data in these tables.

Disclaimer

The results in this report are not official statistics, they have been created for research purposes from the Integrated Data Infrastructure (IDI) managed by Statistics New Zealand.

The opinions, findings, recommendations and conclusions expressed in this report are those of the authors not Statistics NZ.

Access to the anonymised data used in this study was provided by Statistics NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business or organisation and the results in this report have been confidentialised to protect these groups from identification.

Careful consideration has been given to the privacy, security and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the Privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.

The results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data must be used only for statistical purposes, and no individual information may be published or disclosed in any other form, or provided to Inland Revenue for administrative or regulatory purposes.

Any person who has had access to the unit-record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Appendix 1. Median and quartile annual earnings of young domestic bachelors degree graduates, one, two and five years after study by broad field of study

| Field of study | Measure | Years after study | | |
|--|----------------|-------------------|----------|----------|
| | | One | Two | Five |
| Agriculture, environmental and related studies | Upper quartile | \$42,703 | \$51,507 | \$64,175 |
| | Median | \$35,417 | \$42,071 | \$51,166 |
| | Lower quartile | \$23,621 | \$34,706 | \$38,321 |
| Architecture and building | Upper quartile | \$43,819 | \$50,046 | \$60,204 |
| | Median | \$34,376 | \$40,198 | \$47,439 |
| | Lower quartile | \$26,061 | \$29,780 | \$35,670 |
| Creative arts | Upper quartile | \$37,073 | \$41,962 | \$53,131 |
| | Median | \$29,208 | \$33,874 | \$42,949 |
| | Lower quartile | \$19,197 | \$21,834 | \$28,119 |
| Education | Upper quartile | \$47,514 | \$49,327 | \$59,281 |
| | Median | \$45,034 | \$47,164 | \$52,148 |
| | Lower quartile | \$34,412 | \$41,075 | \$37,560 |
| Engineering and related technologies | Upper quartile | \$48,615 | \$52,992 | \$67,410 |
| | Median | \$38,478 | \$46,078 | \$55,485 |
| | Lower quartile | \$26,526 | \$35,518 | \$44,141 |
| Health | Upper quartile | \$66,142 | \$65,572 | \$80,646 |
| | Median | \$46,573 | \$52,217 | \$61,581 |
| | Lower quartile | \$34,771 | \$41,572 | \$41,837 |
| Information technology | Upper quartile | \$47,668 | \$54,996 | \$72,614 |
| | Median | \$40,355 | \$46,306 | \$59,433 |
| | Lower quartile | \$30,801 | \$35,548 | \$48,741 |
| Management and commerce | Upper quartile | \$45,214 | \$50,911 | \$69,000 |
| | Median | \$38,993 | \$43,699 | \$54,026 |
| | Lower quartile | \$29,517 | \$35,542 | \$42,295 |
| Natural and physical sciences | Upper quartile | \$44,091 | \$51,666 | \$63,086 |
| | Median | \$34,391 | \$42,754 | \$51,843 |
| | Lower quartile | \$23,369 | \$31,143 | \$38,623 |
| Society and culture | Upper quartile | \$43,721 | \$49,725 | \$61,144 |
| | Median | \$35,539 | \$42,268 | \$50,191 |
| | Lower quartile | \$23,134 | \$31,204 | \$37,340 |
| Total students | Upper quartile | \$46,387 | \$51,010 | \$64,188 |
| | Median | \$37,959 | \$43,486 | \$51,627 |
| | Lower quartile | \$26,569 | \$32,448 | \$38,160 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Earnings are gross, annual and in 2012 dollars. Only graduates classified in the employment destination are included in these results.

Appendix 2. Median earnings for young domestic bachelors degree graduates, one, two and five years after study, by narrow field of study

| Broad field of study | Narrow field of study | Annual earnings | | |
|--|--|-----------------|----------|-----------|
| | | Year 1 | Year 2 | Year 5 |
| Agriculture, environmental and related studies | Agriculture | \$36,557 | \$43,154 | \$48,554 |
| | Environmental Studies | \$33,436 | \$44,233 | \$56,224 |
| | Forestry Studies | S | \$51,497 | \$51,356 |
| | Horticulture and Viticulture | \$33,958 | \$38,964 | \$50,761 |
| | Other Agriculture, Environmental and Related Studies | S | S | S |
| Architecture and building | Architecture and Urban Environment | \$33,066 | \$39,059 | \$46,014 |
| | Building | \$42,930 | \$47,675 | \$57,716 |
| Creative arts | Communication and Media Studies | \$33,535 | \$37,784 | \$44,927 |
| | Graphic and Design Studies | \$28,738 | \$33,954 | \$43,690 |
| | Other Creative Arts | S | S | S |
| | Performing Arts | \$23,423 | \$26,823 | \$37,229 |
| | Visual Arts and Crafts | \$24,407 | \$30,724 | \$41,442 |
| Education | Curriculum and Education Studies | \$43,668 | \$46,977 | \$52,087 |
| | Other Education | S | S | S |
| | Teacher Education | \$45,302 | \$47,269 | \$52,403 |
| Engineering and related technologies | Aerospace Engineering and Technology | S | S | S |
| | Civil Engineering | \$40,598 | \$49,994 | \$66,787 |
| | Electrical and Electronic Engineering and Technology | \$40,111 | \$45,346 | \$55,375 |
| | Geomatic Engineering | \$38,684 | \$46,332 | \$54,913 |
| | Manufacturing, Engineering and Technology | S | S | \$63,591 |
| | Mechanical and Industrial Engineering and Technology | \$44,546 | \$49,984 | \$57,580 |
| | Other Engineering and Related Technologies | \$38,318 | \$38,693 | S |
| | Process and Resources Engineering | \$36,879 | \$44,471 | \$55,748 |
| Health | Complementary Therapies | S | S | S |
| | Dental Studies | \$64,602 | \$71,596 | \$67,600 |
| | Medical Studies | \$89,633 | \$90,567 | \$110,324 |
| | Nursing | \$44,952 | \$51,120 | \$57,022 |
| | Optical Science | S | S | S |
| | Other Health | \$30,479 | \$38,388 | \$47,407 |
| | Pharmacy | \$38,600 | \$63,645 | \$72,963 |
| | Public Health | \$32,960 | \$42,576 | \$54,705 |
| | Radiography | \$54,411 | \$58,356 | \$70,413 |
| | Rehabilitation Therapies | \$41,761 | \$47,489 | \$51,235 |
| Information technology | Veterinary Studies | S | S | \$62,251 |
| | Computer Science | \$40,908 | \$46,502 | \$62,059 |
| | Information Systems | \$40,232 | \$45,231 | \$58,406 |
| Management and commerce | Other Information Technology | \$42,468 | \$47,545 | \$59,196 |
| | Accountancy | \$42,156 | \$45,023 | \$58,361 |
| | Banking, Finance and Related Fields | \$41,173 | \$46,168 | \$61,630 |
| | Business and Management | \$38,680 | \$43,489 | \$53,146 |
| | Other Management and Commerce | \$38,951 | \$45,054 | \$56,136 |
| | Sales and Marketing | \$37,617 | \$42,617 | \$52,544 |
| Natural and physical sciences | Tourism | \$33,200 | \$37,141 | \$44,300 |
| | Biological Sciences | \$31,480 | \$37,638 | \$48,416 |
| | Chemical Sciences | \$35,568 | \$39,461 | \$51,281 |
| | Earth Sciences | \$35,882 | \$43,979 | \$56,595 |
| | Mathematical Sciences | \$37,959 | \$46,373 | \$57,469 |

| Broad field of study | Narrow field of study | Annual earnings | | |
|----------------------|--|-----------------|----------|----------|
| | | Year 1 | Year 2 | Year 5 |
| | Other Natural and Physical Sciences | \$38,344 | \$48,950 | \$57,172 |
| | Physics and Astronomy | \$40,243 | \$43,746 | \$57,355 |
| Society and culture | Behavioural Science | \$34,083 | \$40,004 | \$47,887 |
| | Economics and Econometrics | \$40,731 | \$45,992 | \$58,357 |
| | Human Welfare Studies and Services | \$42,165 | \$45,901 | \$53,476 |
| | Justice and Law Enforcement | \$35,725 | \$38,323 | \$50,772 |
| | Language and Literature | \$29,419 | \$37,411 | \$44,584 |
| | Law | \$41,870 | \$47,508 | \$57,213 |
| | Librarianship, Information Management and Curatorial Studies | S | S | S |
| | Other Society and Culture | \$32,969 | \$38,802 | \$45,773 |
| | Philosophy and Religious Studies | \$29,740 | \$35,709 | \$46,737 |
| | Political Science and Policy Studies | \$37,057 | \$41,198 | \$50,876 |
| | Sport and Recreation | \$29,870 | \$37,173 | \$47,717 |
| | Studies in Human Society | \$32,463 | \$39,723 | \$48,919 |
| Total students | Total | \$37,959 | \$43,486 | \$51,627 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Earnings are gross, annual and in 2012 dollars. An "S" indicates that a value is suppressed as it has not met Statistics NZ's confidentiality requirements. Only graduates classified in the employment destination are included in these results.

Appendix 3. Median earnings and earnings growth for young domestic graduates over seven years after study, by selected narrow field of study and qualification level

| Narrow field of study | Qualification level completed | Annual earnings and overall growth | | |
|--|-------------------------------------|------------------------------------|----------|-----------------------|
| | | Year 1 | Year 7 | % Growth over 7 years |
| Accountancy | Level 8 honours/postgrad certs/dips | \$44,220 | \$78,757 | 78 |
| | Level 7 graduate certs/dips | \$43,628 | \$75,187 | 72 |
| | Bachelors | \$42,156 | \$68,649 | 63 |
| | Diplomas | \$34,748 | \$44,286 | 27 |
| | Level 4 certificates | \$35,184 | \$43,203 | 23 |
| Agriculture | Bachelors | \$36,557 | \$55,846 | 53 |
| | Diplomas | \$33,737 | \$52,916 | 57 |
| | Level 4 certificates | \$29,059 | \$41,031 | 41 |
| | Level 1-3 certificates | \$27,446 | \$40,381 | 47 |
| Building | Bachelors | \$42,930 | \$68,232 | 59 |
| | Diplomas | \$33,356 | \$49,864 | 49 |
| | Level 4 certificates | \$29,015 | \$43,946 | 51 |
| | Level 1-3 certificates | \$26,426 | \$41,626 | 58 |
| Business and Management | Masters | \$51,185 | \$69,953 | 37 |
| | Level 8 honours/postgrad certs/dips | \$44,815 | \$66,258 | 48 |
| | Level 7 graduate certs/dips | \$42,026 | \$63,167 | 50 |
| | Bachelors | \$38,680 | \$60,135 | 55 |
| | Diplomas | \$31,341 | \$46,138 | 47 |
| | Level 4 certificates | \$26,556 | \$40,784 | 54 |
| | Level 1-3 certificates | \$26,091 | \$39,377 | 51 |
| Computer Science | Masters | \$52,990 | \$73,299 | 38 |
| | Level 8 honours/postgrad certs/dips | \$49,665 | \$75,496 | 52 |
| | Level 7 graduate certs/dips | \$38,481 | \$69,731 | 81 |
| | Bachelors | \$40,908 | \$66,465 | 62 |
| | Diplomas | \$31,469 | \$49,112 | 56 |
| | Level 4 certificates | \$27,275 | \$44,440 | 63 |
| | Level 1-3 certificates | \$24,012 | \$39,938 | 66 |
| Dental Studies | Bachelors | \$64,602 | \$91,667 | 42 |
| Electrical and Electronic Engineering and Technology | Masters | \$48,928 | \$82,652 | 69 |
| | Level 8 honours/postgrad certs/dips | \$47,671 | \$76,607 | 61 |
| | Bachelors | \$40,111 | \$72,236 | 80 |
| | Diplomas | \$33,734 | \$52,092 | 54 |
| | Level 1-3 certificates | \$28,321 | \$50,154 | 77 |
| Law | Masters | \$49,273 | \$87,780 | 78 |
| | Level 8 honours/postgrad certs/dips | \$44,621 | \$81,332 | 82 |
| | Level 7 graduate certs/dips | \$51,434 | \$86,631 | 68 |
| | Bachelors | \$41,870 | \$67,794 | 62 |
| | Diplomas | \$41,029 | \$47,130 | 15 |
| Nursing | Level 8 honours/postgrad certs/dips | \$57,452 | \$60,917 | 6 |
| | Bachelors | \$44,952 | \$54,061 | 20 |
| | Level 4 certificates | \$23,637 | \$34,694 | 47 |
| Sales and Marketing | Masters | \$44,142 | \$63,852 | 45 |
| | Level 8 honours/postgrad certs/dips | \$41,088 | \$65,518 | 59 |
| | Level 7 graduate certs/dips | \$35,360 | \$60,000 | 70 |
| | Bachelors | \$37,617 | \$58,422 | 55 |
| | Diplomas | \$31,637 | \$50,137 | 58 |
| | Level 1-3 certificates | \$26,688 | \$37,211 | 39 |
| Teacher Education | Level 8 honours/postgrad certs/dips | \$47,194 | \$61,842 | 31 |
| | Level 7 graduate certs/dips | \$46,762 | \$65,866 | 41 |

| Narrow field of study | Qualification level completed | Annual earnings and overall growth | | |
|-----------------------|-------------------------------|------------------------------------|----------|-----------------------|
| | | Year 1 | Year 7 | % Growth over 7 years |
| | Bachelors | \$45,302 | \$56,383 | 24 |
| | Diplomas | \$43,630 | \$47,566 | 9 |
| | Level 1-3 certificates | \$20,486 | \$43,083 | 110 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Earnings are gross, annual and in 2012 dollars. An "S" indicates that a value is suppressed as it has not met Statistics NZ's confidentiality requirements. Only graduates classified in the employment destination are included in these results.

Appendix 4. Employment rates for young domestic graduates over seven years after study, by selected narrow field of study and qualification level

| Narrow field of study | Qualification level completed | Annual employment rate for NZ based graduates | | |
|--|-------------------------------------|---|--------|-----------------------------|
| | | Year 1 | Year 7 | % point growth over 7 years |
| Accountancy | Level 8 honours/postgrad certs/dips | 69 | 88 | 19 |
| | Level 7 graduate certs/dips | 76 | 76 | 0 |
| | Bachelors | 53 | 80 | 27 |
| | Diplomas | 31 | 70 | 39 |
| | Level 4 certificates | 41 | 70 | 29 |
| Agriculture | Bachelors | 61 | 68 | 7 |
| | Diplomas | 78 | 78 | 0 |
| | Level 4 certificates | 44 | 67 | 23 |
| | Level 1-3 certificates | 41 | 69 | 28 |
| Building | Bachelors | 66 | 98 | 32 |
| | Diplomas | 60 | 70 | 10 |
| | Level 4 certificates | 64 | 78 | 14 |
| | Level 1-3 certificates | 44 | 67 | 23 |
| Business and Management | Masters | 72 | 70 | -2 |
| | Level 8 honours/postgrad certs/dips | 57 | 77 | 20 |
| | Level 7 graduate certs/dips | 78 | 71 | -7 |
| | Bachelors | 66 | 78 | 12 |
| | Diplomas | 48 | 76 | 28 |
| | Level 4 certificates | 52 | 67 | 15 |
| Computer Science | Level 1-3 certificates | 28 | 56 | 28 |
| | Masters | 57 | 75 | 18 |
| | Level 8 honours/postgrad certs/dips | 53 | 74 | 21 |
| | Level 7 graduate certs/dips | 67 | 60 | -7 |
| | Bachelors | 60 | 78 | 18 |
| | Diplomas | 39 | 72 | 33 |
| | Level 4 certificates | 11 | 68 | 57 |
| Dental Studies | Level 1-3 certificates | 52 | 53 | 1 |
| | Bachelors | 86 | 72 | -14 |
| Electrical and Electronic Engineering and Technology | Masters | 72 | 88 | 16 |
| | Level 8 honours/postgrad certs/dips | 59 | 75 | 16 |
| | Bachelors | 61 | 75 | 14 |
| | Diplomas | 46 | 69 | 23 |
| | Level 1-3 certificates | 46 | 71 | 25 |
| Law | Masters | 66 | 77 | 11 |
| | Level 8 honours/postgrad certs/dips | 72 | 79 | 7 |
| | Level 7 graduate certs/dips | 84 | 84 | 0 |
| | Bachelors | 38 | 78 | 40 |
| | Diplomas | 50 | 58 | 8 |
| Nursing | Level 8 honours/postgrad certs/dips | 75 | 74 | -1 |
| | Bachelors | 29 | 73 | 44 |
| | Level 4 certificates | 18 | 52 | 34 |
| Sales and Marketing | Level 1-3 certificates | 45 | 51 | 6 |
| | Masters | 73 | 68 | -5 |
| | Level 8 honours/postgrad certs/dips | 70 | 81 | 11 |
| | Level 7 graduate certs/dips | 73 | 78 | 5 |
| | Bachelors | 71 | 80 | 9 |
| | Diplomas | 46 | 77 | 31 |

| Narrow field of study | Qualification level completed | Annual employment rate for NZ based graduates | | |
|-----------------------|-------------------------------------|---|--------|-----------------------------|
| | | Year 1 | Year 7 | % point growth over 7 years |
| Teacher Education | Level 8 honours/postgrad certs/dips | 63 | 57 | -6 |
| | Level 7 graduate certs/dips | 89 | 76 | -13 |
| | Bachelors | 82 | 80 | -2 |
| | Diplomas | 42 | 70 | 28 |
| | Level 1-3 certificates | 45 | 52 | 7 |

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation.