



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

MEN AND WOMEN – MOVING ON UP

*What men and women earn after
their tertiary education*

This report forms part of a series called *Beyond Tertiary Study*.

Topics covered by the series include how graduates' earnings change over time, labour market outcomes, education and economic growth, and qualifications and income.

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Men and women moving on up

1	The employment outcomes of tertiary education	4
1.1	Why look at employment outcomes of tertiary education for men and women?	4
1.2	How we analyse the employment outcomes of tertiary education	4
1.3	The data and the methodology used in this report	5
2	The employment outcomes of tertiary education	8
3	Outcomes for young doctoral graduates	18
3.1	Introduction	18
3.2	What we found	18
4	Outcomes for young masters degree graduates	23
4.1	Introduction	23
4.2	What we found	23
5	Outcomes for young people who complete honours degrees and postgraduate diplomas and certificates	29
5.1	Introduction	29
5.2	What we found	29
6	Outcomes for young people who complete graduate diplomas and certificates	35
6.1	Introduction	35
6.2	What we found	35
7	Outcomes for young bachelors degree graduates	41
7.1	Introduction	41
7.2	What we found	41
8	Outcomes for young diploma completers	49
8.1	Introduction	49
8.2	What we found	49
9	Outcomes for young level four certificate completers	55
9.1	Introduction	55
9.2	What we found	55
10	Outcomes for young people who complete level one to three certificates	61
10.1	Introduction	61
10.2	What we found	61
11	A focus on outcomes by narrow field of study	67
11.1	Looking at narrow fields of study	67
11.2	Outcomes by narrow field for bachelors graduates	67
11.3	Outcomes by narrow field for level one to three certificate completers	75
12	Data and definitions	82
12.1	Data	82

12.2	Definitions	84
13	References	88

FIGURES

1	Panel graph showing earnings of young graduates by qualification level, gender and year after study	9
2	Median earnings of young domestic completers two years (left) and five years (right) after study, by gender and qualification level	10
3	Women's median earnings as a percentage of men's median earnings of young domestic completers one, two and five years after study, by qualification level	11
4	Panel graph showing destinations of young graduates by qualification level, gender and year after study	15
5	Percentage point destination difference between year one and year five after study by qualification level and gender	17
6	Percentage point destination difference between men and women year one and year five after study by qualification level	17
7	Median and upper and lower quartile earnings for young domestic doctoral degree completers in the first five years after study by gender	20
8	Median earnings of young domestic doctoral degree completers five years after study by gender	20
9	Median and upper and lower quartile earnings for young domestic masters degree graduates in the first five years after study by gender	25
10	Median earnings of young domestic masters degree graduates five years after study by gender	25
11	Median and upper and lower quartile earnings for young domestic level 8 qualification completers in the first five years after study by gender	31
12	Median earnings of young domestic level 8 qualification completers five years after study by gender	31
13	Median and upper and lower quartile earnings for young domestic graduate certificate and diploma completers in the first five years after study by gender	37
14	Median earnings of young domestic graduate certificate and diploma completers five years after study by gender	37
15	Median and upper and lower quartile earnings for young domestic bachelors degree completers in the first five years after study by gender	43
16	Median earnings of young domestic bachelors degree completers five years after study	

	by gender	44
17	Median and upper and lower quartile earnings for young domestic diploma completers in the first five years after study by gender	50
18	Median earnings of young domestic diploma completers five years after study by gender	51
19	Median and upper and lower quartile earnings for young domestic level four certificate completers in the first five years after study by gender	56
20	Median earnings of young domestic level four certificate completers five years after study by gender	57
21	Median and upper and lower quartile earnings for young domestic level one to three certificate completers in the first five years after study by gender	63
22	Median earnings of young domestic level one to three certificate completers five years after study by gender	63

TABLES

1	Age ranges for consideration as a 'young' graduate	6
2	Median and quartile annual earnings of young domestic graduates, one, two and five years after study by gender and qualification level	12
3	Median annual earnings of young domestic graduates, one, two and five years after study, as a percentage of the national median income by gender and qualification level	13
4	Median annual earnings of young domestic graduates, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	13
5	Growth in median annual earnings of young domestic graduates, over the first five years after study by gender and qualification level	14
6	Destination of young domestic graduates one year after study by qualification level and gender	15
7	Destination of young domestic graduates five years after study by qualification level and gender	16
8	Median and quartile annual earnings of young domestic doctoral degree completers, one, two and five years after study by broad field of study and gender	21
9	Median annual earnings of young domestic doctoral degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	21
10	Growth in median annual earnings of young domestic doctoral degree completers, over the first five years after study by broad field of study and gender	21
11	Destination of young domestic doctoral degree completers one year after study by broad field of study and gender	22
12	Destination of young domestic doctoral degree completers five year after study by broad field of study and gender	22
13	Median and quartile annual earnings of young domestic masters degree completers, one, two and five years after study by broad field of study and gender	26
14	Median annual earnings of young domestic masters degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	27
15	Growth in median annual earnings of young domestic masters degree completers, over the first five years after study by broad field of study and gender	27
16	Destination of young domestic masters degree completers one year after study by broad field of study and gender	28
17	Destination of young domestic masters degree completers five year after study by	

	broad field of study and gender	28
18	Median and quartile annual earnings of young domestic level 8 qualification completers, one, two and five years after study by broad field of study and gender	32
19	Median annual earnings of young domestic level 8 qualification completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	33
20	Growth in median annual earnings of young domestic level 8 qualification completers, over the first five years after study by broad field of study and gender	33
21	Destination of young domestic level 8 qualification completers one year after study by broad field of study and gender	34
22	Destination of young domestic level 8 qualification completers five years after study by broad field of study and gender	34
23	Median and quartile annual earnings of young domestic graduate certificate and diploma completers, one, two and five years after study by broad field of study and gender	38
24	Median annual earnings of young domestic graduate certificate and diploma completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	38
25	Growth in median annual earnings of young domestic graduate certificate and diploma completers, over the first five years after study by broad field of study and gender	39
26	Destination of young domestic graduate certificate and diploma completers one year after study by broad field of study and gender	39
27	Destination of young domestic graduate certificate and diploma completers five year after study by broad field of study and gender	40
28	Median and quartile annual earnings of young domestic bachelors degree completers, one, two and five years after study by broad field of study and gender	44
29	Median annual earnings of young domestic bachelors degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level	45
30	Growth in median annual earnings of young domestic bachelors degree completers, over the first five years after study by broad field of study and gender	46
31	Destination of young domestic bachelors degree completers one year after study by broad field of study and gender	47
32	Destination of young domestic bachelors degree completers five year after study by broad field of study and gender	48
33	Median and quartile annual earnings of young domestic diploma completers, one, two and five years after study by broad field of study and gender	51

34	Median annual earnings of young domestic diploma completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender	52
35	Growth in median annual earnings of young domestic diploma completers, over the first five years after study by broad field of study and gender	53
36	Destination of young domestic diploma completers one year after study by broad field of study and gender	53
37	Destination of young domestic diploma completers five year after study by broad field of study and gender	54
38	Median and quartile annual earnings of young domestic level four certificate completers, one, two and five years after study by broad field of study and gender	57
39	Median annual earnings of young domestic level four certificate completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender	58
40	Growth in median annual earnings of young domestic level four certificate completers, over the first five years after study by broad field of study and gender	58
41	Destination of young domestic level four certificate completers one year after study by broad field of study and gender	59
42	Destination of young domestic level four certificate completers five year after study by broad field of study and gender	60
43	Median and quartile annual earnings of young domestic level one to three certificate completers, one, two and five years after study by broad field of study and gender	64
44	Median annual earnings of young domestic level one to three certificate completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender	65
45	Growth in median annual earnings of young domestic level one to three certificate completers, over the first five years after study by broad field of study and gender	65
46	Destination of young domestic level one to three certificate completers one year after study by broad field of study and gender	66
47	Destination of young domestic level one to three certificate completers five years after study by broad field of study and gender	66
48	Median earnings for young domestic bachelors graduates, one two and five years after study, by narrow field of study	70
49	Median earnings of young domestic bachelors graduates, one, two and five years after study, as a percentage of the national median earnings by narrow field of study	71
50	Growth in median annual earnings of young domestic bachelors graduates, over the first five years after study by narrow field	72

51	Destinations by narrow field of study for young domestic bachelors graduates	73
52	Median earnings for young level one to three certificate completers, one two and five years after study, by narrow field of study	77
53	Median earnings of young domestic level one to three certificate completers, one, two and five years after study, as a percentage of the national median earnings by narrow field of study	78
54	Growth in median annual earnings of young domestic level one to three certificate completers, over the first five years after study by narrow field of study	79
55	Destinations by narrow field of study for young domestic certificate one to three completers	80
56	Alignment of cohorts with tax and calendar years.	84

SUMMARY

This report looks at the earnings and outcomes for young men and women who complete a qualification in the New Zealand tertiary education system. It replicates the methodology of *Moving on up – what young people earn after their tertiary education* (Mahoney et al, 2013) to examine differences in incomes and employment rates for different types of qualifications by gender.

KEY FINDINGS

Earnings

- Young men earned more income from employment than young women directly after completing tertiary qualifications. First year earnings were roughly equal for men and women at only two qualification levels: bachelors degree and graduate certificate and diploma level
- Women's earnings grew most in the first year after study and often grew faster than men's, but men's earnings rose faster over a longer period of time. Men earned more than women at all qualification levels overall by five years after study
- The difference in earnings between men and women varied by the level of qualification completed. In the first year after study the difference was wide for level one to three certificates and progressively narrowed for higher qualification levels to bachelors degree level, where it was narrowest
- Five years after study the difference between men and women was wider, and widest for doctorate and masters degree, and level one to three certificate completers. Women's earnings were 85 percent of men's five years after completing a level one to three certificate, 90 percent after completing a diploma, 92 percent after completing a bachelors degree, 84 percent after completing a masters degree and 85 percent after completing a doctorate
- Earnings also varied by field of study between men and women at each level. For example, male medical studies bachelors graduates earned 8 percent more than women after five years, and male law bachelors graduates earned 7 percent more. Women earned more than men after five years if they completed bachelors degrees in veterinary studies (15 percent more than men) or rehabilitation studies (13 percent), among others
- Returns to study were greater for women than for men, as measured by comparing median earnings of graduates to national median earnings for men and women. Women earned more compared to the national median income for women than male graduates did compared to the national median earnings for men. In part, the margin that young tertiary qualified women have over women is due to the fact that many older women work part-time, reducing the national median earnings for women
- Earnings differences may be due to occupational differences and differences in the volume of work, which this study could not measure, as well as any differences in pay rates.

Destinations

- What people do after study also differed between young men and women. Destinations were similar between men and women in the first year after study overall but differences grew in later years
- Men who completed lower level qualifications were more likely to be employed than women five years after study

- Women were more likely to be employed than men after completing higher level qualifications. Further study rates were fairly even between men and women
- Employment rates increased most between year one and year five for men and women who completed a sub-degree qualification. They decreased at other levels, especially for level 7 or higher qualification completers as many young graduates left New Zealand for an overseas experience
- Further study occurred at similar rates between men and women, however men completing graduate level or above qualifications were more likely to be overseas than equivalent women. Further study rates declined at relatively even rates for men and women in the years following qualification completion
- The likelihood of going overseas increased with the level of qualification completed. The increase in rates of being overseas was slightly higher for men than women at post-graduate levels and the likelihood of being overseas after five years was higher for men than for women
- Half of all male doctorate completers were overseas by the fifth year after study, compared to nearly a third of women. Almost two thirds of men who completed *natural and physical sciences* doctorates were overseas by year five after study, compared to 28 percent of women, with slightly more men than women overseas in year one after completing a doctorate level qualification
- Graduates could also receive welfare benefits or be out of the labour market or in multiple categories after study. Benefit receipt declined with the accumulation of higher level qualifications. There was not much difference between men and women overall, except after a doctorate where women were more likely to be out of the labour market or in multiple categories after five years than men. Women were more likely to be drawing a welfare benefit than men after gaining a level one to three certificate.

INTRODUCTION

This paper shows what happens to men and women after study. As with the earlier study (Mahoney et al, 2013), this paper provides a set of measures that prospective tertiary students can use to assess study choices. Prospective students can now see more clearly what recent young graduates have earned and what they did after study, and see how that varies between men and women.

This paper also provides a reference for policy makers, government and researchers interested in the dynamics of the labour market and the role of education in providing skills to individuals and the wider economy. It shows clear differences in labour market activity and earnings after tertiary study, illustrating how men and women seek different opportunities and how employers seek and reward skills acquisition.

Limitations

We have not attempted an econometric study or a detailed statistical examination of the factors associated with post study destinations and earnings. This is mainly because we cannot control for the effects of number of hours worked, nor can we identify the occupations people worked in because these variables do not exist in the source data we used. It is not therefore possible to explain fully why destinations and earnings differ because we can't exclude the possibility that, for example, earnings for women were lower than for men because women worked less (i.e. fewer hours per week, or fewer months in a year) or that differences were due to occupational preference differences between men and women. Labour market destinations after study may be similarly affected. So this analysis cannot explain why there are differences between male and female earnings and destinations after study.

We could speculate, but could not test, that lower level qualifications reflect earnings and destination differences between men and women as more to do with individual vocational preferences than factors such as pay rates. Lower level certificates encompass and provide entry points to the labour market for perhaps more areas of work and fields of study that are traditionally male dominated, such as *agriculture, forestry, fishing, engineering, and electrical* work. These types of work may be generally better paid than industries women have traditionally participated in that are covered by lower level qualifications: *food and hospitality, personal services, creative arts, health and society and culture*. We couldn't test this because we don't have access to information showing individuals' occupation.

This analysis shows the proportions of people who go overseas after study, by qualification level, field of study and gender, comprehensively for the first time. It is a tradition for young New Zealanders to travel overseas for periods of time following tertiary study, and this analysis shows an association with gaining higher level skills and going overseas. New Zealand's economy is small and isolated, and while some people go overseas to live permanently, others are seeking adventure and also trying to gain further skills and experience which they intend to and do bring back when they return to New Zealand.

Men go overseas at higher rates than women after completing higher level qualifications, and people with lower level qualifications go overseas after longer periods of time after completing study than people completing higher level qualifications. This study cannot say why this occurs, but may provide a basis for future research into these types of questions.

1 THE EMPLOYMENT OUTCOMES OF TERTIARY EDUCATION

1.1 Why look at employment outcomes of tertiary education for men and women?

This report fulfils a number of objectives. It examines the post-study outcomes for young domestic students who complete a qualification from a New Zealand tertiary education provider. It extends the methodology of an earlier report (Mahoney et al, 2013) to look at differences in outcomes and earnings between men and women after study. It also extends earlier published information on destinations to include people who go overseas after study.

There is a growing literature on earnings differences between men and women after study in New Zealand. Mahoney (2011) found post-study income appears to be influenced by variables associated with tertiary study, such as completion of qualifications, the level of study and the field of study. There are differences between male and female participation and earnings in the labour market post-study, with men in employment generally earning more than women. Earnings differences persist over the course of employment, but women's earnings increase less than men's over four years post-study so that women earn less than men across all levels after four years.

Women have a better return to tertiary education than men when measured by the earnings premium over national median earnings by gender, but that this is due in large part to the low overall baseline wages of women compared to men. In other words, having a tertiary qualification tends to reduce, but not eliminate, disparities between men and women. This supported earlier findings by Maani and Maloney (2004) found that having a higher qualification led to a higher premium for women in annual earnings than in hourly earnings. This suggests that the better returns for women entering the workforce after study are partly due to gaining greater access to work.

Mahoney et al (2013) provided a comprehensive examination of post-study destinations for the first time, using the Integrated Data Infrastructure (IDI) prototype. However, questions remain about the differences between male and female tertiary graduates in the years following study.

This study also provides new perspectives on the destination information presented in Mahoney et al (2013) by including information on who goes overseas, an important factor in explaining labour market dynamics of a small, isolated island nation with a long tradition of diaspora and overseas travel as a rite of passage.

1.2 How we analyse the employment outcomes of tertiary education

We use data from Statistics New Zealand's Integrated Data Infrastructure (IDI) to look at the outcomes of tertiary education. This dataset is managed by Statistics New Zealand and links together each individual's tertiary education enrolment and completions data to data on (among others):

- earnings and income (from Inland Revenue)
- welfare benefits (from the Ministry of Social Development)
- border crossings (from Immigration New Zealand)

This dataset is updated periodically so that it is longitudinal – that is, we can see education outcomes from year to year in the data.

The IDI is managed under strict confidentiality rules by Statistics New Zealand that guarantee the privacy of the data. These rules protect people and businesses from identification.

From the IDI data, we can:

- look at whether a person with a particular educational qualification is in employment, is overseas, has returned to study or is on a benefit
- for those in work, find out how much they are earning
- relate these outcomes to the characteristics of people – gender, ethnicity, age, type of study, student loans and allowance use, prior school achievements etc.

In this report, we look at the destinations and earnings of young New Zealand students who complete a tertiary qualification. We are interested in:

Earnings

For those graduates who are in New Zealand and in employment:

- What is their median earnings? What is the range of earnings for the majority of graduates?
- How does a graduate's earnings change over the first five years post study¹?

Destinations

For all young graduates:

- What percentage is in further study over the five years after finishing a tertiary qualification?
- What percentage is in employment?
- What percentage is on a benefit?
- What percentage is overseas?
- What percentage is missing from the labour market?

It is well known that the outcomes of tertiary education depend on the level of the qualification. Outcomes are also heavily dependent on the field of study. So in this report, we present data on outcomes, broken down by level and field of study.

1.3 The data and the methodology used in this report

This section gives a short overview of some of the data and analytical methodology used in the report. Chapter 12 sets this information out in much greater detail.

Outcomes for young graduates

The data in this report gives the earnings and destinations over the first five years after graduates complete a qualification.

We report the outcomes only for 'young' graduates. For each type of qualification, 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.

¹ The first five years post study is the period over which the graduate's formal education has the greatest impact. As time goes on, the influence of a qualification is complemented by the effects of the person's work experience.

Table 1 shows the age ranges for graduates who meet the criteria for being a ‘young’ graduate.

Table 1

Age ranges for consideration as a ‘young’ graduate

Qualification type	Length of qualification – in full-time equivalent years	Highest age on completion to be considered a ‘young’ graduate
Doctorate	Four years	29
Masters	Two years	27
Level 8 bachelors honours and pg dip or cert	One year	26
Level 7 graduate certificate or diploma	One year	26
Bachelors degrees	Three years	24
	Longer than three years	24 plus 1 for each year beyond three years
Diplomas at levels 5-7	Two years	23
Certificates at level 4	One year	21
Certificates at levels one to three	One year	21

Source: Ministry of Education

Domestic students

We report outcomes and earnings for domestic students only, excluding any international students. We do this because we have no information about the prior qualifications, labour market experience or earnings of international students, so we can be less certain of associating outcomes to New Zealand study experiences for international students.

Field of study

Field of study classification

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.

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.

Narrow and broad fields of study

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. Chapters 3 to 10 of this report look at earnings by *broad* field of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field. The broad field of *natural and physical sciences* for example contains narrow fields of *mathematical sciences, chemical sciences, physics and astronomy, earth sciences* and *biological sciences*. The tables in Chapter 11 of this report give details of outcomes by narrow field of study, in fields where there are enough graduates to enable us to report without breaching the Statistics New Zealand confidentiality requirements.

How we classify a graduate’s field of study

For each graduate, we look at the range of courses passed and we examine the field of study for each course. We then infer that graduate’s specialisation(s) by looking at the highest level courses done and working out which fields of study represent a ‘substantial’ amount of study. It is important to note that this may not agree with the provider’s understanding of the field(s) of study in which that person specialised. Nor may it agree with the graduate’s understanding. Rather, it reflects what is on that student’s transcript.²

One consequence of this is that we report on some fields where it is commonly assumed there is only one provider – *veterinary studies* is an example. It is usually assumed that anyone specialising in that

² The method used is set out in Scott D (2008) *Trends in fields of study of bachelors degree graduates in New Zealand* Ministry of Education.

field at bachelors level has done the Bachelor of Veterinary Science degree taught at Massey University. In fact there are three providers whose bachelors graduates are represented in that field. Only the Massey Bachelor of Veterinary Science graduates are recognised as veterinarians. But some graduates at other providers have completed bachelors degrees with a substantial amount of higher level courses in veterinary studies.

Access to the data

Access to the IDI data used in this study was provided by Statistics New Zealand in accordance with security and confidentiality provisions of the Statistics Act 1975 and secrecy provisions of the Tax Administration Act 1994.

The results presented in this study are the work of the authors, not Statistics New Zealand.

Confidentialisation

The results in this paper have been confidentialised to protect individuals and businesses from identification. All counts in tables have been randomly rounded using graduated random rounding. This may result in a total not agreeing with the sum of individual items shown in the table.

We aggregated data from two cohorts of graduates in order to increase the numbers in the sample and hence, to ensure more data could meet Statistics New Zealand's confidentiality requirements.

Cells marked 'C..' represent numbers suppressed as not meeting Statistics New Zealand's dataset confidentiality requirements. This includes suppression of blank cells in line with Statistics New Zealand's confidentiality rules.

Earnings data

All earnings reported are gross earnings.

Earnings are reported only for graduates for whom we deem work is their main activity, in each year independently post-graduation. See Chapter 12 for more information on how main activity in each year post-study is derived.

Adjusting the data for changes in national wage rates

The data on earnings is for the tax years ending 31 March 2010 and 2011. Where appropriate, earnings have been converted to 2011 dollars using the Labour Cost Index. Earnings data shown in this report is otherwise as actually observed in Inland Revenue Department (IRD) data, and there has been no further adjustment.

Part-time vs. full-time work

IRD employment data does not contain information on the number of hours worked. This means that there will be an understatement of the earnings potential of a field of study if, for example, a substantial proportion of the graduates in that field work on a part-time basis.

No occupation information

IRD employment data does not contain information on the occupations in which people are employed. We can only show the field of study that graduates studied and readers should note employees may be working in any industry and any occupation, not just those implied by the field of study classification.

More information on data and methodology

More information about the IDI dataset, how it is managed and the means of protecting privacy and detail on the indicators and measures we have developed are in chapter 12 of this report.

2 THE EMPLOYMENT OUTCOMES OF TERTIARY EDUCATION

This chapter looks at the destinations and earnings of young domestic students who completed a tertiary education qualification at a provider in New Zealand, and compares outcomes and earnings at each qualification level by gender. Subsequent chapters examine differences by broad and narrow fields of study at each qualification level.

From previous analyses, we already know that³:

- Post-study earnings for young qualification completers increase with the level of qualification completed
- Five years after leaving study most young graduates will be earning above the national median earnings
- Graduate employment rates increase with the level of qualification gained
- Completing a higher level qualification is associated with lower incidence of benefit receipt and labour market inactivity in each year
- Overall, after leaving study, men earn more than women with the same level of qualifications
- The return⁴ from gaining a qualification is greater for women than for men. Women earn more compared to the national median income for women for completion of qualifications at all levels than male completers compared to all male earners.

Our overview analysis confirms these well established facts. In addition it finds:

Earnings

- Earnings were roughly equal for young men and women one and two years after study for bachelors and graduate certificate and diploma level completers, but unequal at all of other levels of study
- Men's earnings grew faster than women's for most levels of qualification completed. So women's earnings from employment tended to decline against men's with the passage of time after study.

Destinations

- Higher qualified people are more likely to be overseas post-study than people who complete lower level qualifications. This is especially true of men
- Male and female destinations differ by qualification level. Men are more likely to be overseas after gaining bachelors level or higher qualifications than women. Women who complete bachelors level or above qualifications are more likely than men to be in employment
- Women who complete certificates are one half to a third more likely to be on a benefit or out of the labour force than men
- Men who complete sub-degree level qualifications are more likely to be in employment than women.

³ Mahoney et al, 2013, Mahoney 2011, Scott, 2009

⁴ Return in this context is not intended to imply economic return in the formal sense, rather it shows a crude measure of earnings gain between graduates and all people earning incomes from employment.

Figure 1 shows the earnings of all employed graduates by qualification gained up to six years after study. As *Moving on up* showed, earnings increased with the number of years after study, and also with the level of the qualification gained. Upper and lower quartile earnings are also plotted for comparison.

The differences between male and female graduates' earnings are illustrated in the intercepts and slopes of the earnings trajectories plot below. Men and women often start out earning the same, but faster growth for male graduates leaves women's earnings far behind. At some levels, men earn more than women from the first year, and growth is more equal, but women never catch up. The third pattern is that men earn more from year one, and their earnings growth is higher than women's in subsequent years.

After completing lower level (level one to four certificates) qualifications, first year earnings are distinct, with male graduates' upper quartile and median earnings already higher than women's. Upper quartile earnings for men and women run parallel, with female graduates' earnings below males'. Lower quartile earnings diverge as female graduates' earnings increase at a slower rate than males'.

For graduates of between bachelors level to honours (level 8) qualifications, year one earnings are equal between male and female graduates, but diverge in subsequent years due to slower earnings growth by women.

For masters and doctoral graduates, initial earnings are again distinct, with males' median and upper quartile earnings being higher than females', and the divergence is widest of all the qualification levels in subsequent years.

Figure 1

Panel graph showing earnings of young graduates by qualification level, gender and year after study

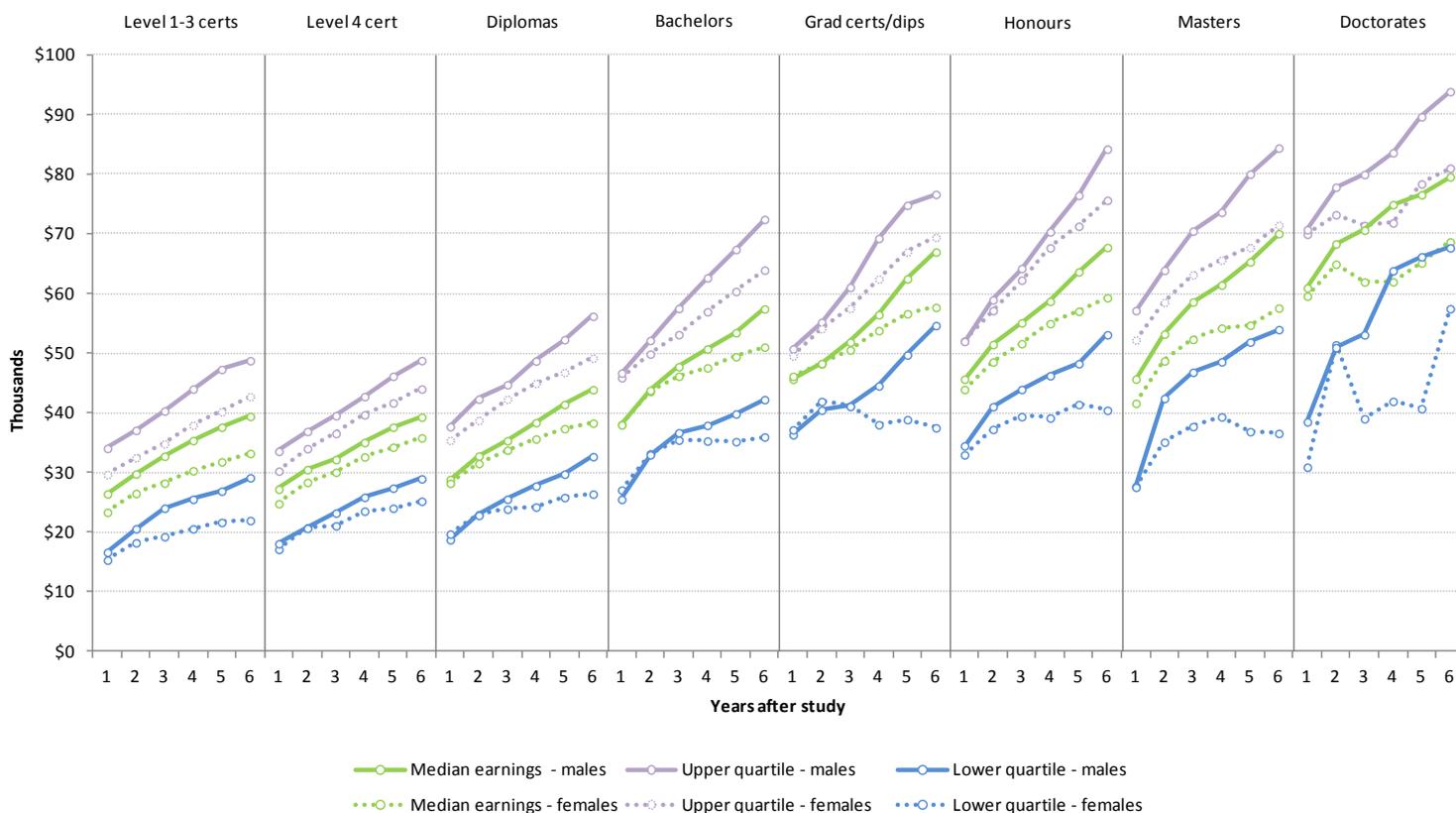
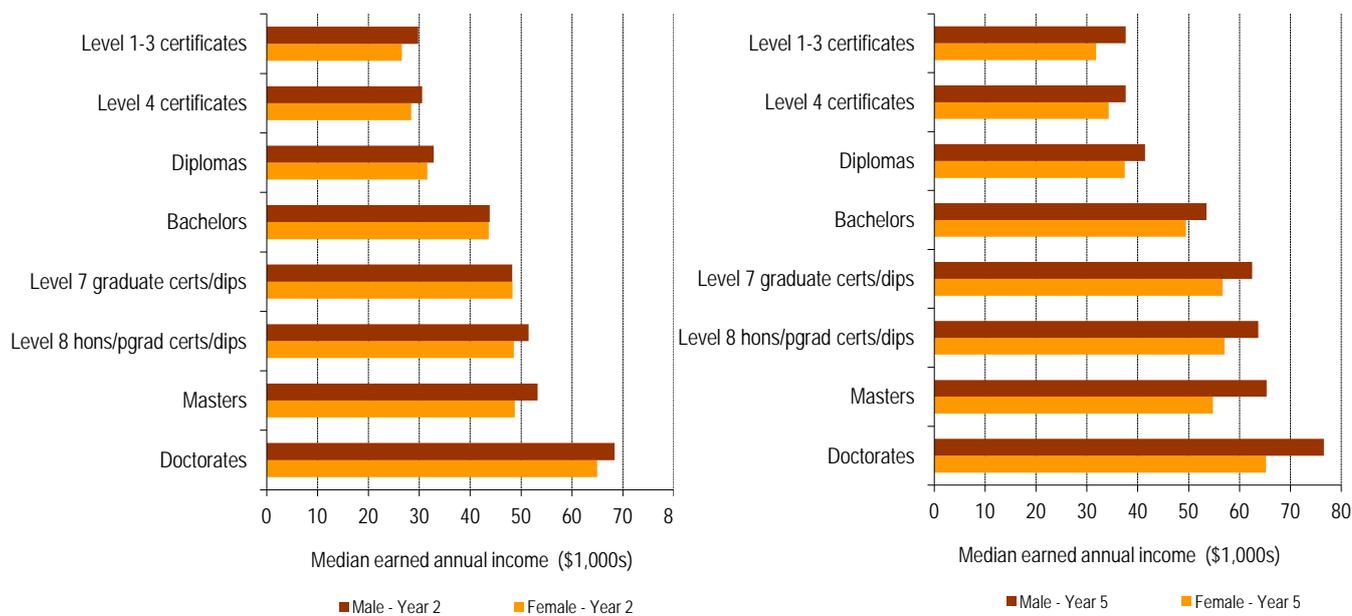


Figure 2 shows the earnings from employment of men and women two and five years after study by qualification level. In each category, the most obvious trend is that women’s median earnings was lower or equal to men’s two and five years after study, for all levels of qualifications completed. The difference in earnings is narrowest for bachelors and level 7 qualification completers. By year five after study, the earnings difference had increased at all qualification levels, and was widest for level one to three certificate completers and for post graduate qualification holders, and narrowest for level four certificate completers.

Figure 2

Median earnings of young domestic completers two years (left) and five years (right) after study, by gender and qualification level



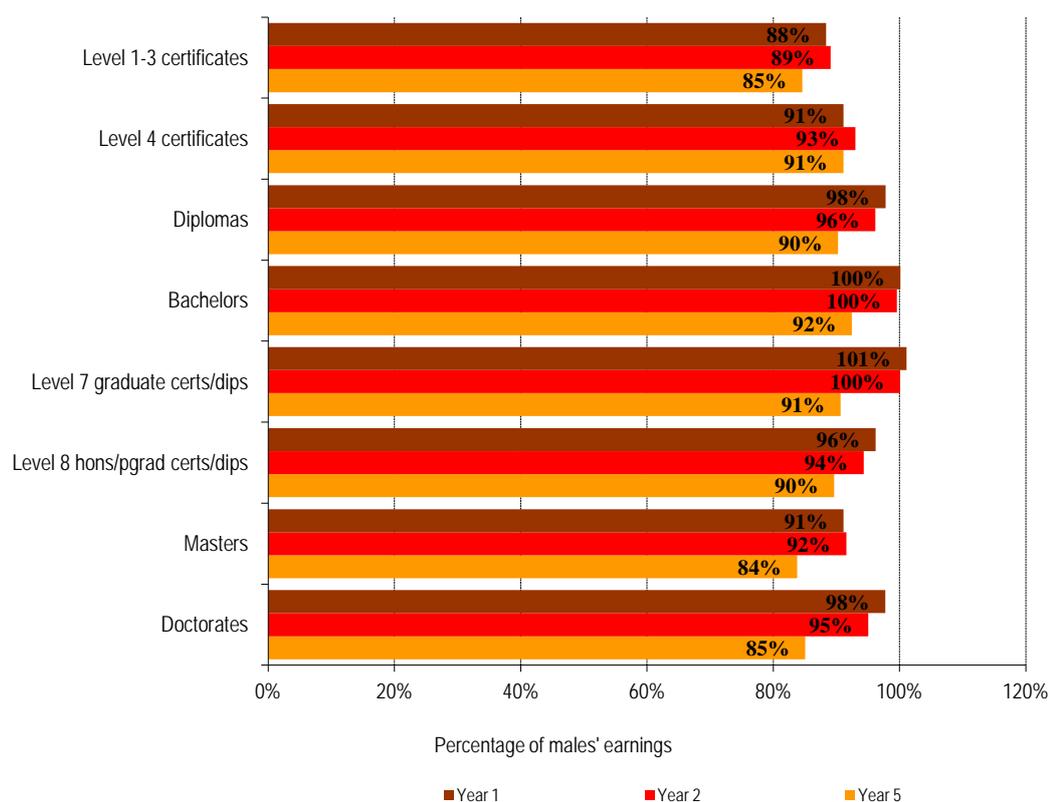
Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Figure 3 shows female completers’ median earnings as a proportion of men’s one, two and five years after study. Women’s earnings from employment tended to decline against men’s with the passage of time after study. This is not true for all levels: level four certificate female completers’ earnings increased over time relative to men’s earnings, while level one to three completers’ earnings increased in year two but declined in year five.

Women’s earnings were greater than or equal to men’s in year one only, for bachelors and level 7 qualification completers only.

Figure 3

Women's median earnings as a percentage of men's median earnings of young domestic completers one, two and five years after study, by qualification level



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 2 shows the lower quartile, median and upper quartile earnings of young completers one, two and five years after study by gender. Upper quartile earnings were quite similar for men and women one year after study for level 7 (graduate certificate or diploma) and level 8 (honours or post graduate certificate or diploma) qualification completers, but these had diverged by year five after study. Upper quartile earnings at other levels were higher for men than for women, and this continued over time.

After one year, men's median earnings was greater than women's for:

- doctorate completers (men earned \$1,400 more)
- masters graduates (\$4,000)
- level 8 qualifications (\$1,700)
- level 7 diploma or certificate completers (\$500)
- diploma completers (\$600)
- level four certificate completers (\$2,400) and
- certificate level one to three completers (\$1,300).

Women earned slightly more than men in year one if they gained a bachelors degree (\$60) or a level 7 qualification (\$500).

After five years, men's median earnings was higher than the median for women for all qualification types. The earnings differences were: \$11,400 for doctorate completers, \$10,600 for masters

completers, \$6,600 at level 8, \$5,800 at level 7, \$4,000 at bachelors, \$4,000 for diplomas, \$3,400 for level 4, and \$5,800 for level one to three certificate completers.

Women's lower quartile earnings after one year are higher proportionally to men's than to the median or upper quartile earnings, especially at below bachelors degree levels. However, by year five, this comparison has fallen away and may be an indicator of women leaving fulltime employment.

Table 2

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

Level of study	Measure	Men - Years after study			Women - Years after study			Women's earnings as a percentage of men's earnings		
		One	Two	Five	One	Two	Five	One	Two	Five
Doctorate	Upper quartile	\$70,758	\$77,876	\$89,673	\$69,983	\$73,263	\$78,417	99	94	87
	Median	\$60,996	\$68,356	\$76,605	\$59,612	\$64,969	\$65,173	98	95	85
	Lower quartile	\$38,544	\$50,994	\$66,206	\$30,953	\$51,462	\$40,755	80	101	62
Masters degree	Upper quartile	\$57,192	\$63,941	\$80,071	\$52,258	\$58,553	\$67,741	91	92	85
	Median	\$45,711	\$53,251	\$65,348	\$41,657	\$48,754	\$54,740	91	92	84
	Lower quartile	\$27,747	\$42,471	\$51,916	\$27,580	\$35,140	\$36,910	99	83	71
Bachelors honours /pg dip or cert	Upper quartile	\$52,019	\$58,989	\$76,504	\$52,092	\$57,195	\$71,335	100	97	93
	Median	\$45,694	\$51,507	\$63,678	\$43,971	\$48,576	\$57,075	96	94	90
	Lower quartile	\$34,533	\$41,088	\$48,289	\$33,021	\$37,284	\$41,454	96	91	86
Graduate cert or diploma	Upper quartile	\$50,772	\$55,230	\$74,841	\$49,565	\$54,157	\$66,993	98	98	90
	Median	\$45,682	\$48,270	\$62,507	\$46,176	\$48,320	\$56,661	101	100	91
	Lower quartile	\$36,376	\$40,509	\$49,756	\$37,209	\$41,965	\$38,918	102	104	78
Bachelors degree	Upper quartile	\$46,716	\$52,187	\$67,428	\$45,931	\$49,901	\$60,408	98	96	90
	Median	\$38,049	\$43,830	\$53,487	\$38,109	\$43,635	\$49,456	100	100	92
	Lower quartile	\$25,560	\$33,026	\$39,868	\$27,116	\$33,190	\$35,232	106	100	88
Diploma	Upper quartile	\$37,729	\$42,349	\$52,322	\$35,447	\$38,778	\$46,818	94	92	89
	Median	\$28,892	\$32,819	\$41,453	\$28,250	\$31,563	\$37,415	98	96	90
	Lower quartile	\$18,782	\$22,990	\$29,776	\$19,738	\$22,864	\$25,859	105	99	87
Certificate at level 4	Upper quartile	\$33,602	\$36,943	\$46,185	\$30,292	\$34,056	\$41,719	90	92	90
	Median	\$27,246	\$30,538	\$37,651	\$24,825	\$28,404	\$34,301	91	93	91
	Lower quartile	\$18,116	\$20,696	\$27,431	\$17,168	\$20,780	\$24,075	95	100	88
Certificate at levels one to three	Upper quartile	\$34,098	\$37,124	\$47,332	\$29,702	\$32,533	\$40,241	87	88	85
	Median	\$26,466	\$29,800	\$37,651	\$23,382	\$26,543	\$31,846	88	89	85
	Lower quartile	\$16,684	\$20,623	\$26,930	\$15,374	\$18,271	\$21,688	92	89	81

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

The earnings premium over all national median employment earnings enjoyed by people gaining qualifications is better for men than for women. Male qualification completers earned higher incomes after study compared to the national median earnings than women, and they did so at lower qualification levels. Male certificate one to three graduates earned over 100 percent of national median earnings in year five, but women only reached this threshold if they completed a level 4 certificate or diploma. But the picture is different when we look at the premium over national median earnings for men and the national median earnings for women.

Table 3 shows the proportion of earnings one, two and five years after study compared to the national median income for all people in the 2011 tax year, derived from the IDI (\$34,200). Men earned more compared to the national median income than women two and five years after study, for all levels of qualification completed.

Men's and women's income was above the national median one year after study for bachelors and above level qualification completers. At year two both men and women who completed bachelors qualifications earned income above the level of the national median. After five years, women who completed a level one to three certificate still earned below the 2011 national median income, but no male completers did.

Table 3

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

Qualification level	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Doctorate	178	200	224	174	190	191
Masters degree	134	156	191	122	143	160
Level 8 bachelors honours, pg dip or cert	134	151	186	129	142	167
Level 7 graduate certificate or diploma	134	141	183	135	141	166
Bachelors degree	111	128	156	111	128	145
Diploma at levels 5-7	84	96	121	83	92	109
Certificate at level 4	80	89	110	73	83	100
Certificate at levels one to three	77	87	110	68	78	93

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

The relative return for completing a qualification was better for women than for men, mainly because women generally earn less than men overall. Female graduates' median earnings was higher compared to the national median earnings for women in the 2011 tax year (\$28,240) than men's was to men's national median earnings in 2011 (\$40,055).

Table 4 compares median earnings in each year to the national median earnings in 2011 for each gender. Male completers' earnings increased to above the national median income for men one year after study for above bachelors level completers, and two years for bachelors level and after five years for diploma 5-7 and above level completers.

Female graduates' earnings were above the female national median income at completion of lower level qualifications than men's to the national median income for all men. Female graduates' earnings for diploma level 5-7 and above qualification completers were at the level of the national median income for women after one year; for certificate level four completers after two years, and for all level completers at five years after study.

Table 4

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

Qualification level	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Doctorate	152	171	191	211	230	231
Masters degree	114	133	163	148	173	194
Level 8 bachelors honours, pg dip or cert	114	129	159	156	172	202
Level 7 graduate certificate or diploma	114	121	156	164	171	201
Bachelors degree	95	109	134	135	155	175
Diploma at levels 5-7	72	82	103	100	112	132
Certificate at level 4	68	76	94	88	101	121
Certificate at levels one to three	66	74	94	83	94	113

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 5 shows the growth of median incomes across one and five years and the average annual median income growth across five years. Male completers' median incomes grew faster on average across five years than women's, except after completing a level four certificate.

Women's earnings grew more than men's in year one proportional to the total five year growth: a larger proportion of growth over five years occurred in the first year after study for women than for men for most levels, especially at masters and doctorate levels. Ninety-six percent of female doctoral completers' earnings growth occurred in the first year after completion, compared to 47 percent of males'.

Table 5

Growth in median annual earnings of young domestic graduates, over the first five years after study by gender and qualification level

Qualification level	Men %				Women %			
	Over the first year	Over the first five years	Mean annual growth over the first five years	% growth in year 1 compared to total over 5 years	Over the first year	Over the first five years	Mean annual growth over the first five years	% growth in year 1 compared to total over 5 years
Doctorate	12	26	6	47	9	9	2	96
Masters degree	16	43	9	38	17	31	7	54
Level 8 bachelors honours, pg dip/cert	13	39	9	32	10	30	7	35
Level 7 graduate certificate or diploma	6	37	8	15	5	23	5	20
Bachelors degree	15	41	9	37	15	30	7	49
Diploma at levels 5-7	14	43	9	31	12	32	7	36
Certificate at level 4	12	38	8	32	14	38	8	38
Certificate at levels one to three	13	42	9	30	14	36	8	37

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

The following tables show destinations of graduates after study. We already know that for New Zealand based graduates, employment rates rise with the level of qualification gained at undergraduate level (Mahoney et al, 2013). Employment rates also rise over time, partly because a high proportion of young graduates who undertake further study start that in the first year after completion. Further study tends to decline as a main activity as the level of qualification gained increases.

The panel graph (figure 4) below shows the overall destination rates in each year after study. Employment rates rise between years one and six for graduates at below bachelors degree level, and tend to decline for graduates of qualifications at higher levels.

Overseas rates tend to increase with each year and while there are differences in the rates of going overseas by qualification gained, the increase occurs for all qualification levels. Further study rates decline steeply in each year after study for graduates below bachelors level, and while the decline occurs for graduates of higher level qualifications, it is more shallow.

Further study rates tend to lower with the level of qualification gained. Benefit rates are highest after completing certificates, and decline with the level of qualification gained.

The plot shows wide gaps in employment rates between male and female graduates of diplomas and level one to four certificates, and the gap widens with the length of time after graduation. Employment rates are much more similar for bachelors degree graduates and higher, but diverge in later years for doctoral graduates.

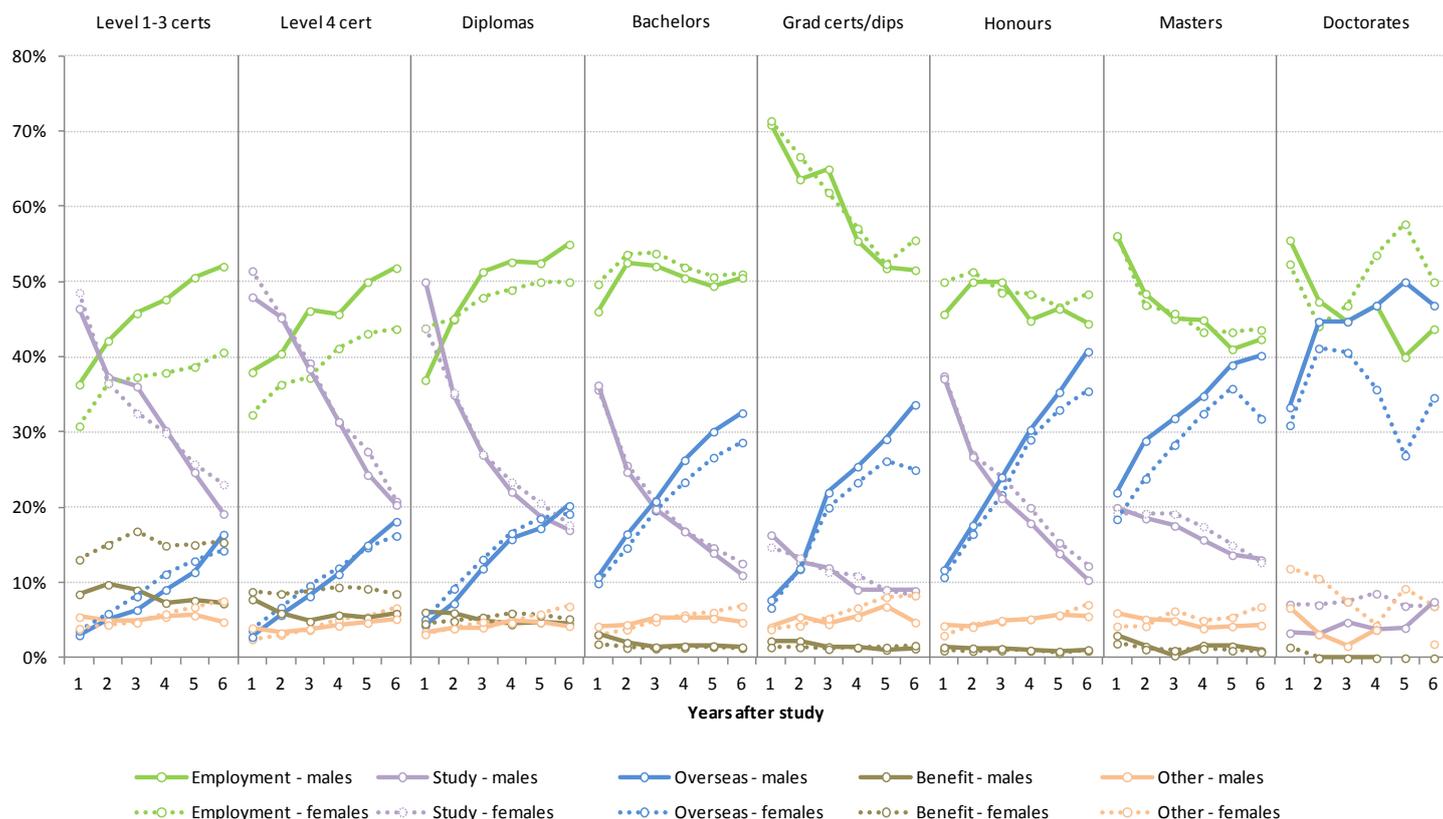
Further study rates are generally much closer between men and women, and there is a trend for more women than men to be in further study in the later years after graduation.

Male bachelors degree and above graduates are overseas at higher rates than females, and the rate diverges across time. At lower levels, females are a little more likely to be overseas than males up to year five after study, where the rates diverge.

Female certificate holders have significantly higher rates of claiming welfare benefits than males, but there is much less difference in the 'other' – out of the labour force or other activity, except for doctoral graduates, whose data is more variable due to lower numbers of graduates.

Figure 4

Panel graph showing destinations of young graduates by qualification level, gender and year after study



Tables 6 and 7 show the destinations one and five years after study respectively. There is not much difference between male and female graduates' destinations one year after study, except for diploma graduates where men were more likely to be doing further study (a 6 percentage point difference), and women were more likely to be employed (a 7 percentage points difference).

Higher qualified people were more likely to go overseas early after study than people who completed lower-level qualifications. There is not much difference between men and women in the proportion going overseas after one year.

Women were more likely to be on a welfare benefit than men after completing a level one to three certificate, and were more likely to be out of the labour force than men after completing a doctoral qualification, however low numbers of graduates at the doctoral level make it more difficult to determine the nature of the difference between men and women.

Table 6

Destination of young domestic graduates one year after study by qualification level and gender

Qualification level	Employment (%)		Overseas (%)		Further study (%)		Benefit (%)		Other (%)	
	M	F	M	F	M	F	M	F	M	F
Doctorate	56	52	33	31	3	7	C..	1	7	12
Masters degree	56	56	22	18	20	19	3	2	6	4
Level 8 bachelors honours, pg dip /cert	46	50	12	11	37	38	1	1	4	3
Level 7 graduate certificate or diploma	71	71	8	7	16	15	2	1	4	4
Bachelors degree	46	50	11	10	36	36	3	2	4	3
Diploma at levels 5-7	37	44	4	5	50	44	6	5	3	3
Certificate at level 4	38	32	3	4	48	51	8	9	4	3
Certificate at levels one to three	36	31	3	4	46	49	8	13	5	4

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Note rows may not add up to 100 percent due to graduated random rounding. Refer to Chapter 12 for full notes.

By five years after study, there are clear destination differences between men and women. Men who completed level 5 to 7 diplomas or certificates or lower level qualifications were more likely than their female counterparts to be employed as their main activity, for example.

Employment rates were most similar for bachelors degrees up to masters degree holders but were uneven at doctorate level because of males' higher rates of going overseas (nearly double that of equivalent females). Further study rates were fairly equal after five years, as were overseas rates, (except for doctoral completers). Women who completed a doctoral level qualification were out of the labour force at higher rates than men.

Men who completed a post-graduate level qualification were more likely to be overseas than equivalent women, and women were more likely to be on a benefit or out of the labour force than men, especially if they completed lower level qualifications.

There's little evidence of women exiting the workforce altogether after five years, so the lower quartile income differential may (shown in table 2 above) may be largely due to more women taking up part-time work.

Table 7

Destination of young domestic graduates five years after study by qualification level and gender

Qualification level	Employment (%)		Overseas (%)		Further study (%)		Benefit (%)		Other (%)	
	M	F	M	F	M	F	M	F	M	F
Doctorate	40	58	50	27	4	7	C..	0	C..	9
Masters degree	41	43	39	36	14	15	2	1	4	5
Level 8 bachelors honours, pg dip /cert	46	47	35	33	14	15	1	1	6	6
Level 7 graduate certificate or diploma	52	52	29	26	9	9	1	1	7	8
Bachelors degree	49	51	30	27	14	15	2	1	5	6
Diploma at levels 5-7	53	50	17	19	19	21	5	6	5	6
Certificate at level 4	50	43	15	15	24	27	5	9	5	5
Certificate at levels one to three	51	39	11	13	25	26	8	15	6	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Note rows may not add up to 100 percent due to graduated random rounding. Refer to Chapter 12 for full notes.

Figure 5 shows the percentage point change in destinations between year one and year five by qualification level. Employment rates showed the greatest increase between year one and year five after study for both men and women who completed a sub-degree qualification, but decreased the most for level 7 qualification completers as the proportion of graduates overseas rose.

Further study rates declined at relatively the same rates for men and women, while the increase in rates of going overseas was higher for men than women at the doctorate level. Women's benefit receipt and / or labour market inactivity rates always increased more than men's, but the differences were small.

Figure 5

Percentage point destination difference between year one and year five after study by qualification level and gender

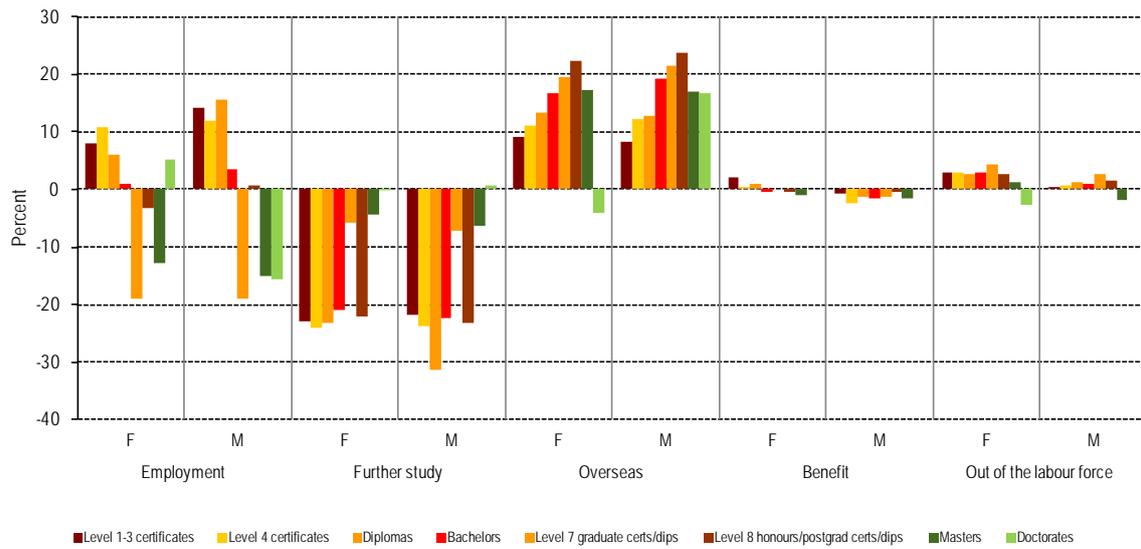


Figure 6 shows the percentage point difference between men and women in destinations for year one and year five by qualification level. Positive differences are where men’s percentage in a category is greater than women’s, and negative point differences are where the proportion of women in a category is higher than the proportion of men. It’s worth noting that apart for a few obvious exceptions, the difference in destinations between men and women are generally small.

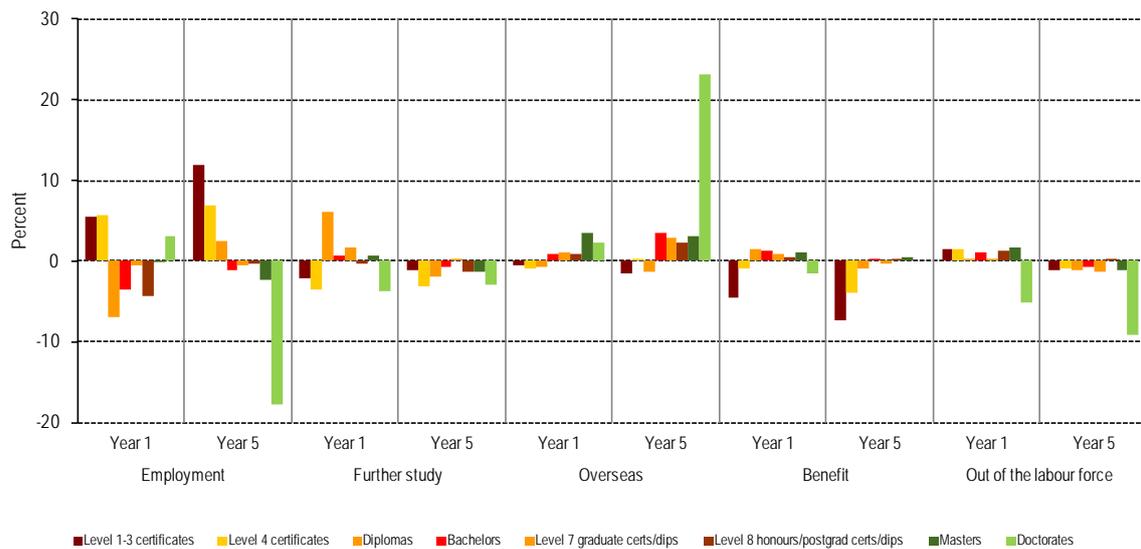
Men are more likely to be in employment than women five years after study after completing diplomas or level 1 to 4 certificates, otherwise women are more likely to be employed than men.

Women are more likely to be in further study than men at most qualification levels in year five, but the difference is small. Men are overseas at higher rates than women five years after completing a bachelors or higher degree. The difference for doctorate completers is quite marked.

Women are more likely to be on a benefit or out of the labour force than men after completing a level 1 to 4 certificate.

Figure 6

Percentage point destination difference between men and women year one and year five after study by qualification level



3 OUTCOMES FOR YOUNG DOCTORAL GRADUATES

3.1 Introduction

This chapter examines the destinations and earnings of young domestic students who graduated from providers in New Zealand with a doctoral degree.

Doctoral degrees

Each year, around 1,000 students complete a doctorate in the New Zealand tertiary education system. Around half are men, and approximately 18 percent of them ‘young’ domestic students, in the way we define that term in this report. These qualifications are mostly taken by people who have already completed a postgraduate degree and who want to extend their qualifications by taking a substantial research project that breaks new ground. Nearly all doctoral qualifications are completed at universities.

Due to confidentiality requirements, we are only able to disaggregate results in this section on *natural and physical sciences, and society and culture* broad fields (totals contain information for all young domestic graduates). The fact that only two fields have sufficient graduates is partly because a relatively high proportion of the young people who complete a doctorate in New Zealand come from overseas while many domestic graduates go overseas during their first five years out of study⁵. Also, in many fields of study, it is common to undertake a doctorate at an older age.

People with doctoral degrees work in a wide variety of occupations and industries.

3.2 What we found

Earnings

- We know from Mahoney et al (2013) that in the first year after study, the median employment earnings in 2011 dollars of all⁶ young doctoral graduates was \$60,600.^{7,8} This rose by 10 percent in the following year, and by an average of 4 percent a year over the first five years post study, to reach \$75,000. Men’s median earnings in the first year out of study were \$61,000, rising by 12 percent in the following year and by an average of 6 percent over five years to reach \$76,600. For women it was \$59,600, rising by 9 percent in the following year and by an average of 9 percent over five years to reach \$65,200.
- Five years post study, male graduates’ median earnings was almost double the national male median earnings. For women, it was 91 percent above in year one, and 131 percent above in year five.
- The top quarter of young doctoral degree graduates were earning \$82,000 or more a year in the fifth year after finishing study, while the lowest quarter earned \$52,700 or less. The top quarter of men were earning \$89,700 and the lowest quarter earned \$66,700 while the top quarter of women earned \$78,400 and the lowest quarter earned \$40,800.
- Compared with all doctoral graduates, the median earnings of young doctoral graduates in *natural and physical sciences* was lower, while those who took their doctorate in *engineering* had higher median earnings.⁹ The top quarter of earners among young doctoral graduates in *natural and physical sciences* earned \$76,600 (men) and for women, \$65,200.

⁵ In many occupations that doctoral graduates aspire to – such as scientific researcher – a period overseas as a post-doctoral fellow is a standard part of the career path. Papadopoulos (2012) and Smart (2011) look at this question.

⁶ The results for ‘all’ graduates include those who completed in every field of study, not just the three fields for which we report disaggregated results.

⁷ National earnings data is sourced from an update to Mahoney et al, 2013. *Moving on up...* The updated tables can be found on www.educationcounts.govt.nz.

⁸ Earnings reported in text are rounded to three significant figures. Refer to each table for unrounded earnings.

⁹ Data for engineering by gender did not meet the confidentiality threshold for release

- Female doctorate completers earned 85 percent of men’s median earnings five years after study. The earnings difference between men and women was larger for *natural and physical sciences* field completers (89 percent) than for those who studied *society and culture* (82 percent).

Destinations

- Of the young doctoral completers in the first year after study, 56 percent of men and 52 percent of women were in employment that year and 33 percent of men and 31 percent of women were overseas.¹⁰
- Women who completed *society and culture* doctorates were more likely to be overseas than men in year one (30 percent compared to 25 percent), while men were more likely to be employed. *Natural and physical sciences* destinations showed the opposite trend, with more men (40 percent) overseas than women (36 percent) in year one, and proportionally slightly more women in employment than men (53 percent compared to 50 percent).
- Over half of men (64 percent) who completed *natural and physical sciences* doctorates were overseas by year five after study, compared to 28 percent of women. Overall the overseas rate was just on half of men and a third of women after five years.

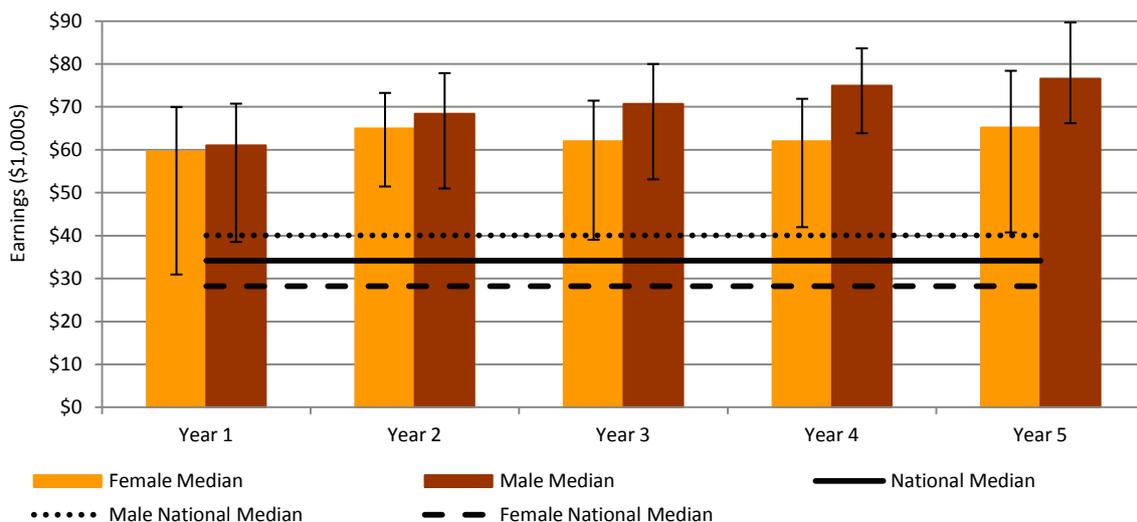
¹⁰ Note destinations percentages differ from those published in Mahoney et al 2013 due to the inclusion of overseas destinations.

Figure 7 shows the earnings from employment in each year after study. Male doctorate completers earned more than women after study, and the earnings gap progressively widened between them with time. Men's and women's upper quartile earnings (shown at the top of the vertical bar bisecting each series that look like error bars) were equal in year one, but quickly diverged as women's earnings stayed flat until year four and as men's earnings grew.

Female doctorate level qualification completers' first quartile earnings were below the national median earnings one year after study and bounced around men's median national earnings in subsequent years.

Figure 7

Median and upper and lower quartile earnings for young domestic doctoral degree completers in the first five years after study by gender

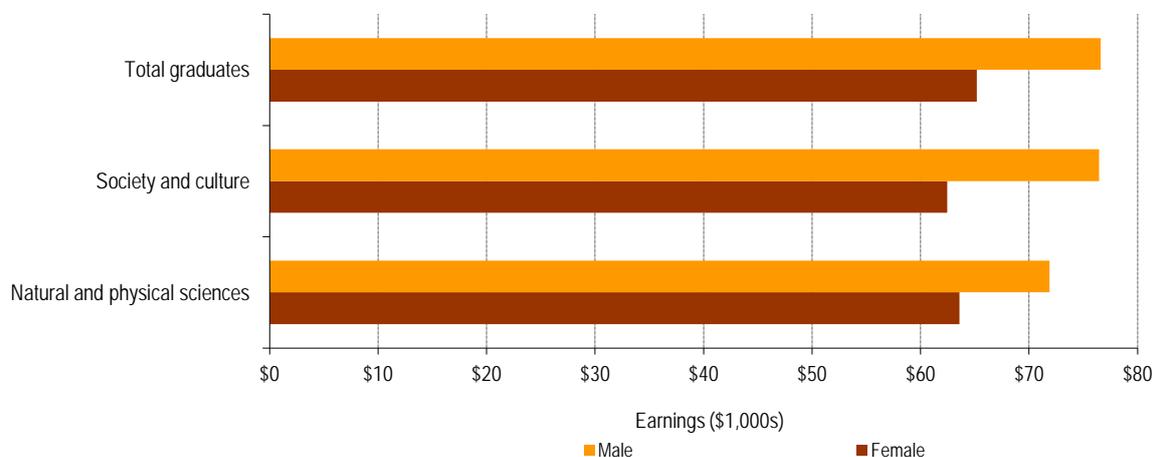


Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. The error bars show the top quartile and lower quartile earnings. These are not statistical error bars in the traditional sense as we are not showing variance around a mean value from a sample with them. Refer to Chapter 12 for full notes.

Figure 8 shows the earnings for employment in the fifth year after study. Note that data was available for two broad fields at doctoral level, *natural and physical sciences*, and *society and culture* but data for other fields are included in the total. Female doctorate completers earned 85 percent of men's median earnings five years after study. The earnings difference between men and women was larger for *society and culture* (82 percent) completers than for those who studied *natural and physical sciences* (89 percent).

Figure 8

Median earnings of young domestic doctoral degree completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 8 shows earnings one, two and five years after study, by broad field of study and gender. The difference in median earnings for *natural and physical sciences* completers was \$8,600 one year after study, \$2,800 after two years and \$8,300 in the fifth year. Male *society and culture* doctorate completers earned \$14,000 more than equivalent women in year five.

Table 8

Median and quartile annual earnings of young domestic doctoral degree completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Natural and physical sciences	Upper quartile	\$67,756	\$73,504	\$80,249	\$66,171	\$71,034	\$77,522
	Median	\$57,096	\$64,249	\$71,882	\$48,543	\$61,405	\$63,582
	Lower quartile	\$30,943	\$36,423	\$66,661	\$28,139	\$48,174	\$36,530
Society and culture	Upper quartile	C..	C..	C..	\$64,972	C..	\$81,953
	Median	C..	C..	\$76,442	\$56,260	\$67,598	\$62,454
	Lower quartile	C..	C..	C..	\$29,312	C..	\$40,883
Total graduates	Upper quartile	\$70,758	\$77,876	\$89,673	\$69,983	\$73,263	\$78,417
	Median	\$60,996	\$68,356	\$76,605	\$59,612	\$64,969	\$65,173
	Lower quartile	\$38,544	\$50,994	\$66,206	\$30,953	\$51,462	\$40,755

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 9 shows median earnings in the years after study compared to the national median earnings in 2011 for each gender. Men earned 191 percent of the male national median earnings five years after study, compared to women who earned 231 percent of national median earnings for women.

Table 9

Median annual earnings of young domestic doctoral degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Natural and physical sciences	143	160	179	172	217	225
Society and culture	n/a	n/a	191	199	239	221
Total graduates	152	171	191	211	230	231

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 10 shows earnings growth in the years after study. Men's earnings grew a third faster than women's in the first year after study and grew almost twice as fast as women's over the five years after study.

Table 10

Growth in median annual earnings of young domestic doctoral degree completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Natural and physical sciences	13	26	6	26	31	7
Society and culture	n/a	n/a	n/a	20	11	3
Total graduates	12	26	6	9	9	2

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 11 shows main post-study destinations in the first year after study. Note that data was available for two broad fields at doctoral level, *natural and physical sciences*, and *society and culture* but data for other fields is included in totals.

Employment destinations were almost equal for men and women at 56 and 52 percent respectively, and slightly more men than women were overseas overall. Women who completed *society and culture* doctorates were more likely to be overseas than men in year one, who were more likely to be employed. For *natural and physical sciences* destinations there were proportionally more men overseas than women in year one.

A slightly higher proportion of women were undertaking further study in year one after study overall, and women's rate of benefit receipt and / or labour market inactivity was nearly double men's.

Table 11

Destination of young domestic doctoral degree completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Natural and physical sciences	53	50	40	36	4	5	8	5
Society and culture	75	50	25	30	0	23	0	C..
Total graduates	56	52	33	31	3	7	7	12

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 12 shows overall destinations in the fifth year after study. Women were more likely to be employed than men, while men were much more likely to be overseas than women. Over half of the men (and almost half of men overall) who were *natural and physical sciences* completers were overseas in year five after study while the proportion of women overseas was over half the male rate.

Further study, benefit receipt and / or labour market inactivity were higher for women than men. Completers of *society and culture* doctorates were less likely to be overseas, but proportionally more women than men were.

Table 12

Destination of young domestic doctoral degree completers five year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Natural and physical sciences	29	54	64	28	4	9	4	14
Society and culture	60	57	30	34	C..	9	0	0
Total graduates	40	58	50	27	4	7	2	9

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

4 OUTCOMES FOR YOUNG MASTERS DEGREE GRADUATES

4.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a masters degree.

Masters degrees

Each year, around 4,000 students complete a masters degree in the New Zealand tertiary education system: 54 percent are women and about 28 percent of them ‘young’ domestic students, in the way we define that term in this report. These qualifications are mostly taken by people who have already completed a bachelors degree and who want to extend their qualifications by taking their area of specialisation to a more advanced level. Masters degrees require students to undertake a substantial research project as part of their studies.

The great majority – about 94 percent – of masters qualifications are completed at universities.

Eight of the twelve broad fields of study had enough young completers for us to be able to disaggregate from the total and report on them separately in this analysis. The four that we don’t report on separately are:

- Food hospitality and personal services
- Mixed field programmes
- Education
- Information technology

People with masters degrees work in a wide variety of occupations and industries.

It is important to bear in mind, when reading the analysis below, we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field.

4.2 What we found

Earnings

- In the first year after study, the median earnings of all young masters graduates was \$43,500. This rose by 10 percent in the following year, and by an average of 8 percent a year over the first five years post study, to reach \$59,300¹¹. Men’s earnings were \$45,700 in year one, rising 16 percent in the following year and by an average of 9 percent over the first five years post study to reach \$65,300. Women’s earnings were \$41,700 in the first year, rising 17 percent in the following year and by an average of 7 percent over five years to reach \$54,700. This means there was an earnings gap in year one and the gap grew over the first five years after completion.
- Immediately after study men’s median earnings was 114 percent of the national male median income, and women earned 148 percent of the national female median income. Five years post

¹¹ Figures without gender disaggregation are drawn from an update to Mahoney et al 2013.

study, the median earnings for young male masters graduates was 163 percent of the national median earnings for men and women earned 194 percent of the female national median.

- The top quarter of young masters degree graduates were earning \$72,900 or more a year in the fifth year after finishing study, while the lowest quarter earned \$44,700 or less. The top quarter of men earned \$80,100 after five years and women; \$67,700, while the lowest quarters earned \$51,900 and \$36,900 respectively.
- Female masters graduates earned 84 percent of men's median earnings five years after study. Women earned most after completing an *architecture and building* qualification.
- There was some variation in earnings by field of study. Where we could report values for both males and females, the field with the highest median earnings five years after completion of study was *management and commerce* (All: \$67,600, Men: \$73,700, Women: \$58,300). The earnings difference between men and women was smallest for *architecture and building*, *agriculture, environmental and related studies* and *creative arts* field completers, and widest in *management and commerce* (79 percent) and *natural and physical sciences* (89 percent).
- Male *health* masters graduates earned \$53,600 in year two after study (a year 5 comparison not available for confidentiality reasons), compared to women's median earning of \$50,000. Nursing lies within the *health* broad field, which is female dominated, and chapter 11 shows *nursing* graduates earn much less than *medical studies* graduates at bachelors degree level.

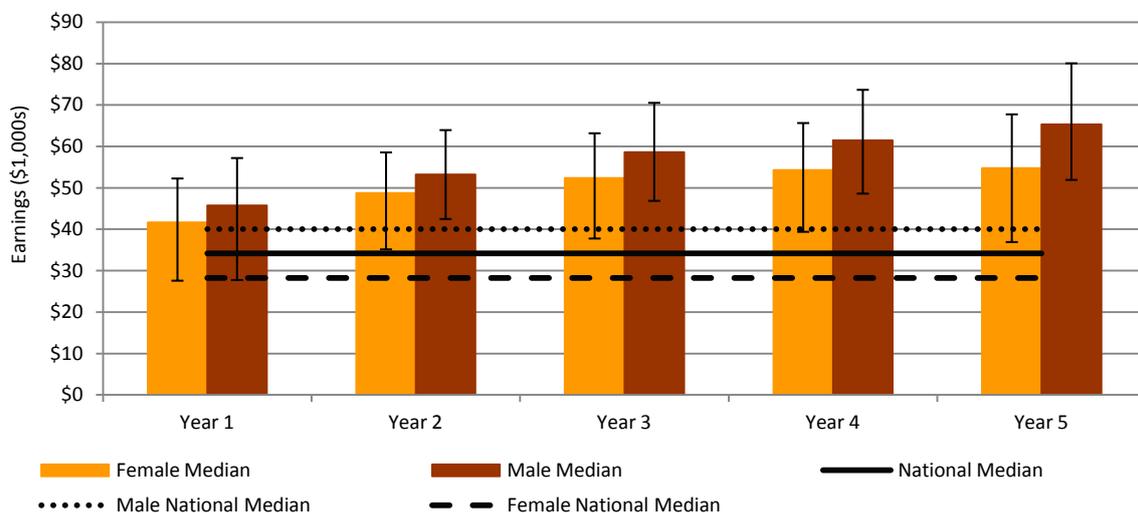
Destinations

- Of the young masters graduates, 56 percent were in employment after one year, 20 percent of men and 19 percent of women were in further study and 22 percent of men and 18 percent of women were overseas.
- The broad fields of study with the highest proportion in employment one year after finishing study were *creative arts* (70 percent of men and 67 percent of women), *architecture and building* (70 percent of men and 67 percent of women) and *agriculture, environmental and related* (60 percent of men and 75 percent of women).
- After five years, fields with the highest employment rates were *agriculture, environmental and related studies* (60 percent of men and 50 percent of women), *creative arts* (56 percent of men and 41 percent of women), *health* (36 percent of men and 61 percent of women) and *information technology* (both 50 percent).
- After five years, a high proportion of young masters graduates in *management and commerce* (54 percent of men and 47 percent of women), *information technology* (43 percent of men and 50 percent of women) and *engineering and related technologies* (42 percent of men and 44 percent of women) were overseas.

Figure 9 shows the earnings from employment in each year after study. There was a clear difference in median earnings. Men’s and women’s median earnings were similar in the first year after study, and rose almost at the same rate, but men’s earnings grew more than women’s between year three and year four so the difference between them had widened by year five. All median earnings were above the national medians for the respective gender.

Figure 9

Median and upper and lower quartile earnings for young domestic masters degree graduates in the first five years after study by gender

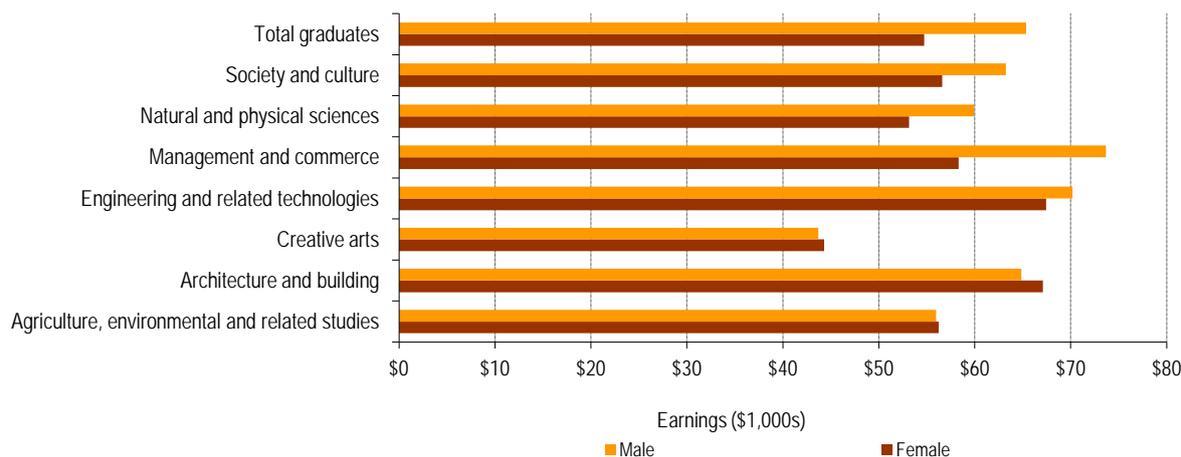


Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 10 shows the median earnings for employment in year five after study. Female masters graduates earned 84 percent of men’s median earnings. The earnings difference between men and women was smallest for *architecture and building, agriculture, environmental and related studies and creative arts* field completers, and widest in *management and commerce and natural and physical sciences*.

Figure 10

Median earnings of young domestic masters degree graduates five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 13 shows earnings one, two and five years after study, by broad field of study and gender. Women’s median earnings was higher than men’s one year after study if they completed a masters degree in *agriculture, environmental and related studies and health; in creative arts and engineering and related technologies* in year two after study, and in *agriculture, architecture and creative arts* five years after study.

Table 13

Median and quartile annual earnings of young domestic masters degree completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	C..	C..	C..	\$52,554	\$57,134	\$67,302
	Median	\$36,958	\$52,004	\$55,976	\$46,328	\$50,821	\$56,230
	Q1	C..	C..	C..	\$37,583	\$37,715	\$22,254
Architecture and building	Q3	\$54,928	C..	\$0	\$51,817	\$57,125	\$0
	Median	\$39,208	\$55,536	\$64,853	\$39,013	\$54,277	\$67,116
	Q1	\$28,290	C..	\$0	\$23,017	\$49,057	C..
Creative arts	Q3	\$41,663	\$46,152	\$63,914	\$37,411	\$57,396	\$58,198
	Median	\$31,910	\$38,670	\$43,695	\$26,299	\$39,908	\$44,316
	Q1	\$11,637	\$22,629	\$27,008	\$16,407	\$24,190	\$18,618
Engineering and related technologies	Q3	\$59,125	\$66,822	\$82,774	\$57,365	\$69,262	\$73,176
	Median	\$53,352	\$58,406	\$70,183	\$51,578	\$62,478	\$67,423
	Q1	\$40,745	\$52,034	\$63,406	\$41,795	\$53,161	\$45,043
Health	Q3	C..	C..	C..	\$62,289	\$62,120	\$60,581
	Median	\$43,197	\$53,613	C..	\$48,128	\$49,956	\$47,981
	Q1	C..	C..	C..	\$43,103	\$41,296	\$25,598
Management and commerce	Q3	\$67,696	\$78,905	\$100,372	\$55,136	\$55,744	\$82,168
	Median	\$54,452	\$59,538	\$73,674	\$41,572	\$47,015	\$58,324
	Q1	\$36,749	\$45,259	\$56,461	\$26,669	\$33,354	\$43,320
Natural and physical sciences	Q3	\$50,545	\$57,107	\$73,399	\$47,660	\$53,484	\$65,332
	Median	\$41,860	\$48,914	\$59,917	\$39,429	\$47,201	\$53,144
	Q1	\$23,702	\$37,874	\$50,735	\$25,523	\$35,592	\$38,660
Society and culture	Q3	\$54,881	\$59,207	\$77,697	\$51,127	\$58,553	\$66,889
	Median	\$43,320	\$51,347	\$63,258	\$41,382	\$48,456	\$56,604
	Q1	\$21,844	\$37,306	\$48,528	\$29,335	\$33,552	\$37,309
Total graduates	Q3	\$57,192	\$63,941	\$80,071	\$52,258	\$58,553	\$67,741
	Median	\$45,711	\$53,251	\$65,348	\$41,657	\$48,754	\$54,740
	Q1	\$27,747	\$42,471	\$51,916	\$27,580	\$35,140	\$36,910

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 14 shows median earnings in the years after study compared to national median earnings in 2011. Most masters graduates' median earnings was above the national median income in all years after study, except for *creative arts*, *agriculture* and *architecture* completers in year one.

Men earned 163 percent of the national median earnings five years after study, compared to 194 percent for women. The highest paid field of study for women after five years was *architecture and building* (238 percent of the female national median) and for men it was *management and commerce* (183 percent of male national median).

Table 14

Median annual earnings of young domestic masters degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	92	130	140	135	180	199
Architecture and building	98	139	162	138	192	238
Creative arts	80	97	109	93	141	157
Engineering and related technologies	133	146	175	183	221	239
Health	108	134	n/a	170	177	170
Management and commerce	136	149	184	147	166	207
Natural and physical sciences	105	122	150	140	167	188
Society and culture	108	128	158	147	172	200
Total graduates	114	133	163	148	173	194

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 15 shows earnings growth in the years after study. Overall women's median earnings grew by about a quarter less than men's over five years. Women's median earnings grew more than men's only if they completed an *architecture and building*, *creative arts* or *management and commerce* field masters degree.

Table 15

Growth in median annual earnings of young domestic masters degree completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	41	51	11	10	21	5
Architecture and building	42	65	13	39	72	15
Creative arts	21	37	8	52	69	14
Engineering and related technologies	9	32	7	21	31	7
Health	24	n/a	n/a	4	0	0
Management and commerce	9	35	8	13	40	9
Natural and physical sciences	17	43	9	20	35	8
Society and culture	19	46	10	17	37	8
Total graduates	16	43	9	17	31	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 16 shows the destinations of young masters degree graduates one year after study. Overall outcomes were similar between the genders across levels, but varied by fields of study. *Agriculture*, *architecture and building* and *creative arts* completers were the most likely to be in employment one year after study. Employment was higher for women than men in year one except for completers of *engineering and related technologies* and *creative arts* field qualifications.

Management and commerce completers were the most likely to be overseas in year one, while *society and culture* completers were most likely of all fields to be in further study. Benefit receipt and labour market inactivity was relatively low in year one.

Table 16

Destination of young domestic masters degree completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	60	75	10	15	20	15	10	8
Architecture and building	67	71	12	18	12	7	12	7
Creative arts	70	67	18	13	6	17	6	10
Engineering and related technologies	56	55	22	27	14	5	8	11
Health	43	69	26	12	26	19	9	C..
Information technology	53	60	24	20	21	20	7	0
Management and commerce	48	50	31	29	10	13	9	9
Natural and physical sciences	45	52	18	20	27	17	7	7
Society and culture	45	50	18	15	27	29	11	6
Total graduates	56	56	22	18	20	19	9	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 17 shows the destinations of young masters degree graduates five years after study. There was little difference between men and women in the total category. Employment as a main activity in year five dropped evenly across both genders to 41 percent from 43 percent in year one, while the proportion of people overseas increased from 22 percent to 39 percent for men and from 18 percent to 36 percent for women.

Agriculture, environmental and related studies completers were the most likely to employed in year 5 while *information technology* and *management and commerce* completers were most likely to be overseas. Differences in employment outcomes were large in *creative arts* and *health* fields.

Men were overseas in slightly higher proportions than women after five years. Female *architecture and building* and *creative arts* completers were over twice as likely to be overseas than men in year five.

Further study was relatively high for *health, architecture and building* and *natural and physical science* graduates. Male *creative arts* and *agriculture* graduates were receiving a benefit or were labour market inactive in relatively high rates compared to other fields.

Table 17

Destination of young domestic masters degree completers five year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	60	50	15	18	C..	18	15	C..
Architecture and building	48	50	12	50	24	10	C..	C..
Creative arts	56	41	13	35	13	7	20	14
Engineering and related technologies	42	44	42	44	8	8	6	8
Health	36	61	36	20	36	13	0	3
Information technology	50	50	43	50	4	C..	9	0
Management and commerce	36	35	54	47	9	9	2	9
Natural and physical sciences	38	39	37	36	23	20	6	4
Society and culture	43	44	33	32	15	17	6	7
Total graduates	41	43	39	36	14	15	6	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

5 OUTCOMES FOR YOUNG PEOPLE WHO COMPLETE HONOURS DEGREES AND POSTGRADUATE DIPLOMAS AND CERTIFICATES

5.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a qualification at level 8 on the New Zealand Qualifications Framework – a bachelors honours degree or a postgraduate certificate or diploma.

Level 8 qualifications

Each year, between 9,000 and 10,000 students complete a level 8 qualification in the New Zealand tertiary education system, 60 percent are women and about 35 percent of them ‘young’ domestic students, in the way we define that term in this report. These qualifications are mostly taken by people who have already completed a bachelors degree and who want to extend their qualifications by taking their area of specialisation to a more advanced level.

The majority – about 88 percent – of level 8 qualifications are completed at universities, with about 6 percent completed at polytechnics and 6 percent at private training establishments.

Nine of the twelve broad fields of study had enough young completers for us to be able to report on them in this report. The three that we don’t report on separately are:

- Food hospitality and personal services
- Mixed field programmes
- Education

People with level 8 qualifications work in a wide variety of occupations and industries.

5.2 What we found

Earnings

- In the first year after study, the median earnings in 2011 dollars of all young graduates with a level 8 qualification was \$44,600. This rose by 7 percent in the following year, and by an average of 8 percent a year over the first five years post study, to reach \$60,300. Men earned \$44,000 in the first year, rising by 13 percent in the following year and by an average of 9 percent over five years to reach \$63,700. Women earned \$44,000 in the first year, rising by 10 percent in the following year and by an average of 7 percent over five years to reach \$57,100.
- Five years post study, the median earnings for the young level 8 male graduates was 59 percent above the national median male earnings and women’s median earnings was 102 percent above the national median earnings for women.
- The top quarter of young graduates with a level 8 qualification were earning \$74,100 or more a year in the fifth year after finishing study, while the lowest quarter earned \$44,800 or less. The top quarter of men earned \$76,500 or more and the bottom quarter earned \$48,300 or less while the top quarter of women earned \$71,300 or more and the bottom quarter earned \$41,500 or less.
- There was some variation in earnings by field of study. The field with the highest median five years after completion of study was *information technology* (All: \$66,900, Men: \$68,900,

Women: \$65,000). Women's earnings did not grow more than men's over five years in any field.

- At the other end of the scale, holders of a level 8 qualification in *creative arts* had a median of \$40,700 (men earned \$40,000 and women earned \$40,900) five years after leaving study, with the top quarter of graduates earning above \$54,900 (the top quarter of men earned \$55,200 and the top quarter of women earned \$53,900). We are not in a position to account in detail for why this field has earnings lower than any other field. However, it is likely that many people taking study at this level in creative arts are motivated by their interests in practising the arts, despite the fact that the industry doesn't pay well. It is likely that many of those in the lowest quartile of earners are working part time.
- Women earned more than men in year one after study if they completed a qualification in *agriculture environmental and related studies, creative arts, health, natural and physical sciences*; in *creative arts* in year two after study, and not at all five years after study.

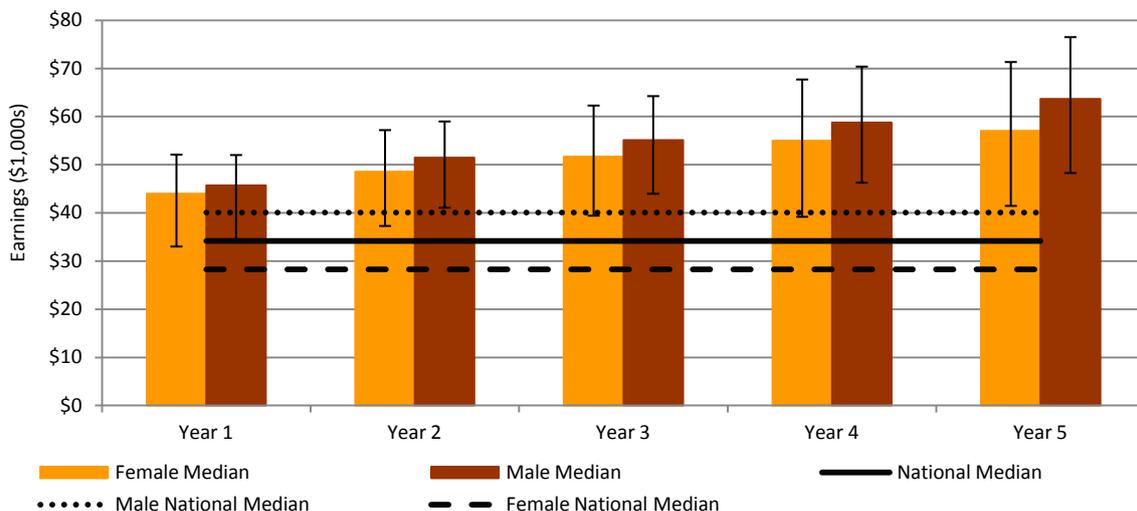
Destinations

- Of the young level 8 qualification holders in the first year after study, 46 percent of men and 50 percent of women were in employment that year and 37 percent of men and 38 percent of women were in further study. Twelve percent of men and 11 percent of women were overseas.
- The high proportion in further study reflects the fact that many people use an honours degree as a route to a research qualification, such as a masters degree or a doctorate. More than half the young level 8 graduates in *natural and physical sciences* and half of those in *agriculture, environmental and related studies* were in further study in the first year following completion – these two are fields where progression from an honours degree to higher study is very common.
- Five years after finishing study, 46 percent of men and 47 percent of female young level 8 qualification holders were in employment and 14 percent and 15 percent were in further study respectively. Thirty five percent of men and 33 percent of women were overseas.

Figure 11 shows the earnings from employment in each year after study. Male and female median earnings were similar in year one after study, but diverged in subsequent years as men’s earnings grew more quickly than women’s.

Figure 11

Median and upper and lower quartile earnings for young domestic level 8 qualification completers in the first five years after study by gender



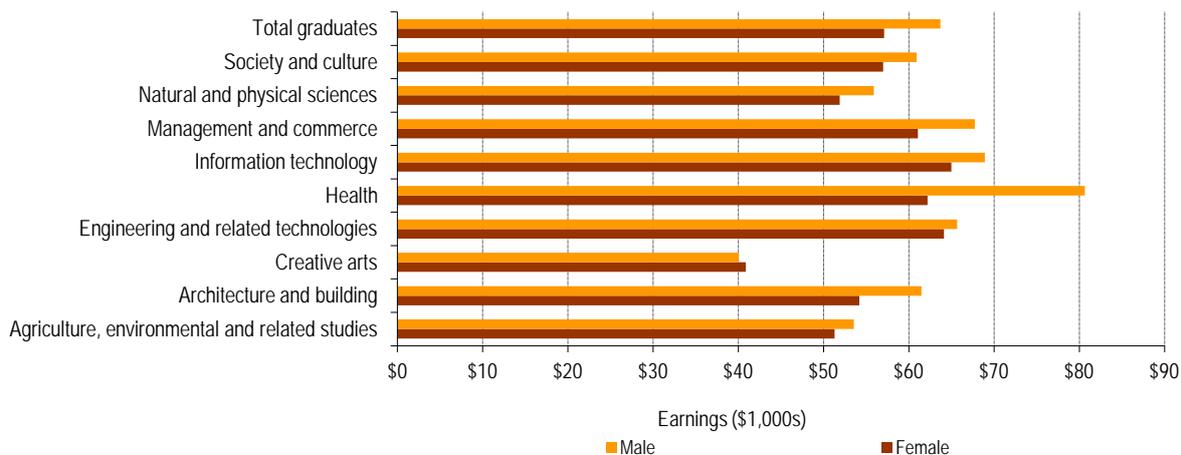
Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 12 shows the median earnings from employment in the fifth year after study for level 8 qualification completers. The overall proportion of female earnings compared to men’s was 90 percent. Men completing qualifications in *health* earned the most and women’s earnings were 77 percent of men’s (note that the health field contains nursing, which is a female dominated profession. This has the effect of driving up the difference between men and women graduating in this broad field).

Fields with narrow earnings difference between men and women included *creative arts* (102 percent), *engineering and related technologies* (98 percent), and *agriculture, environmental and related studies* (96 percent).

Figure 12

Median earnings of young domestic level 8 qualification completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 18 shows earnings one, two and five years after study, by broad field and gender. Men earned more than women overall in each year after study. Women earned more than men in year one after study if they completed a qualification in *agriculture environmental and related studies, creative arts, health and natural and physical sciences*; in *creative arts*, in year two and year five after study.

Table 18

Median and quartile annual earnings of young domestic level 8 qualification completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	\$45,845	\$54,029	\$65,587	\$44,334	\$54,542	\$65,221
	Median	\$35,549	\$50,682	\$53,560	\$39,754	\$46,083	\$51,289
	Q1	\$19,775	\$33,806	\$44,318	\$27,590	\$28,725	\$28,590
Creative arts	Q3	\$33,954	\$41,663	\$55,190	\$39,057	\$42,381	\$53,881
	Median	\$23,919	\$33,648	\$40,015	\$28,907	\$35,261	\$40,875
	Q1	\$15,837	\$21,032	\$18,327	\$16,404	\$20,192	\$18,461
Education	Q3	C..	C..	C..	\$48,332	\$50,729	\$60,627
	Median	\$47,077	\$47,858	C..	\$44,839	\$46,318	\$55,469
	Q1	C..	C..	C..	\$33,876	\$37,445	\$42,075
Engineering and related technologies	Q3	\$53,039	\$59,310	\$74,958	\$51,626	\$56,209	\$72,447
	Median	\$48,794	\$53,046	\$65,665	\$48,472	\$52,103	\$64,096
	Q1	\$41,219	\$46,880	\$52,694	\$42,108	\$47,192	\$48,702
Health	Q3	\$75,131	\$83,351	\$110,097	\$64,796	\$68,536	\$79,041
	Median	\$52,060	\$58,168	\$80,630	\$52,929	\$54,771	\$62,181
	Q1	\$41,231	\$42,703	\$51,410	\$42,864	\$42,381	\$41,010
Information technology	Q3	\$51,242	\$59,005	\$83,534	\$48,903	\$56,526	\$84,821
	Median	\$47,457	\$53,405	\$68,888	\$45,652	\$50,762	\$64,991
	Q1	\$37,748	\$43,438	\$54,579	\$35,990	\$44,322	\$52,087
Management and commerce	Q3	\$50,676	\$61,202	\$87,132	\$49,476	\$55,591	\$78,307
	Median	\$43,754	\$49,536	\$67,749	\$42,931	\$47,788	\$61,063
	Q1	\$36,986	\$41,415	\$57,118	\$36,743	\$38,114	\$44,423
Natural and physical sciences	Q3	\$43,159	\$53,911	\$67,894	\$47,642	\$52,343	\$62,495
	Median	\$35,562	\$43,963	\$55,865	\$39,947	\$43,405	\$51,897
	Q1	\$20,192	\$31,480	\$44,756	\$26,897	\$35,861	\$42,603
Society and culture	Q3	\$50,381	\$59,083	\$75,430	\$48,901	\$56,005	\$71,532
	Median	\$41,895	\$49,937	\$60,883	\$40,880	\$47,151	\$56,987
	Q1	\$26,663	\$37,021	\$43,713	\$30,297	\$35,669	\$41,446
Total graduates	Q3	\$52,019	\$58,989	\$76,504	\$52,092	\$57,195	\$71,335
	Median	\$45,694	\$51,507	\$63,678	\$43,971	\$48,576	\$57,075
	Q1	\$34,533	\$41,088	\$48,289	\$33,021	\$37,284	\$41,454

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 19 shows median earnings in the years after study compared to national median earnings in 2011. All qualification completers earned above the national median income in all years after study, except for male *agriculture, environmental and related studies, natural and physical sciences* and *creative arts* completers. Men earned nearly 160 percent of the national median earnings for men five years after study, compared to 202 percent for women. The highest earnings for men five years after study were for *health* completers (201 percent of male national median) and for female *information technology* completers (230 percent).

Table 19

Median annual earnings of young domestic level 8 qualification completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	89	127	134	141	163	182
Creative arts	60	84	100	102	125	145
Education	118	119	n/a	159	164	196
Engineering and related technologies	122	132	164	172	185	227
Health	130	145	201	187	194	220
Information technology	118	133	172	162	180	230
Management and commerce	109	124	169	152	169	216
Natural and physical sciences	89	110	139	141	154	184
Society and culture	105	125	152	145	167	202
Total graduates	114	129	159	156	172	202

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 20 shows earnings growth in the years after study. Women's earnings grew less overall over five years than men's (7 percent compared to 9 percent). Women's earnings grew similarly to men's over five years in the *information technology* and *engineering and related technologies* fields only.

Table 20

Growth in median annual earnings of young domestic level 8 qualification completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	43	51	11	16	29	7
Creative arts	41	67	14	22	41	9
Education	2	n/a	n/a	3	24	5
Engineering and related technologies	9	35	8	7	32	7
Health	12	55	12	3	17	4
Information technology	13	45	10	11	42	9
Management and commerce	13	55	12	11	42	9
Natural and physical sciences	24	57	12	9	30	7
Society and culture	19	45	10	15	39	9
Total graduates	13	64	9	10	30	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 21 shows destinations one year after study. Overall outcomes were similar between men and women across levels, but varied between fields.

Men were more likely to be in further study than women if they completed a level 8 qualification in *health, management and commerce, society and culture, natural and physical sciences* and *education*.

Women were in employment at higher rates than men after completing qualifications in *creative arts, education, engineering and related technologies, health, management and commerce, natural and physical sciences* and *society and culture*.

Table 21

Destination of young domestic level 8 qualification completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	43	40	9	6	50	50	4	9
Architecture and building	50	60	C..	C..	25	45	C..	C..
Creative arts	38	46	13	9	38	39	8	5
Education	48	62	12	2	36	27	0	5
Engineering and related technologies	52	55	13	12	26	29	6	5
Health	39	55	9	10	47	33	5	2
Information technology	52	44	9	8	39	44	7	4
Management and commerce	51	55	12	14	33	31	5	3
Natural and physical sciences	25	33	11	9	60	55	5	4
Society and culture	43	46	11	11	40	37	7	4
Total graduates	46	50	12	11	37	38	5	4

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 22 shows the destinations of level 8 qualification completers five years after study. The rates were generally similar overall, with a small number of field differences between men and women.

Table 22

Destination of young domestic level 8 qualification completers five years after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	50	54	23	14	15	23	0	14
Architecture and building	36	40	36	40	C..	20	C..	C..
Creative arts	50	47	30	32	15	13	6	6
Education	40	54	40	23	20	14	0	9
Engineering and related technologies	45	39	38	39	11	13	7	5
Health	55	51	18	28	27	17	8	4
Information technology	48	46	38	38	9	9	9	5
Management and commerce	44	46	41	41	9	6	7	5
Natural and physical sciences	34	36	34	36	23	22	6	6
Society and culture	45	49	35	32	15	16	6	8
Total graduates	46	47	35	33	14	15	7	6

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

6 OUTCOMES FOR YOUNG PEOPLE WHO COMPLETE GRADUATE DIPLOMAS AND CERTIFICATES

6.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a graduate certificate or diploma.

Graduate certificates and diplomas

Each year, between 4,000 and 5,000 students complete a graduate certificate or diploma in the New Zealand tertiary education system, about 63 percent are women and 32 percent of them ‘young’ domestic students, in the way we define that term in this report. Graduate certificates and diplomas are mostly taken by people who have already completed a bachelors degree and who want to broaden their qualifications – essentially, adding an additional area of specialisation to their qualifications.

The majority of graduate certificates and diplomas are completed at universities, with between 14 and 17 percent completed at polytechnics and 15-16 percent at private training establishments.

Graduate certificates and diplomas include courses at level 7 – which is the same as the final year level of most bachelors degrees. Only five of the twelve broad fields of study had enough young completers for us to be able to report on them in this report. The seven that we don’t report on separately are:

- Agriculture, environmental and related
- Architecture and building
- Engineering and related technologies
- Health
- Food hospitality and personal services
- Mixed field programmes
- Natural and physical sciences.

People with graduate certificates and diplomas work in a wide variety of occupations and industries.

It is important to bear in mind, when reading the analysis below, we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field.

6.2 What we found

Earnings

- In the first year after study, the median earnings in 2011 dollars of all young graduates with a graduate certificate or diploma was \$45,900. This rose by 6 percent in the following year, and by an average of 6 percent a year over the first five years post study, to reach \$58,700. Men earned \$46,200 in the first year, rising by 6 percent in the following year and 8 percent on average over five years to reach \$62,500. Women earned \$45,700 in the first year, rising by 5 percent over the following year and an average of 5 percent over five years to reach \$56,700.

- Five years post study, the median earnings for male certificate or diploma completers was 156 percent of the national median male earnings and women's earnings median was 201 percent of women's national median earnings.
- The top quarter of young holders of a graduate certificate or diploma were earning \$69,300 or more a year in the fifth year after finishing study, while the lowest quarter earned \$43,100 or less. The top quarter of men earned \$74,800 and the lowest quarter earned \$49,800. The top quarter of women earned \$67,000 and the lowest quarter earned \$38,900.
- There was some variation in earnings by field of study. Median earnings were close between men and women in the second year after study, but by year five, women's median earnings was 91 percent of men's. The biggest difference in earnings was for *management and commerce* completers, where women's earnings were 88 percent of men's in year five, and *education* (93 percent). Smaller differences in median earnings in year five were seen for *information technology* and *society and culture* (95 percent) qualification completers. Women earned more than men (105 percent) in the *creative arts* field.

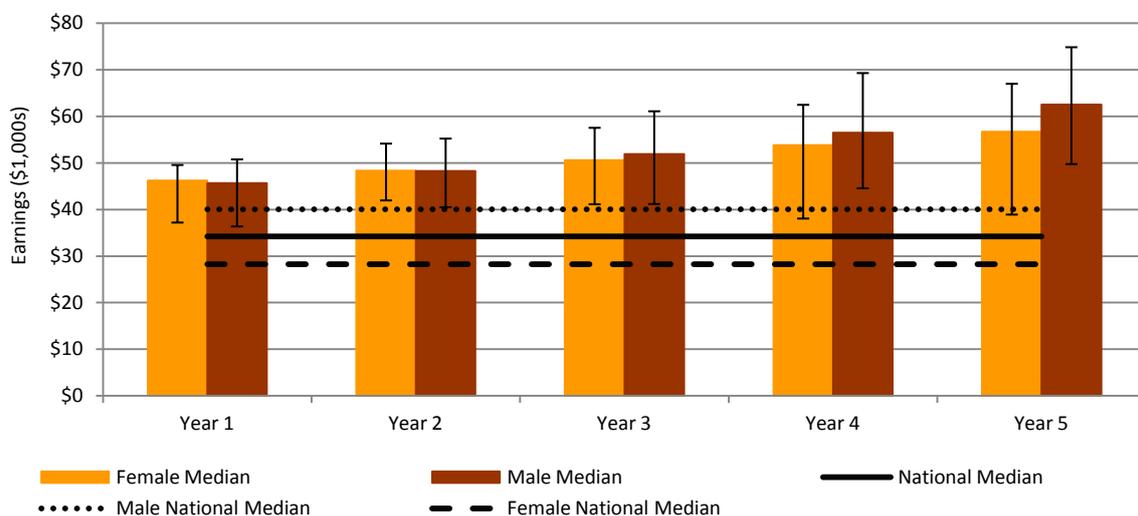
Destinations

- Seventy one percent of men and women were in employment in the first year after study. Sixteen percent of men and 15 percent of women were in further study and around 7 percent were overseas or drawing a benefit or labour market inactive / in multiple categories.
- By the fifth year after study 52 percent of men and women were in employment, 29 percent of men and 26 percent of women were overseas, around 9 percent of each were in further study and 8 percent of men and 10 percent of women were labour market inactive / in multiple categories or drawing a benefit.

Figure 13 shows the earnings for employment in each year after study. Male and female median earnings were similar in year one after study, but diverged in subsequent years as men’s earnings grew at higher rates than women’s. This pattern also occurs for the lower and upper quartile earnings. Female lower quartile earnings generally did not rise above the national median income for men.

Figure 13

Median and upper and lower quartile earnings for young domestic graduate certificate and diploma completers in the first five years after study by gender

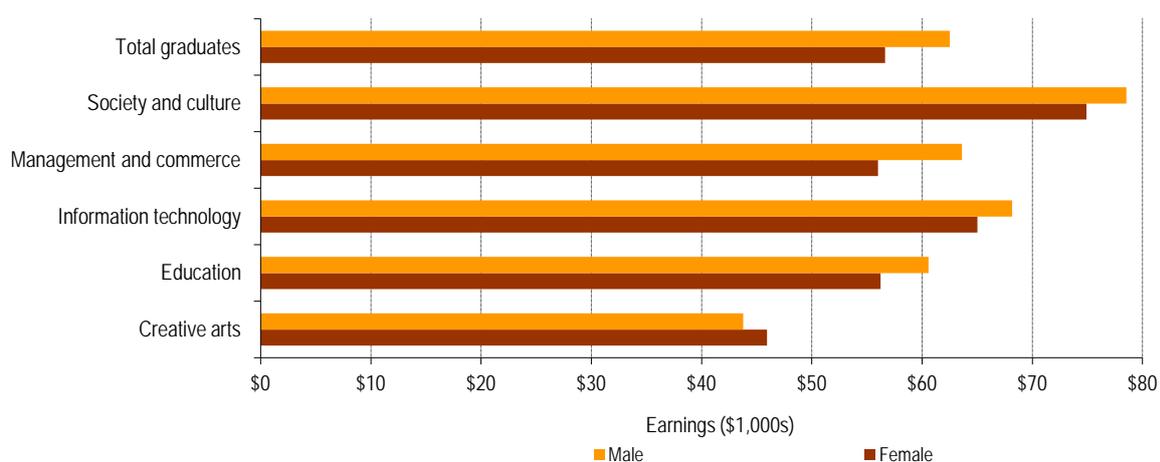


Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 14 shows the earnings for employment in the fifth year after study for graduate certificate and diploma qualification completers. Women’s overall median earnings was 91 percent of men’s. Men completing qualifications in *information technology* and *society and culture* earned the most and women’s earnings were 95 percent of men’s in these fields. These were the fields where earnings difference between genders was narrow. Female *creative arts* graduates earned 105 percent of equivalent men, and women earned 88 percent of male *management and commerce* graduates.

Figure 14

Median earnings of young domestic graduate certificate and diploma completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 23 shows earnings one, two and five years after study, by broad field of study and gender. Where we are able to release data, we find that women earned slightly more than men in year one overall; were roughly equal in year two and women earned less than men in year five. Men earned

less than equivalent women in year one in all fields except *management and commerce*, but the difference was negligible.

Median earnings were close between men and women in the second year after study, but by year five, women's median earnings was 91 percent of men's. The biggest difference in earnings was for *management and commerce* qualification completers, where women's earnings were 88 percent of men's in year five. Smaller differences in median earnings in year five were seen for *information technology* and *society and culture* (95 percent) and *education* (93 percent) qualification completers.

Table 23

Median and quartile annual earnings of young domestic graduate certificate and diploma completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Creative arts	Q3	\$40,146	\$43,066	\$59,094	\$41,919	\$46,312	\$55,731
	Median	\$35,488	\$36,755	\$43,777	\$35,396	\$39,454	\$45,927
	Q1	\$28,313	\$30,516	\$31,691	\$28,155	\$34,490	\$31,008
Education	Q3	\$47,741	\$50,578	\$66,239	\$48,279	\$50,471	\$63,944
	Median	\$45,903	\$47,935	\$60,598	\$46,203	\$48,207	\$56,234
	Q1	\$38,034	\$41,620	\$54,829	\$39,683	\$44,182	\$35,614
Information technology	Q3	\$43,971	\$52,558	\$74,396	C..	C..	C..
	Median	\$37,852	\$44,485	\$68,166	C..	C..	\$65,021
	Q1	\$19,489	\$28,213	\$48,695	C..	C..	C..
Management and commerce	Q3	\$48,298	\$53,421	\$75,502	\$46,122	\$55,938	\$71,119
	Median	\$42,879	\$48,066	\$63,631	\$41,256	\$48,098	\$56,015
	Q1	\$34,106	\$41,097	\$50,919	\$31,729	\$40,387	\$40,751
Society and culture	Q3	\$56,054	\$69,327	\$104,372	\$56,843	\$68,930	\$96,527
	Median	\$49,992	\$55,707	\$78,546	\$52,345	\$57,371	\$74,917
	Q1	\$42,165	\$44,662	\$55,960	\$43,883	\$44,216	\$50,411
Total graduates	Q3	\$50,772	\$55,230	\$74,841	\$49,565	\$54,157	\$66,993
	Median	\$45,682	\$48,270	\$62,507	\$46,176	\$48,320	\$56,661
	Q1	\$36,376	\$40,509	\$49,756	\$37,209	\$41,965	\$38,918

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 24 shows median earnings in the years after study compared to the national median earnings in 2011. Where we are able to release information, all graduate certificate and diploma completers earned roughly on or above the national median income in all years after study. Men's highest earnings in year five were 170 percent of the national median (for *information technology* qualification completers) and women's: *society and culture* (265 percent) and *information technology* (230 percent).

Table 24

Median annual earnings of young domestic graduate certificate and diploma completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Creative arts	100%	108%	148%	148%	164%	197%
Education	115%	120%	151%	164%	141%	199%
Information technology	95%	111%	170%	n/a	n/a	230%
Management and commerce	107%	120%	159%	146%	170%	198%
Society and culture	125%	139%	196%	185%	203%	265%
Total graduates	114%	121%	156%	164%	171%	201%

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 25 shows earnings growth in the years after study. Men's median earnings grew more than equivalent women across all years after study. Women's earnings grew a third less overall over five years than men's (5 percent compared to 8 percent).

Table 25

Growth in median annual earnings of young domestic graduate certificate and diploma completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Creative arts	4	23	5	11	30	7
Education	4	32	7	4	22	5
Information technology	18	80	16	n/a	n/a	n/a
Management and commerce	12	48	10	17	36	8
Society and culture	11	57	12	10	43	9
Total graduates	6	37	8	5	23	5

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 26 shows the destinations of graduate certificate and diploma completers after one year. There was little difference between men's and women's rates at year one after study. Men were more likely to be employed than women if they completed *natural and physical sciences* or *society and culture* qualifications. Women completing *information technology*, *creative arts* or *management and commerce* qualifications were more likely than men to be in employment.

Female *natural and physical science, health, information technology* and *society and culture* completers were more likely to be in further study than men.

Table 26

Destination of young domestic graduate certificate and diploma completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	33	50	17	C..	33	25	C..	0
Creative arts	58	71	3	8	26	15	16	8
Education	88	86	5	5	8	9	4	4
Health	60	45	C..	0	20	60	0	0
Information technology	55	60	5	0	27	40	16	0
Management and commerce	65	69	11	11	22	16	7	6
Natural and physical sciences	72	43	C..	9	24	43	C..	9
Society and culture	68	65	8	8	14	21	7	6
Total graduates	71	71	8	7	16	15	6	5

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 27 shows the destinations of graduate certificate and diploma completers five years after study. Overseas rates increased from year one and other rates declined accordingly (apart from benefit / other). Twenty nine percent of men and 26 percent of women were overseas in year five, up from 8 and 7 percent in year one.

Employment rates were more or less equal, but were widest between men and women for *creative arts* (14 percentage points) and *natural and physical sciences* (20 percentage points) graduates. Female *information technology* qualification completers were overseas at significantly higher rates than men (45 percent compared to 27 percent). Male *natural and physical sciences* qualification completers were much more likely to be overseas than women (10 percentage points difference).

Female benefit receipt and/or labour market inactivity and other activity was slightly higher than men's, and particularly for *creative arts* and *education* qualification completers.

Table 27

Destination of young domestic graduate certificate and diploma completers five year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Creative arts	56	42	28	35	7	9	10	12
Education	57	62	24	18	12	11	5	10
Information technology	56	60	27	45	13	C..	13	15
Management and commerce	54	53	33	32	6	4	10	13
Natural and physical sciences	40	60	40	30	0	15	20	C..
Society and culture	45	40	39	42	6	8	8	8
Total graduates	52	52	29	26	9	9	8	10

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

7 OUTCOMES FOR YOUNG BACHELORS DEGREE GRADUATES

7.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a bachelors degree.

Bachelors degrees

Each year, around 24,000 students complete a bachelors degree in the New Zealand tertiary education system, about 64 percent of them are women and roughly 54 percent of them ‘young’ domestic students, in the way we define that term in this report. Study for a bachelors degree is the most common destination for school leavers who have met the university entrance requirement. Of those who leave school with NCEA level 3, around 70 percent will enter study for a bachelors degree the following year.

The majority of bachelors graduates complete their qualifications at universities, with between 15 and 18 percent completed at polytechnics, 3 percent at wānanga and 4 percent at private training establishments.

Bachelors degrees require graduates to have a field of specialisation with a set of courses at level 7 in that field. Bachelors degrees are offered in most of the broad fields of study – the only broad fields with insufficient young graduates for us to report separately on in this paper are:

- Food hospitality and personal services
- Mixed field programmes.

People with a bachelors degree work in a wide variety of occupations and industries.

It is important to bear in mind, when reading the analysis below, we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field. Data on outcomes for young bachelors graduates by narrow field can be found in Chapter 11 of this report.

7.2 What we found

Earnings

- Men and women’s median post-study earnings were more similar at bachelors level overall than any other level. In the first two years after study, there was minimal difference between the median earnings of men and women. A difference emerged over time, however and by the fifth year the median for men was 8 percent above the women’s median.
- In the first year after study, the median earnings in 2011 dollars of all young graduates with a bachelors degree was \$38,000. This rose by 14 percent in the following year, and by an average of 7.4 percent a year over the first five years post study, to reach \$50,700. Female bachelors graduates started work earning slightly more on average than men, but men’s earnings rose faster. Men’s median earnings was \$38,000, rising by 15 percent in the following year and by an average of 9 percent a year over the first five years to reach \$53,500. Women’s median earnings was \$38,100 in the first year, rising by 15 percent over the following year and 7 percent on average across five years to reach \$49,500.

- Five years post study, the median earnings for the young graduates was 48 percent above the national median earnings for all ages and qualifications. Men's median earnings was 34 percent above the national median for men and women's earnings were 75 percent above the median for women.
- The top quarter of young domestic bachelors graduates were earning \$63,000 or more a year, while the lowest quarter earned \$37,100 or less. The top quarter of men earned \$67,400 or more a year and the lower quarter earned \$39,900. The top quarter of women earned \$60,000 or more a year and the lower quarter earned \$35,200 or less.
- There was substantial variation in earnings by field of study. The three fields with the highest medians five years after completion of study were *health* (\$61,700) *engineering* (\$57,400) and *information technology* (\$56,300). The top quarter of earners among graduates in those fields earned more than \$83,600, \$69,300 and \$69,800 respectively¹². Male *health* graduates earned \$77,900 in year five, compared to \$59,200 (76 percent of male median earnings) for women. Women's earnings were roughly equal to men's in year five after study for *information technology* (97 percent), and above average (when compared to men's) for *creative arts* (101 percent), *agriculture, environmental and related studies* (96 percent), *engineering and related technology* (96 percent) and *architecture and building* (93 percent).
- At the other end of the spectrum, *creative arts* bachelors graduates had median earnings of \$41,400 for men and \$41,600 for women five years after leaving study, with the top quarter of graduates earning above \$53,200 for male and \$52,100 for women.
- Chapter 11 shows that *nursing* graduates, who are predominantly women, earn less than and have different destinations to *medical studies* graduates. This greatly influences earnings and destination of the *health* broad field gender comparison.

Destinations

- Men's and women's destinations were most similar at bachelors level. Forty six percent of men and 50 percent of women were in employment in the first year after study and 36 percent were in further study. Overseas rates were a third higher than the rate of benefit and / or labour market inactivity or in multiple categories.
- Five years after finishing study, 49 percent of men and 51 percent of women were employed, 30 percent and 27 percent were overseas and 14 and 15 percent were in further study.
- The broad field of study with the highest proportion in employment one year after finishing study was *education* with 70 percent of men and 75 percent of women, while the figures for *health* were 63 percent and 50 percent. After five years, the proportions in employment in these fields were 62 percent and 61 percent in *education* and 50 percent and 52 percent in *health* respectively.
- Further study occurred in high rates one year after study in *natural and physical sciences, society and culture, engineering and related technologies* and *agriculture, environmental and related studies* fields. Proportionally more women than men undertook further study in these last two fields, as well as in *health* and *information technology*, but over all fields further study rates were roughly equal. Differences in further study rates between men and women in these fields had diminished by the fifth year. The high proportion in further study reflects the fact that many young people move from a bachelors degree to higher level study – an honours degree or other level 8 qualification, or a masters degree. Mostly – but not always – this occurs in the year after completing the bachelors degree.

¹² This overall data was published in *Moving on up* and is based in 2011 data, We have since published more up to date national data, however, we have kept the 2011 national figures in place for comparison purposes in this report.

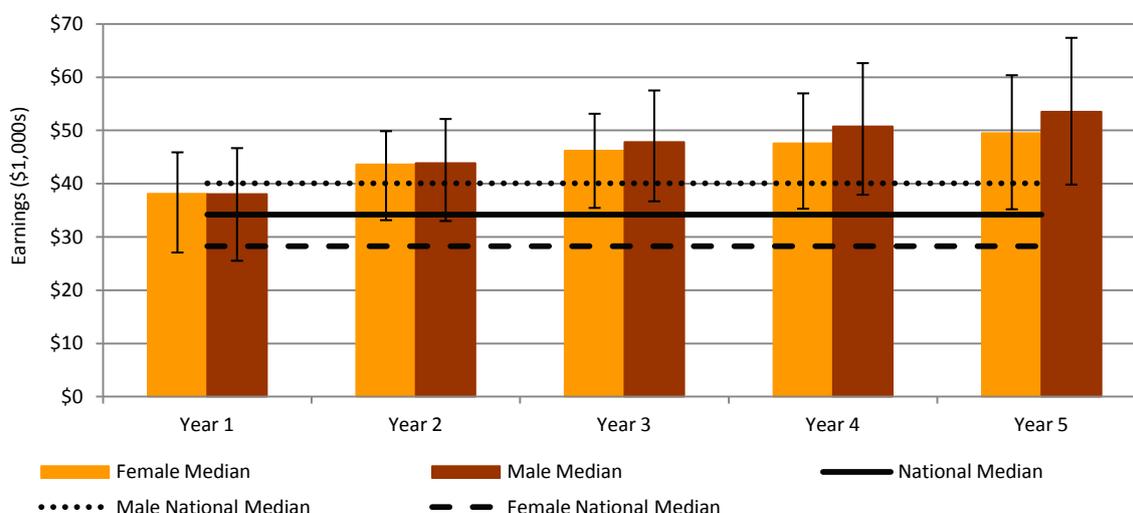
- High rates of *architecture and building, engineering and related technologies, creative arts, health, information technology, natural and physical sciences* and *management and commerce* graduates were overseas by the fifth year after study. Proportionally more men than women who completed *education* degrees were overseas by year five, at 27 to 17 percent respectively, but this was the only field with a significant difference between them.

Figure 15 shows the earnings for employment in each year after study for bachelors degree completers. Men’s and women’s median earnings were similar in the early years after study, but diverged in the third year as men’s earnings grew at slightly higher rates than women’s.

Lower quarter earnings were below the national median earnings in years one and two, and men’s just topped the male national median earnings by year five.

Figure 15

Median and upper and lower quartile earnings for young domestic bachelors degree completers in the first five years after study by gender



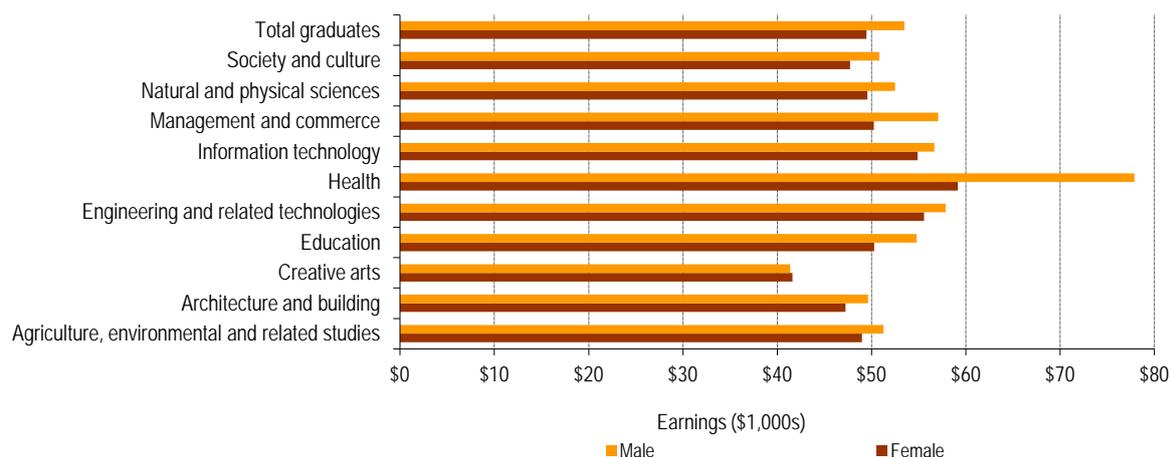
Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 16 shows the median employment earnings in the fifth year after study for bachelors degree completers. Women’s earnings were 93 percent of men’s overall. Only female *creative arts* completers’ median earnings was higher than men’s (101 percent). Otherwise, men’s earnings were greater than women’s. The field showing the greatest difference between men and women was *health*¹³ (76 percent) followed by *management and commerce* (88 percent), *education* (92 percent) and *society and culture* and *natural and physical sciences* (93 percent).

¹³ Chapter 11 shows that nursing graduates, who are predominantly women, earn less than and have different destinations to medical studies graduates. This greatly influences earnings and destination of the health broad field gender comparison.

Figure 16

Median earnings of young domestic bachelors degree completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 28 shows earnings one, two and five years after study, by broad field of study and gender. Male and female graduates' median earnings are similar overall in years one and two, but unequal by year five. *Creative arts* was the only field in which women earned more than men after five years.

The field associated with the highest earnings was *health*, for both men and women. Men earned \$77,900 in year five, compared to \$59,200 (76 percent of male median earnings) for women. Female earnings were roughly equal to men's for one field in year five after study: *creative arts* (101 percent of men's), *information technology* (97 percent), *agriculture, environmental and related studies* (96 percent), *engineering and related technologies* (96 percent of men's) and *society and culture* (94 percent of men's).

Women earned most if they studied *health*, (\$59,200), *information technology* (\$54,900), *engineering and related technologies* (\$55,600), *education* (\$50,300), and *management and commerce* (\$50,200). For men, the top four earning fields in year five were *health* (\$77,900), *engineering and related technologies* (\$57,800), *management and commerce* (\$57,000) and *information technology* (\$56,700).

Table 28

Median and quartile annual earnings of young domestic bachelors degree completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	\$48,935	\$56,490	\$64,941	\$41,257	\$50,426	\$61,344
	Median	\$39,814	\$47,781	\$51,273	\$31,402	\$40,964	\$48,984
	Q1	\$26,996	\$37,719	\$37,145	\$17,907	\$28,293	\$36,593
Architecture and building	Q3	\$45,833	\$50,250	\$65,202	\$42,986	\$47,997	\$57,707
	Median	\$36,827	\$41,251	\$49,639	\$33,868	\$40,729	\$47,241
	Q1	\$27,479	\$33,840	\$36,647	\$24,840	\$30,681	\$34,395
Creative arts	Q3	\$36,833	\$43,132	\$53,223	\$35,685	\$41,628	\$52,070
	Median	\$27,254	\$34,930	\$41,380	\$28,729	\$34,640	\$41,594
	Q1	\$17,122	\$20,836	\$26,871	\$19,494	\$23,604	\$27,347
Education	Q3	\$46,502	\$49,886	\$60,437	\$46,925	\$48,604	\$57,242
	Median	\$44,853	\$47,603	\$54,767	\$44,773	\$46,282	\$50,286
	Q1	\$38,450	\$43,776	\$43,944	\$36,979	\$41,238	\$34,888
Engineering and related technologies	Q3	\$49,647	\$52,644	\$69,145	\$46,306	\$46,885	\$69,979
	Median	\$41,873	\$47,110	\$57,834	\$37,142	\$40,885	\$55,554
	Q1	\$29,835	\$37,532	\$44,484	\$23,978	\$32,103	\$46,216
Health	Q3	\$86,396	\$82,585	\$117,401	\$56,262	\$61,563	\$75,286
	Median	\$50,709	\$60,358	\$77,876	\$46,309	\$51,105	\$59,159

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
	Q1	\$35,573	\$44,423	\$51,370	\$37,645	\$41,319	\$38,868
Information technology	Q3	\$47,496	\$54,000	\$70,377	\$48,682	\$49,846	\$66,525
	Median	\$40,426	\$46,397	\$56,654	\$42,580	\$44,572	\$54,883
	Q1	\$28,638	\$35,176	\$45,489	\$37,357	\$30,315	\$42,342
Management and commerce	Q3	\$46,265	\$51,963	\$71,096	\$44,383	\$49,562	\$62,595
	Median	\$39,646	\$44,599	\$57,048	\$37,816	\$43,174	\$50,228
	Q1	\$29,341	\$36,742	\$44,182	\$29,646	\$35,649	\$38,734
Natural and physical sciences	Q3	\$44,138	\$52,590	\$62,099	\$43,297	\$50,426	\$60,761
	Median	\$33,485	\$44,007	\$52,489	\$34,234	\$42,504	\$49,541
	Q1	\$22,024	\$33,596	\$39,779	\$24,037	\$32,561	\$36,460
Society and culture	Q3	\$43,892	\$50,482	\$63,611	\$43,282	\$48,630	\$58,096
	Median	\$35,874	\$42,957	\$50,808	\$34,744	\$41,641	\$47,720
	Q1	\$24,075	\$30,940	\$37,629	\$22,435	\$31,240	\$35,586
Total graduates	Q3	\$46,716	\$52,187	\$67,428	\$45,931	\$49,901	\$60,408
	Median	\$38,049	\$43,830	\$53,487	\$38,109	\$43,635	\$49,456
	Q1	\$25,560	\$33,026	\$39,868	\$27,116	\$33,190	\$35,232

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 29 shows median earnings in the years after study compared to national median earnings in 2011. Male *health* graduates' earnings were 194 percent of the male national median earnings and women's were 209 percent of female national median earnings.

Table 29

Median annual earnings of young domestic bachelors degree completers, one, two and five years after study, as a percentage of the national median earnings for each gender, by gender and qualification level

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	99	119	128	111	145	173
Architecture and building	92	103	124	120	144	167
Creative arts	68	87	103	102	123	147
Education	112	119	137	159	164	178
Engineering and related technologies	105	118	144	132	145	197
Health	127	151	194	164	181	209
Information technology	101	116	141	151	158	194
Management and commerce	99	111	142	134	153	178
Natural and physical sciences	84	110	131	121	151	175
Society and culture	90	107	127	123	147	169
Total graduates	95	109	134	135	155	175

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 30 shows earnings growth in the years after study. Women's earnings grew at the same rate as men's over the first year after study overall, but grew a quarter less strongly than men's over five years. Men who completed a qualification in *health* earnings' grew by 54 percent over the first five years, compared to 28 percent for women's (19 percent and 10 percent respectively in the first year). Women's earnings showed greater growth in only three fields, *agriculture, environmental and related studies, architecture and building* and *engineering and related technologies*.

Women's earnings grew most strongly if they completed qualifications in the *creative arts, agriculture, environmental and related studies, engineering and related technologies* and *natural and physical sciences* fields, and for men if they studied *health, natural and physical sciences* or *creative arts*. Women's earnings grew least if they completed qualifications in *education* (3 percent on average a year over five years) and for men it was 5 percent a year on average.

Table 30

Growth in median annual earnings of young domestic bachelors degree completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	20	29	7	30	56	12
Architecture and building	12	35	8	20	39	9
Creative arts	28	52	11	21	45	10
Education	6	22	5	3	12	3
Engineering and related technologies	13	38	8	10	50	11
Health	19	54	11	10	28	6
Information technology	15	40	9	5	29	7
Management and commerce	12	44	10	14	33	7
Natural and physical sciences	31	57	12	24	45	10
Society and culture	20	42	9	20	37	8
Total graduates	15	41	9	15	30	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 31 shows the destinations of bachelors degree graduates one year after study. Destinations were fairly equal between men and women. Employment destinations were high for men who studied *education* (70 percent), *health* (63 percent), *information technology* (57 percent), *management and commerce* (53 percent), *creative arts* (50 percent) or *architecture and building* (49 percent) fields.

Women's employment destinations were highest after studying *education* (75 percent), *creative arts* (59 percent), *health* (53 percent), *management and commerce* (53 percent) and *information technology* (47 percent) fields.

Men were slightly more likely to go overseas than women in the first year after study, and at relatively high rates if they completed *engineering and related technologies* (18 percent), *architecture and building* (14 percent) or *health* (13 percent) qualifications. Sixteen percent of women who completed *engineering and related technologies* degrees spent most of their first year after study overseas.

Further study was a popular option for both men and women who studied *natural and physical sciences*, *society and culture*, *engineering and related technologies*, *architecture and building* or *agriculture environmental and related* fields. Men were slightly more likely to be on a benefit or labour market inactive / in multiple categories as their main activity in year one after study than women.

Table 31

Destination of young domestic bachelors degree completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	47	38	9	8	34	48	6	3
Architecture and building	49	42	14	11	29	38	11	7
Creative arts	50	59	8	10	25	25	13	7
Education	70	75	7	4	17	17	0	4
Engineering and related technologies	49	34	18	16	27	44	7	4
Health	63	53	13	10	21	31	3	2
Information technology	57	47	9	11	22	32	13	8
Management and commerce	53	53	12	11	29	31	6	5
Natural and physical sciences	26	35	9	8	58	53	5	5
Society and culture	37	38	10	9	50	47	7	5
Total graduates	46	50	11	10	36	36	7	5

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 32 shows the destinations of bachelors completers five years after study. Overseas rates increased from year one and further study rates declined accordingly. Just under thirty percent of men and 27 percent of women were overseas in year five, up from 11 and 10 percent in year one respectively.

The highest employment rates for women were 61 percent for *education* and 53 percent for *agriculture, environmental and related studies*. Male graduates of these fields were also employed at high rates: 62 percent and 58 percent respectively. Fifty eight percent of male graduates in *agriculture, environmental and related studies*, 57 percent of *information technology* graduates and 55 percent of *management and commerce* graduates were in employment.

Thirty three percent of women and 34 percent of men who completed a bachelors degree in *architecture and building* were overseas for most of year five, and *engineering and related technologies* graduates (29 and 32 percent respectively), *creative arts* (27 and 29 percent), *management and commerce* (34 and 41 percent) were overseas at relatively high rates.

Thirty six percent of women who studied *information technology* were overseas in year five compared to 30 percent of men. *Society and culture* and *health* graduates were overseas at fairly equal rates (29 percent and 26 percent).

Further study was a popular destination for both men and women who completed *natural and physical sciences* degrees (22 and 25 percent respectively), and were similar overall. There was no difference between men and women in the likelihood to be out of the labour force / in multiple categories or being on a welfare benefit.

Table 32

Destination of young domestic bachelors degree completers five year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	58	53	18	18	16	16	6	8
Architecture and building	50	51	33	34	8	6	10	9
Creative arts	53	45	27	29	10	11	9	10
Education	62	61	27	17	8	11	5	7
Engineering and related technologies	50	41	29	32	15	16	6	3
Health	50	52	29	27	17	15	6	6
Information technology	57	45	30	36	10	9	6	8
Management and commerce	55	50	34	31	9	9	7	7
Natural and physical sciences	40	45	28	28	22	25	7	7
Society and culture	46	48	29	26	17	18	7	8
Total graduates	49	51	30	27	14	15	7	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

8 OUTCOMES FOR YOUNG DIPLOMA COMPLETERS

8.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a diploma at levels 5, 6 or 7.

Diplomas

Each year, around 19,000 to 23,000 students complete a diploma in the New Zealand tertiary education system, about 55 percent are female and roughly 20 percent of them 'young' domestic students, in the way we define that term in this report. Around one in ten recent school leavers entering tertiary education for the first time in 2011 undertook study for a diploma. The most common school leaving qualification of that group was NCEA level 2 and over 80 percent had achieved NCEA 2 or higher before leaving school.

The greatest number of diplomas is completed at polytechnics and private training establishments – these two subsectors account for between 80 and 85 percent of all the diploma completions, with around 7 percent completed at wānanga and a similar number at universities.

Diplomas are vocational qualifications that aim to give people practical skills needed in the workforce. Diplomas are offered in all of the broad fields of study – there were no broad fields with insufficient young completers for us to report on in this paper.

It is important to bear in mind, when reading the analysis below, we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field. Data on outcomes by narrow field can be found in the tables published on the Education Counts website.

8.2 What we found

Earnings

- In the first year after study, the median earnings in 2011 dollars of all young diploma completers was \$28,600. This rose by 12 percent in the following year, and by an average of 8 percent a year over the first five years post study, to reach \$39,000. Men earned \$28,900, rising by 14 percent over the following year and an average of 9 percent over five years to reach \$41,500. Women earned \$28,700 which rose by 12 percent in the following year and by 7 percent on average over five years to reach \$37,400.
- Five years post study, men's median earnings was 103 percent of national male median earnings and women's was 132 percent of the national median earnings for women.
- The top quarter of young, domestic diploma holders were earning \$49,200 or more a year five years post study, while the lowest quarter earned \$27,600 or less. For men these earnings were \$52,300 and \$29,800 and for women they were \$46,800 and \$26,500.
- There was variation in earnings by field of study. The field with the highest median five years after completion of study was *engineering* (\$49,000, men earned \$51,100 and women earned \$43,800). The top quarter of earners among *engineering* diploma holders earned \$61,700 or more five years after leaving study (men earned \$62,300 and women earned \$53,500).
- Women who completed their diploma in *education* earned most (\$52,300) while men completing diplomas in education earned \$45,500. Earnings were lowest for *food, hospitality and personal services* diploma completers (\$37,300 for men and \$33,700 for women), while the

biggest earnings difference between men and women was for *agriculture, environmental and related studies* diploma completers (\$45,200 for men, \$37,100 for women: 82 percent of male earnings).

- Men earned most after completing diplomas in *engineering and related technologies*.

Destinations

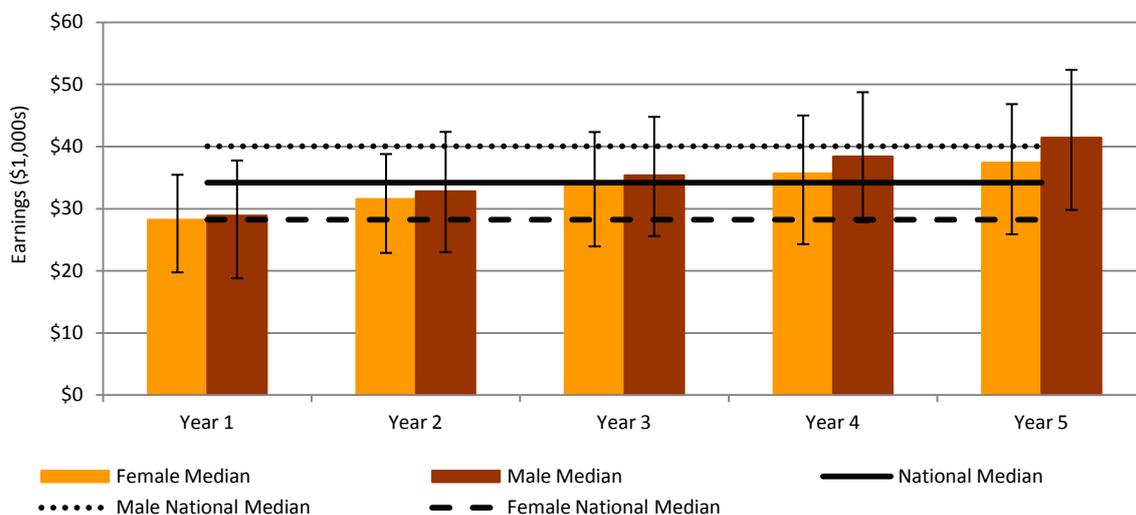
- Thirty seven percent of men and 44 percent of women were in employment in the first year after study and 50 percent of men and 44 percent of women were in further study.
- Five years after finishing study, 53 percent of men and 50 percent of women were employed, and 21 percent of men and 19 percent of women were in further study. Seventeen percent of men and 19 percent of women were overseas.
- The broad field of study with the highest proportion in further study one year after finishing study was *natural and physical sciences* with 56 percent (91 percent of men and 50 percent of women). After five years, the proportion in further study in that field was 24 percent and 19 percent.

Figure 17 shows the earnings for employment in each year after study for diploma completers. Following the pattern at other levels, male incomes increased more across years after study than women's.

Female diploma completers' median earnings increased from at the level of, to well above women's national median earnings, but did not rise above the level of the national median of men's earnings and was only slightly higher than the overall national median after five years.

Figure 17

Median and upper and lower quartile earnings for young domestic diploma completers in the first five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

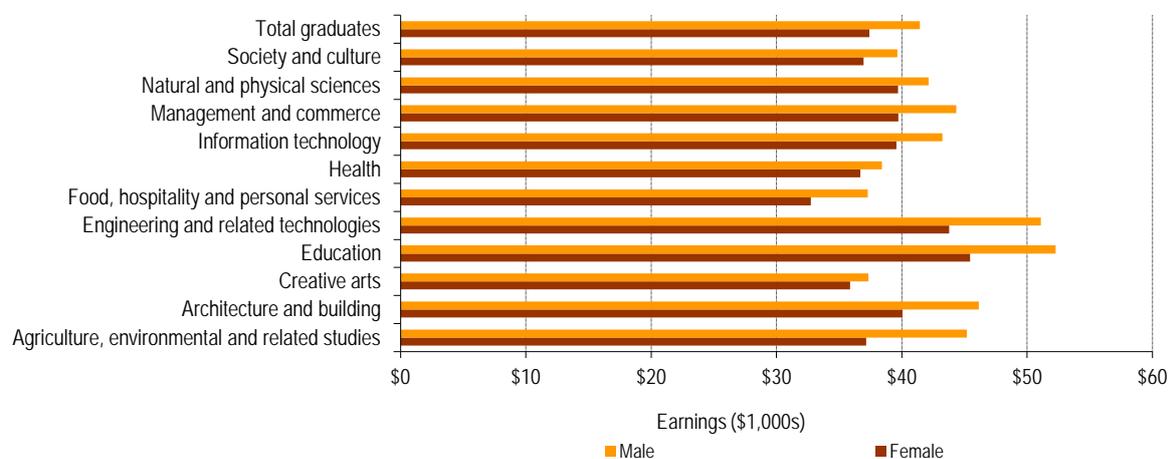
Figure 18 shows the earnings for employment in the fifth year after study for diploma completers. Where the main annual activity was paid employment in year five after study, women's median earnings was 90 percent of men's overall.

All earnings were below \$50,000, except for employed men who studied *engineering and related technologies* and *education*, who had the highest median earnings. Employed men earned over \$40,000 if they completed qualifications in any of 7 broad fields of study, while for women this

number is three. The median earnings difference was narrowest for *creative arts* diploma graduates, with women’s median earnings at 96 percent of men’s. The widest difference occurred for *agriculture environmental and related studies* diploma graduates, where the proportion of women’s to men’s median earnings was 82 percent.

Figure 18

Median earnings of young domestic diploma completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 33 shows earnings one, two and five years after study, by broad field of study and gender. The field associated with the highest median earnings after five years was *education*. Earnings were lowest for *food, hospitality and personal services* diploma completers while the biggest earnings difference between men and women was for *agriculture, environmental and related studies* diploma completers (\$45,200 for men, \$37,100 for women: 82 percent of men’s earnings).

Table 33

Median and quartile annual earnings of young domestic diploma completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	\$40,212	\$43,904	\$58,491	\$35,160	\$35,549	\$45,532
	Median	\$33,543	\$37,009	\$45,181	\$27,713	\$31,289	\$37,148
	Q1	\$27,131	\$25,892	\$33,534	\$16,838	\$22,903	\$25,693
Architecture and building	Q3	\$42,607	\$48,388	\$56,541	\$35,582	\$38,367	\$48,384
	Median	\$35,445	\$37,949	\$46,143	\$30,373	\$33,807	\$40,064
	Q1	\$29,868	\$32,179	\$40,645	\$22,537	\$30,041	\$32,247
Creative arts	Q3	\$32,369	\$36,384	\$46,390	\$32,400	\$36,395	\$44,986
	Median	\$23,065	\$28,987	\$37,347	\$25,773	\$29,708	\$35,878
	Q1	\$14,771	\$18,277	\$25,609	\$16,618	\$20,796	\$22,793
Education	Q3	C..	C..	\$65,430	\$48,588	\$51,280	\$54,927
	Median	\$29,745	\$39,715	\$52,277	\$43,603	\$46,038	\$45,455
	Q1	C..	C..	\$33,853	\$34,667	\$35,736	\$31,441
Engineering and related technologies	Q3	\$49,851	\$51,561	\$62,315	\$34,668	\$43,661	\$53,450
	Median	\$39,070	\$43,325	\$51,104	\$28,162	\$35,222	\$43,781
	Q1	\$29,536	\$32,379	\$38,000	\$18,117	\$25,796	\$31,510
Food, hospitality and personal services	Q3	\$36,387	\$38,815	\$47,008	\$30,651	\$34,687	\$40,187
	Median	\$28,095	\$32,558	\$37,288	\$25,124	\$28,545	\$32,741
	Q1	\$16,067	\$18,293	\$27,930	\$18,515	\$19,886	\$19,768
Health	Q3	\$32,779	\$34,077	\$47,794	\$34,244	\$37,166	\$42,913
	Median	\$23,357	\$27,142	\$38,401	\$29,229	\$31,283	\$36,700
	Q1	\$15,016	\$16,131	\$24,952	\$20,288	\$23,256	\$28,293
Information technology	Q3	\$36,438	\$42,372	\$54,668	\$39,547	\$40,107	\$51,583
	Median	\$28,921	\$33,567	\$43,237	\$30,013	\$34,122	\$39,575
	Q1	\$19,216	\$24,454	\$31,852	\$22,653	\$28,286	\$30,156
Management and	Q3	\$37,716	\$45,154	\$56,358	\$36,000	\$39,482	\$47,917

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
commerce	Median	\$31,121	\$37,287	\$44,350	\$30,992	\$33,242	\$39,723
	Q1	\$23,013	\$29,600	\$33,420	\$23,775	\$26,687	\$30,143
Natural and physical sciences	Q3	C..	C..	\$53,170	\$34,224	\$39,574	\$46,601
	Median	C..	\$30,460	\$42,123	\$29,438	\$30,341	\$39,702
	Q1	C..	C..	\$28,969	\$16,949	\$19,674	\$29,941
Society and culture	Q3	\$32,785	\$41,126	\$49,895	\$31,543	\$37,303	\$47,753
	Median	\$25,547	\$29,991	\$39,633	\$24,530	\$27,207	\$36,945
	Q1	\$14,653	\$17,990	\$25,337	\$15,773	\$17,311	\$24,099
Total graduates	Q3	\$37,729	\$42,349	\$52,322	\$35,447	\$38,778	\$46,818
	Median	\$28,892	\$32,819	\$41,453	\$28,250	\$31,563	\$37,415
	Q1	\$18,782	\$22,990	\$29,776	\$19,738	\$22,864	\$25,859

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 34 shows median earnings in the years after study compared to national median earnings in 2011. Men earned much lower incomes compared to the national median for men than women earned compared to the national median for women. Women who completed diplomas in education earned 161 percent of the female median earnings after five years, while men who completed engineering and related technologies diplomas earned 128 percent of the male national median earnings. Men earned under the male national median earnings in the majority of fields in year one, but this was not the case for women.

Table 34

Median annual earnings of young domestic diploma completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	84	92	113	98	111	132
Architecture and building	88	95	115	108	120	142
Creative arts	58	72	93	91	105	127
Education	74	116	131	154	163	161
Engineering and related technologies	98	108	128	100	125	155
Food, hospitality and personal services	70	81	93	89	101	116
Health	58	68	96	104	111	130
Information technology	72	84	108	106	121	140
Management and commerce	78	93	111	110	118	141
Natural and physical sciences	n/a	76	105	104	107	141
Society and culture	64	75	99	87	96	131
Total graduates	72	82	103	100	112	132

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 35 shows earnings growth in the years after study. Growth was higher for men than for women overall, but this was sometimes the other way, for example, female *engineering and related technologies* diploma completers' earnings grew more over five years than equivalent men's. Women who completed *education* qualifications had the lowest earnings growth by far (one percent over five years), compared to 15 percent growth for men.

Women's earnings grew fastest after completing *engineering and related technologies* qualifications (55 percent over five years), and men's earnings grew fastest if they completed *education* field qualifications (76 percent over five years).

Table 35

Growth in median annual earnings of young domestic diploma completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	10	35	8	13	34	8
Architecture and building	7	30	7	11	32	7
Creative arts	26	62	13	15	39	9
Education	34	76	15	6	4	1
Engineering and related technologies	11	31	7	25	55	12
Food, hospitality and personal services	16	33	7	14	30	7
Health	16	64	13	7	26	6
Information technology	16	49	11	14	32	7
Management and commerce	20	43	9	7	28	6
Natural and physical sciences	n/a	n/a	n/a	3	35	8
Society and culture	17	55	12	11	51	11
Total graduates	14	43	9	12	32	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 36 shows destinations one year after study. Employment and further study were the two most common destinations, with employment and further study at equal rates for women, and further study the most common for men overall. Relatively few diploma completers were overseas by one year after study, and benefit or out of the labour market / multiple category destinations were relatively even.

There were differences between broad fields that are noteworthy. Men were more likely than women to be in further study directly after completing diplomas in *architecture and building*, *health*, *management and commerce*, *engineering and related technologies* and *natural and physical sciences*. Women were in further study at higher rates than men if they completed diplomas in *agriculture*, *environmental and related studies*, *creative arts*, and *education*. Differences in motivations for undertaking and completing qualifications in these fields of study and the decision to undertake immediate further study may be associated with professional aspirations that vary by gender.

Table 36

Destination of young domestic diploma completers one year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	58	62	5	5	33	38	5	5
Architecture and building	57	71	6	4	33	18	6	4
Creative arts	36	35	4	4	47	50	10	9
Education	34	39	9	3	51	55	9	3
Engineering and related technologies	47	50	4	C..	45	41	5	3
Food, hospitality and personal services	60	61	3	7	30	23	9	9
Health	30	54	6	5	59	36	6	6
Information technology	34	42	4	4	50	50	13	8
Management and commerce	36	39	7	9	48	41	7	9
Natural and physical sciences	16	42	C..	8	91	50	5	5
Society and culture	31	33	6	4	55	55	8	9
Total graduates	37	44	4	5	50	44	9	8

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 37 shows the destinations five years after study. A higher proportion of people were in employment and overseas in years five than in year one and a lower proportion were in further study.

Men were slightly more likely to be employed than women, but only in certain fields. Women were slightly more likely to be in further study or overseas than men. Women were also more likely to be on a benefit or out of the labour market than men.

Men were more likely than women to be in employment after five years after completing qualifications in *architecture and building, creative arts, health, information technology, management and commerce, engineering and related technologies, natural and physical sciences and society and culture*.

Table 37

Destination of young domestic diploma completers five year after study by broad field of study and gender

Broad field of study	Employment %		Overseas %		Further study %		Benefit / Other %	
	M	F	M	F	M	F	M	F
Agriculture, environmental and related studies	60	62	13	9	20	23	6	14
Architecture and building	57	50	18	28	25	10	6	10
Creative arts	54	47	16	20	18	20	11	14
Education	47	58	20	14	20	20	8	8
Engineering and related technologies	61	56	20	15	14	15	5	8
Food, hospitality and personal services	44	49	26	20	15	14	11	16
Health	50	49	23	17	20	24	6	9
Information technology	57	53	12	13	18	18	12	18
Management and commerce	56	51	22	22	15	19	7	7
Natural and physical sciences	60	56	18	15	24	19	12	11
Society and culture	48	42	19	18	22	29	9	11
Total graduates	53	50	17	19	19	21	10	11

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

9 OUTCOMES FOR YOUNG LEVEL FOUR CERTIFICATE COMPLETERS

9.1 Introduction

This chapter shows the destinations and earnings of young domestic students who graduated from providers in New Zealand with a certificate at level 4 on the New Zealand Qualifications Framework.

Level 4 certificates

Each year, around 25,000 students complete a level four certificate in the New Zealand tertiary education system, about 61 percent are female and roughly 20 percent of them ‘young’ domestic students, in the way we define that term in this report. Around one in eight recent school leavers entering tertiary education for the first time in 2011 undertook study for a level 4 certificate. Nearly half that group achieved NCEA level 2 before leaving school and around two-thirds had achieved NCEA at level 2 or 3.

The greatest number of level 4 certificates is completed at polytechnics, wānanga and private training establishments.

Level 4 certificates are mostly vocational qualifications that aim to give people practical skills needed in the workforce. They are offered in all of the broad fields of study.

It is important to bear in mind, when reading the analysis below, that we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field. Data on outcomes by narrow field can be found in the tables published on the Education Counts website.

9.2 What we found

Earnings

- In the first year after study, the median earnings in 2011 dollars of all young domestic level four certificate completers was \$25,600. This rose by 14 percent in the following year, and by an average of 9 percent a year over the first five years post study, to reach \$35,500. Men’s earnings were \$27,200, rising 12 percent in the following year and by 8 percent on average over five years to reach \$37,700. Women’s earnings were \$27,200, rising by 14 percent in the following year and by 8 percent on average over five years to reach \$34,300.
- Five years post study, men’s median earnings was 91 percent of national median earnings for men and women’s was 126 percent of women’s national median earnings
- The top three fields for earnings for men in year five were *health* (\$42,200), *engineering and related technologies* (\$41,800), and *architecture and building* (\$38,800). Female level four certificate completers earned most where their main field was *natural and physical sciences* (\$37,600), *mixed field programmes* (\$37,200) and *management and commerce* (\$36,500).
- At the other end of the spectrum, *creative arts* young certificate level 4 holders had median earnings of \$32,600 five years after leaving study (\$33,700 for men and \$32,400 for women), with *food, hospitality and personal services* young level four certificate holders having median earnings of \$33,100 (\$35,500 for men and \$32,400 for women).

Destinations

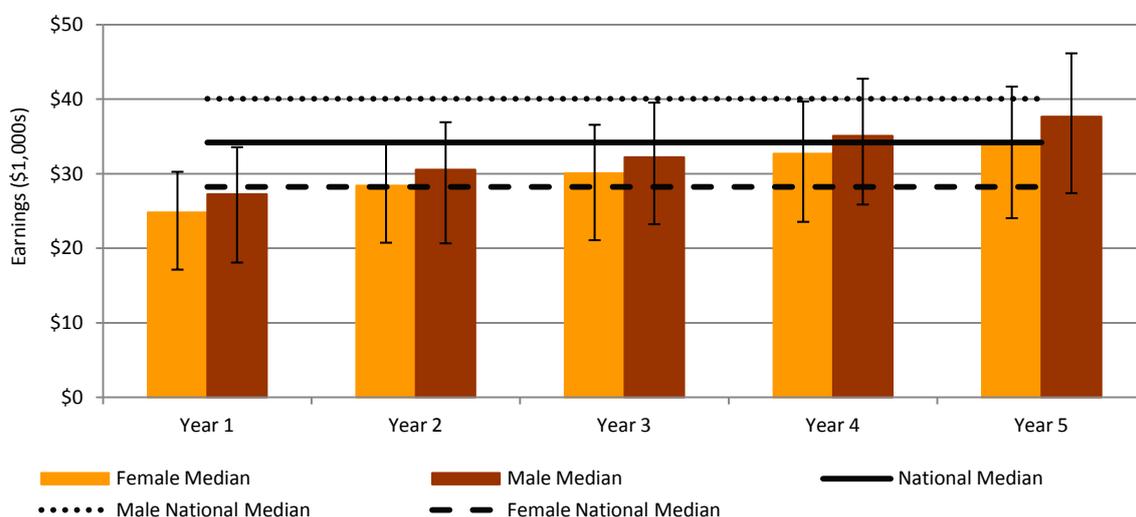
- Employment destinations were higher for men than for women. Thirty eight percent of men were employed one year after study compared to 32 percent of women.

- Women (51 percent) were slightly more likely to be in further study than men (48 percent) in the first year after study. Level four certificate holders in *education, creative arts, mixed field programmes, society and culture* and *natural and physical sciences* had high rates of further study in year one. Male *information technology* graduates undertook further study at over twice the rate of equivalent women.
- Five years after finishing study, men (50 percent) were more likely to be in employment than women (43 percent). Women were more likely to be on a benefit or out of the labour market than men (15 percent compared to 5 percent).

Figure 19 shows the earnings for employment in each year after study. Median earnings for men were higher than for women in year one, and this difference remained through to year five after study. Median earnings did not surpass the national median earnings until four years after study, and women’s earnings reached it five years after. Earnings did not reach the level of male national median earnings in any year after study. Women’s median earnings was below women’s national median earnings in year one, and rose above them in year three.

Figure 19

Median and upper and lower quartile earnings for young domestic level four certificate completers in the first five years after study by gender



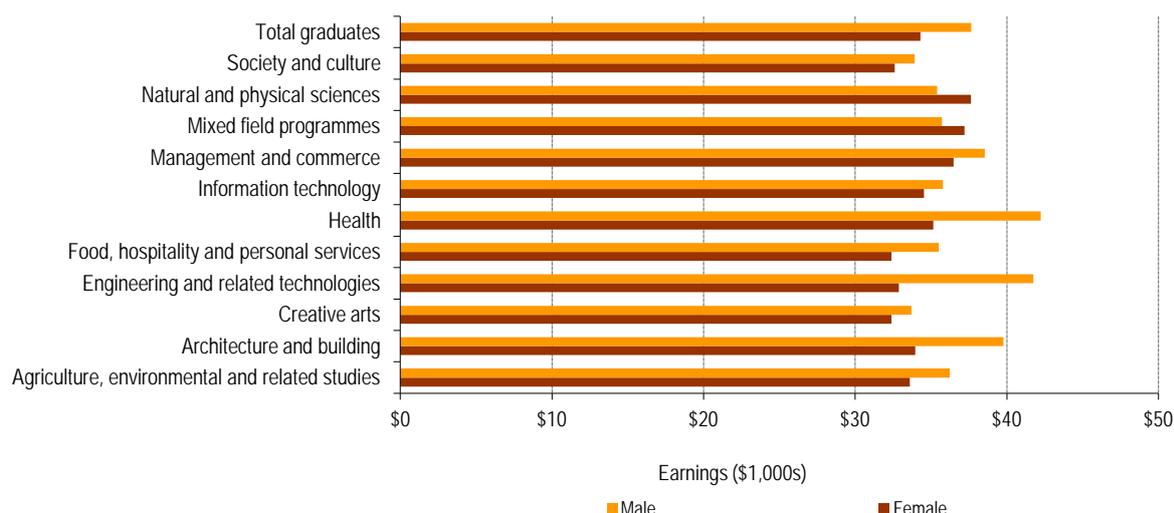
Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 20 shows the earnings for employment in the fifth year after study for diploma completers. Women’s earnings were 91 percent of men’s overall and women’s earnings were greater than men’s in only two fields: *mixed field programmes*, and *natural and physical sciences* (104 percent and 106 percent respectively).

Men who completed certificates in *health* had the highest earnings five years after study, and women’s earnings were 83 percent of men’s. The greatest difference in earnings was for engineering and related technologies graduates, with women earning 79 percent of men.

Figure 20

Median earnings of young domestic level four certificate completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 38 shows earnings one, two and five years after study, by broad field of study and gender. Men’s median earnings was \$37,700 five years after completing a level four certificate, compared to women’s earnings of \$34,300 (91 percent). The top three fields for earnings for men in year five were *health* (\$42,200), *engineering and related technologies* (\$41,700) and *architecture and building* (\$39,800).

Female level four certificate completers earned most where their main field was *natural and physical sciences* (\$37,600), *mixed field programmes* (\$37,200) and *management and commerce* (\$36,500).

Table 38

Median and quartile annual earnings of young domestic level four certificate completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	\$33,831	\$39,521	\$46,008	\$29,130	\$33,102	\$41,134
	Median	\$28,398	\$32,926	\$36,218	\$22,677	\$28,098	\$33,599
	Q1	\$16,793	\$19,617	\$23,669	\$14,305	\$22,227	\$24,834
Architecture and building	Q3	\$33,893	\$36,224	\$46,530	C..	C..	C..
	Median	\$28,665	\$31,078	\$39,771	\$21,453	\$25,180	\$33,957
	Q1	\$21,136	\$24,064	\$31,476	C..	C..	C..
Creative arts	Q3	\$27,473	\$34,063	\$41,901	\$27,714	\$33,120	\$39,100
	Median	\$19,675	\$25,392	\$33,705	\$20,873	\$27,816	\$32,388
	Q1	\$12,601	\$15,920	\$24,060	\$13,949	\$18,277	\$22,700
Engineering and related technologies	Q3	\$36,930	\$42,310	\$50,924	\$30,472	\$34,494	\$41,074
	Median	\$29,398	\$33,751	\$41,751	\$25,675	\$29,520	\$32,866
	Q1	\$21,156	\$25,553	\$32,007	\$18,872	\$24,124	\$22,907
Food, hospitality and personal services	Q3	\$33,379	\$36,605	\$45,971	\$29,528	\$32,467	\$39,151
	Median	\$26,391	\$30,309	\$35,506	\$24,229	\$27,390	\$32,393
	Q1	\$18,421	\$19,462	\$27,343	\$17,394	\$20,638	\$20,637
Health	Q3	\$30,112	\$31,941	\$54,416	\$32,244	\$35,522	\$43,742
	Median	\$19,773	\$20,839	\$42,234	\$25,102	\$30,758	\$35,139
	Q1	\$14,758	\$15,632	\$30,563	\$15,746	\$22,534	\$25,293
Information technology	Q3	\$32,791	\$35,172	\$47,217	\$31,868	\$36,363	\$42,579
	Median	\$25,615	\$30,501	\$35,789	\$28,326	\$30,116	\$34,528
	Q1	\$18,047	\$20,032	\$24,470	\$18,384	\$20,639	\$30,609
Management and commerce	Q3	\$32,215	\$37,111	\$48,849	\$31,925	\$35,545	\$42,818
	Median	\$26,783	\$30,621	\$38,545	\$26,728	\$29,886	\$36,485
	Q1	\$18,036	\$22,033	\$29,108	\$19,854	\$23,179	\$28,003
Mixed field programmes	Q3	\$29,182	\$31,547	\$44,144	\$25,209	\$31,074	\$46,511
	Median	\$20,197	\$23,503	\$35,729	\$20,641	\$24,073	\$37,197
	Q1	\$13,434	\$17,035	\$27,474	\$13,805	\$13,426	\$27,394

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Natural and physical sciences	Q3	C..	C..	\$45,503	\$28,855	\$29,854	\$42,633
	Median	C..	C..	\$35,401	\$24,840	\$21,975	\$37,638
	Q1	C..	C..	\$26,431	\$13,183	\$13,652	\$23,670
Society and culture	Q3	\$30,768	\$35,117	\$42,980	\$27,342	\$32,579	\$41,786
	Median	\$20,053	\$23,764	\$33,915	\$19,757	\$26,112	\$32,605
	Q1	\$12,547	\$13,612	\$21,750	\$13,177	\$14,931	\$22,712
Total graduates	Q3	\$33,602	\$36,943	\$46,185	\$30,292	\$34,056	\$41,719
	Median	\$27,246	\$30,538	\$37,651	\$24,825	\$28,404	\$34,301
	Q1	\$18,116	\$20,696	\$27,431	\$17,168	\$20,780	\$24,075

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 39 shows median earnings in the years after study compared to national median earnings in 2011. Men earned above the national median earnings for men after five years if they completed a level four certificate in *health*. For women, this was true of all fields barring *engineering and related technologies*.

Table 39

Median annual earnings of young domestic level four certificate completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related	71	82	90	80	99	119
Architecture and building	72	78	99	76	89	120
Creative arts	49	63	84	74	99	115
Engineering and related technologies	31	40	60	49	65	80
Food, hospitality and personal services	66	76	89	86	97	115
Health	49	52	105	73	109	124
Information technology	64	76	89	100	107	122
Management and commerce	67	76	96	95	106	129
Mixed field programmes	50	59	89	73	85	132
Natural and physical sciences	n/a	n/a	88	88	78	133
Society and culture	50	59	85	70	92	115
Total graduates	68	76	94	88	101	121

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 40 shows earnings growth in the years after study. Women's earnings growth was slightly higher than men's in the first year, and men's median earnings rose equal to women's over five years (38 percent), but given that women's earnings were initially lower than men's, these increases meant women's earnings did not equalise or overtake men's.

Table 40

Growth in median annual earnings of young domestic level four certificate completers, over the first five years after study by broad field of study and gender

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	16	28	6	24	48	10
Architecture and building	8	39	9	17	58	12
Creative arts	29	71	14	33	55	12
Engineering and related technologies	15	42	9	15	28	6
Food, hospitality and personal services	15	35	8	13	34	8
Health	5	114	21	23	40	9

Broad field of study	Men %			Women %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Information technology	19	40	9	6	22	5
Management and commerce	14	44	10	12	37	8
Mixed field programmes	16	77	15	17	80	16
Natural and physical sciences	n/a	n/a	n/a	-12	52	11
Society and culture	19	69	14	32	65	13
Total graduates	12	38	8	14	38	8

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. N/a denotes a calculation could not be made based on a suppressed numerator or denominator. Refer to Chapter 12 for full notes.

Table 41 shows the destinations one year after study. Men were more likely to be in employment than women, and women were slightly more likely to be in further study than men.

Further study was the most common outcome overall. Some fields of study were associated with very high rates of further study, such as *natural and physical sciences*, and *mixed field programmes*. Further study would be necessary for any vocational application, as a lack of availability of lower-level science based jobs in respect to the former, and the generic nature of the latter mean they are transitory qualifications. They do not facilitate entry to work as immediately as other fields (as shown by their very low employment rates) because they do not provide specific vocational skills that employers require at this level.

Creative arts, education, health and information technology broad fields were also associated with high rates of further study although the latter was not so much for women as for men. Women completing certificates in *information technology* were more than twice as likely as men to be in paid employment.

Male *architecture and building* completers were more likely to be working and less likely to be in further study than women in year one. There may be differences in narrow fields that make up this broad field, and this explored further in chapter 11.

Due to greater numbers of graduates on a benefit or out of the labour force after completing qualifications at lower levels, it is possible to further disaggregate the benefit and out of the labour force category into separate benefit and out of the labour force status categories. Benefit receipt was high for *food, hospitality and personal services graduates*, especially for women; and for men completing *agriculture, environmental and related studies* level four certificates.

Table 41

Destination of young domestic level four certificate completers one year after study by broad field of study and gender

	Employment %		Overseas %		Further study %		Benefit %		Other %	
	M	F	M	F	M	F	M	F	M	F
Agriculture, environmental and related	38	46	2	5	30	46	20	9	12	2
Architecture and building	61	43	3	9	22	43	8	9	4	C..
Creative arts	22	18	3	2	64	72	8	5	3	2
Education	23	27	C..	2	75	67	8	2	0	0
Engineering and related technologies	52	57	3	7	33	26	7	11	5	2
Food, hospitality, personal services	50	47	4	5	32	33	10	15	3	5
Health	17	26	5	2	71	64	5	5	C..	1
Information technology	21	48	2	4	64	30	7	13	3	5
Management and commerce	40	44	4	4	43	35	8	10	5	3
Mixed field programmes	10	7	3	2	88	86	1	3	1	2
Natural and physical sciences	6	9	C..	1	87	82	4	3	C..	1
Society and culture	19	15	3	2	71	77	4	6	4	2

Total graduates	Employment %		Overseas %		Further study %		Benefit %		Other %	
	38	32	3	4	48	51	8	9	4	3

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 42 shows the destinations of level four certificate completers five years after study. Employment was the most common destination, followed by further study and overseas. The difference between male and female employment destinations was 7 percentage points compared to 6 after one year. There were significant differences in employment rates between men and women for *information technology, architecture and building, society and culture, education, food and personal services* and *engineering and related technologies* graduates.

Women were more likely to be in employment than equivalent men after completing certificates in *education, management and commerce*, and *natural and physical sciences* fields only. Women were more likely than men to be in further study after completing certificates in *agriculture, environmental and related studies, architecture and building, education, health, society and culture* and *information technology* fields, and but the overall further study difference between men and women was smaller than it was for employment.

Further study rates declined between year one and year five, and were similar between men and women overall. Women were more likely to be in receipt of a benefit than men particularly after completing certificates in *food, hospitality and personal services, society and culture, engineering and related technologies* and *architecture and building*. Overseas rates were comparable, but differences were high in fields such as *education, food, hospitality and personal services, health* and *information technology*.

Table 42

Destination of young domestic level four certificate completers five year after study by broad field of study and gender

	Employment %		Overseas %		Further study %		Benefit %		Other %	
	M	F	M	F	M	F	M	F	M	F
Agriculture, environmental and related	61	47	11	13	14	26	11	6	5	3
Architecture and building	63	38	12	15	15	30	3	8	5	C..
Creative arts	46	42	15	16	25	29	8	8	5	4
Education	25	36	25	8	25	41	0	11	0	5
Engineering and related technologies	52	46	14	17	22	19	9	12	5	7
Food, hospitality, personal services	56	48	25	16	14	17	2	11	5	8
Health	47	45	17	12	27	35	6	5	2	4
Information technology	54	36	9	13	21	36	14	13	2	4
Management and commerce	50	51	17	15	27	21	3	8	3	5
Mixed field programmes	36	36	14	14	43	39	3	5	4	4
Natural and physical sciences	28	32	10	12	50	47	C..	5	C..	4
Society and culture	44	33	17	14	31	35	5	11	6	5
Total graduates	50	43	15	15	24	27	5	9	5	5

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

10 OUTCOMES FOR YOUNG PEOPLE WHO COMPLETE LEVEL ONE TO THREE CERTIFICATES

10.1 Introduction

This chapter looks at the destinations and earnings of young domestic students who graduated from providers in New Zealand with a certificate at levels one, two or three on the New Zealand Qualifications Framework.

Level one to three certificates

Each year, around 48,000 students complete a level one to three certificate in the New Zealand tertiary education system, about 58 percent are female and roughly 19 percent of them ‘young’ domestic students, in the way we define that term in this report. Around one in six recent school leavers entering tertiary education for the first time in 2011 undertook study for a level one to three certificate at a tertiary education provider¹⁴. Around half had left school with NCEA level one or lower, while about 40 percent had achieved NCEA at level two.

Around a half of level one to three certificates is completed at polytechnics with wānanga and private training establishments accounting for the rest in roughly equal proportions.

While some level one to three certificates are vocational qualifications that aim to give people practical skills needed in the workforce, many are foundation qualifications whose purpose is to provide basic and generic skills that can be used in work or as the basis of further, higher level study.

Level one to three certificates are offered in most of the broad fields of study – there were no broad fields with insufficient young completers for us to report on in this paper. It is important to bear in mind, when reading the analysis below, we are looking at *broad* fields of study. There are differences between narrow fields of study that are not apparent when we look at data on broad field. Data on outcomes by narrow field for level one to three certificate completers can be found in Chapter 11 of this report and in the tables published on the Education Counts website.

10.2 What we found

Earnings

- In the first year after study, the median earnings in 2011 dollars of all young domestic level one to three certificate completers was \$24,900. This rose by 13 percent in the following year, and by an average of 9 percent a year over the first five years post study, to reach \$34,900. Men’s earnings were \$26,500 rising by 13 percent in the following year and an average of 9 percent over five years to reach \$37,700. Women’s earnings were \$23,400, rising 14 percent across the first year and an average of 8 percent across five years to \$31,800.
- Five years post study, men’s median earnings was 94 percent of men’s national median earnings and women’s median earnings was 113 percent of women’s national median earnings.
- The top quarter of young certificate one to three completers were earning \$44,400 or more a year (\$47,300 for men and \$40,200 for women), while the lowest quarter earned \$24,300 or less (\$26,900 for men and \$21,700 for women).

¹⁴ This excludes those in industry training and in Youth Guarantee

- There was variation in earnings by field of study. The field associated with the highest median earnings five years after completion of study was *engineering and related technologies* (\$41,400 overall, \$42,400 for men and \$35,600 for women).
- At the other end of the scale, *food, hospitality and personal services* young certificate one to three completers had median earnings of \$31,100 (\$33,800 for men and \$30,400 for women) five years after leaving study, and *information technology* and *society and culture* certificate holders had median earnings of \$32,700 (\$34,400 for men and \$29,600 for women) and \$31,500 (\$34,200 for men and \$29,000 for women) respectively.

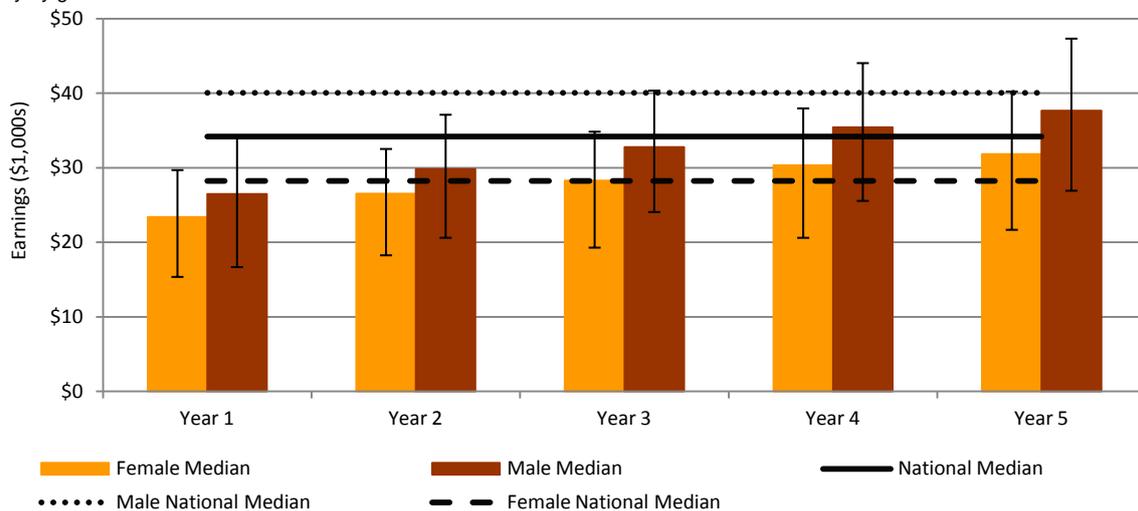
Destinations

- Thirty six percent of men and 31 percent of women were employed in the first year after study. Further study was the main activity of 46 percent of men and 49 percent of women. Fourteen percent of men and 18 percent of women were drawing a benefit and /or labour market inactive, of which 13 percent of women and 8 percent of men were drawing a benefit. Out of the labour market status was similar for both men and women.
- Five years after finishing study, 51 percent of men and 39 percent of women were employed. Twenty five percent of men and 26 percent of women were in further study. Nearly double the proportion of women than men were drawing a benefit. Thirteen percent of female graduates were overseas, compared to 11 percent of men.
- The broad field of study associated with the highest proportion of completers in further study one year after study was *natural and physical sciences* with 85 percent. After five years, the proportion in further study in that field was 30 percent of men and 33 percent of women.
- Many level one to three certificates are intended to provide a pathway to higher level study. This orientation is reflected in the high proportions in further study.

Figure 21 shows the median earnings for employment in each year after study. Men’s earnings grew more over the five years after study than women’s so men’s earnings were above the national median in year four, but women’s median earnings was not. Women’s earnings did rise above the female national median income by year four, and men’s median earnings did not rise above the male national median income.

Figure 21

Median and upper and lower quartile earnings for young domestic level one to three certificate completers in the first five years after study by gender

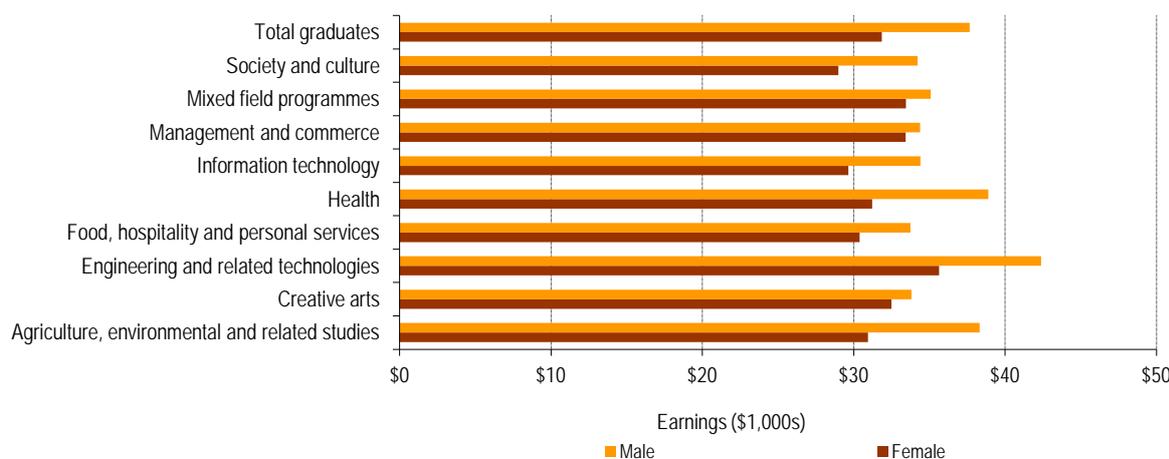


Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Error bars show the top quartile and lower quartile earnings. Refer to Chapter 12 for full notes.

Figure 22 shows the median earnings for employment in the fifth year after study. Women’s earnings were 85 percent of men’s in year five overall. The earnings difference was narrowest for *management and commerce* (women’s median earnings was 97 percent of men’s) and *creative arts* (96 percent) completers, and widest for *engineering and related technologies* (84 percent) *agriculture, environmental and related studies* (81 percent), *health* (80 percent) and *information technology* (86 percent) completers. Women who gained *society and culture* certificates earned the least after five years, at \$29,000, which was below the national median wage of \$34,200.

Figure 22

Median earnings of young domestic level one to three certificate completers five years after study by gender



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Refer to Chapter 12 for full notes.

Table 43 shows earnings one, two and five years after study, by broad field of study and gender. Male *engineering and related technologies* graduates earned \$42,400 in year five compared to \$35,600 for

women (84 percent of men's median earnings). Other fields with high earnings for men were *health* (\$38,900), *agriculture, environmental and related studies* (\$38,300) and *management and commerce* (\$34,400). The top four fields for women were *mixed field programmes* and *management and commerce* (\$33,400), *creative arts* (\$32,500), *health* (\$31,200) and *agriculture, environmental and related studies* (\$31,000).

Table 43

Median and quartile annual earnings of young domestic level one to three certificate completers, one, two and five years after study by broad field of study and gender

Broad field of study	Measure	Men - Years after study			Women - Years after study		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Q3	\$36,629	\$39,461	\$46,941	\$29,968	\$31,868	\$37,592
	Median	\$27,796	\$32,005	\$38,305	\$21,714	\$23,813	\$30,950
	Q1	\$15,507	\$22,954	\$27,273	\$12,202	\$15,163	\$21,059
Creative arts	Q3	\$29,973	\$30,733	\$41,745	\$29,679	\$33,522	\$40,555
	Median	\$21,583	\$23,372	\$33,810	\$24,119	\$26,992	\$32,486
	Q1	\$13,333	\$13,388	\$23,694	\$15,964	\$16,966	\$23,515
Engineering and related technologies	Q3	\$34,659	\$38,198	\$51,915	\$29,239	\$34,156	\$41,139
	Median	\$28,200	\$31,089	\$42,375	\$23,656	\$28,010	\$35,638
	Q1	\$19,272	\$23,245	\$31,247	\$15,197	\$20,305	\$24,093
Food, hospitality and personal services	Q3	\$29,200	\$32,441	\$40,479	\$27,008	\$29,806	\$37,574
	Median	\$22,233	\$26,774	\$33,755	\$21,295	\$24,408	\$30,387
	Q1	\$14,455	\$19,294	\$23,076	\$14,400	\$17,195	\$20,799
Health	Q3	\$42,357	\$43,204	\$49,005	\$30,292	\$32,508	\$39,075
	Median	\$29,899	\$32,082	\$38,893	\$23,823	\$25,230	\$31,221
	Q1	\$18,152	\$23,196	\$28,122	\$16,793	\$17,993	\$19,266
Information technology	Q3	\$32,554	\$33,499	\$42,639	\$30,672	\$29,860	\$39,319
	Median	\$24,405	\$21,142	\$34,400	\$24,895	\$24,809	\$29,641
	Q1	\$15,225	\$13,388	\$21,241	\$17,355	\$18,191	\$18,898
Management and commerce	Q3	\$34,610	\$36,875	\$43,893	\$30,911	\$34,467	\$41,386
	Median	\$26,575	\$30,208	\$34,386	\$25,556	\$28,782	\$33,417
	Q1	\$17,037	\$21,168	\$23,829	\$17,520	\$21,003	\$22,890
Mixed field programmes	Q3	\$30,122	\$33,828	\$46,318	\$27,970	\$31,257	\$44,429
	Median	\$22,318	\$22,036	\$35,074	\$19,472	\$24,748	\$33,441
	Q1	\$14,050	\$14,399	\$20,676	\$13,838	\$16,600	\$20,984
Society and culture	Q3	\$31,080	\$34,913	\$43,941	\$28,073	\$30,020	\$39,003
	Median	\$21,112	\$25,322	\$34,208	\$20,541	\$23,521	\$28,992
	Q1	\$12,044	\$14,461	\$22,352	\$12,771	\$15,270	\$19,782
Total graduates	Q3	\$34,098	\$37,124	\$47,332	\$29,702	\$32,533	\$40,241
	Median	\$26,466	\$29,800	\$37,651	\$23,382	\$26,543	\$31,846
	Q1	\$16,684	\$20,623	\$26,930	\$15,374	\$18,271	\$21,688

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 44 shows median earnings in the years after study compared to national median earnings for men and women in 2011. Male level one to three certificate graduates earned above the male national median earnings five years after study in only one field (*engineering and related technologies*), while women earned above women's national median earnings after completing in all broad fields.

Table 44

Median annual earnings of young domestic level one to three certificate completers, one, two and five years after study, as a percentage of the national median earnings by gender by broad field of study and gender

Broad field of study	Men - Years after study %			Women - Years after study %		
	One	Two	Five	One	Two	Five
Agriculture, environmental and related	69	80	96	77	84	110
Creative arts	54	58	84	85	9	115
Engineering and related technologies	70	78	106	84	99	126
Food, hospitality and personal services	56	67	84	75	86	108
Health	75	80	97	84	89	111
Information technology	61	53	86	88	88	105
Management and commerce	66	75	86	90	102	118
Mixed field programmes	56	55	88	69	88	118
Society and culture	53	63	85	73	83	103
Total graduates	66	74	94	83	94	113

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 45 shows earnings growth in the years after study. Men's and women's median earnings grew at reasonably comparable rates overall, with women's earnings a little behind men's. Men who completed *information technology* certificates earnings' grew twice as fast as equivalent women's.

For some fields earnings grew strongly in the first year but more slowly over subsequent years, including *agriculture, environmental and related, creative arts, and food, hospitality and personal services*, perhaps reflecting their direct vocational utility for young people entering the labour market for the first time.

Table 45

Growth in median annual earnings of young domestic level one to three certificate completers, over the first five years after study by broad field of study and gender

Broad field of study	Male %			Female %		
	Over the first year	Over the first five years	Average annual growth over the first five years	Over the first year	Over the first five years	Average annual growth over the first five years
Agriculture, environmental and related studies	15	38	8	10	43	9
Creative arts	8	57	12	12	35	8
Engineering and related technologies	10	50	11	18	51	11
Food, hospitality and personal services	20	52	11	15	43	9
Health	7	30	7	6	31	7
Information technology	-13	41	9	0	19	4
Management and commerce	14	29	7	13	31	7
Mixed field programmes	-1	57	12	27	72	14
Society and culture	20	62	13	15	41	9
Total graduates	13	42	9	14	36	8

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 46 shows the destinations one year after study. Further study was the most common destination, followed by employment and benefit receipt. Employment rates were slightly lower for women than for men overall and further study rates were also close.

Women were more likely to be receiving a benefit than men. *Mixed field programmes* were associated with higher employment for men and higher further study destinations for women one year after study. Male *health* certificate completers were much more likely than equivalent women to be in employment in year one, as women were much more likely than men to go on to further study.

Table 46

Destination of young domestic level one to three certificate completers one year after study by broad field of study and gender

	Employment %		Overseas %		Further study %		Benefit %		Other %	
	M	F	M	F	M	F	M	F	M	F
Agriculture, environmental and related	42	36	3	2	41	45	8	10	8	6
Architecture and building	45	C..	3	0	38	48	7	24	6	12
Creative arts	23	29	2	3	60	53	11	9	3	3
Engineering and related technologies	39	31	3	5	48	50	6	13	3	4
Food, hospitality, personal services	35	28	3	3	46	50	11	14	5	4
Health	48	29	3	3	37	55	4	9	3	3
Information technology	19	16	3	3	52	54	12	20	6	5
Management and commerce	30	37	5	4	51	44	11	14	6	3
Mixed field programmes	26	17	2	3	44	54	17	22	8	4
Natural and physical sciences	0	8	0	C..	83	80	0	0	0	C..
Society and culture	25	31	4	4	53	54	11	14	8	5
Total graduates	36	31	3	4	46	49	8	13	5	4

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 47 shows the destinations five years after study. Men were over 10 percentage points more likely than women to be in employment, while women were more likely than men to be drawing a benefit or be overseas. Further study and out of the labour market rates were comparable overall.

Men were more likely to be employed (than women) five years after completing certificates in all fields except *natural and physical sciences*. Benefit rates for women were high after completing *architecture and building*, *information technology*, *mixed field programmes*, *food, hospitality and personal services*, *engineering and related technologies* and *health* certificates.

Table 47

Destination of young domestic level one to three certificate completers five years after study by broad field of study and gender

	Employment %		Overseas %		Further study %		Benefit %		Other %	
	M	F	M	F	M	F	M	F	M	F
Agriculture, environmental and related	57	46	8	8	21	28	8	9	5	6
Architecture and building	63	40	8	0	21	40	5	20	3	0
Creative arts	47	46	13	15	24	27	9	8	4	6
Engineering and related technologies	56	39	12	13	23	30	6	14	5	3
Food, hospitality, personal services	54	42	19	14	16	18	8	16	4	6
Health	59	44	9	10	20	27	7	12	5	8
Information technology	44	21	6	9	30	33	17	24	6	6
Management and commerce	41	41	11	14	34	26	6	14	9	6
Mixed field programmes	38	29	11	13	30	29	16	22	6	8
Natural and physical sciences	36	44	12	15	36	31	C..	C..	0	4
Society and culture	43	33	14	11	27	33	10	14	7	8
Total graduates	51	39	11	13	25	26	8	15	6	7

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. Note that the sum across categories can be less or greater than 100 percent due to graduated random rounding. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

11 A FOCUS ON OUTCOMES BY NARROW FIELD OF STUDY

11.1 Looking at narrow fields of study

Chapters 3 to 10 of this report present the outcomes for young graduates by broad field of study. A limitation of that approach is that some broad fields are very diverse and include quite different areas of study that may have quite different outcomes.

For instance, the broad field of *health* contains narrow fields of *medicine*, *nursing*, *pharmacy* and *rehabilitation therapies*. The main qualifications for medicine and nursing are bachelors degrees. But to qualify in medicine takes six years of full-time study, while nursing is a three-year degree. The salaries paid to newly qualified doctors are higher than those of newly qualified nurses. And the pathway into study for nursing is different to the pathway to medicine.

The broad field of *society and culture* contains narrow fields of *law*, *economics* and *sport and recreation*. These three narrow fields have quite different outcomes and require different preparation before study.

When we present the analysis by broad field of study, we are averaging out these differences in outcomes. Some people have particular strengths or interests in one narrow field but not another – for instance, a person who is keen to study sports but doesn't have an interest in or the preparatory subjects for economics. So it's useful to look at outcomes by narrow field.

But there are limitations to reporting narrow field outcome information. When we divide up a broad field, we get smaller numbers of young domestic graduates in each narrow field. Sometimes the numbers are too few to give meaningful information; or it may be possible to uncover the person or provider that information belongs to. It is essential we guard against the risk of revealing private information.

In this chapter we present outcomes data by narrow field of study for young domestic graduates who have completed bachelors degrees and level one to three certificates – the two biggest levels of study for school leavers who enter a tertiary education provider. Data on outcomes by narrow field in other levels of study is available on Education Counts (www.educationcounts.govt.nz) and the Careers New Zealand website at: www.careers.govt.nz.

11.2 Outcomes by narrow field for bachelors graduates

Earnings

- Young bachelors completers in *medical studies* earned the most five years post study, at \$109,300 (men earned \$113,800 and women earned \$105,600). These were followed by *pharmacy* (\$74,300 in total, \$74,700 for men and \$73,800 for women), *veterinary studies* (\$57,500 for men and \$66,100 for women). The five year *dental studies* (\$65,700 in total) field was not large enough to release separate gender data, but earnings data for year two for *dental studies* (\$86,600 for men and \$65,000 for women) show similar differences (men earning more than women as above) between men and women.
- At the other end of the spectrum, *performing arts* (\$33,800 in total, \$30,300 for men and \$35,700 for women), and *visual arts and crafts* (\$39,300 in total, \$38,300 for men and \$40,500 for women) young bachelors graduates had the lowest median earnings five years after leaving study.

- Young *pharmacy* bachelors graduates had the highest wage growth over the first five years, averaging 17 percent each year after study (18 percent for men and 16 percent for women). Pharmacy graduates' median earnings rate was relatively low compared to the national median one year post study, but grew by 62 percent overall (72 percent for men and 59 percent for women) to the second year after study.
- Earnings growth over five years was highest for women completing bachelors level qualifications in *environmental studies* (137 percent), *pharmacy* (82 percent), *earth sciences* (80 percent), *other management and commerce* and *other health* (55 percent), *performing arts* (59 percent) and *visual arts and crafts* (57 percent).
- The highest earnings growth for men occurred after completing bachelors level qualifications in *pharmacy* (92 percent over five years), *visual arts and crafts* (84 percent), *biological sciences* (73 percent), *graphic and design studies* (68 percent), and *environmental studies* (66 percent).
- Women earned more than men five years after study if they completed degrees in *justice and law enforcement* (19 percent more), *performing arts* (18 percent), *veterinary studies* (15 percent), *rehabilitation therapies* (13 percent more) *geomatic engineering* (11 percent more), *earth sciences* (10 percent), *visual arts and crafts* (6 percent more), and *political science and policy studies* (1 percent). Men earned more than women in the remaining fields.
- The widest difference in earnings occurred for *building* bachelors completers, where women's median earnings was 17 percent lower than men's. This was followed by *nursing* (14 percent less), *business and management* (13 percent less), *accountancy* (13 percent less), *curriculum and education studies* (12 percent less) and *sales and marketing* (11 percent less).
- The narrow fields with the least differences between men and women were *information systems*, *behavioural science*, *political science and policy studies*, *pharmacy*, *agriculture*, and *architecture and building*.

Destinations

- There were some high employment rate differences by narrow field five years after study. Women were employed at much higher rates than men five years after completing bachelors level qualifications in *radiography* and *tourism* (17 percentage points difference), *nursing* (14 percentage points), *public health* (10 percentage points), *chemical sciences* (9 percentage points), *justice and law enforcement* and *other society and culture* (8 percentage points) narrow fields.
- Men were much more likely than women to be employed five years after completing bachelors qualifications in *other information technology* (20 percentage points), *agriculture* (17 percentage points), *building* (16 percentage points) *information systems* (9 percentage points), and *horticulture and viticulture* (8 percentage points) narrow fields.
- There were some substantial further study rate differences by narrow field five years after study. Women were in further study at much higher rates than men five years after completing bachelors level qualifications in *other information technology* (14 percentage points) *agriculture* (8 percentage points), and *curriculum and education* and *medical studies* (6 percentage points) narrow fields.
- Men were much more likely than women to be in further study five years after completing bachelors qualifications in *horticulture and viticulture* (25 percentage points), *chemical sciences* (16 percentage points) *nursing* and *process and resource engineering* (13 percentage points) narrow fields.

- Overseas status was high for women compared to men five years after completing qualifications in *building* (8 percentage points), *computer science* (11 percentage points), and *performing arts* and *information systems* (6 percentage points) narrow fields.
- Men were more likely to be overseas than women after completing bachelors level qualifications in *curriculum and education studies* (14 percentage points), *radiography* (13 percentage points) and *tourism, medical studies* and *other health* (11 percentage points) narrow fields.
- There were no great differences between men and women in benefit receipt and / or labour market inactive / multiple category status for bachelors degree completers five years after study.

Table 48

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

Broad field	Narrow field of study	Men			Women		
		Year 1	Year 2	Year 5	Year 1	Year 2	Year 5
Agriculture, environmental and related studies	Total	\$39,814	\$47,781	\$51,273	\$31,402	\$40,964	\$48,984
	Agriculture	\$40,347	\$47,678	\$49,392	\$34,519	\$43,442	\$48,250
	Environmental Studies	\$32,769	\$49,740	\$54,287	\$21,159	\$45,202	\$50,251
	Horticulture and Viticulture	\$38,863	\$39,686	C..	\$33,155	\$30,980	\$48,849
Architecture and building	Total	\$36,827	\$41,251	\$49,639	\$33,868	\$40,729	\$47,241
	Architecture and Urban Environment	\$33,257	\$40,741	\$47,442	\$33,503	\$40,287	\$46,488
	Building	\$43,795	\$48,744	\$62,293	\$41,276	\$41,670	\$51,989
Creative arts	Total	\$27,254	\$34,930	\$41,380	\$28,729	\$34,640	\$41,594
	Communication and Media Studies	\$30,850	\$37,092	\$47,053	\$32,977	\$38,456	\$45,665
	Graphic and Design Studies	\$26,510	\$35,322	\$44,455	\$28,030	\$34,685	\$41,358
	Performing Arts	\$21,893	\$27,364	\$30,268	\$22,443	\$27,137	\$35,701
	Visual Arts and Crafts	\$20,895	\$30,736	\$38,343	\$25,731	\$31,134	\$40,519
Education	Total	\$44,853	\$47,603	\$54,767	\$44,773	\$46,282	\$50,286
	Curriculum and Education Studies	\$44,731	\$47,772	\$55,821	\$44,404	\$46,359	\$49,324
	Teacher Education	\$45,288	\$47,603	\$54,774	\$44,791	\$46,378	\$50,624
Engineering and related technologies	Total	\$41,873	\$47,110	\$57,834	\$37,142	\$40,885	\$55,554
	Electrical and Electronic Engineering..	\$39,104	\$45,257	\$58,609	C..	C..	\$62,013
	Geomatic Engineering	\$45,652	\$47,882	\$53,001	\$39,491	\$40,518	\$58,832
	Manufacturing, Engineering, Technology	C..	C..	\$62,380	C..	C..	C..
Health	Total	\$50,709	\$60,358	\$77,876	\$46,309	\$51,105	\$59,159
	Dental Studies	\$81,575	\$86,592	C..	\$64,316	\$64,476	\$63,213
	Medical Studies	\$89,496	\$94,035	\$113,762	\$87,753	\$90,871	\$105,639
	Nursing	C..	\$57,943	\$64,618	\$45,755	\$50,257	\$55,304
	Other Health	\$31,313	\$39,325	\$47,344	\$29,897	\$36,944	\$46,436
	Pharmacy	\$38,845	\$66,832	\$74,671	\$40,592	\$63,762	\$73,770
	Public Health	C..	\$49,871	C..	\$40,717	\$41,966	\$58,785
	Rehabilitation Therapies	\$42,828	\$47,572	\$44,185	\$44,241	\$47,859	\$49,924
	Veterinary Studies	C..	C..	\$57,474	C..	\$60,085	\$66,077
Information technology	Total	\$40,426	\$46,397	\$56,654	\$42,580	\$44,572	\$54,883
	Computer Science	\$41,083	\$45,832	\$57,515	\$41,557	\$44,792	\$53,649
	Information Systems	\$39,718	\$46,222	\$56,291	\$42,515	\$42,741	\$55,603
	Other Information Technology	\$41,308	\$48,528	\$58,441	\$45,062	\$47,963	C..
Management and commerce	Total	\$39,646	\$44,599	\$57,048	\$37,816	\$43,174	\$50,228
	Accountancy	\$42,246	\$45,114	\$63,638	\$41,486	\$44,925	\$55,483
	Banking, Finance and Related Fields	\$40,387	\$46,040	\$60,478	\$39,990	\$44,761	\$54,885
	Business and Management	\$39,860	\$44,386	\$55,915	\$37,664	\$43,085	\$48,429
	Other Management and Commerce	\$38,196	\$45,037	\$60,365	\$37,069	\$42,527	\$57,334
	Sales and Marketing	\$38,049	\$44,073	\$54,365	\$37,254	\$42,000	\$48,373
	Tourism	\$33,884	\$37,362	\$47,777	\$32,970	\$38,578	\$44,539
Natural and physical sciences	Total	\$33,485	\$44,007	\$52,489	\$34,234	\$42,504	\$49,541
	Biological Sciences	\$29,157	\$37,955	\$50,531	\$32,096	\$37,700	\$46,514
	Chemical Sciences	\$33,933	\$42,491	\$51,712	\$34,560	\$36,793	\$43,071
	Earth Sciences	\$36,215	\$46,044	\$50,527	\$30,842	\$41,024	\$55,576
	Mathematical Sciences	\$36,419	\$45,845	\$57,074	\$41,549	\$45,946	\$47,018
	Other Natural and Physical Sciences	\$37,650	\$52,802	\$61,576	\$38,775	\$49,638	\$55,571
Society and culture	Total	\$35,874	\$42,957	\$50,808	\$34,744	\$41,641	\$47,720
	Behavioural Science	\$31,480	\$40,263	\$47,744	\$33,414	\$39,960	\$47,312
	Economics and Econometrics	\$40,107	\$45,625	\$59,840	\$38,586	\$45,683	\$52,717
	Human Welfare Studies and Services	\$38,500	C..	C..	\$42,069	\$45,792	\$50,726
	Justice and Law Enforcement	\$32,662	\$37,094	\$42,812	\$35,002	\$41,679	\$50,909
	Language and Literature	\$28,725	\$35,475	\$47,038	\$29,917	\$39,694	\$43,891
	Law	\$41,807	\$48,744	\$56,455	\$41,605	\$47,202	\$53,004
	Other Society and Culture	\$29,232	\$37,057	\$47,768	\$31,978	\$38,488	\$43,154
	Philosophy and Religious Studies	\$26,544	\$35,277	\$48,520	\$34,010	\$39,696	\$46,738
	Political Science and Policy Studies	\$33,378	\$42,846	\$49,529	\$36,036	\$40,423	\$49,869
	Sport and Recreation	\$28,598	\$35,715	\$47,077	\$29,447	\$37,655	\$45,052
	Studies in Human Society	\$32,871	\$41,688	\$48,816	\$31,737	\$39,694	\$47,064

Table 49

Median earnings of young domestic bachelors graduates, one, two and five years after study, as a percentage of the national median earnings by narrow field of study

Broad field	Narrow field of study	Men			Women		
		Year 1	Year 2	Year 5	Year 1	Year 2	Year 5
Agriculture, environmental and related studies	Total	99	119	128	111	145	173
	Agriculture	101	119	123	122	154	171
	Environmental Studies	82	124	136	75	160	178
	Horticulture and Viticulture	97	99	n/a	117	110	173
Architecture and building	Total	92	103	124	120	144	167
	Architecture and Urban Environment	83	102	118	119	143	165
	Building	109	122	156	146	148	184
Creative arts	Total	68	87	103	102	123	147
	Communication and Media Studies	77	93	117	117	136	162
	Graphic and Design Studies	66	88	111	99	123	146
	Performing Arts	55	68	76	79	96	126
	Visual Arts and Crafts	52	77	96	91	110	143
Education	Total	112	119	137	159	164	178
	Curriculum and Education Studies	112	119	139	157	164	175
	Teacher Education	113	119	137	159	164	179
Engineering and related technologies	Total	105	118	144	132	145	197
	Electrical and Electronic Engineering..	98	113	146	n/a	n/a	220
	Geomatic Engineering	114	120	132	140	143	208
	Manufacturing, Engineering, Technology	n/a	n/a	156	n/a	n/a	n/a
Health	Total	127	151	194	164	181	209
	Dental Studies	204	216	n/a	228	228	224
	Medical Studies	223	235	284	311	322	374
	Nursing	n/a	145	161	162	178	196
	Other Health	78	98	118	106	131	164
	Pharmacy	97	167	186	144	226	261
	Public Health	n/a	125	n/a	144	149	208
	Rehabilitation Therapies	107	119	110	157	169	177
	Veterinary Studies	n/a	n/a	143	n/a	213	234
Information technology	Total	101	116	141	151	158	194
	Computer Science	103	114	144	147	159	190
	Information Systems	99	115	141	151	151	197
	Other Information Technology	103	121	146	160	170	n/a
Management and commerce	Total	99	111	142	134	153	178
	Accountancy	105	113	159	147	159	196
	Banking, Finance and Related Fields	101	115	151	142	159	194
	Business and Management	100	111	140	133	153	171
	Other Management and Commerce	95	112	151	131	151	203
	Sales and Marketing	95	110	136	132	149	171
	Tourism	85	93	119	117	137	158
Natural and physical sciences	Total	84	110	131	121	151	175
	Biological Sciences	73	95	126	114	133	165
	Chemical Sciences	85	106	129	122	130	153
	Earth Sciences	90	115	126	109	145	197
	Mathematical Sciences	91	114	142	147	163	166
	Other Natural and Physical Sciences	94	132	154	137	176	197
Society and culture	Physics and Astronomy	101	106	142	n/a	n/a	193
	Total	90	107	127	123	147	169
	Behavioural Science	79	101	119	118	142	168
	Economics and Econometrics	100	114	149	137	162	187
	Human Welfare Studies and Services	96	n/a	n/a	149	162	180
	Justice and Law Enforcement	82	93	107	124	148	180
	Language and Literature	72	89	117	106	141	155
	Law	104	122	141	147	167	188
	Other Society and Culture	73	93	119	113	136	153
	Philosophy and Religious Studies	66	88	121	120	141	166
	Political Science and Policy Studies	83	107	124	128	143	177
	Sport and Recreation	71	89	118	104	133	160
	Studies in Human Society	82	104	122	112	141	167

Table 50

Growth in median annual earnings of young domestic bachelors graduates, over the first five years after study by narrow field

Broad field	Narrow field of study	Men			Women		
		Year 1	Year 2	Year 5	Year 1	Year 2	Year 5
Agriculture, environmental and related studies	Total	20	29	7	30	56	12
	Agriculture	18	22	5	26	40	9
	Environmental Studies	52	66	13	114	137	24
	Horticulture and Viticulture	2	n/a	n/a	-7	47	10
Architecture and building	Total	12	35	8	20	39	9
	Architecture and Urban Environment	23	43	9	20	39	9
	Building	11	42	9	1	26	6
Creative arts	Total	28	52	11	21	45	10
	Communication and Media Studies	20	53	11	17	38	8
	Graphic and Design Studies	33	68	14	24	48	10
	Performing Arts	25	38	8	21	59	12
	Visual Arts and Crafts	47	84	16	21	57	12
Education	Total	6	22	5	3	12	3
	Curriculum and Education Studies	7	25	6	4	11	3
	Teacher Education	5	21	5	4	13	3
Engineering and related technologies	Total	13	38	8	10	50	11
	Electrical and Electronic Engineering..	16	50	11	n/a	n/a	n/a
	Geomatic Engineering	5	16	4	3	49	10
	Manufacturing, Engineering, Technology	n/a	n/a	n/a	n/a	n/a	n/a
Health	Total	19	54	11	10	28	6
	Dental Studies	6	-100	-100	0	-2	0
	Medical Studies	5	27	6	4	20	5
	Nursing	n/a	n/a	n/a	10	21	5
	Other Health	26	51	11	24	55	12
	Pharmacy	72	92	18	57	82	16
	Public Health	n/a	n/a	n/a	3	44	10
	Rehabilitation Therapies	11	3	1	8	13	3
Veterinary Studies	n/a	n/a	n/a	n/a	n/a	n/a	
Information technology	Total	15	40	9	5	29	7
	Computer Science	12	40	9	8	29	7
	Information Systems	16	42	9	1	31	7
	Other Information Technology	17	41	9	6	n/a	n/a
Management and commerce	Total	12	44	10	14	33	7
	Accountancy	7	51	11	8	34	8
	Banking, Finance and Related Fields	14	50	11	12	37	8
	Business and Management	11	40	9	14	29	6
	Other Management and Commerce	18	58	12	15	55	12
	Sales and Marketing	16	43	9	13	30	7
	Tourism	10	41	9	17	35	8
Natural and physical sciences	Total	31	57	12	24	45	10
	Biological Sciences	30	73	15	17	45	10
	Chemical Sciences	25	52	11	6	25	6
	Earth Sciences	27	40	9	33	80	16
	Mathematical Sciences	26	57	12	11	13	3
	Other Natural and Physical Sciences	40	64	13	28	43	9
Physics and Astronomy	5	40	9	n/a	n/a	n/a	
Society and culture	Total	20	42	9	20	37	8
	Behavioural Science	28	52	11	20	42	9
	Economics and Econometrics	14	49	11	18	37	8
	Human Welfare Studies and Services	n/a	n/a	n/a	9	21	5
	Justice and Law Enforcement	14	31	7	19	45	10
	Language and Literature	24	64	13	33	47	10
	Law	17	35	8	13	27	6
	Other Society and Culture	27	63	13	20	35	8
	Philosophy and Religious Studies	33	83	16	17	37	8
	Political Science and Policy Studies	28	48	10	12	38	8
	Sport and Recreation	25	65	13	28	53	11
	Studies in Human Society	27	49	10	25	48	10

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. N/a denotes suppression of numerator or denominator value for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 51

Destinations by narrow field of study for young domestic bachelors graduates

Broad field of study	Narrow field of study	Employment %				Further Study %				Overseas %				Benefit / Other %			
		Men		Women		Men		Women		Men		Women		Men		Women	
		Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5
Agriculture, environmental and related studies	Total	47	58	38	53	34	16	48	16	9	18	8	18	6	6	3	8
	Agriculture	58	67	43	50	30	13	43	21	5	17	9	17	C..	3	C..	C..
	Environmental Studies	33	63	31	58	56	23	63	16	7	15	8	19	7	0	C..	9
	Horticulture and Viticulture	50	75	48	67	30	25	36	0	10	C..	C..	33	C..	0	12	0
Architecture and building	Total	49	50	42	51	29	8	38	6	14	33	11	34	11	10	7	9
	Architecture and Urban Environment	45	48	44	52	33	6	40	5	13	32	10	36	11	10	7	9
	Building	55	64	50	48	23	16	30	12	16	16	C..	24	5	5	C..	C..
Creative arts	Total	50	53	59	45	25	10	25	11	8	27	10	29	13	9	7	10
	Communication and Media Studies	59	57	60	49	26	9	26	11	7	26	10	30	8	7	5	9
	Graphic and Design Studies	57	50	59	49	18	8	16	9	10	31	10	32	17	8	7	9
	Performing Arts	43	50	43	44	39	17	41	18	6	21	9	26	13	10	7	10
	Visual Arts and Crafts	41	56	56	51	26	11	25	10	9	26	8	27	21	12	11	12
Education	Total	70	62	75	61	17	8	17	11	7	27	4	17	0	5	4	7
	Curriculum and Education Studies	67	53	62	59	22	8	28	14	7	33	5	19	0	4	3	6
	Teacher Education	83	65	76	65	11	7	12	11	5	26	4	17	2	4	3	7
Engineering and related technologies	Total	49	50	34	41	27	15	44	16	18	29	16	32	7	6	4	3
	Process and Resources Engineering	60	45	15	50	36	30	63	17	C..	30	15	C..	C..	15	C..	17
Health	Total	63	50	53	52	21	17	31	15	13	29	10	27	3	6	2	6
	Medical Studies	78	62	81	64	13	12	14	18	9	25	7	14	2	2	1	5
	Nursing	15	40	35	54	88	27	56	13	0	33	10	28	0	7	2	5
	Other Health	41	47	39	55	43	17	47	15	13	31	10	20	3	7	4	9
	Pharmacy	92	47	96	50	C..	14	2	15	C..	35	4	31	5	7	C..	6
	Public Health	20	50	33	60	67	C..	61	36	C..	C..	7	12	C..	0	C..	C..
	Radiography	40	33	87	50	40	C..	8	15	20	50	8	38	0	C..	0	C..
	Rehabilitation Therapies	63	32	72	44	9	23	12	15	22	27	14	30	2	14	3	10
Information technology	Total	57	57	47	45	22	10	32	9	9	30	11	36	13	6	8	8
	Computer Science	50	55	38	47	25	12	38	9	8	25	8	37	13	8	11	6
	Information Systems	63	57	50	48	19	8	27	8	9	30	11	36	10	5	8	10
	Other Information Technology	65	60	60	40	14	6	24	20	7	36	24	40	11	C..	12	0
Management and commerce	Total	53	55	53	50	29	9	31	9	12	34	11	31	6	7	5	7
	Accountancy	46	58	47	62	40	7	41	6	9	26	9	25	4	8	4	6
	Banking, Finance and Related Fields	42	50	47	47	42	10	34	11	13	35	13	34	7	7	6	11
	Business and Management	58	51	54	52	23	9	26	11	12	34	13	32	8	7	5	6

Broad field of study	Narrow field of study	Employment %				Further Study %				Overseas %				Benefit / Other %			
		Men		Women		Men		Women		Men		Women		Men		Women	
		Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5
	Other Management and Commerce	60	73	50	75	15	11	23	0	25	22	C..	15	6	C..	8	0
	Sales and Marketing	59	47	61	53	22	8	22	8	12	37	11	38	7	8	5	7
	Tourism	73	40	61	57	16	12	22	9	11	40	14	29	0	4	3	4
Natural and physical sciences	Total	26	40	35	45	58	22	53	25	9	28	8	28	5	7	5	7
	Biological Sciences	21	40	31	40	64	26	57	28	9	28	8	25	5	7	5	6
	Chemical Sciences	25	36	25	45	63	36	64	20	9	32	6	25	4	3	4	3
	Earth Sciences	32	48	27	52	50	18	62	17	12	32	10	28	5	5	3	8
	Mathematical Sciences	24	45	25	43	56	16	54	18	11	34	12	30	7	8	7	9
	Other Natural and Physical Sciences	41	40	57	44	45	30	32	22	4	23	5	26	4	6	4	6
	Physics and Astronomy	17	40	30	40	71	25	60	30	8	35	C..	40	5	6	C..	10
Society and culture	Total	37	46	38	48	50	17	47	18	10	29	9	26	7	7	5	8
	Behavioural Science	33	46	36	44	50	23	52	24	7	25	7	24	11	6	5	8
	Economics and Econometrics	38	51	38	50	40	12	40	12	12	35	14	33	9	7	6	7
	Justice and Law Enforcement	35	42	40	50	47	15	47	9	7	33	C..	35	C..	C..	6	C..
	Language and Literature	28	43	33	42	49	20	46	18	17	31	11	28	6	7	6	8
	Law	37	53	33	54	49	13	55	13	8	29	8	24	4	6	4	8
	Other Society and Culture	46	42	38	50	36	14	41	18	14	31	12	24	9	10	5	9
	Philosophy and Religious Studies	30	45	33	39	52	21	52	26	5	24	9	24	7	9	7	8
	Political Science and Policy Studies	28	50	26	48	56	20	57	18	9	25	12	27	5	8	5	8
	Sport and Recreation	42	57	50	58	38	10	38	15	10	23	9	21	8	5	3	8
Studies in Human Society	32	47	38	52	52	20	50	19	10	25	11	25	7	8	7	8	

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

11.3 Outcomes by narrow field for level one to three certificate completers

Earnings

- Earnings differences for young level one to three certificate completers by gender were high in a number of narrow fields. Men earned 20 percent or more than equivalent women five years after completing *sales and marketing* (men earned 37 percent more than women), *other agriculture, environmental and related studies* (29 percentage points), *public health* (23 percentage points) and *employment skills* programmes (20 points).
- Women earned significantly more than men five years after completing certificates in *performing arts* (18 percent more than men's earnings).
- The top five fields for earnings for women five years after study were *social skills programmes* (\$39,400), *automotive engineering and technology* (\$39,300), *philosophy and religious studies* (\$35,600), *business and management* (\$35,300) and *performing arts* (\$34,100).
- The top five fields for men after five years were *sales and marketing* (\$49,500), *automotive engineering* (\$41,500), *other agriculture and environment* (\$40,900), *public health* (\$39,900) and *business and management* (\$39,100).
- The bottom five fields for earnings after five years for women were *other agriculture* (\$28,800), *computer science* (\$28,400), *employment skills* (\$28,100), *other health* (\$27,700) and *language and literature* (\$25,500).
- The five lowest fields for earnings after five years for men were *information systems* (\$32,200), *language and literature* (\$31,500), *performing arts* (\$28,800), and *personal services* (\$27,800).
- Earnings growth was highest for women across five years in *social skills programmes* (83 percent), *general education programmes* (81 percent), *sport and recreation* (79 percent), *graphic and design studies* (66 percent) and *other agriculture and environment* (61 percent).
- The highest earnings growth occurred for men five years after completing a certificate in *sport and recreation* (109 percent), *general education programmes* (67 percent), *performing arts* (77 percent), *communications and media studies* (65 percent), and *maritime engineering and technology* (99 percent).

Destinations

- There were some employment rate differences by narrow field five years after study. Women were employed at higher rates than men five years after completing level one to three qualifications in *horticulture and viticulture* (17 percentage points difference), *human welfare studies* (11 percentage points) and *personal services* (10 percentage points) narrow fields.
- Men were much more likely than women to be employed five years after completing level one to three certificate qualifications in *mechanical and industrial engineering* (51 percentage points), *forestry studies* (34 points), *maritime engineering and technology* (29 points), *language and literature* (31 points) and *building* (23 points) narrow fields.
- There were some high further study rate differences by narrow field five years after study. Women were in further study at much higher rates than men five years after completing level one to three qualifications in *computer science* (32 percentage points), *maritime engineering*

and technology (28 points), *mechanical and industrial engineering and technology* (27 percentage points), *manufacturing, engineering and technology* (21 percentage points) and *building* (19 percentage points) narrow fields.

- Men were much more likely than women to be in further study five years after completing certificate qualifications in *visual arts and crafts* (18 percentage points), *social skills programmes* (11 percentage points), *horticulture and viticulture* (10 percentage points) narrow fields.
- Overseas status was high for women compared to men five years after completing in the *mechanical and industrial engineering and technology* (17 percentage points), *manufacturing, engineering and technology* (16 percentage points) and *forestry studies* (14 points) narrow field.
- Men were more likely to be overseas than women after completing level one to three qualifications in *human welfare studies* and *process and resources engineering* (15 percentage points), *other health* (13 points), *philosophy and religious studies* (10 points).
- Women were more likely than men to be in receipt of benefit and / or labour market inactive or in multiple categories five years after completing level one to three certificate in *building* (32 percentage points), *process and resources engineering* (25 points), *nursing* and *human welfare studies* (23 points) and *public health*(12 points).

Table 52

Median earnings for young level one to three certificate completers, one two and five years after study, by narrow field of study

Broad field	Narrow field of study	Men			Women		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Total	\$27,796	\$32,005	\$38,305	\$21,714	\$23,813	\$30,950
	Agriculture	\$27,487	\$32,265	\$38,371	\$22,239	\$24,771	\$31,717
	Forestry Studies	\$29,552	\$31,369	\$34,208	\$23,662	\$20,214	C..
	Horticulture and Viticulture	\$20,056	\$31,879	\$32,340	\$25,650	\$23,315	\$28,780
	Other Agriculture, Environmental and	\$26,398	\$31,184	\$40,851	\$17,974	\$24,182	\$28,990
Creative arts	Total	\$21,583	\$23,372	\$33,810	\$24,119	\$26,992	\$32,486
	Communication and Media Studies	\$22,341	\$26,691	\$36,794	\$24,985	\$29,031	\$33,766
	Graphic and Design Studies	\$24,549	\$20,946	\$33,162	\$20,285	\$28,792	\$33,618
	Performing Arts	\$16,278	\$16,395	\$28,833	\$22,727	\$15,841	\$34,147
	Visual Arts and Crafts	\$26,265	\$23,736	\$32,710	\$23,870	\$24,931	\$30,550
Engineering and related technologies	Total	\$28,200	\$31,089	\$42,375	\$23,656	\$28,010	\$35,638
	Auto Engineering and Technology	\$26,502	\$29,870	\$41,454	\$24,946	\$26,909	\$39,332
	Manufact'ing, Engineering and Technology	\$30,514	\$31,646	C..	\$22,446	\$26,299	\$29,481
	Maritime Engineering and Technology	\$18,800	\$32,432	\$37,471	\$19,488	\$33,493	C..
Food, hospitality and personal	Total	\$22,233	\$26,774	\$33,755	\$21,295	\$24,408	\$30,387
	Food and Hospitality	\$22,778	\$27,084	\$33,772	\$21,457	\$25,769	\$31,751
	Personal Services	\$18,690	\$22,101	\$27,769	\$21,078	\$23,817	\$29,008
Health	Total	\$29,899	\$32,082	\$38,893	\$23,823	\$25,230	\$31,221
	Other Health	\$22,158	\$27,357	\$33,030	\$21,610	\$24,794	\$27,746
	Public Health	\$32,884	\$33,589	\$39,902	\$23,413	\$18,901	\$30,869
Information technology	Total	\$24,405	\$21,142	\$34,400	\$24,895	\$24,809	\$29,641
	Computer Science	C..	C..	\$34,780	C..	\$26,004	\$28,365
	Information Systems	C..	\$24,817	\$32,158	C..	\$20,055	\$31,087
	Other Information Technology	\$23,529	\$20,861	\$36,162	\$22,441	\$25,093	\$30,529
Management and commerce	Total	\$26,575	\$30,208	\$34,386	\$25,556	\$28,782	\$33,417
	Business and Management	\$31,324	\$30,066	\$39,119	\$25,697	\$28,998	\$35,334
	Office Studies	\$24,469	\$29,764	\$32,361	\$25,716	\$28,832	\$32,611
	Sales and Marketing	\$34,095	\$32,913	\$49,516	\$26,998	\$27,989	\$31,280
	Tourism	\$25,064	\$29,415	\$35,505	\$25,025	\$28,765	\$33,682
Mixed field programmes	Total	\$22,318	\$22,036	\$35,074	\$19,472	\$24,748	\$33,441
	Employment Skills Programmes	\$25,971	\$25,319	\$35,074	\$20,336	\$27,216	\$28,166
	General Education Programmes	\$20,747	\$20,197	\$34,725	\$18,188	\$21,023	\$32,835
	Social Skills Programmes	\$25,219	\$26,744	\$38,526	\$21,579	\$27,358	\$39,417
Society and culture	Total	\$21,112	\$25,322	\$34,208	\$20,541	\$23,521	\$28,992
	Language and Literature	\$25,165	\$24,970	\$31,501	\$24,150	\$23,126	\$25,505
	Philosophy and Religious Studies	\$23,553	\$27,991	\$34,374	\$22,629	\$27,789	\$35,607
	Sport and Recreation	\$16,546	\$25,459	\$34,531	\$16,263	\$22,778	\$29,063
	Studies in Human Society	\$30,731	\$27,272	C..	\$25,690	\$22,596	C..

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 53

Median earnings of young domestic level one to three certificate completers, one, two and five years after study, as a percentage of the national median earnings by narrow field of study

Broad field	Narrow field of study	Men			Women		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Total	69	80	96	77	84	110
	Agriculture	69	81	96	79	88	112
	Forestry Studies	74	78	85	84	72	0
	Horticulture and Viticulture	50	80	81	91	83	102
	Other Agriculture, Environmental and	66	78	102	64	86	103
Creative arts	Total	54	58	84	85	96	115
	Communication and Media Studies	56	67	92	88	103	120
	Graphic and Design Studies	61	52	83	72	102	119
	Performing Arts	41	41	72	80	56	121
	Visual Arts and Crafts	66	59	82	85	88	108
Engineering and related technologies	Total	70	78	106	84	99	126
	Auto Engineering and Technology	66	75	103	88	95	139
	Manufact'ing, Engineering and Technology	76	79	n/a	79	93	104
	Maritime Engineering and Technology	47	81	94	69	119	0
Food, hospitality and personal	Total	56	67	84	75	86	108
	Food and Hospitality	57	68	84	76	91	112
	Personal Services	47	55	69	75	84	103
Health	Total	75	80	97	84	89	111
	Other Health	55	68	82	77	88	98
	Public Health	82	84	100	83	67	109
Information technology	Total	61	53	86	88	88	105
	Computer Science	n/a	n/a	87	n/a	92	100
	Information Systems	n/a	62	80	n/a	71	110
	Other Information Technology	59	52	90	79	89	108
Management and commerce	Total	66	75	86	90	102	118
	Business and Management	78	75	98	91	103	125
	Office Studies	61	74	81	91	102	115
	Sales and Marketing	85	82	124	96	99	111
	Tourism	63	73	89	89	102	119
Mixed field programmes	Total	56	55	88	69	88	118
	Employment Skills Programmes	65	63	88	72	96	100
	General Education Programmes	52	50	87	64	74	116
	Social Skills Programmes	63	67	96	76	97	140
Society and culture	Total	53	63	85	73	83	103
	Language and Literature	63	62	79	86	82	90
	Philosophy and Religious Studies	59	70	86	80	98	126
	Sport and Recreation	41	64	86	58	81	103
	Studies in Human Society	77	68	n/a	91	80	n/a

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. N/a denotes suppression of numerator value for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 54

Growth in median annual earnings of young domestic level one to three certificate completers, over the first five years after study by narrow field of study

Broad field	Narrow field of study	Men			Women		
		One	Two	Five	One	Two	Five
Agriculture, environmental and related studies	Total	15	38	8	10	43	9
	Agriculture	17	40	9	11	43	9
	Forestry Studies	6	16	4	-15	n/a	n/a
	Horticulture and Viticulture	59	61	13	-9	12	3
	Other Agriculture, Environmental and	18	55	12	35	61	13
Creative arts	Total	8	57	12	12	35	8
	Communication and Media Studies	19	65	13	16	35	8
	Graphic and Design Studies	-15	35	8	42	66	13
	Performing Arts	1	77	15	-30	50	11
	Visual Arts and Crafts	-10	25	6	4	28	6
Engineering and related technologies	Total	10	50	11	18	51	11
	Auto Engineering and Technology	13	56	12	8	58	12
	Manufact'ing, Engineering and Technology	4	n/a	n/a	17	31	7
	Maritime Engineering and Technology	73	99	19	72	n/a	n/a
Food, hospitality and personal	Total	20	52	11	15	43	9
	Food and Hospitality	19	48	10	20	48	10
	Personal Services	18	49	10	13	38	8
Health	Total	7	30	7	6	31	7
	Other Health	23	49	10	15	28	6
	Public Health	2	21	5	-19	32	7
Information technology	Total	-13	41	9	0	19	4
	Computer Science	n/a	n/a	n/a	n/a	n/a	n/a
	Information Systems	n/a	n/a	n/a	n/a	n/a	n/a
	Other Information Technology	-11	54	11	12	36	8
Management and commerce	Total	14	29	7	13	31	7
	Business and Management	-4	25	6	13	38	8
	Office Studies	22	32	7	12	27	6
	Sales and Marketing	-3	45	10	4	16	4
	Tourism	17	42	9	15	35	8
Mixed field programmes	Total	-1	57	12	27	72	14
	Employment Skills Programmes	-3	35	8	34	39	8
	General Education Programmes	-3	67	14	16	81	16
	Social Skills Programmes	6	53	11	27	83	16
Society and culture	Total	20	62	13	15	41	9
	Language and Literature	-1	25	6	-4	6	1
	Philosophy and Religious Studies	19	46	10	23	57	12
	Sport and Recreation	54	109	20	40	79	16
	Studies in Human Society	-11	n/a	n/a	-12	n/a	n/a

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. N/a denotes suppression of numerator or denominator value for confidentiality purposes. Refer to Chapter 12 for full notes.

Table 55

Destinations by narrow field of study for young domestic certificate one to three completers

Broad field	Narrow field of study	Employment %				Further Study %				Overseas %				Benefit / Other %			
		Men		Women		Men		Women		Men		Women		Men		Women	
		Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5
Agriculture, environmental and related studies	Total	42	57	36	46	41	21	45	28	3	8	2	8	15	14	15	15
	Agriculture	40	59	35	48	45	20	46	28	2	8	2	7	15	9	16	15
	Forestry Studies	38	54	36	20	38	21	45	30	2	6	C..	20	18	23	16	20
	Horticulture and Viticulture	40	55	33	72	40	22	55	12	C..	5	5	0	18	22	11	12
	Other Agriculture, Environmental and Related	47	62	39	40	35	21	43	40	2	7	C..	0	16	12	18	12
Architecture and building	Total	45	63	C..	40	38	21	48	40	3	8	0	0	14	8	24	20
	Building	45	63	C..	40	38	21	60	40	3	8	0	0	13	8	45	40
Creative arts	Total	23	47	29	46	60	24	53	27	2	13	3	15	14	13	11	16
	Communication and Media Studies	38	50	38	53	42	21	45	30	2	14	5	17	19	9	13	10
	Graphic and Design Studies	15	60	15	50	73	18	75	29	C..	12	6	13	9	18	9	9
	Performing Arts	18	45	22	38	65	23	67	33	C..	14	C..	10	15	14	10	21
	Visual Arts and Crafts	23	36	29	43	55	36	53	18	3	12	3	21	14	18	13	18
Engineering and related technologies	Total	39	56	31	39	48	23	50	30	3	12	5	13	9	10	16	20
	Automotive Engineering and Technology	38	55	40	40	51	22	40	25	3	11	C..	15	10	8	20	20
	Manufacturing, Engineering and Technology	30	40	17	47	50	0	67	21	6	0	C..	16	C..	20	15	19
	Maritime Engineering and Technology	38	44	63	15	38	22	38	50	11	16	15	C..	15	19	8	15
	Mechanical and Industrial Engineering and Process and Resources Engineering	36	51	30	0	52	23	40	50	2	8	0	25	11	16	20	25
Food, hospitality and personal services	Total	35	54	28	42	46	16	50	18	3	19	3	14	15	12	18	23
	Food and Hospitality	38	55	29	41	45	15	51	22	3	18	3	15	13	11	18	21
	Personal Services	23	33	28	44	50	20	51	15	5	27	3	15	27	27	19	25
Health	Total	48	59	29	44	37	20	55	27	3	9	3	10	9	13	11	17
	Nursing	0	C..	12	44	100	C..	80	31	0	0	4	8	C..	0	12	23
	Other Health	38	50	27	33	50	12	47	33	8	24	8	11	11	18	12	22
	Public Health	59	61	38	47	29	20	44	30	C..	7	4	6	9	11	C..	23
Information technology	Total	19	44	16	21	52	30	54	33	3	6	3	9	17	24	25	33
	Computer Science	15	54	23	24	45	18	63	50	C..	5	8	C..	15	14	15	24
	Information Systems	12	40	6	22	70	30	60	38	C..	3	3	8	12	30	35	34
	Other Information Technology	27	42	21	25	54	33	50	29	2	5	C..	15	19	21	25	29
Management and commerce	Total	30	41	37	41	51	34	44	26	5	11	4	14	17	14	17	20
	Business and Management	25	42	26	39	58	25	50	26	3	23	6	16	17	10	17	18
	Office Studies	24	38	38	41	52	36	40	28	4	7	4	12	21	14	18	21
	Sales and Marketing	38	46	43	47	38	23	40	19	8	23	5	14	11	18	13	19

Broad field	Narrow field of study	Employment %				Further Study %				Overseas %				Benefit / Other %			
		Men		Women		Men		Women		Men		Women		Men		Women	
		Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5	Y1	Y5
	Tourism	46	46	44	45	43	17	37	22	3	21	5	16	11	13	16	18
Mixed field programmes	Total	26	38	17	29	44	30	54	29	2	11	3	13	24	22	25	30
	Employment Skills Programmes	25	38	16	23	39	22	40	27	2	9	5	11	25	34	36	41
	General Education Programmes	21	50	15	30	53	25	65	33	2	8	2	18	26	21	15	25
	Social Skills Programmes	33	32	19	36	42	39	54	28	C..	14	2	14	30	16	27	19
Society and culture	Total	25	43	31	33	53	27	54	33	4	14	4	11	17	16	18	23
	Human Welfare Studies and Services	0	25	41	36	80	25	37	28	0	25	4	10	C..	C..	17	23
	Language and Literature	26	45	19	14	48	27	60	46	4	16	4	14	22	16	20	21
	Other Society and Culture	39	38	33	40	28	14	33	20	7	9	0	0	22	31	C..	40
	Philosophy and Religious Studies	31	50	29	60	56	30	64	36	4	10	4	C..	8	10	C..	12
	Sport and Recreation	18	42	26	34	57	28	59	36	5	15	2	14	16	15	15	18

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation. 'C..' denotes the value has been suppressed for confidentiality purposes. Refer to Chapter 12 for full notes.

12 DATA AND DEFINITIONS

This project reports on destinations and earnings for young graduates over the first five years after graduates complete a qualification. Results are presented by qualification level and field of study. Technical details of the data used in this project and the associated definitions are provided below.

12.1 Data

Integrated Data Infrastructure dataset.

The Integrated Data Infrastructure (IDI) dataset was used to obtain the results in this report. This longitudinal dataset is managed by Statistics New Zealand and links together each individual's tertiary education enrolment and completions data to data on (as well as others):

- earnings (from Inland Revenue)
- welfare benefits (from the Ministry of Social Development)
- border crossings (from Immigration New Zealand).

The tertiary education data in the IDI prototype has been provided by the Ministry of Education and is sourced from the Single Data Return from tertiary providers. The immigration data is derived from passenger manifestos. The earnings data in the IDI prototype is derived from tax data collected by Inland Revenue. Welfare benefits data is derived from data used by the Ministry of Social Development to administer the benefits system.

Confidentiality of data

The results published in this report all comply with the Statistics New Zealand's confidentiality requirements. These include a requirement to use random graduated random rounding for all counts including those which underlie percentages. Additionally, when publishing employment rates or earnings, the corresponding provider, enterprise and graduate counts for that qualification level X 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 is important to take this into account when comparing percentages as some variation may simply be due to this factor and not to an underlying trend. For example, if the count for each of the four destinations is 20 (and so 80 in total), then the percentage for a single destination can vary from 22 to 28 merely due to rounding. But if the count for each destination is 100 (and so 400 in total), then the variation is from 24.4 to 25.6. In general, the smaller the count, the greater the variation will occur. How the counts are distributed across destinations also affects the variation.

Cells marked 'C..' throughout this report represent numbers suppressed as not meeting Statistics New Zealand's confidentiality requirements. This includes suppression of blank cells in line with Statistic New Zealand's confidentiality rules.

Disclaimer

The following disclaimer applies to all results obtained using the IDI, including the results in this report:

The IDI is managed under strict confidentiality rules by Statistics New Zealand. These rules protect individual people and businesses from identification.

The data extraction was undertaken while the authors were on secondment to Statistics New Zealand. The results are not official statistics, they have been created for research purposes from the Integrated

Data Infrastructure (IDI) managed by Statistics New Zealand. On-going work within Statistics New Zealand to develop the IDI means it will not be possible to exactly reproduce the data presented here.

The results presented in this study are the work of the authors. Statistics New Zealand and the Ministry of Education take no responsibility for any omissions or errors in the information contained here.

Access to the data used in this study was provided by Statistics New Zealand 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, business or organisation. The results in this report have been confidentialised to protect individual people and businesses from identification.

Careful consideration has been given to the privacy, security and confidentiality issues associated with using administrative data in the IDI prototype. 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 New Zealand 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 prototype for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Completions

The analyses and results in this report only relate to students who have completed a qualification that they enrolled in. 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 occurs three or more years before the last year of enrolment in that qualification.

Data is aggregated across two leaving cohorts.

The analyses and results in this report are based on aggregated data from two leaving cohorts. Data has been aggregated in order to increase the numbers in the samples and hence, to ensure Statistics New Zealand's confidentiality requirements could be met and to improve statistical quality and robustness.

Cohorts are chosen so that their post-study employment outcomes are always compared in the same economic climate: the 2010 and 2011 tax years. For instance, one year post-study outcomes are calculated for graduates who completed in 2008 or 2009, and five year post-study outcomes are calculated for graduates who completed in 2004 or 2005.

Domestic students

We report outcomes and earnings for domestic students only, excluding any international students. We do this because we have no information about the prior qualifications, labour market experience or earnings of international students, so we can be less certain of associating outcomes to New Zealand study experiences for international students.

A domestic student is a student who is a New Zealand citizen, or who is a New Zealand permanent resident or Australian citizen and is not residing overseas. In cases where the domestic status changes for a student across years, their status in their last year of enrolment for a qualification is used.

Funding types

Completions are excluded from the results if the graduate has received any funding for this qualification that suggests that they may have had previous work experience. In particular, this includes qualifications where a graduate has received Skill Enhancement, Industry Training Off Job component, STAR Funding, English for Migrants, Youth Action Training, or Other contracts funding.

12.2 Definitions

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 56 below shows how the aggregated cohorts align with tax and calendar years for each post study year.

Table 56

Alignment of cohorts with tax and calendar years.

Cohort	Years post study	Calendar year	Tax year
08/09	1	2009/2010	2010/2011
07/08	2	2009/2010	2010/2011
06/07	3	2009/2010	2010/2011
05/06	4	2009/2010	2010/2011
04/05	5	2009/2010	2010/2011
03/04	6	2009/2010	2010/2011

Graduate destinations

The graduate destinations used in this report are:

- Further study
- Benefits
- Employment
- Overseas
- 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: Overseas, Further Study, Benefit, Employment, Unknown/Other.

Results 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.

Destinations are defined as follows:

- *Overseas* – graduates who are out of New Zealand for 9 months or more in a tax year.
- *Further study* – graduates who are not classified as Overseas and do any tertiary study in a calendar year.
- *Receiving a benefit* – graduates who are not classified in either the Overseas or Further study categories 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.

Benefit and Unknown/Other destinations combined for some broad and narrow fields

Few postgraduates go on a benefit after study. Thus for these graduates, the Benefit category has been merged with the Unknown/other category for higher level qualifications for broad and narrow field tables to reduce the number of values that need to be suppressed due to Statistics New Zealand's confidentiality criteria.

Earnings

All earnings reported are gross earnings and earnings are only presented for graduates for whom we deem employment is their main activity, in each year independently post-graduation. *Earnings* means income from wages, salaries, self-employment, paid parental leave and accident compensation payments. It excludes unearned income such as rents, dividends, interests and transfer payments such as benefits.

We present graduates' actual earnings (rather than annualised earnings) as some types of work by their nature are seasonal or contract based. No account is taken of hours of work and so earnings will be understated for any qualification/field of study where there are significant numbers of young graduates in part-time work.

Adjusting the data for changes in national wage rates

Earnings are scaled using the Labour Cost Index to normalise differences between the 2010 and 2011 tax years and are presented in 2011 dollars.

Additionally, throughout this report, we have compared graduate earnings to the national median earnings for the 2011 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.

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 qualifications¹⁵
- 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.

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.

Field of study is broken down into broad fields using the New Zealand Standard Classification of Education (NZSCED¹⁶):

- Natural and Physical Sciences

¹⁵ 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).

¹⁶ For the structure of NZSCED, refer to: http://www.educationcounts.gov.nz/data-services/collecting-information/code_sets/new_zealand_standard_classification_of_education_nzsced

- 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.

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