



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

What young graduates do when they leave study

*New data on the destinations of
young graduates*



This report forms part of a series called Beyond tertiary study.
Other 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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SUMMARY

This report focuses on the destinations of young domestic graduates. It complements our recent publication *What young graduates earn when they leave study* which looks at the earnings of young graduates who remain in New Zealand. In this report, we focus on differences in what graduates *do* rather than what they *earn* after they complete their studies. We look not only at those who remain in New Zealand but also those who go overseas.

We also investigate whether trends in what graduates do after they complete their studies have changed in the last eight years or not (looking in detail at cohorts who graduated in 2003 to 2010). Comparing current figures to these historical ones helps to put current rates in perspective.

Knowing what graduates do after they complete their studies is important as it lets us know what types of graduates go overseas and how long for, while also looking at who does further study, enters employment or has a spell on a benefit. This sort of analysis is fundamental to an assessment of how the tertiary education system serves New Zealand. This is important as the Government makes a very large investment in tertiary education each year – funding tertiary education providers, providing subsidised student loans and granting student allowances. This information will also help prospective students, their families and advisors determine whether a particular course of study is likely to get them the result that they want. Individuals make a considerable financial and time investment when they choose to study a qualification, and this information will help them to make wise decisions.

KEY FINDINGS

Graduates who complete qualifications at different levels differ in what they do post study. Young, domestic graduates who complete qualifications below degree level are more likely to do further study after they complete their qualification, with around half of level 1-4 certificate and level 5-7 diploma graduates continuing on to do further study. Those who complete qualifications at higher qualification levels are more likely to be employed in the first year post study, with around half of all bachelors and honours graduates employed, and 55% of masters and doctorate graduates.

Graduates who complete qualifications at different levels show different employment rate trends over time. Employment rates increase over each of the first seven years after study for young domestic graduates who complete a level 1-4 certificate or level 5-7 diploma. Many of these graduates do additional study after their first qualification so increasing their skill level and enhancing their prospects of employment. In contrast, employment rates tend to decline over time for young domestic graduates who do a bachelors qualification or higher as the percentage of graduates who go overseas increases with time. However, despite employment rates moderating over time, it is important to note that the earnings premium that those who complete higher qualifications enjoy remains consistent over time.

Very few young people who complete a qualification at diploma level or above are on a benefit in the first seven years after study. Around 5 percent of level 5-7 diploma graduates are on a benefit and around 1 percent of bachelors graduates, in each of the first seven years after study. But it is around 12 percent for those who graduated with certificates at levels 1-3.

Current overseas rates are comparable to historic ones. There has been no increase in the rate of departure of young New Zealanders at most qualification levels. There are also indications that the percentage of young domestic graduates who go overseas may be

decreasing in more recent cohorts for those who have studied graduate certificates or honours level qualifications. However rates have increased for masters graduates in the first two years post study.

The proportion of young graduates who go overseas generally increases with the level of qualification gained. In the first year after study, 3 percent of certificate level graduates go overseas, 5 percent of diploma graduates and around 10 to 11 percent of bachelors and honours graduates. There is then a jump with 20 percent of masters and 30 percent of doctorate young domestic graduates going overseas in their first year post study.

The percentage of graduates who go overseas increases with time and the rate of increase generally increases with qualification level. Seven years after study, 17 percent of level 1-3 certificate graduates are overseas, 21 percent of diploma graduates, 31 percent of bachelors graduates and 41 percent of doctorate graduates.

The percentage of young graduates who go overseas appears to flatten off and reach a maximum around six to seven years after graduation. This is particularly the case for those who have studied at higher qualification levels. The exception is doctorate students which reach a peak around three to four years after study. Given the high initial number of doctorate graduates who go overseas, the early flattening of the overseas proportion is most likely due to a large number of doctorate graduates going overseas immediately after their studies in order to complete a postdoctoral placement, with some then returning.

Graduates outcomes were affected by the recent global financial crisis, with different trends seen for graduates at different qualification levels. Employment rates dropped and benefit rates increased for young domestic graduates who had completed a qualification at certificate levels 1-3. Employment rates also dropped for those who had completed a level 4 certificate or diploma, but further study rates increased over this time, suggesting that these graduates focused on obtaining further qualifications to enhance their employment prospects. Employment rates generally remained constant for young domestic graduates who completed a qualification at degree level or higher which suggests that having a higher qualification has helped to protect these graduates from the worst effects of the recession.

Outcomes for young bachelors graduates vary by broad field of study. For example, of those young domestic graduates who complete a bachelors degree, employment rates are highest in all years after study for those who study education, varying from 73 percent in the first year after study to 64 percent seven years after study. Around 54 percent of bachelors graduates who have studied natural and physical sciences, and 47 percent of society and culture graduates continue on to do further study.

Outcomes for bachelors graduates also vary by narrow field of study. Within a single broad field of study, there can be considerable variation in what young domestic graduates do after they complete their qualification. For example, within the broad field of study of health, employment rates are very high initially for young domestic pharmacy (94 percent), radiography (85 percent) and dental studies (69 percent) graduates. However these rates drop sharply in subsequent years, mostly because of the high number of graduates who go overseas. Employment rates increase or are more stable for those who study medicine, veterinary studies, public or other health, and nursing, with a lower proportion of these graduates going overseas over time.

1 INTRODUCTION

This report looks at what young domestic graduates do after they complete their tertiary education studies.

The data we analyse is similar to that presented in three earlier reports on graduate outcomes, *Moving on up* and the associated updates, *Looking at the employment outcomes of tertiary education* and *What young graduates earn when they leave study*. But the focus in those reports was on graduates who remain in New Zealand and we explored differences in their earnings following completion of their qualifications. In this report, we look at the destinations of young graduates – including travel overseas. That is, we focus on differences in what graduates *do* rather than what they *earn* after they complete their studies.

1.1 Background

People choose what to study at tertiary level for many reasons – what they enjoy, what they are good at, what they are capable of and what will get them started on a career. Making good decisions allows individuals to gain the skills they need to obtain satisfying and rewarding work. This is important as good careers are associated with better health, better well-being and more satisfying lives.

Moving on up: what young people earn after their tertiary education, published in January 2013, and the two updates published in October 2013 and May 2014 add to the information available to prospective students, their families and those who advise them. These reports focus on employment outcomes for young New Zealanders who complete a tertiary qualification and remain in New Zealand. They look at employment rates and graduate earnings for those who are in New Zealand in the first few years after study. Information about further study and benefit receipt rates was included to provide context for the employment outcomes measures.

This report draws data from the same source as those three earlier reports but looks solely at the destinations of graduates. We look not only at those who are in New Zealand but also those who go overseas. We look at all graduates in the same economic climate, that of the 2011 and 2012 tax years¹, for each of the first seven years post-study. For instance, one year post-study outcomes are calculated for graduates who completed in 2009 or 2010, and five year post-study outcomes are calculated for graduates who completed in 2005 or 2006. Table 1 (on the next page) shows how the aggregated cohorts align with tax and calendar years for each post study year.

¹ This time period is the same as that covered in the complementary report on graduate earnings: *What young graduates earn when they leave study*.

Table 1Alignment of cohorts with tax and calendar years²

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

Knowing what graduates do after they complete their studies is important as it lets us know what types of graduates go overseas and how long for, while also looking at who does further study, enters employment or receives a benefit. This sort of analysis is fundamental to an assessment of how the tertiary education system serves New Zealand. This is important as the Government makes a very large investment in tertiary education each year – funding tertiary education providers, providing subsidised student loans and granting student allowances. One major purpose of the Government’s investment is to help raise the level of skill in the population – which helps make our society more productive, contributes to the creation of wealth and leads to better social outcomes.

We also investigate whether trends in what graduates do after they complete their studies have changed in the last eight years or not (looking in detail at cohorts who graduated in 2003 to 2010)³. Comparing current figures to these historical ones helps to put current rates in perspective.

The detailed analyses in this report and associated tables (available on the [Education Counts](#) website) provide useful information, not only about the percentage of graduates who gain employment after study but the percentage who go overseas, go on to do further study or receive a benefit.

1.2 Categorising the destinations of graduates

In looking at graduate destinations, where possible we assign each graduate in each year to one of four main destinations: further study, employment, overseas and receiving a benefit. Although many graduates undertake more than one activity in a year, in each year after completing a qualification, graduates are assigned to a single destination using the rules outlined below and as shown in the flow diagram below (Figure 1). These rules take account of ‘substantiveness’ – how long a graduate is pursuing an activity – and a ‘predominance’ test – what is the ‘main’ activity.

Overseas – 9 months or more overseas overall in a year.

Further study – graduates who are not classified in the *Overseas* category and do any tertiary study in a calendar year.

² Note that the results for two cohorts of graduates are aggregated together for each year post study, in order to increase the number of graduates. This means that we are able to publish results for more qualification level by field of study combinations as more results meet Statistics New Zealand’s confidentiality requirements. Increased graduate numbers also improve the statistical quality and robustness of the results.

³ The reason that we have eight years of data here compared to seven years throughout the rest of this report is that in this analysis we look at patterns by qualification level but not by field of study. This means that the number of graduates in any particular group are higher and so we don’t need to aggregate pairs of graduate cohorts as we do elsewhere in this report.

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*⁴ – graduates who are not classified in any of the above categories and who receive wages and salary, paid parental leave and/or accident compensation for at least four months or more in a tax year and/or receive any self-employment income (excluding rental income).

Other/Unknown – graduates who are involved in more than one activity during the year and who do not meet the criteria for any of the above four destinations, or for whom no matching data can be found in the Integrated Data Infrastructure.

Where a graduate meets the criteria for more than one destination, the destination is determined using the order of precedence: overseas, further study, receiving a benefit, employment. For example, if an individual works for 3 months after completing their qualification, and then goes overseas for 9 months, they will be classified in the “overseas” destination. This is regardless whether the graduate works overseas. Or if a student completes (for instance) a bachelors degree in law in one year and then studies for their law professionals in the next year whilst also working, they would be classified in the “further study” destination rather than in the “employment” destination⁵. This order of precedence means that that employment rate is conservative and is not inflated by including those who do multiple activities throughout a year.

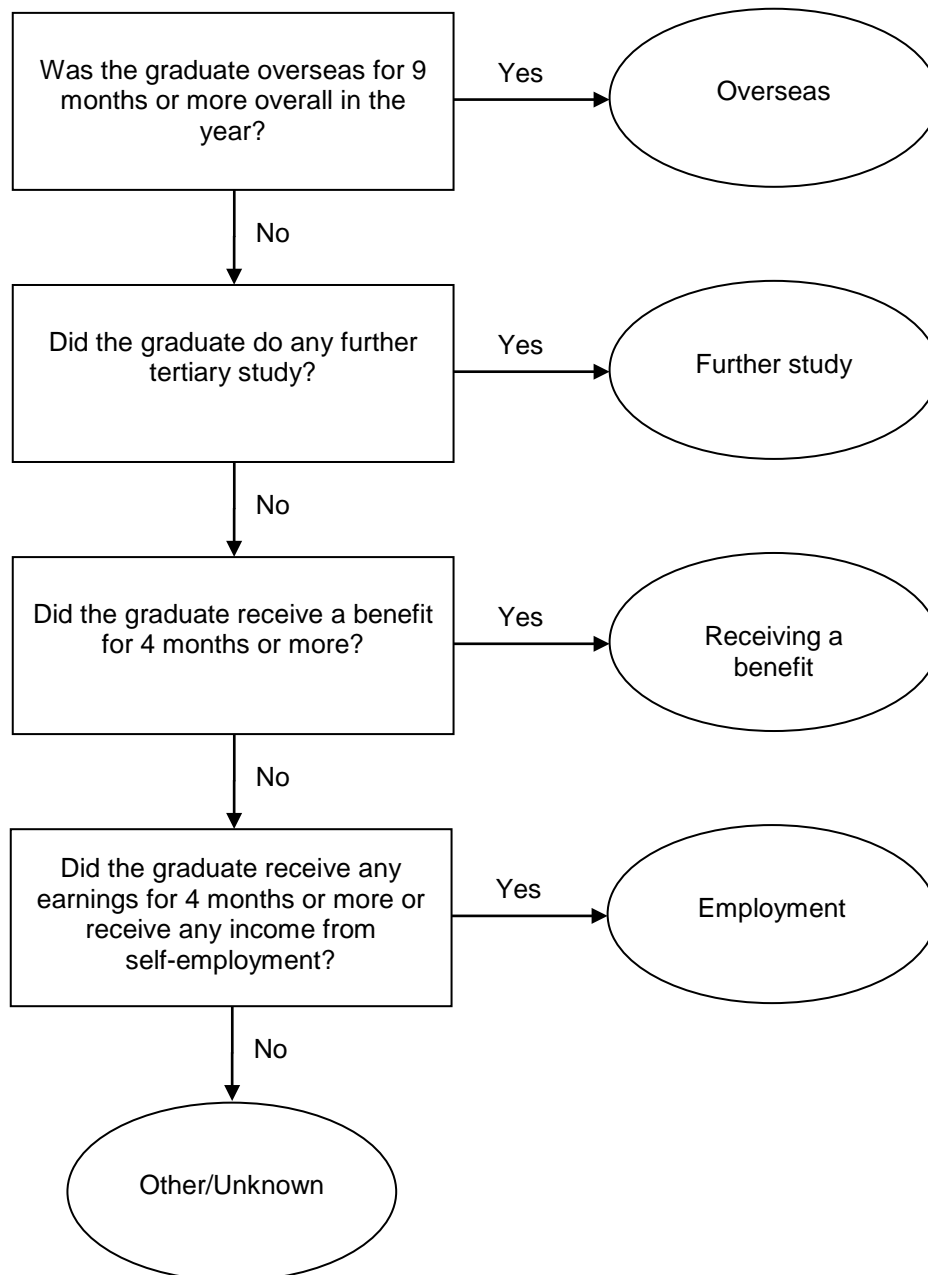
A small proportion of graduates may also ‘disappear’ from the administrative data – we can’t find what they are doing, perhaps because they were doing unpaid work or caregiving and were supported by family or partners, or were working for a family business without pay. These graduates of unknown destination are included in the Other/Unknown category. The fraction of graduates in the Other/Unknown category is very small – around 4 percent in the first year after study, increasing to around 6 percent in the seventh year after study.

⁴ Importantly, this measure is not the same as the official measure of employment used in the Household Labour Force Survey. This is because of the order of precedence, the fact that the employment rate for young graduates excludes those who have worked without pay, and the use of an annual criterion, rather than a reference week as is the case in the Household Labour Force Survey.

⁵ Note that if this graduate continued to work in New Zealand in the following year, they would be classified in the “employment” destination for the second year after study for the bachelors qualification, and in the “employment” destination for the *first* year after study for the subsequent qualification. This is because graduates who complete more than one qualification are included in the results for both qualifications.

Figure 1

Flowchart showing the rules used to assign graduates to a destination. Graduates are assigned to a single destination in each year after they complete a qualification



2 DOES YOUR LEVEL OF STUDY AFFECT WHAT YOU DO?

2.1 General patterns

Looking at graduates who complete qualifications at different levels, we see that there are clear differences in what graduates tend to do after they complete a qualification (see Figures 2a and 2b). For example:

- The percentage of young, domestic graduates who do further study is highest in the first year after study and then decreases in each subsequent year for all qualification levels except doctorates who have very low initial rates of further study. Further study rates are highest for those who do level 1-4 certificates or level 5-7 diplomas. Around half of these young domestic graduates do further study in the first year after study – as would be expected, given that many qualifications at those levels are designed to help people advance to study at higher levels. By seven years after graduation, these rates have dropped to around 16 to 18 percent.
- Further study rates are reasonably high – just over one third of graduates in the first year after study – for young domestic graduates with bachelors and bachelors with honours or postgraduate certificate or diploma qualifications. Further study rates are around half this for masters and graduate certificate or diploma young domestic graduates (16 and 14 percent respectively), and only around 5 percent for those who complete doctorates.
- The employment rate in the first year after study for young, domestic graduates increases steadily with increasing qualification level, from 34 percent for level 1-3 certificate graduates to 35 percent for level 4 certificate graduates to 41 percent for diploma graduates to around half of all bachelors and bachelors with honours or postgraduate certificate or diploma graduates, and 55 percent for masters and doctorate graduates.
- Graduate certificate and diploma graduates are an exception to this pattern as they have the highest employment rates of all qualification levels with 74 percent of these young, domestic graduates in employment one year after completion. Part of the reason for this is that many of these qualifications are vocationally based and completed in order to meet the requirements for a particular occupation. Many of these graduates have studied either teacher education or law and so may have completed this qualification as a way of meeting part of the requirements of entry to a profession.
- In general, employment rates increase over each of the first seven years after study for young domestic graduates who complete a level 1-4 certificate or level 5-7 diploma. Many of these graduates do additional study after their first qualification, so increasing their skill level and enhancing their prospects of employment.
- In contrast, employment rates tend to decline over time for young domestic graduates who do a bachelors qualification or higher as the percentage of graduates who go overseas increases with time. The exception is doctorate graduates whose

Figure 2a

Destinations for young domestic graduates in the first seven years after qualification completion by qualification level

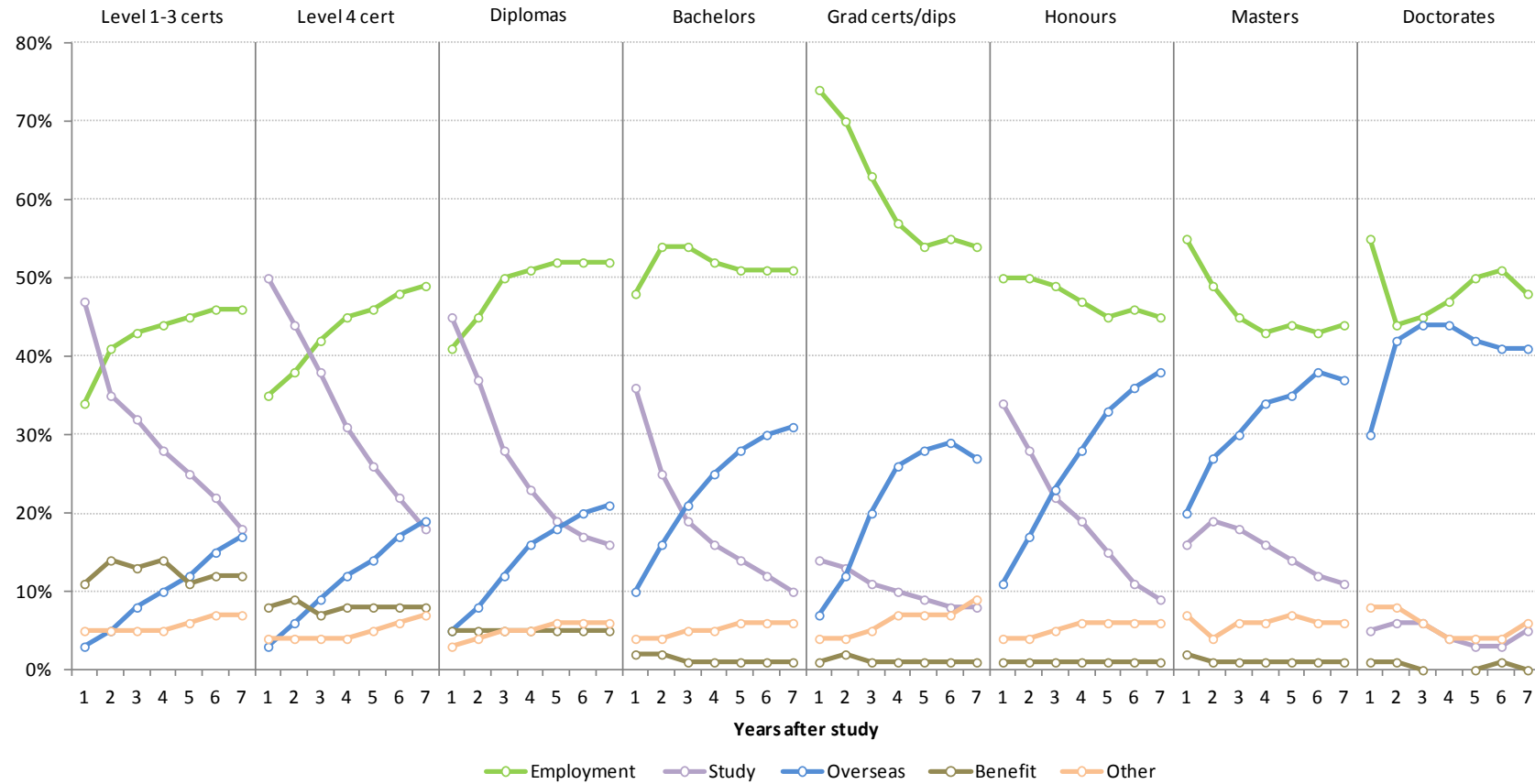
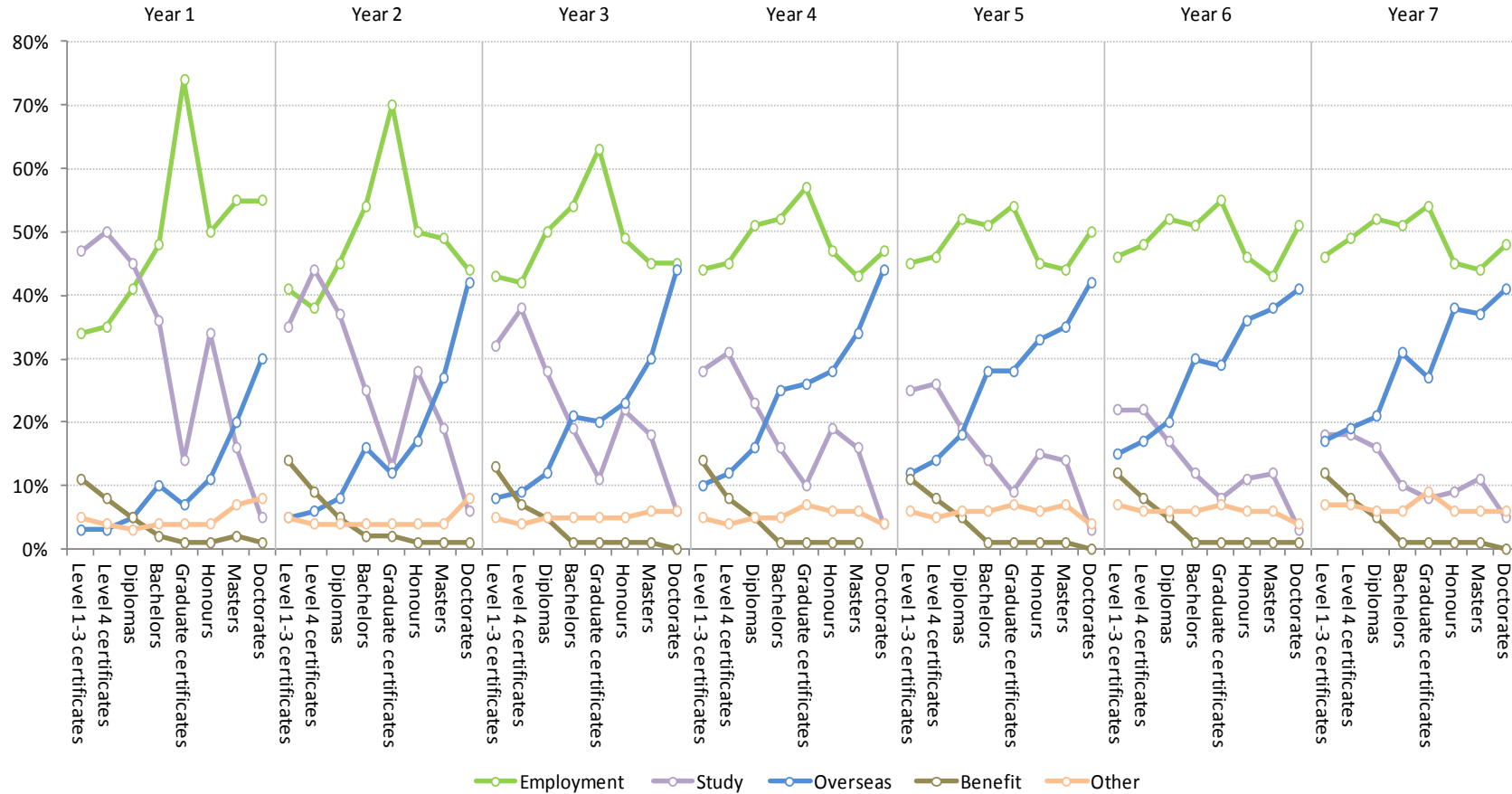


Figure 2b

Destinations for young domestic graduates in the first seven years after qualification completion by qualification level



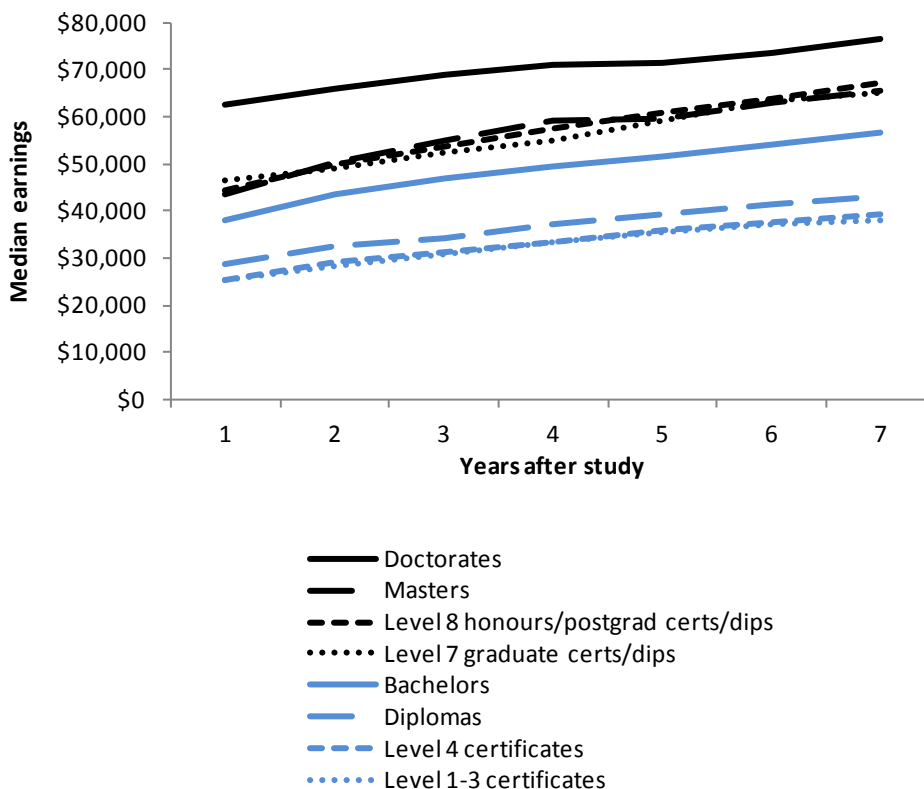
Note that this data is identical to that shown in Figure 2a but the qualification levels are now shown along the horizontal axis instead of years after study, and the panels are years after study instead of qualification levels.

employment rate drops in the second year after study (due to a jump in the number of graduates going overseas) but then the rate increases again in most subsequent years⁶.

- In general, employment rates for young, domestic graduates with different levels of qualification achievement become more consistent over time (see Figure 2b). This is mostly due to employment rates increasing for those who complete qualifications at lower levels (level 1-4 certificates and level 5-7 diplomas) and due to employment rates decreasing markedly for those who complete a graduate certificate or diploma. However, despite employment rates moderating over time, it is important to note that the earnings premium which those who complete higher qualifications enjoy, remains consistent over time (see Figure 3).
- The percentage of young, domestic graduates who receive a benefit for four or more months in a year is around 12 percent in each of the first seven years after study for those who complete a level 1-3 certificate. Whereas the percentage drops consistently for each higher level of qualification gained, from around 8 percent for young domestic level 4 certificate graduates, to around 5 percent for level 5-7 diploma graduates to around 1 percent for bachelors graduates. Benefit rates are very low, 1 percent or lower, in almost all of the first seven years after study for graduates who complete post-graduate qualifications.

Figure 3

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



⁶ Note that the number of young doctorate graduates is relative small. This means that patterns over time tend to be less stable.

2.2 Going overseas

The OE – or ‘overseas experience’ – is a rite of passage for many young New Zealanders. Many graduates take an OE soon after completing study. Some will return after a period of three years or less, having had some time in the workforce in another country and having acquired skills and experience beyond what would have been available to them in the New Zealand labour force. Some will stay much longer overseas and some won’t ever return to the New Zealand labour market.

The findings in this report on young graduates who go overseas complement data published by the Ministry of Business, Innovation and Employment (Papadopoulos, 2012) and by the Ministry of Education (Smyth and Spackman, 2012). Those reports are available at:

<http://dol.govt.nz/publications/research/who-left/> and

http://www.educationcounts.govt.nz/publications/tertiary_education/going-abroad-what-do-we-know-about-people-going-overseas-after-tertiary-study

These reports show that:

- *The likelihood that a graduate goes overseas increases with increasing qualification level.* For example, Papadopoulos found that, of those who graduated in 2003, the percentage who left New Zealand over the following seven years was strongly associated with the level of their qualification and varied from 19 percent of those graduating with a level 1–3 certificate to 48 percent of those graduating with a doctorate⁷.
- *Graduates with bachelors and postgraduate qualifications tend to go overseas straight after graduation or after a few years in the workforce.* In comparison, graduates in lower level qualifications tend to leave at a more consistent rate.
- *The proportion of graduates who go overseas flattens off over time, with signs that a peak has been reached or nearly reached around five to six years after graduation.* Papadopoulos also found that of those graduates who went overseas in the first two years post study, around a quarter were back in New Zealand four years after leaving.

These reports also show that 25-34 year olds with student loans are more likely to go overseas than graduates of other ages (Smyth and Spackman, 2012), and the likelihood of going overseas is higher for younger graduates (Papadopoulos, 2012). Because the data in our tables is for young graduates only, the overseas rates will thus be higher than those for graduates of all ages.

Table 2 (see next page) and Figures 2a and 2b show the proportion of graduates who are overseas for 9 months or more in a year at any point of time. If we look at those recorded as overseas in any particular year, some people will have been overseas for several years and may be considering returning while others will be at the start of their OE. In other words, there is movement both ways in the graduate population that is overseas at any particular point as graduates both leave and return to New Zealand.

⁷ Note that the definitions used to classify someone as overseas vary between both of these reports and ours. Smyth and Spackman use Inland Revenue’s definition for student loan borrowers whereby someone is regarded as overseas if they are overseas for 183 days or more (approximately 6 months), and they are regarded as overseas until they are back in New Zealand for more than 183 days. Papadopoulos uses a longer time period of 9 months or more in a year to define someone as overseas, as we do, but similar to Smyth and Spackman, he regards someone as still being overseas until they have been back in New Zealand for a set time period (of 9 months). Papadopoulos also excludes domestic students who have spent an extended period overseas using a non-New Zealand passport before study.

Table 2

Percentage of young domestic graduates who were overseas for 9 months or more in a year, in the first to seventh years after study by qualification level

Qualification level	Years after study						
	One	Two	Three	Four	Five	Six	Seven
Certificate at levels 1-3	3%	5%	8%	10%	12%	15%	17%
Certificate at level 4	3%	6%	9%	12%	14%	17%	19%
Diploma at levels 5-7	5%	8%	12%	16%	18%	20%	21%
Bachelors degree	10%	16%	21%	25%	28%	30%	31%
Graduate certificate or diploma	7%	12%	20%	26%	28%	29%	27%
Level 8 qualification – bachelors honours, pg dip or cert	11%	17%	23%	28%	33%	36%	38%
Masters degree	20%	27%	30%	34%	35%	38%	37%
Doctorate	30%	42%	44%	44%	42%	41%	41%

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

Table 2 and Figure 2 show that:

- *The likelihood that a young graduate travels overseas generally increases with the level of qualification gained.* For example, in the first year after study, 3 percent of certificate level graduates go overseas, as do 5 percent of diploma graduates and around 10 to 11 percent of bachelors and bachelors with honours or postgraduate certificate or diploma graduates. There is then a jump, with the percentage of masters and doctorates graduates who go overseas in their first year after study being considerably higher at 20 percent and 30 percent respectively⁸.
- *The percentage of graduates who go overseas increases with time.* The rate of increase also generally increases with qualification level to level 8 so that by seven years after study, 17 percent of level 1-3 certificate graduates are overseas, 21 percent of diploma graduates and 31 percent of bachelors graduates. The rate of increase is lower for young domestic masters and doctorate graduates – in part because of the high initial overseas rates. But the proportions of young masters and doctorate graduates overseas reach 37 percent and 41 percent respectively after seven years. The difference in initial rates and rates of increase means that, from the second to third years onwards, the percentage of non-degree graduates overseas is distinctly lower than the percentage of degree level or higher graduates.
- *At higher qualification levels, the percentage of graduates overseas appears to flatten off and reach a maximum around six to seven years after graduation.* The exception is doctorate students who reach a peak around three to four years after study. Given the high initial number of doctorate graduates who go overseas, the early flattening of the overseas proportion is most likely due to a large number of doctorate graduates going overseas immediately after their studies in order to complete a postdoctoral placement, with some then returning.

⁸ Note that the age cut-off for young masters and doctorate graduates is higher than that for graduates who complete lower level qualifications (see Chapter 6 for details). That some of these graduates are older may contribute towards their higher overseas rates.

2.3 Have overseas rates changed over time?

To determine if the percentage of young domestic graduates who go overseas each year has changed over time, we have looked at the rate at which young graduates have gone overseas for each cohort of graduates over the past eight years at similar times after study. Figure 4 shows that the rates are comparable between cohorts for qualifications at bachelors level and below.

For young domestic graduates who complete graduate certificates or diplomas, level 8 honours or postgraduate certificates or diplomas, masters or doctorates, there are differences in overseas rates between cohorts:

- For those who complete a graduate certificate or diploma, in each of the first three years post study, the percentage of graduates who go overseas generally decreases in later cohorts.
- For those who complete an honours degree or postgraduate certificate or diploma, in each year post study from the third year onwards, overseas rates have consistently dropped in almost all later cohorts.
- In contrast, for those who complete a masters qualification, the percentage of graduates who go overseas in each of the first two years after study has mostly increased in later cohorts. However, for each later year post study, the rates are very similar across most cohorts.
- For those who complete a doctorate, there are indications that the overseas rate has decreased between cohorts in the first year after study. Rates for each cohort in other years after study show a high degree of variability which is expected as the number of young, domestic doctorate graduates each year is relatively small. This makes it difficult to determine whether observed patterns are due to an underlying reason or whether they are simply fluctuations due to the effects of the small size of the group. For example, there are apparent biennial peaks; this may be due to fluctuations in the availability of postdoctoral positions overseas or it may be a statistical fluctuation.
- There seems to be no particular increase or decrease in the percentage of young domestic graduates who go overseas which corresponds to the period of the global financial crisis (see Figure 4b).

Overall, these results suggest that the trends we see in these new tables on destinations is in line with earlier years' data – there have been very few changes in the rate of departure of young New Zealanders at most qualification levels. There are also indications that the percentage of young domestic graduates who go overseas may be decreasing in more recent cohorts for those who have studied graduate certificates or diplomas, bachelors with honours, or postgraduate certificate or diploma qualifications but increasing in the first two years post study for masters graduates.

Figure 4a

Percentage of young domestic graduates who were overseas for 9 months or more in each year after study, for each individual cohort of graduates from 2003 to 2010, by qualification level

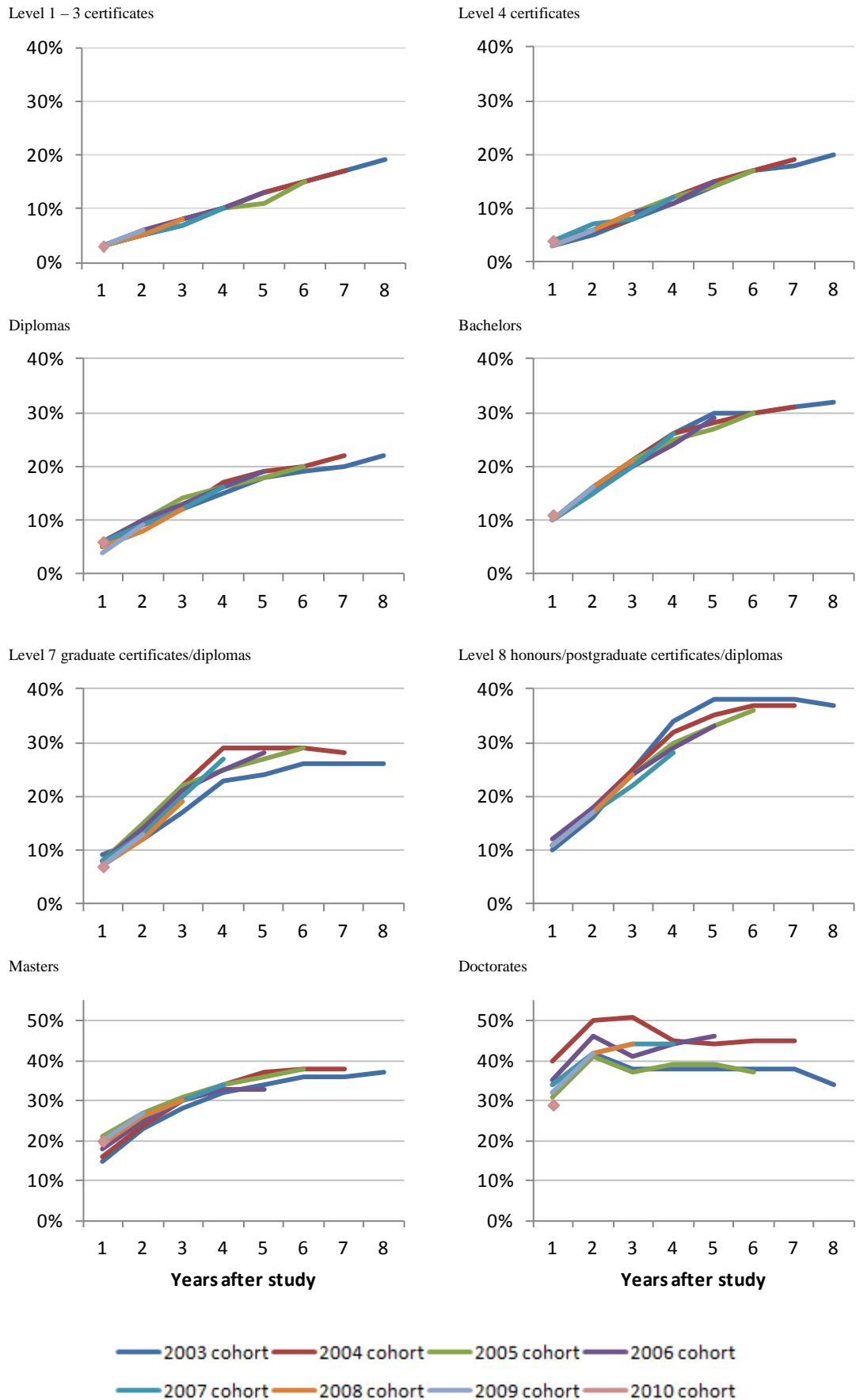
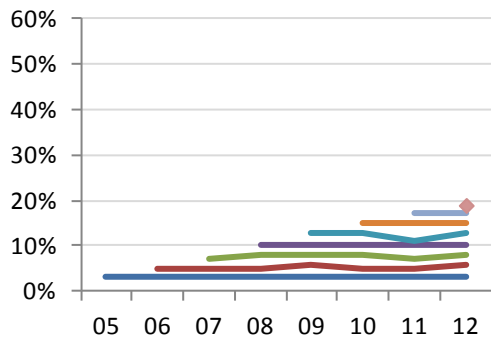


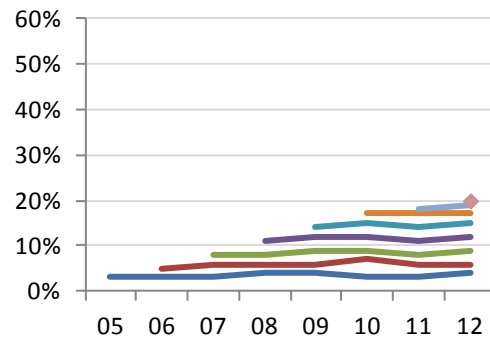
Figure 4b.

Percentage of young domestic graduates who were overseas for 9 months or more for each cohort, for each year after study, by qualification level.

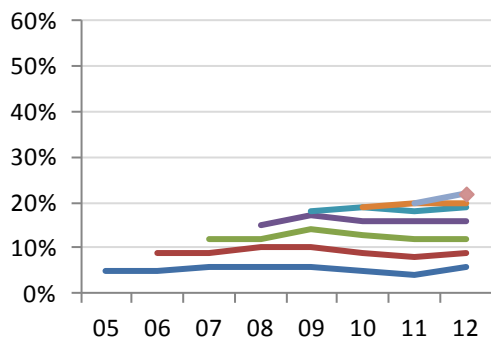
Level 1 – 3 certificates



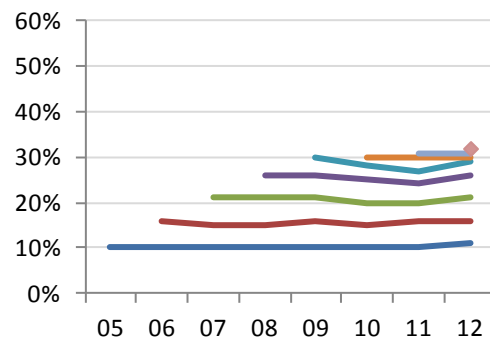
Level 4 certificates



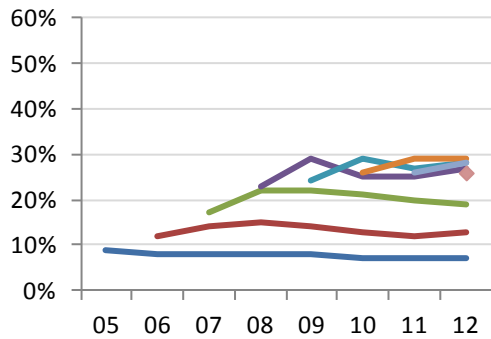
Diplomas



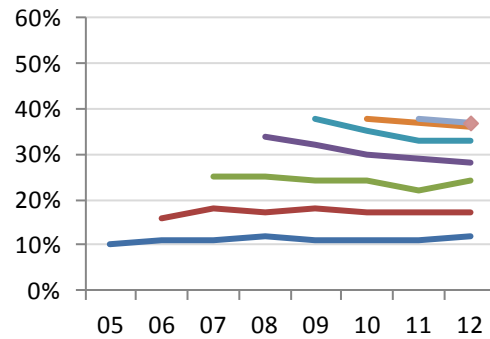
Bachelors



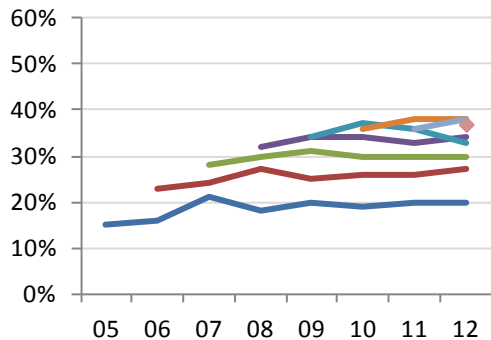
Level 7 graduate certificates/diplomas



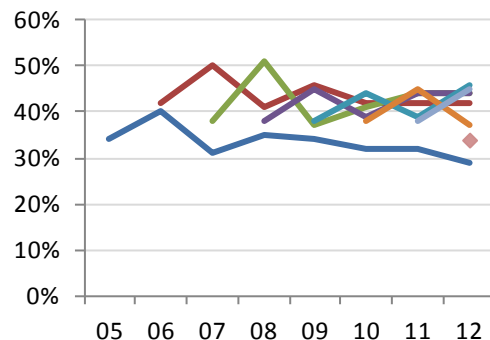
Level 8 honours/postgraduate certificates/diplomas



Masters



Doctorates



Year after study — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8

2.4 Have graduate destinations changed over time?

The previous section showed that there has been only limited change in the number of young graduates being overseas over time. To determine if the percentage of young domestic graduates who do further study or are in further employment each year has changed, we do a similar analysis to that above but this time, we focus on the further study and employment rates for each cohort of graduates over the past eight years at similar times after study.

Figure 5 shows that:

- For young domestic graduates who have completed a level 1-3 certificate, employment rates started to drop in the first year post study from the 2007 tax year and from the 2008 tax year in later years post study (see Figures 5a and 5d). This time corresponds to the start of the global financial crisis. The decrease continued for several years and although the decrease lessens over time, it is not until the 2012 tax year that we see any sign of an increase in employment rates again.
- Similarly to level 1-3 certificate graduates, employment rates have generally decreased from around the 2007 to 2008 tax years for young domestic graduates who have completed a level 4 certificate. And again, the first signs of an increase do not appear until around the 2012 tax year.
- For young domestic diploma graduates, employment rates are steady until the 2009 tax year when there is a sudden drop, particularly in the first two years post study. This suggests that diploma graduates may have been initially shielded from the effects of the global financial crisis before then being impacted.
- Further study rates have remained relatively constant over time for young domestic graduates who have completed a level 1-3 certificate, although there is a slight decrease from 2011 to 2012 which corresponds to the increase in the employment rate at this time (see Figure 5b and 5d). In the first year after study, there was also a drop in further study rates from the 2006 to 2007 tax years but a similar increase in the following year. But benefit rates increased from the 2008 to 2011 tax years, by around 5 percentage points (see Figure 5c and 5d). This suggests that during the global financial crisis, a number of graduates with lower level qualifications who were unable to gain employment, had to rely on benefits.
- However, further study rates generally increased over time for those who had completed a level 4 certificate, and there was a sharp increase in the first year post study for diploma graduates from the 2009 to 2010 tax years, which corresponds to the drop in employment at this time. Benefit receipt also increased between the 2008 to 2011 tax years, but by a smaller amount than for level 1-3 certificate graduates: around 3 percentage points for level 4 certificate graduates and around 2 percentage points for diploma graduates. This suggests that during the period of the global financial crisis, graduates with higher levels of qualification tended to focus on obtaining further qualifications to enhance their employment prospects rather than relying on a benefit.
- For young domestic graduates who have completed a qualification at degree level or higher, although there are some trends over time, generally rates have remained relatively constant over the past eight years. This suggests that having a higher qualification has helped to protect these graduates from the worst effects of the global financial crisis⁹. It is

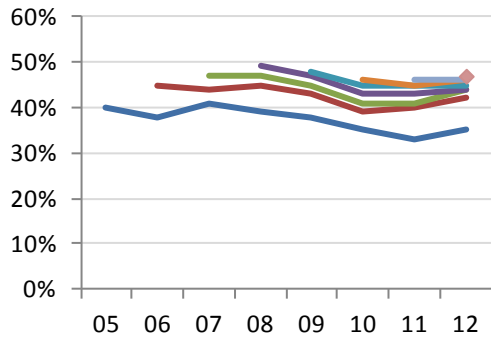
⁹ Note however that the Ministry of Education report *What young graduates earn when they leave study* shows that earnings in real terms dropped for young domestic graduates at many qualification levels during the recession, including at bachelors and honours level. This suggests that although graduates with qualifications at degree level and above continued to be able to gain work during the global financial crisis, the type and hours of employment may have been negatively affected to some degree.

also notable for these graduates, and those at diploma level, that employment and further study rates almost exactly mirror each other. That is, when the percentage of graduates in employment increase, further study rates drop to roughly the same extent, and vice-versa.

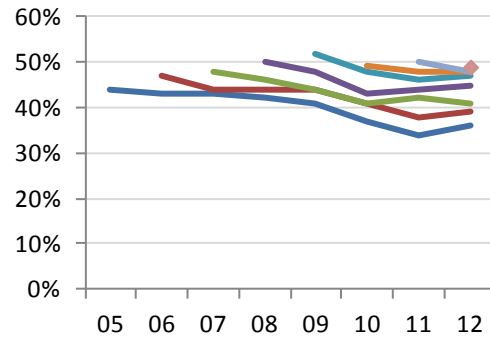
Figure 5a

Percentage of young domestic graduates who were classified as employed in each tax year, for each year after study, by qualification level.

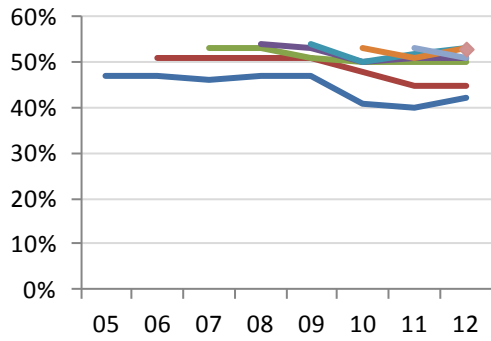
Level 1 – 3 certificates



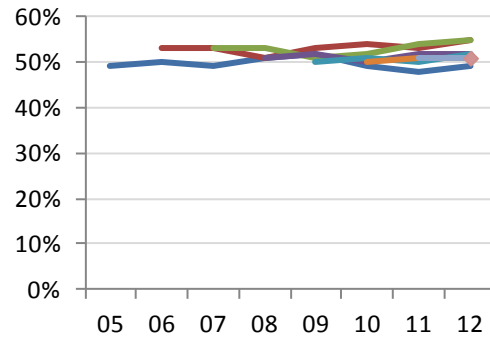
Level 4 certificates



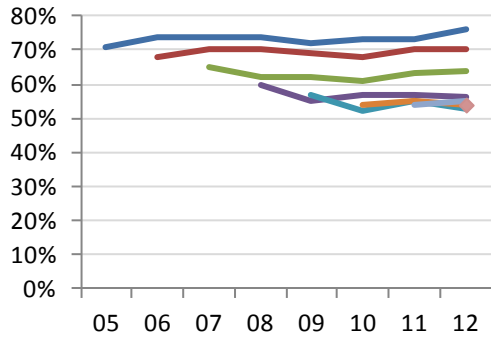
Diplomas



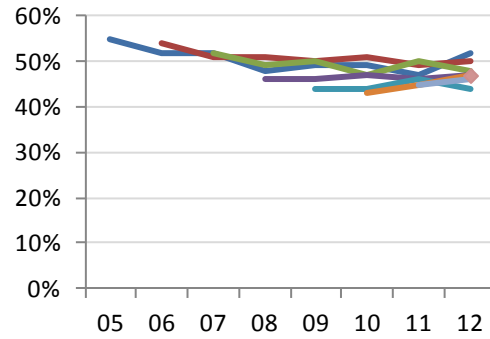
Bachelors



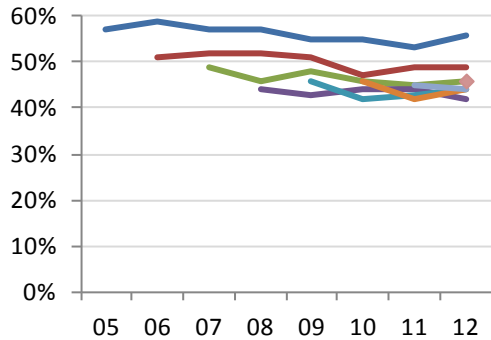
Level 7 graduate certificates/diplomas



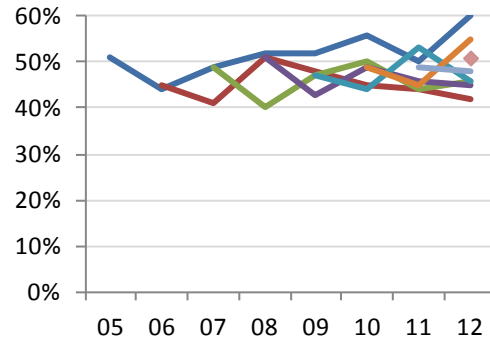
Level 8 honours/postgraduate certificates/diplomas



Masters



Doctorates

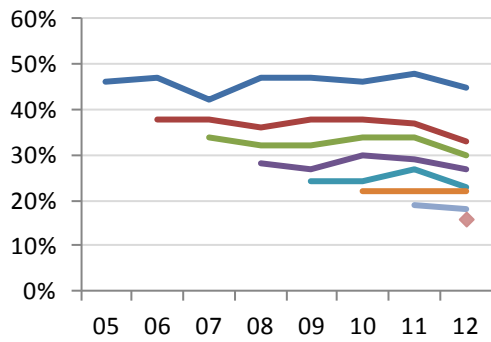


Year after study — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8

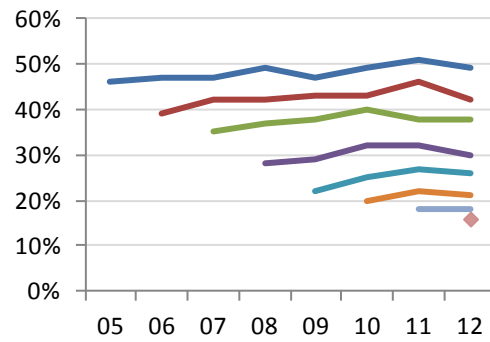
Figure 5b

Percentage of young domestic graduates who were classified as doing further study in each tax year, for each year after study, by qualification level.

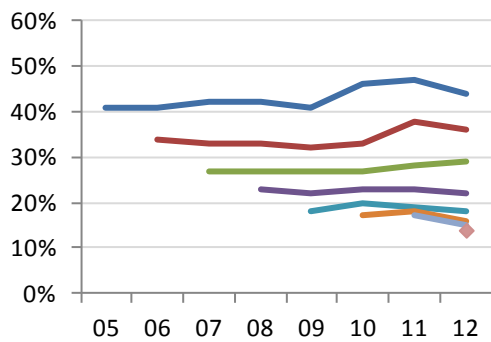
Level 1 – 3 certificates



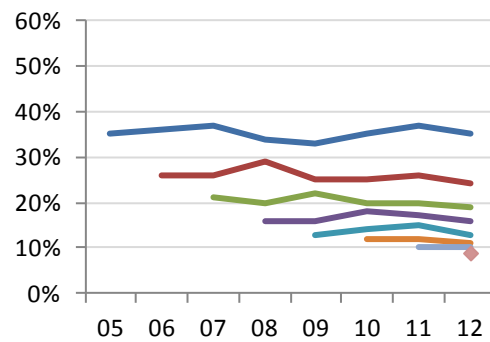
Level 4 certificates



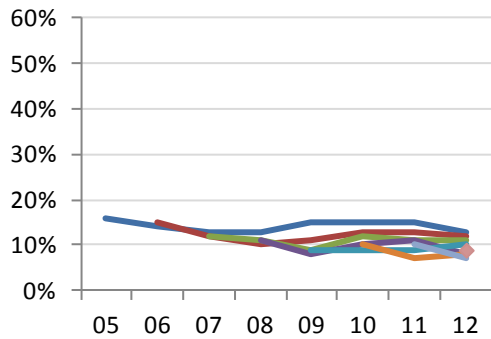
Diplomas



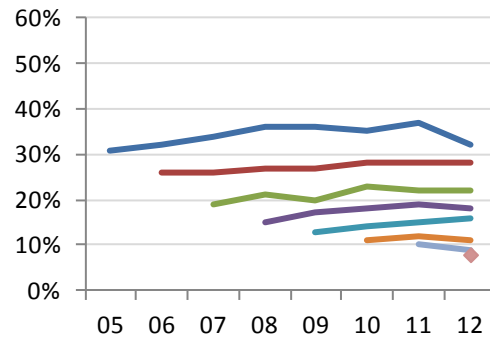
Bachelors



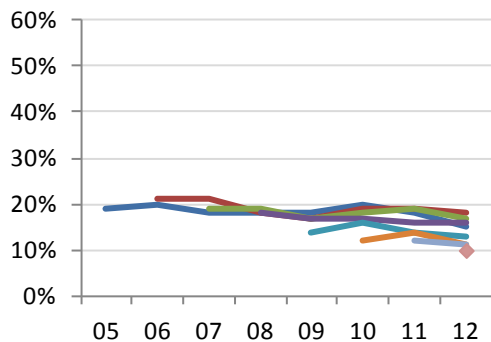
Level 7 graduate certificates/diplomas



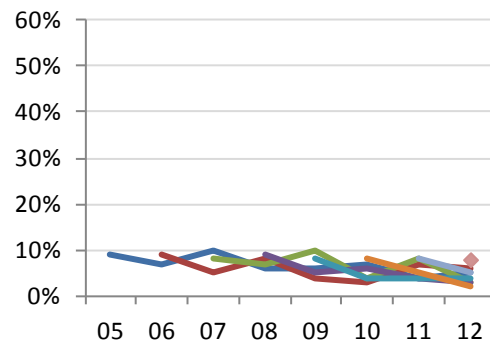
Level 8 honours/postgraduate certificates/diplomas



Masters



Doctorates

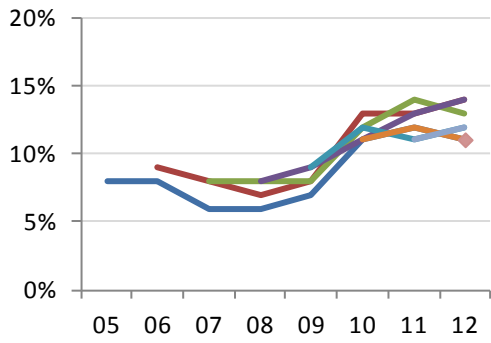


Year after study — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8

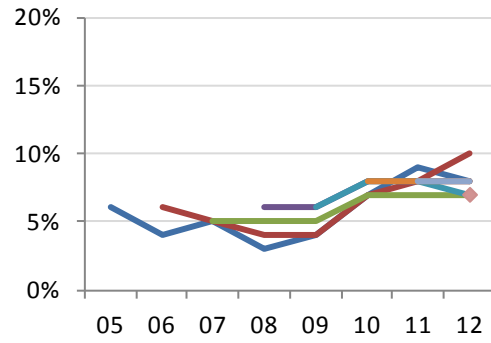
Figure 5c

Percentage of young domestic graduates who were classified as receiving a benefit in each tax year, for each year after study, by qualification level.

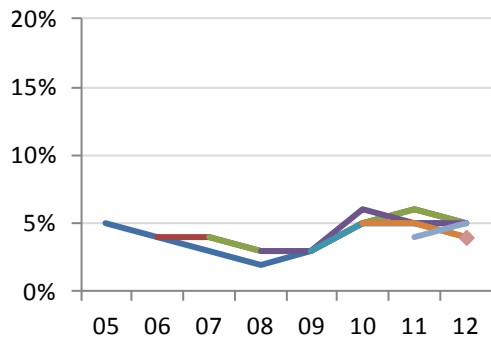
Level 1 – 3 certificates



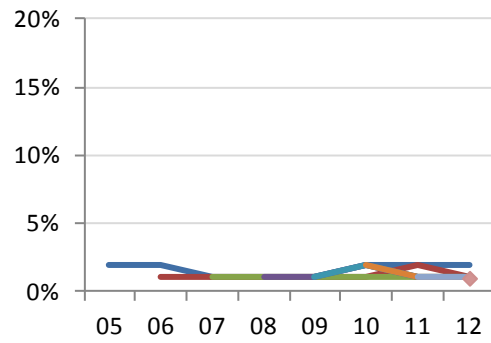
Level 4 certificates



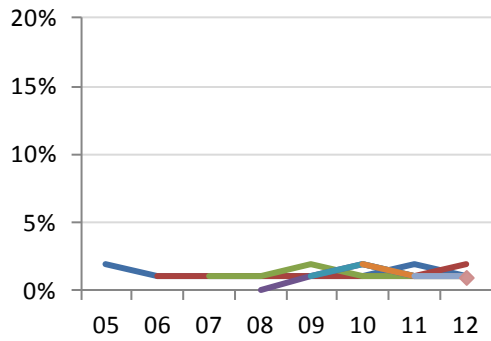
Diplomas



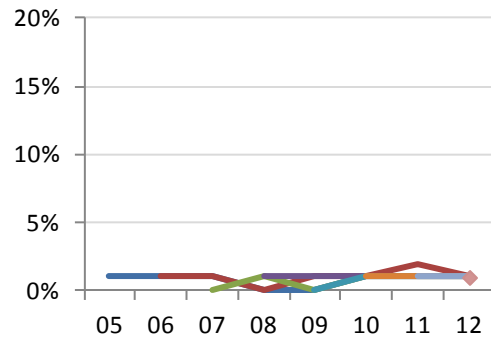
Bachelors



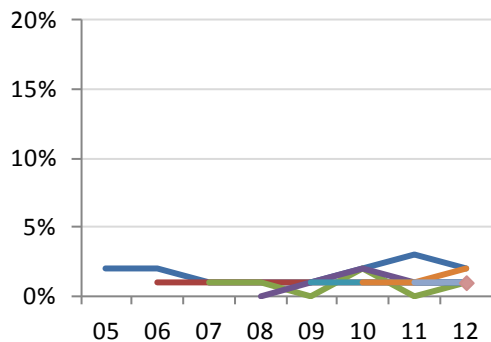
Level 7 graduate certificates/diplomas



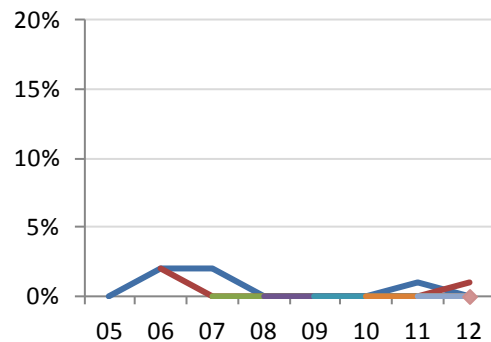
Level 8 honours/postgraduate certificates/diplomas



Masters



Doctorates

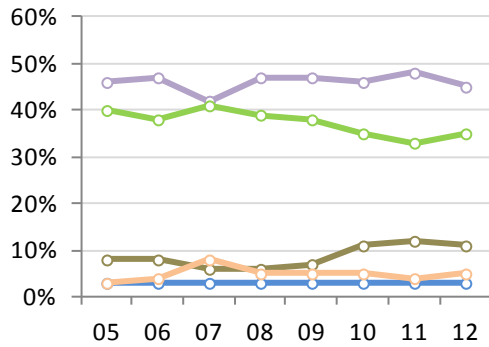


Year after study — 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8

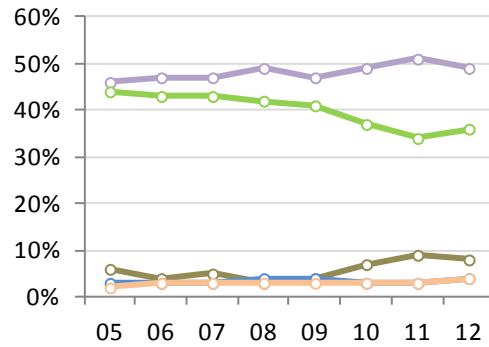
Figure 5d

Percentage of young domestic graduates who were classified in each destination in the first year post study, by qualification level.

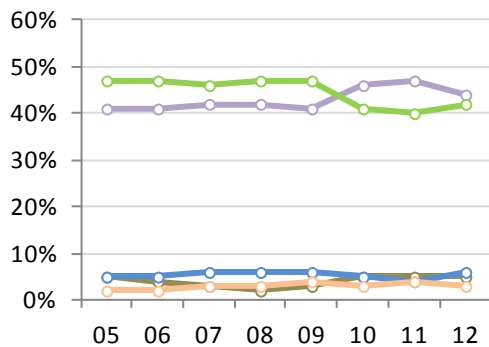
Level 1 – 3 certificates



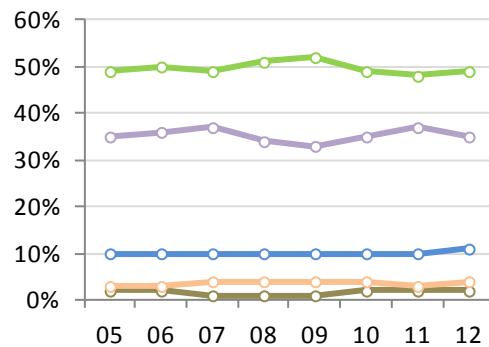
Level 4 certificates



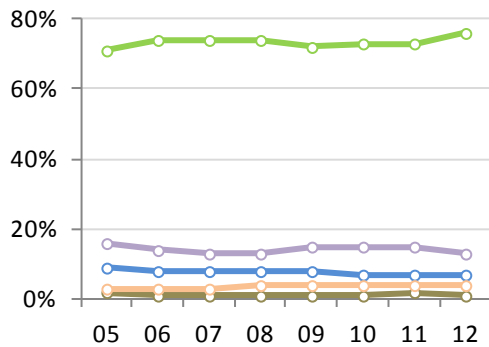
Diplomas



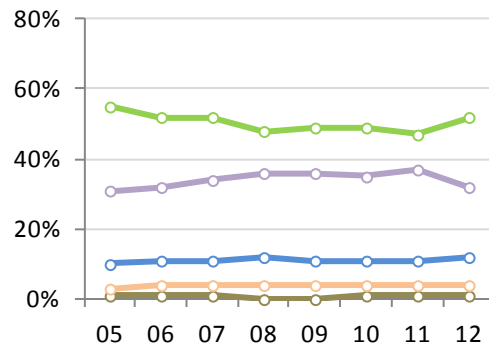
Bachelors



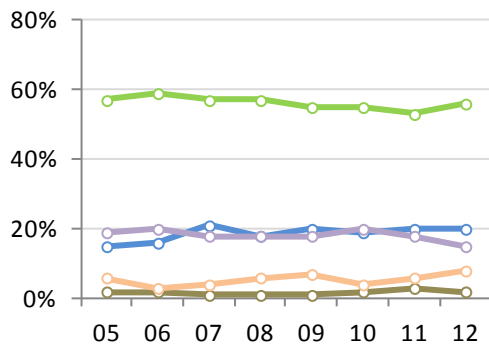
Level 7 graduate certificates/diplomas



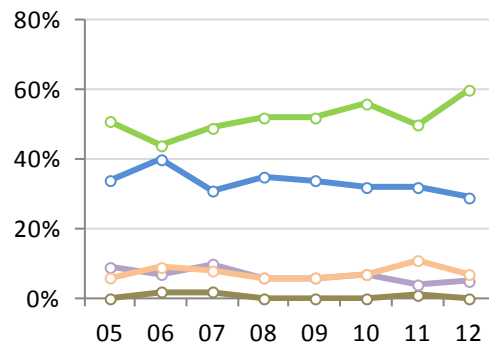
Level 8 honours/postgraduate certificates/diplomas



Masters



Doctorates



—○— Employment —○— Study —○— Overseas —○— Benefit —○— Other

3 WHAT GRADUATES WHO COMPLETE A BACHELORS DEGREE DO AFTER STUDY.

In the first year after study, almost half (48 percent) of all young, domestic bachelors graduates are in employment, 36 percent are doing further study, 10 percent are overseas and very few (2 percent) are on a benefit. Seven years after study, just over half are in work (51 percent), but the further study rate has dropped to 10 percent and the overseas rate has increased to 31 percent. The percent of bachelors graduates on a benefit seven years after study is marginal (1 percent).

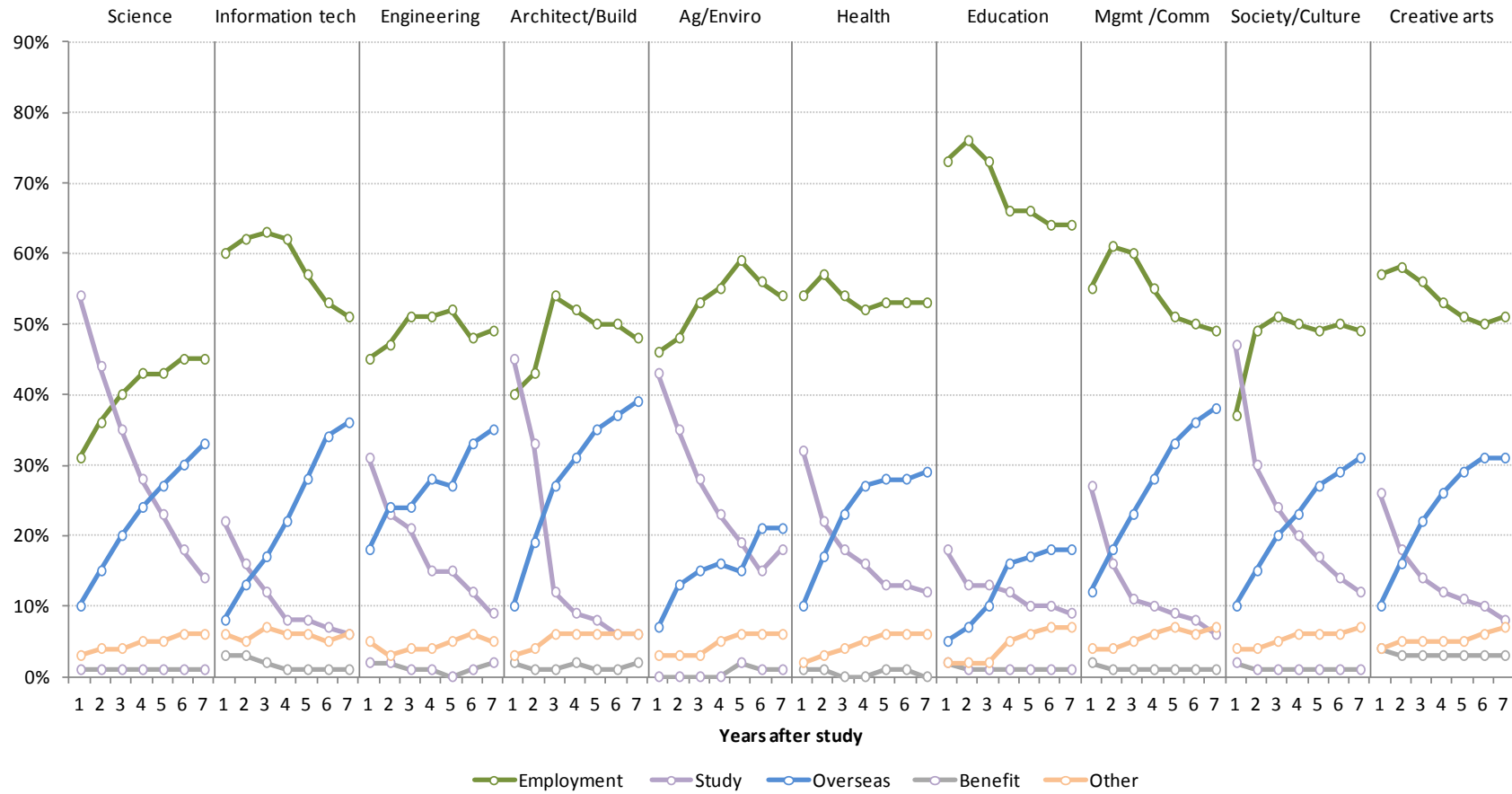
3.1 Outcomes for bachelors graduates by broad field of study

Looking more closely, we can see that these overall trends vary depending what a graduate has studied (see Figure 6). For example:

- In the second year after study, employment rates are highest for those who study education (76 percent), information technology (62 percent), management and commerce (61 percent), creative arts (58 percent) and health (57 percent).
- Employment rates are highest for those who complete a bachelors degree in education in all years after study, varying from 73 percent in the first year after study, to a maximum of 76 percent in the second year after study, to 64 percent seven years after study.
- Bachelors graduates who have studied natural and physical sciences (54 percent), society and culture (47 percent), architecture and building (45 percent) or agricultural and environmental and related studies (43 percent) are more likely to be doing further study in the first year after they complete their bachelors degree.
- The percentage of graduates who go overseas is highest in the first year after study for young, domestic engineering graduates (18 percent) and lowest for those who study education (5 percent), agricultural, environmental and related studies (7 percent) or information technology (8 percent). This compares to around 10 percent for all other young domestic bachelors graduates.
- The percentage of graduates who go overseas increases each year after study in almost all cases. However the rate of increase is lower for young domestic graduates who study education, or agriculture, environmental and related studies, with only 18 and 21 percent respectively of these graduates overseas seven years after they complete their studies. This compares with around 30 percent or higher for young, domestic bachelors graduates in all other broad fields of study and is in line with findings by Papadopoulos (2012). Graduates with the highest percentages overseas after seven years are those who have studied architecture and building (39 percent), management and commerce (38 percent), information technology (36 percent), or engineering and related technologies (35 percent).
- The percentage of graduates who receive a benefit is low, around 1 percent, in each of the first seven years after study and for all fields of study. However, rates are marginally higher for young, domestic graduates who study creative arts (around 3 percent).

Figure 6

Destinations for young domestic bachelors graduates in the first seven years after qualification completion by broad field of study



3.2 Outcomes for bachelors graduates by narrow field of study

Each broad field of study encompasses a range of narrow fields of study, and graduates who study different narrow fields of study may tend to be employed in different occupations. In the following sections, we look more closely at two broad fields of study – health, and society and culture – and analyse the outcomes for graduates by narrow field of study. Both of these broad fields of study encompass a wide range of occupations. For example, the broad field of health includes medicine, veterinary science, dentistry, and nursing as narrow fields of study. And the range of occupations for those who study the broad field of study of society and culture will also be wide, with narrow fields of study ranging from studies in human society to law to sport and recreation.

Graphs showing destinations by narrow field of study for all other young domestic bachelors graduates are shown in Figures 10 to 13 in appendix A.

Health

The broad field of study of health encompasses the following narrow fields of study:

- Medical Studies
- Nursing
- Pharmacy
- Dental Studies
- Veterinary Studies
- Public Health
- Radiography
- Rehabilitation Therapies
- Other Health

Looking at what graduates from each of these narrow fields of study do (see Figure 7), we can see that there are large differences. For example:

- Employment rates are highest in the first year after study for young, domestic graduates who have completed a bachelors qualification in the pharmacy narrow field of study (94 percent). However, the employment rate of young domestic pharmacy graduates drops sharply in the following years, mostly because of the increase in the number of graduates going overseas; the proportion overseas steadily increases to reach 39 percent seven years after they have finished their bachelors qualification. Employment rates are also very high initially for young domestic bachelors graduates who study radiography (85 percent) or dental studies (69 percent) but these rates similarly drop (to 50 percent and 34 percent respectively) with a high proportion of graduates overseas several years after they complete their studies.
- Employment rates after seven years are highest for young domestic graduates who have completed a bachelors degree in medical studies (63 percent). They are also high, seven years after study, with more than half of young, domestic graduates employed, for those

who study veterinary studies (60 percent), public or other health (both 58 percent), and nursing (55 percent). Part of the reason for these higher employment rates is because fewer graduates who complete a qualification in these narrow fields of study go overseas.

- Further study rates are high in the first year after study for nursing and public health (both 63 percent), and other health (45 percent) young domestic graduates. But graduates in all of the other health related narrow fields of study have relatively low further study rates in all of the first seven years after study: these are less than 20 percent in all cases except for the second year after study for medical studies graduates where the rate is 28 percent.
- The percentage of young domestic graduates who go overseas increases in the first few years after study in all narrow fields of health. However, the rate starts to plateau after five to six years and even shows some signs of decreasing by the seventh year. There are differences between narrow fields in the level that the rate appears to plateau at: after seven years, the percentage of young domestic graduates who are overseas is highest for pharmacy (39 percent) and radiography (35 percent)¹⁰. But the overseas rate is lowest for those who study medical studies (26 percent), nursing, veterinary studies, or public health (all 25 percent), or other health (23 percent).
- The percentage of young domestic graduates who complete a bachelors degree in any health narrow field of study and go on a benefit is very low, 1 percent or less in almost all cases.

Society and Culture

The broad field of study of society and culture encompasses the following narrow fields of study:

- Political Science and Policy Studies
- Studies in Human Society
- Human Welfare Studies and Services
- Behavioural Science
- Law
- Justice and Law Enforcement
- Language and Literature
- Philosophy and Religious Studies
- Economics and Econometrics
- Sport and Recreation
- Other Society and Culture

¹⁰ The percentage of young domestic bachelors graduates who study dentistry and go overseas is suppressed in the seventh year after study in order to meet confidentiality requirements. However, the percentage is very high after six years for dentistry (50 percent).

Looking at what graduates from each of these narrow fields of study do (see Figure 8), we can see that:

- Employment rates increase over the first two to three years for most narrow fields of study, and then stabilise, with around half of all young domestic graduates in employment by seven years after study. The percentage of graduates in employment is highest for those who study sport and recreation (59 percent after seven years) and human welfare studies and services¹¹ (57 percent). Employment rates are slightly lower for graduates who study philosophy and religious studies (43 percent) and behavioural science (45 percent). However these percentages are not much lower than the average for all young domestic society and culture graduates (49 percent).
- Employment rates for law graduates follow a slightly different trend as these increase sharply from the first to second year after study and then drop again in subsequent years. Part of the reason for the initial increase will be that many law bachelors graduates continue studying to complete their ‘professionals’ in the first year after completion of their bachelors qualification, so are initially classified in the further study destination. Job prospects are very good for those who have completed this additional qualification and employment rates are consequently high in the second and third years after completion of the initial bachelors qualification. The number of graduates in employment then drops a little in subsequent years as the number of graduates who go overseas increases.
- Further study rates are high in the first year post study for almost all narrow fields of study: from 38 percent for young domestic graduates who have studied sport and recreation, and economics and econometrics to 54 percent for law graduates and 56 percent for political science and policy studies graduates. In contrast, human welfare studies and services graduates have lower rates with 21 percent of graduates in further study in the first year post study.
- The percentage of graduates who go overseas steadily increases over time. Seven years after study, rates are lowest for those who study human welfare studies and services (21 percent) and sport and recreation (24 percent), and are highest for young domestic graduates who study economics and econometrics (41 percent), justice and law enforcement (36 percent) and law (35 percent).

¹¹ Note that the number of young domestic bachelors graduates is relatively low for the human welfare studies and services narrow field of study and so rates will fluctuate more than they do for fields of study with higher numbers of graduates.

Figure 7

Destinations for young domestic bachelors graduates who study the broad field of health, for the first seven years after qualification completion by narrow field of study

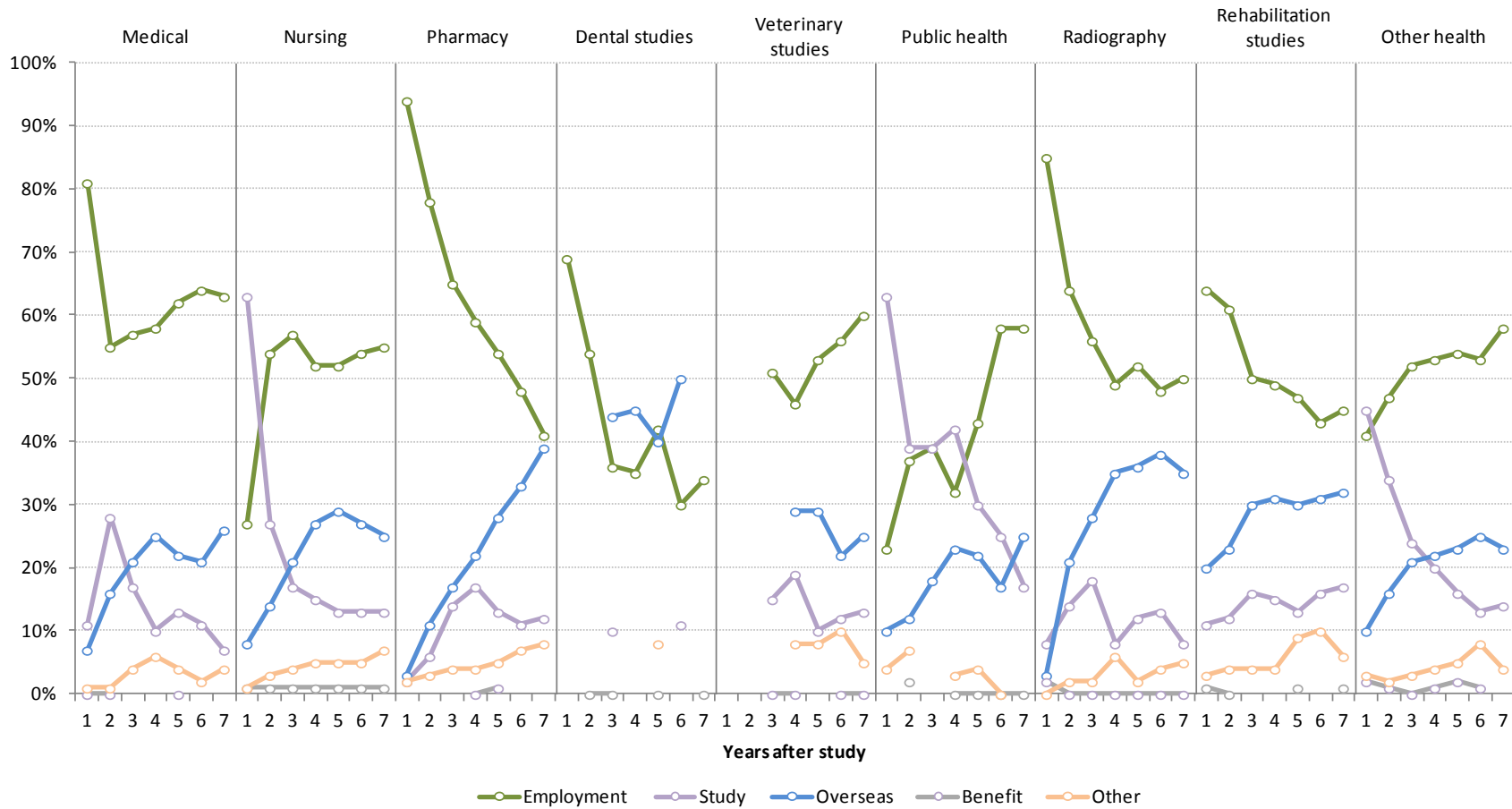
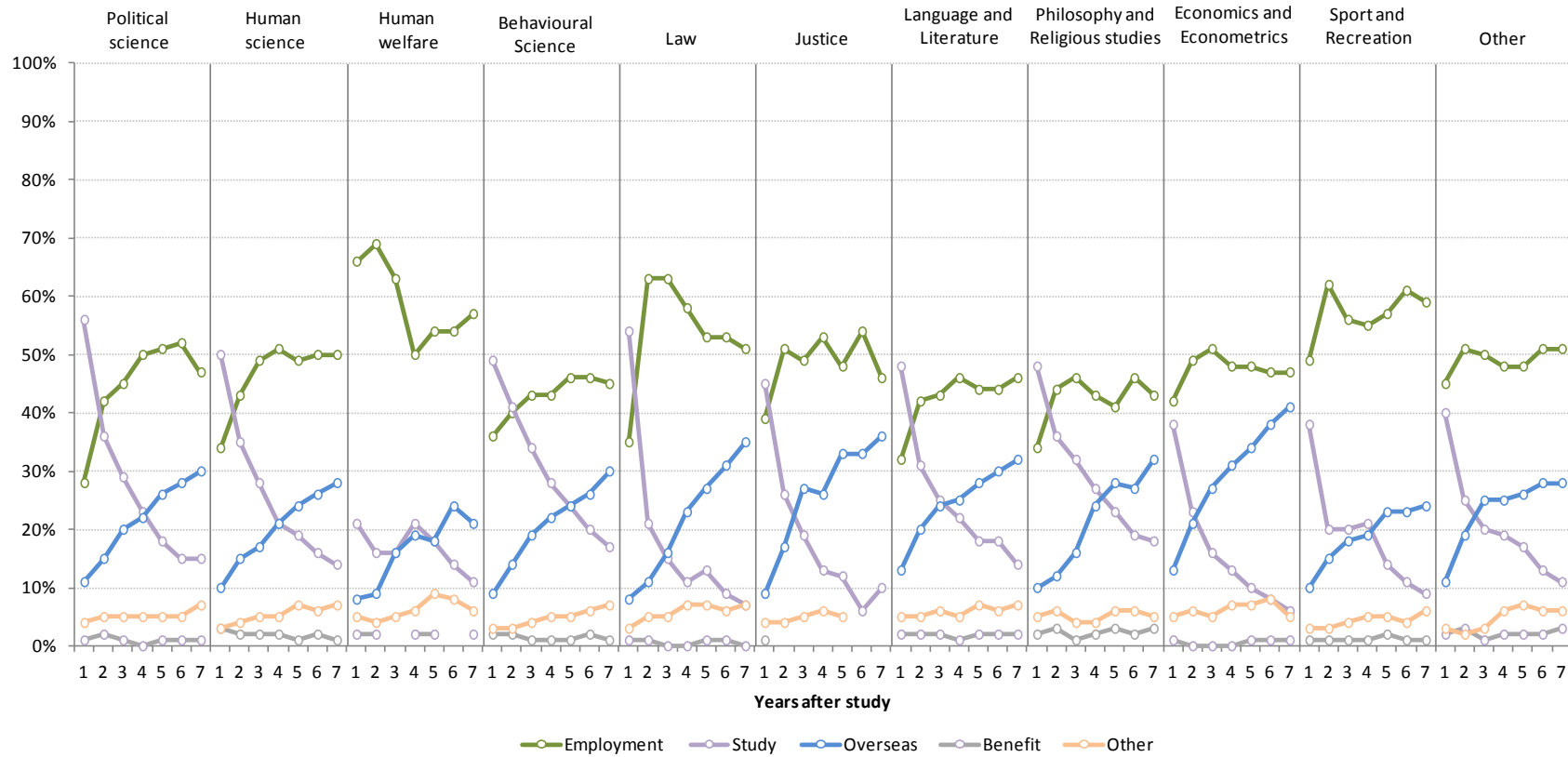


Figure 8

Destinations for young domestic bachelors graduates who study the broad field of society and culture, for the first seven years after qualification completion by narrow field of study



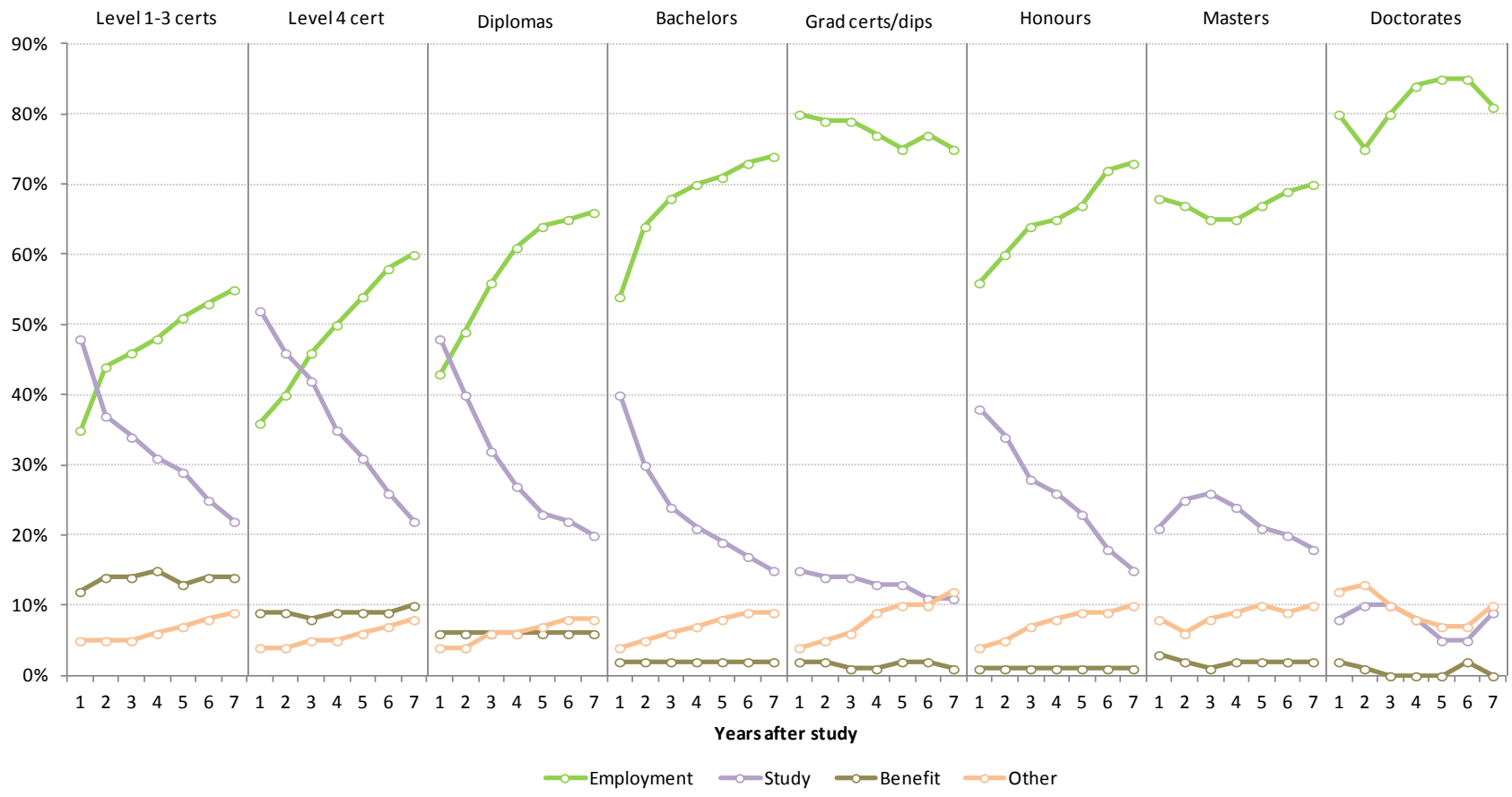
4 FOCUSING ON GRADUATES WHO REMAIN IN NEW ZEALAND

If we focus only on young domestic graduates who remain in New Zealand in any particular year (see Figure 9), we can see that, compared to the trends observed when we look at all young domestic graduates:

- Employment rates increase at a higher rate over time for those who complete a level 1-4 certificate or level 5-7 diploma and remain in New Zealand. Employment rates increase by 20 percentage points (level 1-3 certificates) to 23 percentage points (level 5-7 diplomas) to 24 percentage points (level 4 certificates) across the seven years. On average, these increases are around 10 percentage points higher than those for all young domestic graduates (including those who go overseas).
- When we focus only on those who remain in New Zealand, employment rates increase over time for bachelors and bachelors with honours and postgraduate certificate or diploma graduates – whereas the employment rate tends to decrease when we look at the whole cohort. The difference in the rate of increase compared to all graduates is around 20 percentage points on average (17 percentage points for bachelors graduates and 22 percentage points for honours graduates). Employment rates also generally increase for masters and doctorate graduates, whereas they drop when we look at all graduates, including those who go overseas. The difference in the rate of increase is around 10 percentage points on average across the seven years.
- Among those who are in New Zealand, employment rates don't drop dramatically over time for graduate certificate or diploma completers, with the decrease over the seven years being 5 percentage points compared to 20 percentage points for all graduates at that level. Most of the drop in employment rate for those who stay in New Zealand is due to an increase of graduates in the Other/Unknown category, which is likely due to some graduates taking time out of the workforce, for instance, for caregiving purposes.

These changes in patterns occur because at higher qualification levels, an increasing number of graduates go overseas which reduces the employment rate for graduates at these levels when all graduates are considered. However, of the graduates who remain in New Zealand, over time, an increasing number of these graduates gain employment.

Figure 9
Destinations for young domestic graduates who remain in New Zealand in the first seven years after qualification completion



5 CONCLUSION

The destinations of young domestic graduates vary considerably depending on both the level of qualification that a graduate has completed and the field of study. Around half of level 1-4 certificate and level 5-7 diploma graduates continue on to do further study in their first year after they complete their first qualification – as would be expected, given that many qualifications at those levels are designed to help people advance to study at higher levels. Those who complete qualifications at higher qualification levels are more likely to be employed in the first year post study, with around half of all bachelors and bachelors with honours and postgraduate certificate or diploma graduates employed, and 55 percent of masters and doctorate graduates. Employment rates generally increase over time for young domestic graduates who complete qualifications at below degree level, and for all young domestic graduates when we only consider those who are in New Zealand.

The proportion of young graduates who go overseas generally increases both with the level of qualification gained and with time. Seven years after study, 17 percent of level 1-3 certificate graduates are overseas, 21 percent of diploma graduates, 31 percent of bachelors graduates and 41 percent of doctorate graduates. These trends are similar to those observed for earlier cohorts of graduates over the past eight years. However, for young domestic graduates at bachelors level and higher, the percentage of young graduates who go overseas appears to be flattening off and reaching a maximum around six to seven years after graduation. The exception is doctorate graduates which reach a peak around three to four years after study. This early flattening of the overseas proportion is most likely due to a large number of doctorate graduates going overseas immediately after their studies in order to complete a postdoctoral placement, with some then returning.

Graduate outcomes were affected by the recent global financial crisis with different trends seen for graduates at different qualification levels. Employment rates dropped and benefit rates increased for young domestic graduates who had completed a qualification at certificate levels 1-3. Employment rates also dropped for those who had completed a level 4 certificate or diploma, while further study rates increased over this time (and benefit rates to an extent) suggesting that these graduates focused on obtaining further qualifications to enhance their employment prospects. Employment rates generally remained constant for young domestic graduates who completed a qualification at degree level or higher which suggests that having a higher qualification has helped to protect these graduates from the worst effects of the recession.

Future work on the destinations of graduates

In general, in this report we only report the proportion of graduates who are in each destination at a particular time following their study; we do not look at what each graduate does over time. For instance, we don't ask whether the graduates who are on a benefit remain on a benefit over more than one year. Nor do we look at the rate of return of graduates from overseas or how long graduates spend overseas. Or what proportion of graduates who go into work return for further study and whether their return to study is for higher level qualifications. We intend to take a dynamic look at graduate destinations in a future report.

6 DATA AND DEFINITIONS

This report looks at destinations for young graduates over the first seven years after they 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.

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 from a number of datasets including:

- 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 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 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.

Graduate destinations

The graduate destinations used in this report are:

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

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

Destinations are defined as follows:

Overseas – 9 months or more overseas overall in a year.

Further study – graduates who are not classified in the *Overseas* category 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 accident compensation for at least four months or more in a tax year and/or receive any self-employment income.

Other/Unknown – graduates who are involved in more than one activity during the year and who do not meet the criteria for any of the above four destinations, or for whom no matching data can be found in the IDI.

Completions

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

The year that a qualification is completed is assumed to be the last year of enrolment in that qualification. This is because sometimes completions are not recorded in the year that a student actually completes their qualification, for example due to administrative delays or other peculiarities. Completions are excluded in cases where the recorded completion is shown as having occurred three or more years before the last year of enrolment in that qualification.

Number of years post-study

The number of years post study are defined using tax years for earnings and all destinations except further study where calendar years are used. The results for two cohorts of graduates are aggregated together for each year post study, in order to increase the number of graduates. This means that we are able to publish results for more qualification level by field of study combinations as more results meet Statistics New Zealand’s confidentiality requirements. Increased graduate numbers also improve the statistical quality and robustness of the results.

Cohorts are chosen so that their post-study employment outcomes are always compared in the same economic climate: the 2011 and 2012 tax years. For instance, one year post-study outcomes are calculated for graduates who completed in 2009 or 2010, and five year post-study outcomes are calculated for graduates who completed in 2005 or 2006. Table 3 below shows how the aggregated cohorts align with tax and calendar years for each post study year.

Table 3
Alignment of cohorts with tax and calendar years

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

Graduate earnings

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

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 qualifications¹²
- 26 years or under for one year postgraduate study or graduate certificates or diplomas
- 27 years or under for masters
- 29 years or under for doctorate students.

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

Field of study

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

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

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

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

¹² For example, 25 years and under for law degrees which are four years long, 26 years and under for architecture degrees which are five years long, and 27 years and under for medical degrees as these are six years long. Qualifications with non-whole numbers of years are rounded to the closest number of whole years (rounding upwards if the length is x and a half years).

Field of study is broken down into broad fields using the New Zealand Standard Classification of Education (NZSCED¹³):

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

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

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

Confidentiality of data

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

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

- If the total number of graduates for a particular qualification level by field of study combination is higher than 50 on average across the seven years after study (which is the case for 82 percent of the published results¹⁴), then sixty-five percent of the published percentages are exact (to the significance level shown), ninety percent are within 1 percentage point, and ninety-five percent are within 2 percentage points.
- However, if the total number of graduates is between 20 to 50 for a particular qualification level by field of study combination, then only one-third of the published

¹³ For the structure of NZSCED, refer to:

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

¹⁴ Excluding suppressed values or combinations with no graduates (the latter are reported as zeroes). Also note that two cohorts of graduates are aggregated together for each year after study's results.

percentages are within 1 percentage point, sixty percent are within 3 percentage points, seventy-five percent are within 4 percentage points, and ninety-five percent are within 9 percentage points.

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

Statistics New Zealand Disclaimer

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

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

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

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

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

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

APPENDIX A DESTINATIONS FOR YOUNG DOMESTIC BACHELORS GRADUATES BY NARROW FIELD OF STUDY

The following graphs show the destinations for young domestic bachelors graduates by narrow field of study, for broad fields of study which are not analysed in detail in chapter 3. Narrow fields of study are only shown where the average number of graduates in each year after study (aggregated across two years) is 50 or higher.

Figure 10

Destinations for young domestic bachelors graduates who study the broad fields of natural and physical sciences, and agriculture, environmental and related studies, for the first seven years after qualification completion by narrow field of study

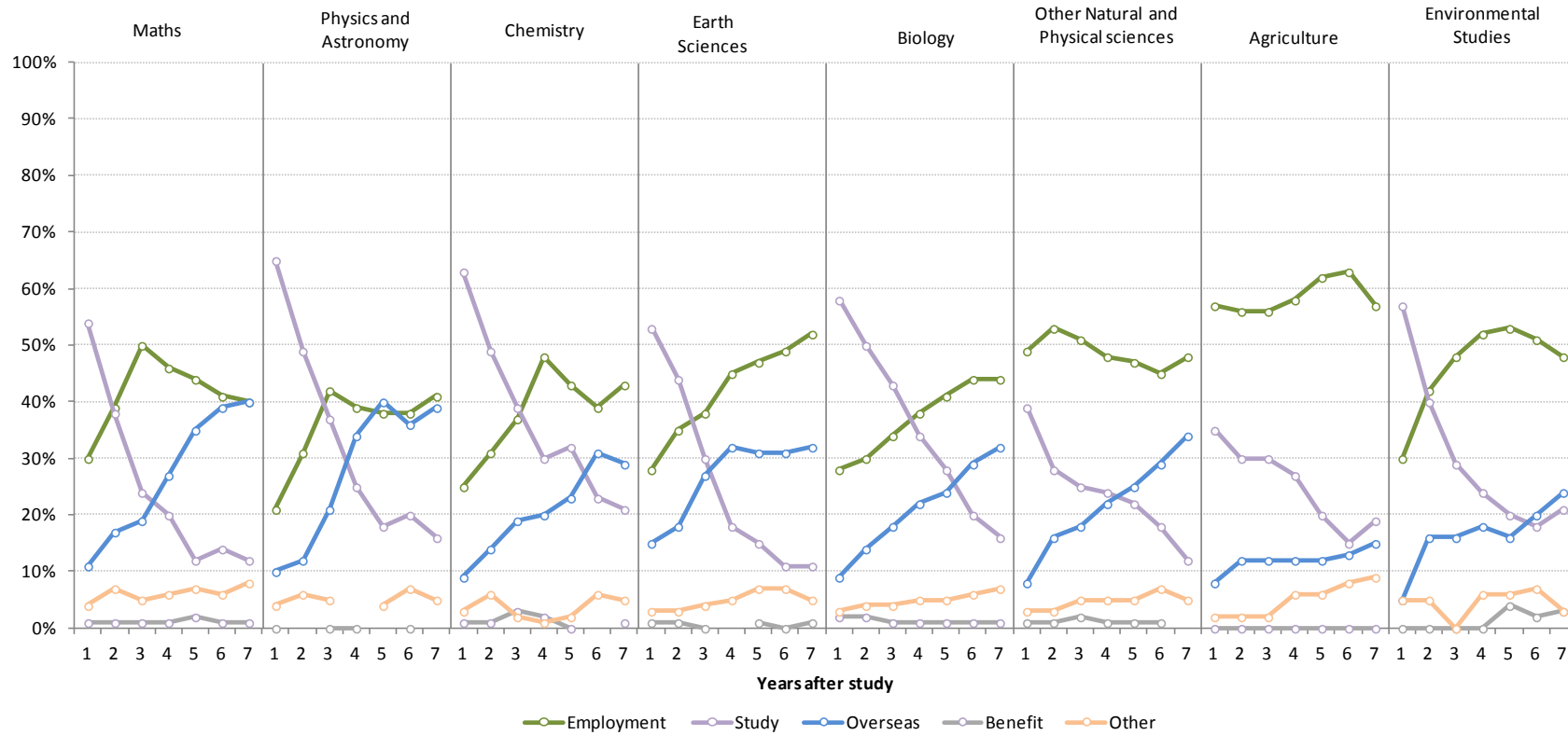


Figure 11

Destinations for young domestic bachelors graduates who study the broad fields of Information technology, and management and commerce, for the first seven years after qualification completion by narrow field of study

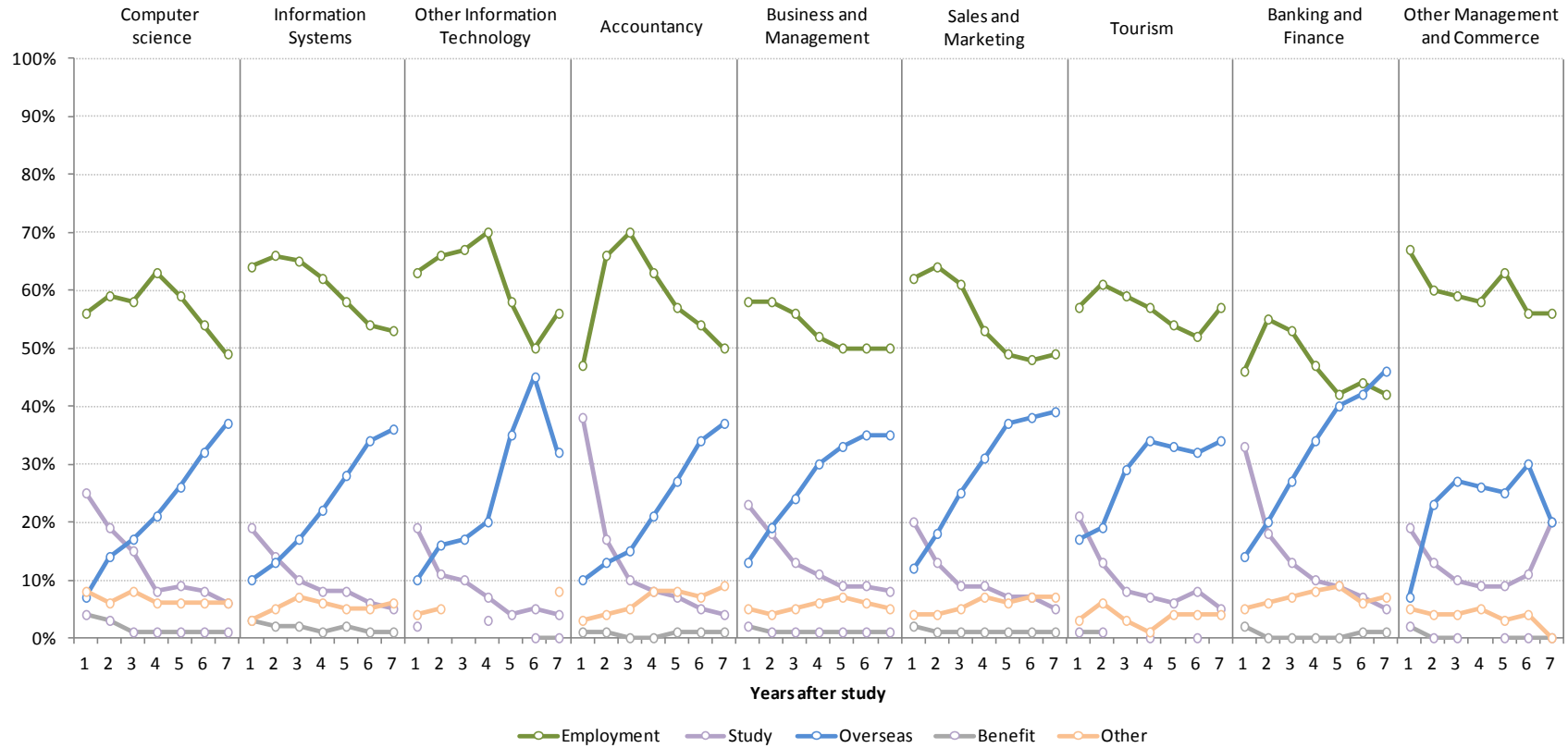


Figure 12

Destinations for young domestic bachelors graduates who study the broad fields of engineering and related technologies, and architecture and building, for the first seven years after qualification completion by narrow field of study

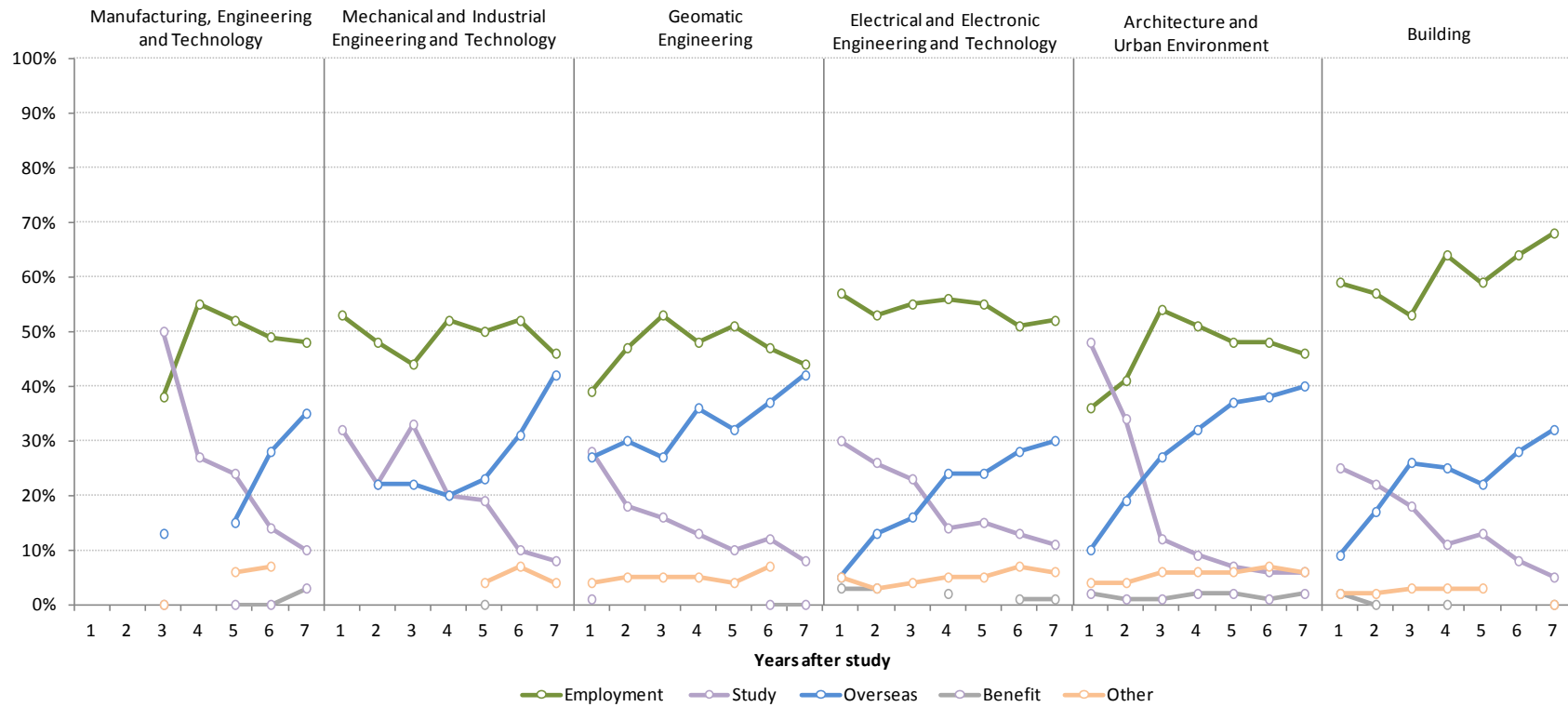
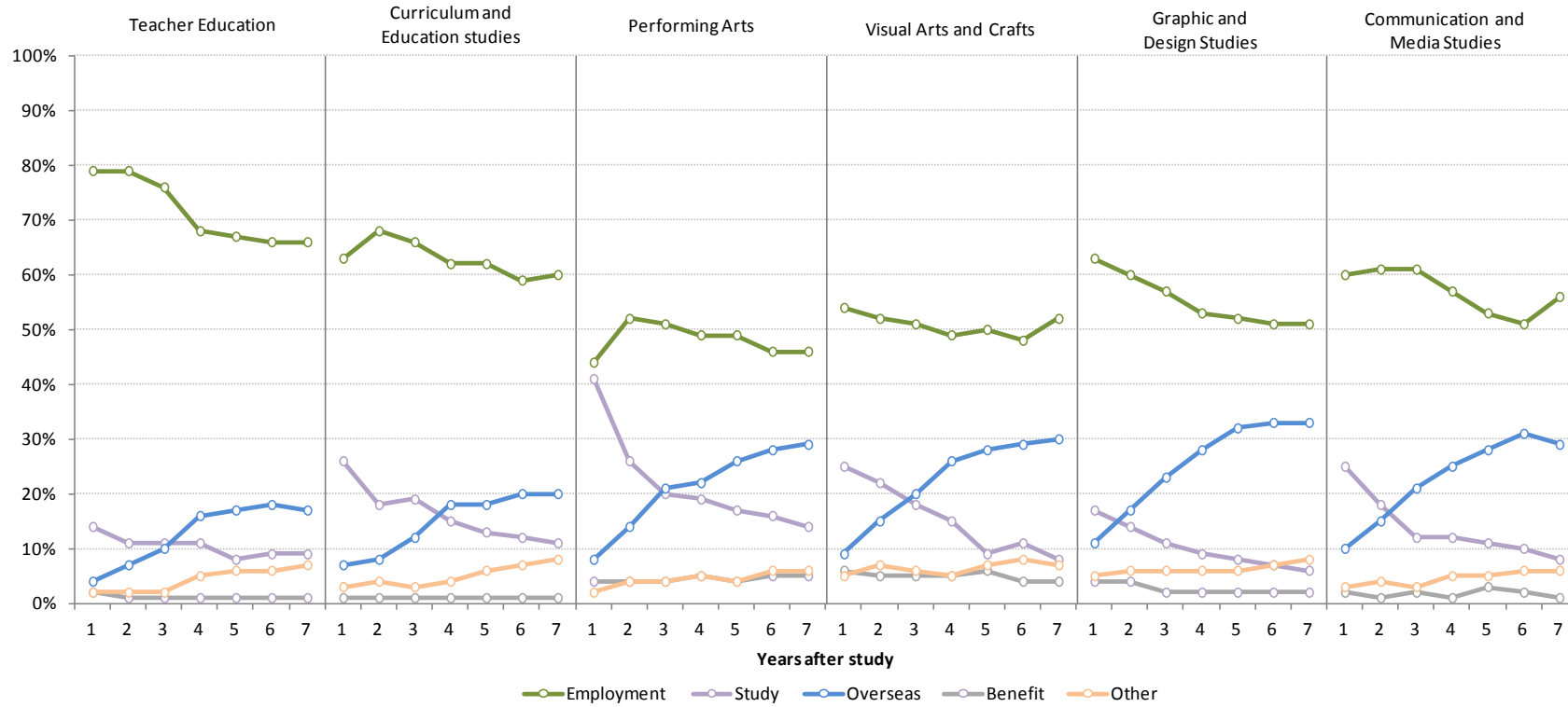


Figure 13

Destinations for young domestic bachelors graduates who study the broad fields of education, and creative arts, for the first seven years after qualification completion by narrow field of study



REFERENCES

Mahoney, P., Park, Z., Smyth, R. (2013). *Moving on up: What young people earn after their tertiary education*. Wellington, Ministry of Education, New Zealand.

http://www.educationcounts.govt.nz/publications/tertiary_education/115410

Papadopoulos T (2012). *Who Left, Who Returned and Who Was Still Away?* Wellington, Ministry of Business, Innovation and Employment, New Zealand.

<http://www.dol.govt.nz/publication-view.asp?ID=441>

Park, Z. Mahoney, P., Smart, W., Smyth, R. (2013). *Looking at the employment outcomes of tertiary education: New data on the earnings of young graduates*. Wellington, Ministry of Education, New Zealand.

http://www.educationcounts.govt.nz/publications/tertiary_education/looking-at-the-employment-outcomes-of-tertiary-education

Park, Z. Mahoney, P., Smart, W., Smyth, R. (2013). *What young graduates earn when they leave study*. Wellington, Ministry of Education, New Zealand.

<http://www.educationcounts.govt.nz/publications/80898/146542>

Smyth, R., Spackman, D. (2012). *Going abroad – What do we know about people going overseas after tertiary study?* Wellington, Ministry of Education, New Zealand.

http://www.educationcounts.govt.nz/publications/tertiary_education/going-abroad-what-do-we-know-about-people-going-overseas-after-tertiary-study



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