Young, domestic graduate outcomes – methodology

Background
This factsheet describes the data and methodology used to obtain the results in the factsheets: “Young, domestic graduate outcomes – destinations”, “Young, domestic graduate outcomes – earnings” and “How much more? – earnings premiums for young, domestic graduates”. These factsheets provide information on earnings and destinations for young, domestic graduates who complete qualifications at tertiary education providers in New Zealand.

Data
The Integrated Data Infrastructure (IDI) was used to obtain the results in the factsheets. This longitudinal dataset is managed by Statistics New Zealand and links together each individual’s tertiary education enrolments and completions data to data from a number of datasets including:

- Income including taxable benefits (from Inland Revenue)
- Border crossings (from Immigration New Zealand).

The tertiary education data in the IDI is provided by the Ministry of Education and is sourced from the Single Data Return from tertiary providers. The immigration data is derived from passenger manifests. The earnings and benefits data is derived from tax data collected by Inland Revenue. More information about the IDI can be found here: http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure.aspx

Destinations – definitions
The graduate destinations used in the factsheets 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 – nine months or more overseas overall in a year.
- Further study – graduates who are not classified in the Overseas category and do any tertiary study of 0.03 EFTS or more at a tertiary education provider 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 four 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 payments 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.

Graduate earnings
Earnings are only presented for graduates who are classified in the ‘Employment’ destination. Earnings have been scaled using the Labour Cost Index to normalise differences between the 2014 and 2015 tax years and are presented in 2015 dollars.

Earnings include income from wages, salaries, self-employment, paid parental leave and accident compensation payments. Earnings exclude unearned income such as rents, dividends, interests and transfer payments such as benefits. All earnings reported are annual.

Information about the number of hours worked by each graduate is not available. This means that we can’t distinguish whether differences in earnings are due to differences in wage rates or in the numbers of hours worked.
Earnings are also compared to the national median earnings for the 2015 tax year for all workers aged between 15-64 years who have earnings recorded in the IDI, no matter what their qualifications, occupations and hours of work. This value is $38,663.

Results are for completers only

Results are for students who have completed a qualification only. Enrolments and completions must match by qualification code and level, and provider.

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.

Results are reported for all fields of study and each completed qualification

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. In the latter case, outcomes are reported for all completed qualifications in the appropriate year after study.

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 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 2014 and 2015 tax years. For instance, one year post-study outcomes are calculated for graduates who completed in 2012 or 2013, and five year post-study outcomes are calculated for graduates who completed in 2008 or 2009. Table 1 shows how the aggregated cohorts align with tax and calendar years for each post study year.

Definition of ‘young’ graduates

We report outcomes for ‘young’ graduates only. 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 results to young graduates so as to support the decision-making of young people. Also, for older people, it is difficult to separate the effects of gaining a qualification from the effects of work experience that they have gained.

Table 1
Alignment of cohorts with tax and calendar years

<table>
<thead>
<tr>
<th>Cohort’s year of graduation</th>
<th>Years post study</th>
<th>Year in which we look at what the graduates earn or do</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calendar year</td>
<td>Tax year</td>
</tr>
<tr>
<td>12/13</td>
<td>1</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>11/12</td>
<td>2</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>10/11</td>
<td>3</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>09/10</td>
<td>4</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>08/09</td>
<td>5</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>07/08</td>
<td>6</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>06/07</td>
<td>7</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>05/06</td>
<td>8</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>04/05</td>
<td>9</td>
<td>13/14 14/15</td>
</tr>
<tr>
<td>03/04</td>
<td>10</td>
<td>13/14 14/15</td>
</tr>
</tbody>
</table>

Young graduates are defined as:

• 21 years or under for Level 1-4 certificates
• 23 years or under for Level 5-7 certificates/diplomas
• 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 qualifications
• 26 years or under for graduate certificates/diplomas, bachelors with honours degrees, or postgraduate certificates/diplomas
• 27 years or under for masters
• 29 years or under for doctoral students.

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

Domestic students only

We report outcomes and earnings for domestic students only, excluding any 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.

Field of study

We use the New Zealand Standard Classification of Education (NZSCED) to classify graduate’s study into various fields. NZSCED has three levels of classification – broad field of study, narrow field and detailed field. Most of our analysis is by broad or narrow field because if we divide our population of graduates too finely, we end up having to suppress more data to avoid breaching Statistics New Zealand’s confidentiality rules. Results when there are small numbers of graduates are also less robust.

The twelve NZSCED broad fields of study are:

01. Natural and Physical Sciences
02. Information Technology
03. Engineering and Related Technologies
04. Architecture and Building
05. Agriculture, Environmental and Related Studies
06. Health
07. Education
08. Management and Commerce
09. Society and Culture
10. Creative Arts
11. Food, Hospitality and Personal Services
12. Mixed Field Programmes.

Each broad field contains a spread of types of qualifications. For instance, the broad field of 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 social work and separation of medicine from nursing.

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 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 up to 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).

At most qualification levels, most graduates only complete a qualification in a single field of study. However, some graduates who complete bachelors degrees, bachelors with honours degrees, or postgraduate certificates/diplomas may complete the qualification in two (or more rarely three) fields of study. For example, they may complete a qualification in both Teaching education and Curriculum and education studies, or Accountancy and Business and management, or Biological sciences and Environmental studies, etc. In these cases, the graduates will be included in the results for each field of study. This means that the number of students in each narrow field may not sum to the broad field total, and the number in each broad field may not sum to the total.

It is important to note that this method may give different results to simply using the classification given to the qualification by the provider. One consequence of this is that sometimes, less obvious qualifications may be categorised under a particular field for some graduates. For example, at bachelor’s degree level, veterinary studies includes graduates who have completed a Bachelor of Veterinary Science and also some graduates who have completed a Bachelor of Agricultural Science or Bachelor of Science. Similarly, dental studies includes both graduates who have completed a Bachelor of Dental Surgery and those who have completed a Bachelor of Health Science (Oral Health).

Similarly, although there is likely to be much overlap, the qualifications included under a particular field of study may not correspond directly to those recognised by professional bodies.

Funding types

All graduates who have received any Student Achievement Component (SAC) funding are included in the results. SAC funding includes under 25 fees Level 1-2 fees-free provision, Māori and Pasifika trades training and ICT graduate schools funding. In previous year’s results, students who received any funding type were included, unless they received specifically excluded funding. This means that the set of students included in this year’s results differ a little to those in previous years. For example, graduates who only receive Youth Guarantee funding were included previously but are not included in this year’s results.

More information about outcomes for students who receive Youth Guarantee funding can be found in the Monitoring the Youth Guarantee policy 2014 report (Earle, 2016): www.educationcounts.govt.nz/publications/80898/monitoring-the-youth-guarantee-policy-2014

Confidentiality of data

The results in this series of factsheets and associated Excel tables comply with Statistics New Zealand’s confidentiality requirements. This includes checking that the corresponding provider, enterprise and graduate counts for each qualification level by field by year after study combination are higher than prescribed limits. Results that relate to a single provider or less than three employers are suppressed in all cases. Blanks may also be suppressed in line with Statistics New Zealand’s confidentiality rules.
There has been a change of methodology this year in that the proportion of graduates who are in each destination is now shown as an interval when there are 200 or less graduates in total. The width of these intervals depends on the rounded total number of graduates as shown in Table 2.

Table 2
Total number of individuals and interval width

<table>
<thead>
<tr>
<th>Number of individuals</th>
<th>Interval width</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>NA</td>
<td>Data suppressed</td>
</tr>
<tr>
<td>20-39</td>
<td>10</td>
<td>40-50%</td>
</tr>
<tr>
<td>40-99</td>
<td>5</td>
<td>40-45%</td>
</tr>
<tr>
<td>100-200</td>
<td>2</td>
<td>40-42%</td>
</tr>
<tr>
<td>&gt; 200</td>
<td>1</td>
<td>42%</td>
</tr>
</tbody>
</table>


IDI disclaimer

The results in these factsheets and associated tables 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 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 count of student achievement component-funded learners.