



USER GUIDE

JOBS AND TERTIARY EDUCATION INDICATOR

Purpose

The Jobs and Tertiary Education Indicator provides the tertiary education sector with a common source of labour market information for planning and investment.

While the Indicator has been designed primarily for tertiary education stakeholders, it is hoped that the information will be useful beyond the tertiary sector (e.g. for business groups).

Caveats and Cautions

- The Indicator cannot be used alone for highly detailed planning. For example, it cannot tell you that there should be training for, say, 32 more plumbers in Napier in any one year.
- The data is good for understanding general trends. As much of the data comes from Census, it is based on self-reported qualifications. This means that small numbers should not be relied on too much.

Context

Recent tertiary sector reforms introduced a new way of planning for and investing in tertiary education. The [Tertiary Education Commission](#) has more information on these reforms. As part of the investment system, tertiary education organisations need to plan to take account of labour market needs in a more explicit way, in particular institutes of technology and polytechnics are to develop regional strategies, and industry training organisations are to develop industry strategies. Good labour market information is an essential input for these strategies.

The Department of Labour has developed this Indicator to bring relevant labour market information into one place, in an easy to use format.

This is part of ongoing work within the Department of Labour to develop and collate information in that is customised to user needs. You can see the full range of [labour market information](#) at the Department's website. You can also see other [Labour Market Analysis Tools](#).

The [Regional Industry Snapshot](#) has information on regional labour markets. That tool has a similar lay-out to the Jobs and Tertiary Education Indicator, and will be particularly helpful for regional providers.

HOW TO USE THE INDICATOR

This section describes how to use the Jobs and Tertiary Education Indicator. The "How to save data" section tells you how to save data for further analysis and other documents. Definitions and information of sources of data are in Annex 1.

The Jobs and Tertiary Education Indicator includes three worksheets that let you explore the information by Field of Study, Industry, or Occupation.

- The sheet "Explore by Field of Study" has a drop-down menu showing all Fields of Study at the most detailed level. For each occupation that you select, you will see data about the top 10 occupations for that field of study.
- The "Explore by Industry" sheet has a green drop-down menu showing all industries. You can choose the industry at an aggregated level (3-digit) or a highly detailed level (5-digit). For each industry that you select, you can see data about the top 10 occupations for the industry.
- The "Explore by Occupation" sheet has a green drop-down menu showing all occupations. Data for the selected occupation will appear, together with information about the broader occupational group it belongs to.

The tool also has

- a Notes and data sources sheet that tells you about the data
- a Master sheet which includes the source data.

Field of Study tab

Click on the "Explore by Field of Study" at the bottom of the screen.

Select a field of study from top drop-down menu in the green cell. The sheet will then show you the top ten occupations for that Field of Study.

The first three lines of data in each column are in light blue. They describe everyone in each occupation who *also* has the specific field of study. The rest of each column describes everyone who does that job, regardless of their field of study.

Number employed in 2006 with this main FOS shows how many people in each occupation have their highest qualification in this field of study.

% with highest qual in this FOS employed in each occupation shows the proportion of people with this field of study who are in each occupation.

% employed in each occupation with highest qual in this FOS shows the proportion of people in this occupation who have this field of study.

While these two percentages seem to measure the same thing, they can be very different. See the example below.

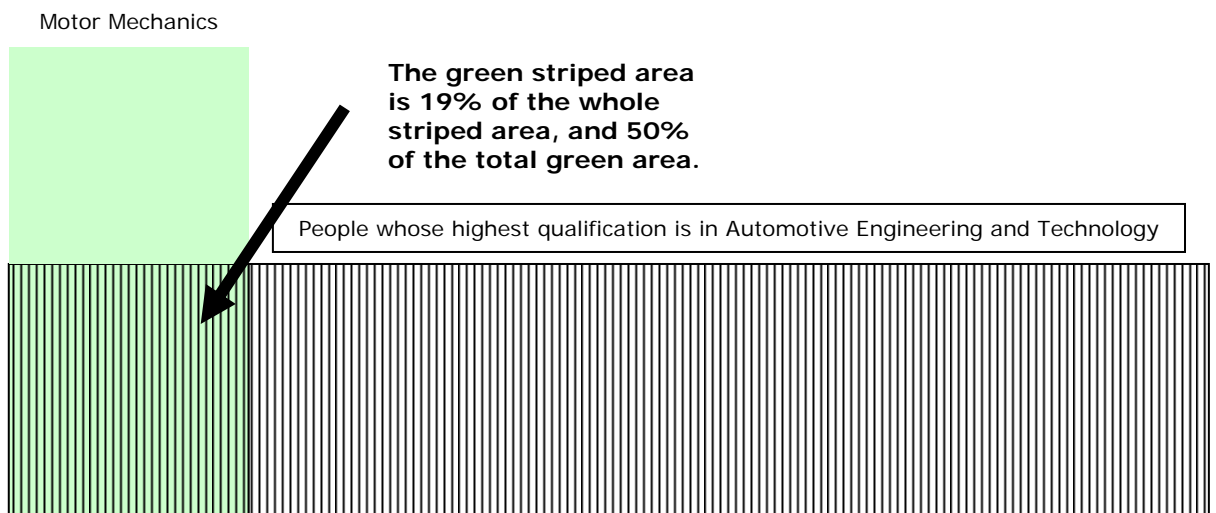
Example

Field of Study = Automotive Engineering and Technology

The green area in the graphic shows the total number of people who have their highest qualification in Automotive Engineering and Technology.

The striped area shows the total number of people employed in a related occupation (Motor Mechanics in this example.)

The overlap area is all people who have their highest qualification in Automotive Engineering and Technology AND who work as Motor Mechanics.



The overlapping green striped area shows that:

- 19% of all people with their highest qualification in Automotive Engineering and Technology work as Motor Mechanics. This is line 7 on the Explore by Field of Study sheet: “% with highest qual in this FOS employed in each occupation”
- 50% (half) of all Motor Mechanics have their highest qualification in Automotive Engineering and Technology. This is line 8 in the Explore by Field of Study sheet: “% employed in each occupation with highest qual in this FOS”

Important

All the information in the Field of Study sheet, from this line 9 onwards is about everyone with the given occupation, rather than just those working in the occupation who also have the chosen field of study.

For example, Motor Mechanics have a median income of \$34,800, regardless of what field of study they have for their highest qualification (cell C14).

Numbers employed (lines 9-11)

Lines 9 - 11 tell you about the number of people employed in the given occupation, and employment growth in that occupation, for a five year period, and for a ten year period.

Income (lines 14 - 15)

The median is the middle income figure, for all income (including rents and dividends) for people working in the occupation.

The average is the total income for everyone in this occupation divided by the number of people in this occupation.

- A bigger gap between the median and average income suggests an occupation with a wider range of incomes – i.e. some very highly paid people, and some less well-paid people.

Because the data is mainly from Census, incomes for some very highly paid occupations will be understated in this tool. (Census codes incomes up to \$100,000).

Major industries for this occupation (lines 16 - 20)

The top five industries for each occupation are given using ANZSIC to 3-digit level. These figures help identify how concentrated a given occupation is across industries.

Highest educational qualifications (lines 21 - 24)

The highest level of qualifications show how relatively skilled the people in an occupation are.

- No Qualifications = no qualifications
- School Qualifications = fifth and sixth form qualifications, higher school qualifications, other school qualifications. In today's terms this might be NCEA levels 1-3, (but remember that some people in the workforce will have done their training forty or more years ago).
- Post-School = basic, intermediate and skilled vocational qualifications below degree level. In today's terms this is levels 4-6 on the national qualifications framework.
- Degree or higher - Bachelors degree or higher.

Demographic info (lines 25 - 34)

Gender, ethnic diversity and age and describe people within each occupation. Because ethnic diversity counts all ethnicities that people identify with, the numbers may add up to more than 100%.

The "Retirement rate" (line 34) is an estimate of the proportion of people within the occupation who will retire each year. It is based on the age profile of people within each occupation.

- These figures can help in thinking about constraints on labour. If the occupation is dominated by older workers, what planning is there to

encourage younger people to enter the occupation? An occupation facing skill shortages may wish to consider broadening the gender or ethnic mix of their workers, in order to reach new sources of labour.

Vacancies and skill shortages (lines 35 - 41)

- Number of advertised vacancies reports on the number of vacancies counted in the Department of Labour's *Job Vacancy Monitor*, a monthly survey of newspapers advertising. These numbers are based on vacancy counts from newspaper advertising and don't take account of internet ads, so they tend to under-report vacancies for many occupations.
- "% growth this year over last year" shows the change between the vacancy numbers advertised in the past two years. Because more and more employers put job ads on the internet, lots of the growth figures are negative, even though vacancies may be increasing. An increase suggests increased demand for people in that occupation.
- "Vacancy fill rates" show the percentage of vacancies that could be filled 8-10 weeks after advertising. The figures are from the Department of Labour's annual report [Occupations in Shortage in New Zealand, 2007](#), from the Survey of Employers who have Recently Advertised (SERA).

Figures below 50% tend to signal an occupation with skill shortages. It is possible for there to be plenty of people with a particular skill set who choose to work in other occupations, so there may not be a skill shortage as such. This can occur because of industry conditions (perhaps the hours of work are not very social) or (low) pay rates. On the whole a low figure indicates that it was harder to fill a vacancy, and hence could indicate an occupation in shortage.

- "Detailed DOL report available" shows whether the department has done more detailed work to assess the skill needs of the occupation. If one has been done, a link to the report will be provided.
- "On an Immigration Skill Shortage List" shows whether Immigration NZ has included the area as a long term or short term skill shortage. Long term skill shortages tend to be more relevant to tertiary education planning, given the time it takes for people to acquire new qualifications.

Tab = Explore by Field of Study; Field of Study = Automotive Engineering & Technology (line 3, column A)

Jobs and Tertiary Education Indicator - Explore by Field of Study											
1. Click the green cell below to select a Field of Study (FoS)		Top 10 Occupations for this Field of Study									
Automotive Engineering and Technology		1	2	3	4	5	6	7	8	9	10
2. Click the green cell to the right to select 3- or 5-digit detail for Occupation (NZSCO)		72312 Motor Mechanic	72311 Machinery Mechanic	72125 Panel Beater	12111 General Manager	83231 Heavy Truck or Tanker Driver	52111 Sales Assistant	71242 Spray Painter	12213 Production Manager (Manufacturing)	33152 Technical Representative	71312 Transport Electrician
Number employed in 2006 with highest qual in this FOS		6,708	1,998	1,662	1,593	1,269	1,035	870	840	819	696
% with highest qual in this FOS employed in each occupation		19%	6%	5%	4%	4%	3%	2%	2%	2%	2%
% employed in each occupation with highest qual in this FOS		50%	25%	52%	3%	5%	1%	25%	9%	3%	54%
Total number of people employed in this occupation (any field of study)		2006 14,166	8,538	3,375	50,955	26,343	93,840	3,798	9,693	31,071	1,317
Employment growth		2001 - 2006 15%	9%	-1%	18%	16%	10%	14%	0%	91%	20%
Income		Median 2006 \$34,800	\$42,800	\$33,800	\$57,900	\$38,100	\$19,500	\$33,300	\$53,100	\$32,400	\$37,500
Main industries for this occupation		Average 2006 \$34,900	\$44,200	\$34,100	\$66,700	\$39,300	\$23,000	\$34,000	\$56,400	\$33,800	\$38,500
Top major industry		Motor Vehicle Services (54%)	Machinery and Equipment Wholesaling (13%)	Motor Vehicle Services (88%)	Marketing and Business Management Services (5%)	Road Freight Transport (41%)	Supermarket and Grocery Stores (17%)	Motor Vehicle Services (49%)	Motor Vehicle Services (6%)	Government Administration (8%)	Motor Vehicle Services (74%)
Second major industry		Motor Vehicle Retailing (16%)	Industrial Machinery and Equipment Manufacturing (10%)	Motor Vehicle Retailing (2%)	Other Business Services (4%)	Non-Building Construction (6%)	Other Personal and Household Good Retailing (13%)	Building Completion Services (7%)	Printing and Services to Printing (4%)	Deposit Taking Financiers (6%)	Installation Trade Services (3%)
Third major industry		Motor Vehicle Wholesaling (7%)	Motor Vehicle Services (8%)	Motor Vehicle and Part Manufacturing (2%)	Motor Vehicle Services (3%)	Site Preparation Services (4%)	Clothing and Soft Good Retailing (11%)	Other Transport Equipment Manufacturing (5%)	Industrial Machinery and Equipment Manufacturing (4%)	Other Business Services (5%)	Motor Vehicle Retailing (3%)
Fourth major industry		Industrial Machinery and Equipment Manufacturing (2%)	Machinery and Equipment Hiring and Leasing (3%)	Motor Vehicle Wholesaling (1%)	Machinery and Equipment Wholesaling (3%)	Public Order and Safety Services (3%)	Furniture, Household and Appliance Retailing (8%)	Fabricated Metal Product Manufacturing (5%)	Other Wood Product Manufacturing (4%)	Machinery and Equipment Wholesaling (4%)	Motor Vehicle and Part Manufacturing (3%)
Fifth major industry		Machinery and Equipment Wholesaling	Non-Building Construction (3%)	Machinery and Equipment Hiring and	Other Personal and Household Good	Lime, Plaster and Concrete Product	Department Stores (7%)	Other Construction Services (4%)	Other Food Manufacturing (4%)	Computer Services (4%)	Motor Vehicle Wholesaling

Tab = Explore by Industry

Industry = Scientific Research (line 3, column A); 5-digit detail

Jobs and Tertiary Education Indicator - Explore by Industry		Department of Labour									
1. Click the green cell below to select an Industry		Top 10 Occupations for this Industry									
Scientific Research		1	2	3	4	5	6	7	8	9	10
2. Click the green cell to the right to select 3- or 5-digit detail for Occupations (NZSCO)		41443 General Clerk	22114 Agronomist	22117 Environmental Scientist	32121 Agricultural Technician	31111 Physical Science Technician	32112 Medical Laboratory Technician	12222 Administration Manager	32111 Life Science Technician	23111 University and Higher Education	122 Research and Development
Number employed in 2006 in Scientific Research		1,065	333	285	225	216	195	180	180	129	12
% of employment in 2006 in Scientific Research		17%	5%	5%	4%	3%	3%	3%	3%	2%	2%
Total number of people employed in each occupation (all industries combined)		2006 58,527	591	1,536	1,101	1,947	3,078	34,695	1,320	16,335	1,2
		2001 55,311	435	510	582	2,805	2,913	21,999	780	13,944	85
		1996 49,257	159	396	792	3,621	2,900	10,662	706	12,573	80
Employment growth		2001 - 2006 6%	36%	201%	89%	-31%	6%	58%	69%	17%	49%
		1996 - 2006 19%	272%	288%	39%	-46%	6%	225%	87%	30%	57%
Income		Median 2006 \$30,000	\$62,200	\$55,600	\$37,000	\$37,500	\$32,400	\$54,800	\$36,900	\$53,800	\$71,
		Average 2006 \$30,900	\$63,000	\$58,900	\$38,400	\$37,700	\$32,400	\$61,000	\$38,300	\$54,000	\$76,
Highest educational qualification 2006		No qualifications 14%	2%	2%	12%	10%	5%	9%	11%	1%	3%
		School quals only 46%	8%	6%	28%	22%	24%	35%	21%	7%	16%
		Post-school qualified 21%	8%	7%	30%	27%	40%	28%	26%	18%	22%
		Degree and higher 17%	83%	84%	28%	38%	29%	27%	40%	73%	59%
Gender 2006		Male 16%	72%	64%	52%	49%	17%	54%	47%	48%	64%
		Female 84%	28%	36%	48%	51%	83%	46%	53%	52%	36%
Ethnic diversity 2006		NZ European 78%	83%	87%	82%	73%	74%	81%	77%	78%	84%
		Maori 10%	3%	5%	7%	11%	7%	10%	9%	10%	7%
		Pacific 4%	1%	1%	1%	2%	3%	3%	2%	2%	1%
		Other 8%	13%	7%	10%	14%	17%	6%	12%	10%	8%
Age groups 2006		15-24 13%	3%	6%	14%	12%	4%	16%	5%	3%	
		25-54 68%	77%	79%	71%	72%	73%	80%	70%	69%	81%
		55 plus 19%	20%	15%	15%	15%	15%	16%	13%	26%	16%
Retirement rate		2%	2%	1%	2%	1%	1%	1%	1%	3%	1%
Main fields of study for this occupation		No Post School Qualification (59%)	Biological Sciences (45%)	Biological Sciences (22%)	No Post School Qualification (39%)	No Post School Qualification (31%)	No Post School Qualification (24%)	No Post School Qualification (42%)	No Post School Qualification (30%)	Teacher Education (8%)	No Post School Qualification (16%)
Top field of study		Business and Management (5%)	Agriculture (15%)	Other Engineering and Related Technologies	Biological Sciences (14%)	Biological Sciences (14%)	Biological Sciences (19%)	Business and Management (9%)	Biological Sciences (20%)	No Post School Qualification (7%)	Biological Sciences (8%)
Second main field of study		Office Studies (5%)	No Post School Qualification (8%)	Earth Sciences (9%)	Agriculture (8%)	Chemical Sciences (9%)	Other Natural and Physical Sciences	Electrical and Electronic Engineering and Technology (4%)	Other Natural and Physical Sciences	Studies in Human Society (7%)	Business Management (8%)
Third main field of study		Teacher Education (2%)	Chemical Sciences (6%)	No Post School Qualification (7%)	Horticulture and Viticulture (5%)	Other Natural and Physical Sciences	Nursing (11%)	Mechanical and Industrial Engineering and Technology (2%)	Natural and Physical Sciences not further defined (6%)	Education not further defined (6%)	Electrical Engineering (4%)
Fourth main field of study		Biological Sciences (2%)	Horticulture and Viticulture (5%)	Other Natural and Physical Sciences (7%)	Process and Resources Engineering (4%)	Natural and Physical Sciences not further	Chemical Sciences (5%)	Accountancy (2%)	Chemical Sciences (4%)	Language and Literature (6%)	Chemical Sciences (4%)
Fifth main field of study											

Tab = Explore by Occupation,

Occupation = Heating Ventilation and Refrigeration Mechanic (line 2, column B)

Jobs and Tertiary Education Indicator - Occupations				
Click the green cell to select a 5-digit occupation		Heating, Ventilation and Refrigeration Engineer	Architects, Engineers and Related Professionals	Total or Average for all Occupations
Number of people employed in this occupation	2006	1,518	27,396	1,985,790
	2001	1,218	21,552	1,727,268
	1996	1,116	22,182	1,630,809
Employment growth	2001 - 2006	25%	27%	15%
	1996 - 2006	36%	24%	22%
Income	Median, 2006	\$47,500	\$56,000	\$33,700
	Average, 2006	\$48,900	\$59,600	\$38,900
Main Industries for this occupation				
Top major industry		Installation Trade Services (53%)	Technical Services (33%)	-
Second major industry		Industrial Machinery and Equipment Manufacturing (8%)	Government Administration (5%)	-
Third major industry		Machinery and Equipment Wholesaling (6%)	Installation Trade Services (5%)	-
Fourth major industry		Electrical Equipment and Appliance Manufacturing (5%)	Industrial Machinery and Equipment Manufacturing (4%)	-
Fifth major industry		Other Services to Transport (3%)	Other Transport Equipment Manufacturing (4%)	-
Highest educational qualification 2006	No qualifications	8%	4%	18%
	School quals only	20%	13%	34%
	Post-school qualified	65%	40%	27%
	Degree and higher	5%	42%	19%
Main fields of study for this occupation				
Top field of study		Electrical and Electronic Engineering and Technology (50%)	No Post School Qualification (15%)	-
Second main field of study		No Post School Qualification (26%)	Electrical and Electronic Engineering and Technology (14%)	-
Third main field of study		Mechanical and Industrial Engineering and Technology (9%)	Architecture and Urban Environment (14%)	-
Fourth main field of study		Building (3%)	Civil Engineering (13%)	-
Fifth main field of study		Automotive Engineering and Technology (2%)	Mechanical and Industrial Engineering and Technology (11%)	-
Gender, 2006	Male	99%	87%	53%
	Female	1%	13%	47%
Ethnic diversity, 2006	MZ European	83%	83%	74%

HOW TO SAVE DATA

To save data to a new spreadsheet, so you can use it for other documents and analysis:

1. Highlight the cells you want to save
2. Copy (Ctrl C)
3. Open the spreadsheet you want to save them into
4. Put cursor in the top left cell where you want the paste to begin
5. Edit / Paste, then without changing the highlighting
6. Edit / Paste Special / Values and Number Formats

If you use this sequence, you'll retain the actual numbers AND the formatting.

Annex 1: Technical information

The following information is also included as a separate tab in the Tool itself - see "Notes and Data Sources".

Field Name	Definition	Source info	Caveats & Cautions	Further info
NZSCO Occupation Code	The New Zealand Standard Classification of Occupations (NZSCO) code is the five digit numerical code used to classify the occupation by Statistics NZ. It has a hierarchical structure from 1 to 5-digits, and the 5 digit level is the most detailed. All analysis is shown at this detailed 5-digit level.	Statistics New Zealand Census data	To determine which NZSCO code contains a particular occupation for a job title, search on the excel tab titled "Job Finder".	http://www.stats.govt.nz/
Number employed in 2006 with this main FOS	The main field of study for everyone who has completed a post-school qualification, from latest census. Information is classified according to the New Zealand Standard Classification of Education – Field of Study (NZSCED).	Statistics New Zealand Census data.	Field of study covers 140 different categories at the detailed level.	http://www.stats.govt.nz/products-and-services/table-builder/default.htm
% of total employment with this main FOS	Of all the people who studied in the chosen field of study, what proportion is in this occupation?	Statistics New Zealand Census data		http://www.stats.govt.nz/products-and-services/table-builder/default.htm
% employed in each occupation with this main FOS	Of all the people working in this occupation, what proportion studied in the chosen field of study?	Statistics New Zealand Census data		http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Number employed	Number employed in this stated occupation at the each of the last Censuses.	Statistics New Zealand Census data.		http://xtabs.stats.govt.nz/eng/tablefinder/index.asp
Employment growth	Percent growth between the specified dates (2001 - 2006; 1996 – 2006)	Statistics New Zealand Census data.		http://xtabs.stats.govt.nz/eng/tablefinder/index.asp
Income	Gives an estimate of the median and average income, where income is from all sources (wages, rents, dividends), for people in each occupation. A large gap between the two figures shows an occupation with a wide range of pay rates.	Statistics New Zealand Census data.	The average is the total of all incomes for that occupation, divided by the number of people in that occupation. The median is the middle number in the range of numbers.	http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Main industries for this Occupation	Shows the five largest industry groups for in this occupation, using the Australia NZ Standard Industry Classification (ANZSIC) at a 3-digit level.	Statistics NZ Census data		http://www.stats.govt.nz/products-and-services/table-builder/default.htm

	The figure in brackets shows the proportion of people in the given occupation who work in each industry.			
Gender	Proportion of people in this occupation who are male and proportion who are female, from Census 2006.	Statistics NZ Census data		http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Ethnic diversity	Self-identified ethnicity based on Statistics New Zealand ethnic classification, grouped into four categories: NZ European, Māori, Pacific Peoples, and Other.	Statistics NZ Census data	Persons who select more than one ethnic group have been prioritised to their broadest level (level one) in the following order: Māori, Pacific Peoples, Asian, Other, European and Not Elsewhere Included	http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Age Groups	Percentage of people in each occupation in each of these broad age bands, from Census 2006. 15-24 years 25-54 years 55 + years	Statistics NZ Census data		http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Highest Educational Qualifications	The percentage of people whose highest level of educational attainment is at each of these levels. No Qualifications = No Qualifications School Qualifications = Other School qualifications, Fifth form and Sixth form qualification and Higher School qualification. Post-School = Basic, intermediate, skilled and advanced vocational qualification but below degree level Degree or higher - Bachelors degree or higher.	Statistics NZ Census data	Those with educational qualifications not stated have been excluded from the total.	http://www.stats.govt.nz/products-and-services/table-builder/default.htm
Number of advertised vacancies	The number of jobs advertised in the last 12 months.	Job Vacancy Monitor, published by Department of Labour.	An increase in vacancies typically indicates increasing difficulty in recruiting staff and visa versa. The series is based on a sample, and does not measure all advertised vacancies.	http://www.dol.govt.nz/publications/jvm/job-ad-monthly-report.asp

<p>% growth this year over last year</p>	<p>The change in number of jobs advertised between the most recent 12 month period and the previous 12 month period.</p>	<p>Job Vacancy Monitor, published by Department of Labour.</p>	<p>Figures are only shown if at least 12 vacancies occurred in the first year.</p>	<p>http://www.dol.govt.nz/publications/jvm/job-ad-monthly-report.asp.</p>
<p>Vacancy fill rates (2005, 2006)</p>	<p>The proportion of sample vacancies for the occupation that were filled with an adequately qualified and experienced person within 6-10 weeks of advertising.</p>	<p>Survey of Employers who have Recently Advertised (SERA), - to establish whether advertised positions were filled and the number and suitability of applicants.</p>	<p>Only calculated for occupations where at least 10 employers were interviewed.</p>	<p>http://www.dol.govt.nz/publications/jvm/job-ad-sera.asp.</p>
<p>Detailed DOL report available?</p>	<p>Identifies whether a skill shortage assessment report has been written. If a report is available the link will be shown; otherwise it will show "N".</p>	<p>Skills Team at the Department of Labour</p>	<p>About 30 occupations have been analysed in depth.</p>	<p>http://www.dol.govt.nz/publications/jvm/index.asp</p>
<p>On an Immigration NZ skill shortage list?</p>	<p>Identifies whether the occupation is on the NZ Immigration Service's Short Term or Long Term Skill Shortage list, or Neither.</p> <p>"Short term" means it is on the immediate skill shortage list, which lists occupations for which there is an immediate shortage of skilled workers in New Zealand.</p> <p>"Long term" means it is on the long-term skill shortage list, which lists occupations with a sustained and ongoing shortage of skilled workers.</p>	<p>Immigration Service, Department of Labour</p>	<p>Not all sub-groups within an occupation will necessarily be in shortage for the purposes of Immigration Skill Shortage Lists.</p>	<p>http://www.immigration.govt.nz/migrant/general/general-information/contactus/</p>