



# **PaMPITO**

**Plastics and Materials Processing  
Industry Training Organisation**

**INDUSTRY PROFILE FOR THE  
PHARMACEUTICAL AND  
THERAPEUTIC PRODUCTS  
MANUFACTURING INDUSTRY**

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## Introduction

To understand the skill needs of an industry it is important to examine characteristics of the industry and how these compare to the New Zealand workforce as a whole. This provides the opportunity for more detailed future planning as well as highlighting challenges and opportunities for the industry.

This report examines a range of topics relating to the characteristics of workers and firms in the Pharmaceutical and Therapeutic Products Manufacturing industry. Topics have been chosen based on their relevance to industry development and skill and training needs as well as practical considerations about available data.

Topics have been grouped into seven chapters in this report. The first chapter provides an overview of the Pharmaceutical and Therapeutic Products Manufacturing industry. The second examines the characteristics of people working in this industry. The third chapter focuses on qualifications of these workers. Fourthly, types of work and work conditions in the industry are examined. Firms are considered in the fifth chapter and the final two chapters present possibilities for further investigation and where to find more information.

Each chapter is split into a number of subsections. Each subsection examines a particular topic such as wages, secondary qualifications, or firm size in detail. Following each subsection questions are included for Industry Training Organisations (ITOs) and other industry stakeholders to consider. These questions enable stakeholders to add expert knowledge and also encourage further thinking about challenges and opportunities for the industry.

Unless otherwise specified data reported is from the 2006 Census. The Census provides a very rich source of data as it covers the entire population and asks a range of questions. However, it should be kept in mind that this data is from a single point in time in March 2006 so industries may have changed in terms of worker numbers or characteristics since that time and also that Census data is entirely self-reported.

Further information about the topics covered in this report including detailed data can be obtained by contacting the Industry Training Federation (ITF).

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## 1. An overview of the industry

This section provides a high level overview of the Pharmaceutical and Therapeutic Products Manufacturing industry. This information is useful to get a general idea about industry coverage, the size of the industry and how the industry has grown or declined over time. The variables covered in this section provide context for the variables covered in the rest of the report.

The industry, as defined for this report, is outlined in the first part of this section. This is particularly important as different people or groups can have very different understandings of what is included in an industry. This is followed by analysis of the number of workers and number of firms in the industry to give an idea of the size of the industry. In the fourth section, changes in worker and firm numbers over the past five years are examined to represent how the industry is changing over time. Finally, the contribution of the industry to NZ GDP is considered in the last part of this section.

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## 1.1 Defining the industry

Industries in New Zealand and Australia are classified using the Australian and New Zealand Standard Industrial Classification (ANZSIC) 2006<sup>1</sup>. The Australian Bureau of Statistics and Statistics New Zealand jointly developed this classification to improve the comparability of industry statistics between the two countries and with the rest of the world. An individual business entity is assigned to an industry based on its predominant activity. ANZSIC is hierarchical with four levels of classification. At the most detailed level, the class level, there are over 500 separate industry codes.

For the purposes of this report the Pharmaceutical and Therapeutic Products Manufacturing industry is defined as including the ANZSIC 2006 industries listed below. The industry may be defined differently for other purposes or in other publications. Further detail about the definitions of individual industries can be found in the ANZSIC 2006 Classifications booklet which is available from the Statistics NZ website. The number of workers from the 2006 Census in each included industry is also shown below to give an idea of the relative size of the individual industries.

<b>Industry</b>	<b>Workers</b>
<i>C184100 Human Pharmaceutical and Medicinal Product Manufacturing</i>	1,215
<i>C184200 Veterinary Pharmaceutical and Medicinal Product Manufacturing</i>	432
<i>C185200 Cosmetic and Toiletry Preparation Manufacturing</i>	492
<b>Total</b>	<b>2139</b>

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<sup>1</sup> ANZSIC 2006 has only been used in New Zealand since 2006. Prior to the introduction of ANZSIC 2006 the classification used was ANZSIC 1996. The two classifications are not directly comparable but over time historical data will be reclassified using ANZSIC 2006 to allow comparisons.

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## *1.2 Worker numbers*

The number of workers in an industry is important because it provides information about the number of people that might be affected by any changes to training or changes to the industry more generally. While worker numbers is an important metric, other factors also contribute to an industry's 'importance'. Some very small industries are crucially important due to their economic, social or strategic value so size alone is not necessarily an indicator of potential gains to be made from upskilling.

There are several sources for the number of workers by industry, each of which may give different results but also can have particular advantages. Two sources that are commonly used are the Census and Business Demography. The Census has the advantage of covering all people and allows detailed breakdowns by other demographic variables, however, all data is self-reported and the Census is conducted only every five years. Business Demography does not allow such detailed analysis and relies on accurate reporting by firms but has the advantages of being produced annually and having a more reliable means of assigning workers to particular industries. Both sources are reported here to give a more complete picture of the available information and to enable industry to choose the most appropriate measure for their particular purposes. Information from the Census relates to March 2006 while information from Business Demography relates to February 2009.

At the time of the 2006 Census there were 2,139 people working in the Pharmaceutical and Therapeutic Products Manufacturing industry. This represents 0.11% of all people working in New Zealand (NZ).

The most up to date Business Demography data available relates to February 2009. At that time there were 2,370 people working in the industry or 0.12% of all workers.

Characteristics of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry are examined in more detail in chapters two and three.

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### *1.3 Number of Firms*

The number of firms in an industry is important to consider as it provides a measure of the number of different workplaces people are working in and therefore gives an indication of the concentration of the industry. From a training point of view these factors can have an impact on the number of employers that ITOs have to work with, as well as the ways that training is targeted.

Information about firms is available from Business Demography data. This dataset includes all businesses that are considered to be 'economically significant'; in practical terms this includes all businesses that are GST registered or have annual sales or expenditure of at least \$30,000. In this report firms that do not have any workers, such as registered businesses that are currently inactive, are excluded from analysis.

In February 2009 there were 93 businesses in the Pharmaceutical and Therapeutic Products Manufacturing industry. This represents 0.06% of all NZ businesses.

Characteristics of firms in the Pharmaceutical and Therapeutic Products Manufacturing industry are examined in more detail in section five.

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## *1.4 Growth in the industry*

Over time industries can grow or decline in terms of numbers of firms and workers. There are many reasons why growth or decline may occur, including prevailing economic conditions, changes in technology and a range of other reasons. Examining trends in the growth or decline of firms and workers in an industry is useful as it may give insights into changes in the industry, help project growth or decline in an industry in the future, and inform the types of training needed. For example, an industry which is rapidly expanding may need to invest primarily in training new workers with industry specific skills while an industry that is experiencing declining numbers may need to focus on training existing workers in using new technologies or undertaking a wider range of activities.

Growth or decline in the number of workers in the industry gives an indication of whether total employment in an industry is increasing or decreasing. In the five years to February 2009 the number of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry increased from 2,330 to 2,370, an increase of 1.7%. This rate of growth is slower than the rate of growth of 7.1% in the total number of NZ workers over the same period. This means that the Pharmaceutical and Therapeutic Products Manufacturing industry employed a smaller share of all workers in 2009 than in 2004.

Growth or decline in the number of firms can differ from the changes in worker numbers if firms are merging and becoming larger or if new smaller firms are being started, so it's important to also consider changes in the number of firms. In the five years to February 2009 the number of businesses in the Pharmaceutical and Therapeutic Products Manufacturing industry decreased from 99 to 93, a decrease of 6.1%. This rate of growth is slower than the rate of growth of 5.1% in the total number of NZ businesses over the same period. This means that the Pharmaceutical and Therapeutic Products Manufacturing industry made up a smaller share of all businesses in 2009 than in 2004.

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### *1.5 Contribution to GDP*

A third means of measuring industry size is using contribution to Gross Domestic Product (GDP). Some industries may be small in terms of numbers of workers or firms but still make a significant contribution to GDP that makes them valuable to the NZ economy.

GDP data is disaggregated into 26 industry categories and is available on a quarterly basis with the latest full year of data available quarter being 2008. Some of these groupings include a relatively narrow range of industries, such as textile and apparel manufacturing. Others cover a much broader range, such as personal and community services which includes education, health, and a range of other services. Since these groupings are often large, individual ANZSIC 5-digit industries may only make up part of the GDP attributed to that group and it is not possible to break down the data any further. In addition, industries that consist of more than one ANZSIC 5-digit industry may have parts in more than one GDP grouping.

All of the sub-industries within the Pharmaceutical and Therapeutic Products Manufacturing industry fall within the Petroleum, chemical, plastic and rubber product manufacturing GDP grouping. The Petroleum, chemical, plastic and rubber product manufacturing grouping made up 1.2% of total NZ GDP in 2008. The Petroleum, chemical, plastic and rubber product manufacturing GDP grouping made up a smaller share of GDP in 2003 when it made up 1.4% of GDP.

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## 2. Who is working in the industry?

This section examines the characteristics of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry. The demographic information in this section is useful when considering skill needs of the industry as different groups may have different needs or require different types of learning to maximise their potential in the industry. As people working in industries become increasingly diverse training also needs to be diverse to best meet the needs of these groups.

Considering industry demographics is particularly important in the face of the tight labour market that New Zealand has experienced over the past decade. While recently conditions have eased somewhat due to changes in the economy which look likely to continue in the short term, both skills and labour are still likely to be in relatively short supply in the foreseeable future. With labour and skills in short supply industries need to consider how non-traditional labour sources or groups that have typically been under-represented in the industry can be better utilised. In addition, better understanding of future needs will assist with matching labour supply to labour demand which may help decrease the intensity of skill shortages.

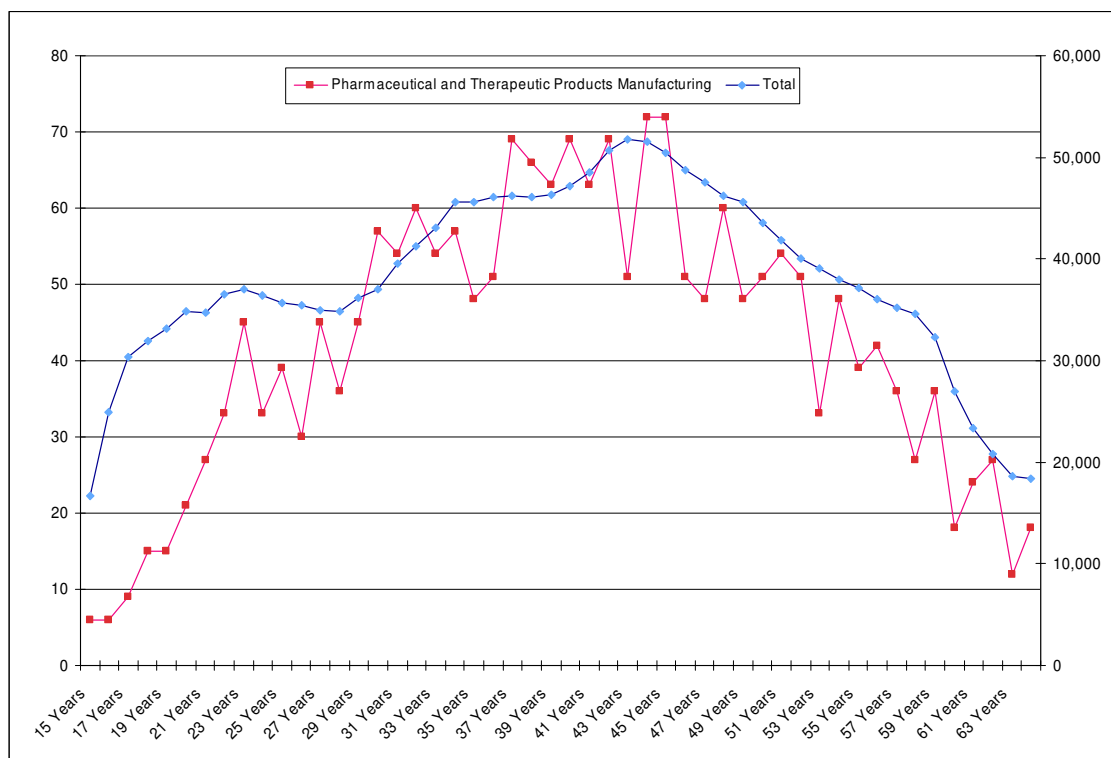
Industry demographics can also be compared to industry trainee demographics to identify any groups within an industry who are not well represented in training.

## 2.1 Age

The age distribution of an industry is an important demographic factor to consider for both the future of the industry and skill needs. Different age cohorts can have different learning needs that may impact on how training programmes are offered. For example, young workers may be more comfortable with new technologies while older workers may have extensive industry experience. The age profile is also important when thinking about retirement, industry succession planning and job design.

The Pharmaceutical and Therapeutic Products Manufacturing industry has a median age of 40, which is the same as the median age across the NZ workforce. The largest differences in the age profile between the Pharmaceutical and Therapeutic Products Manufacturing industry and the NZ workforce as a whole are a higher proportion of people aged 35-44 and a lower proportion of people aged 15-24. This is shown in figure 2 below.

*Figure 1: The age distribution for workers aged 15-64 in the Pharmaceutical and Therapeutic Products Manufacturing industry compared to all industries*



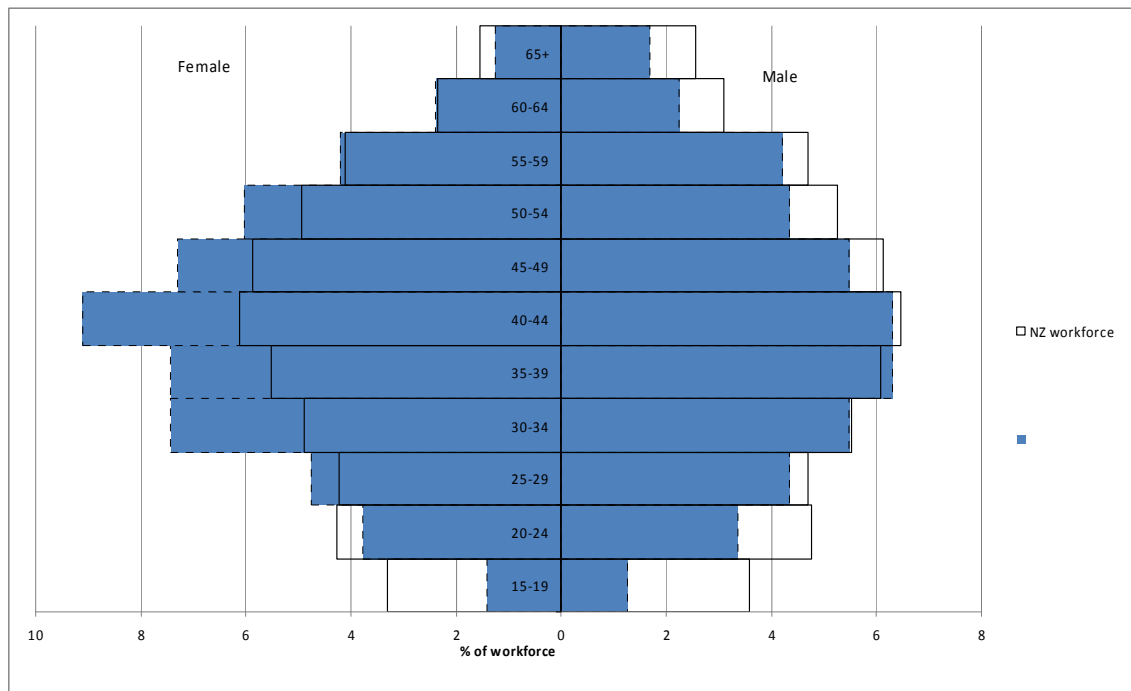
Source: 2006 Census of Population and Dwellings, Statistics New Zealand

## 2.2 Gender

The gender composition of an industry is important to consider when thinking about the future of the industry and skill needs as demographic and social patterns change over time. For example, gender composition may have an impact on preferred hours of work or on preferred styles of learning.

The Pharmaceutical and Therapeutic Products Manufacturing industry has a higher proportion of females than the average across the NZ workforce with 54.8% of the industry being female compared to 47.1% of the total workforce.

*Figure 2: The age and gender distribution for workers in the Pharmaceutical and Therapeutic Products Manufacturing industry compared to all industries*



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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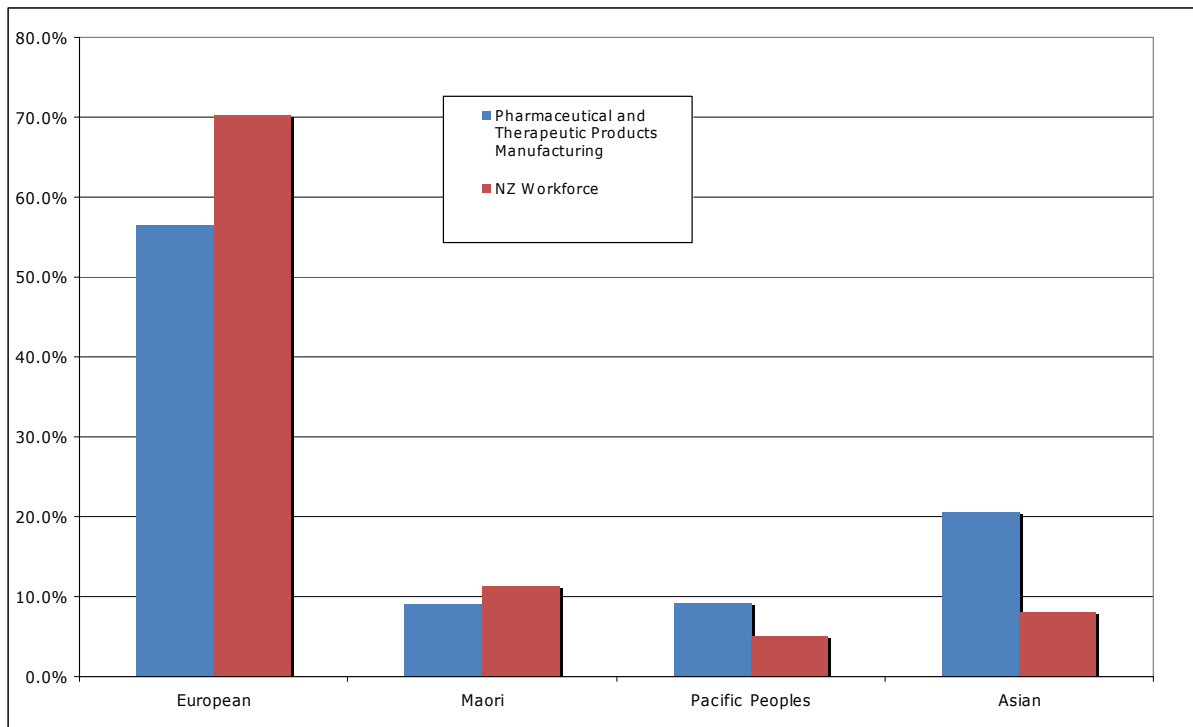
### 2.3 Ethnicity

Another factor that may impact on thinking about the future of the industry and skill needs is ethnic composition. It is particularly useful for planning given the changing ethnic composition of New Zealand with considerable growth expected in the Asian and Pacific Peoples ethnic groups in particular. This is also useful for creating targeted programmes, such as for marketing or engaging with stakeholders.

In the 2006 Census people could identify as belonging to one or more of over 200 ethnic groups. As people can belong to more than one ethnic group the total responses add to more than 100%. This section focuses on four commonly identified groupings of ethnicities- European, Maori, Pacific Peoples and Asian. Information at a more detailed level or about other ethnicities is available on the *Industry Skills Toolkit*.

In the Pharmaceutical and Therapeutic Products Manufacturing industry 56.5% of workers identify as European, 20.6% identify as Asian, 9.2% identify as Pacific Peoples and 9% identify as Maori. This is a higher proportion than across the NZ workforce for the Asian and Pacific Peoples ethnic groups but lower for the European and Maori ethnic groups. This is shown in figure 1 below.

*Figure 3: The ethnic composition of the Pharmaceutical and Therapeutic Products Manufacturing industry compared to all industries*



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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## 2.4 Migrants

Migrants from overseas are important to the New Zealand labour market as they can provide an important source of labour, bring in needed skills and provide cultural diversity. Migrants make up nearly a quarter of the New Zealand labour market, a larger proportion than in many other OECD countries. The prevalence of migrants in an industry is important to consider when thinking about training and skill needs as migrants may have different training needs such as adapting to New Zealand industry standards and requirements or language and cultural needs. The prevalence of overseas born workers also means that it is important to consider how skill, experience and qualifications gained overseas should or can be recognised.

Two factors that might influence the training needs of migrants are the length of time they have been in New Zealand and country of birth. Migrants who have been in New Zealand for shorter periods of time or are from non-English speaking countries are likely to have greater skill and training needs than migrants who have been in New Zealand for some time or who are from English speaking countries.

There are 894 workers in the Pharmaceutical and Therapeutic Products Manufacturing industry who were born overseas. These workers make up 41.8% of the industry, a larger proportion than the national average of 23.6% of workers born overseas. Workers in the Pharmaceutical and Therapeutic Products Manufacturing industry who were born overseas have generally been in NZ for a longer time than average for all overseas born workers with 27.8% having been in NZ for less than five years compared to 28.2% of all overseas born workers. A detailed breakdown of workers born overseas by length of time in NZ is shown in table 1 below.

*Table 1: The length of time in NZ for overseas workers working in the Pharmaceutical and Therapeutic Products Manufacturing industry compared to all industries*

<b>Time in NZ</b>	<b>Pharmaceutical and Therapeutic Products Manufacturing</b>	<b>All NZ Industries</b>
<1 year	2.7%	4.9%
1-2 years	10.8%	10.5%
3-4 years	14.2%	12.8%
5-9 years	19.7%	16.6%
10+ years	52.5%	55.2%

Source: 2006 Census of Population and Dwellings, Statistics New Zealand

The most common countries of birth for overseas born workers in the Pharmaceutical and Therapeutic Products Manufacturing industry are shown in table 2 below. This table only shows countries where the number of workers is greater than 20.

*Table 2: The most common countries of birth for overseas workers working in the Pharmaceutical and Therapeutic Products Manufacturing industry*

	<b>Country of Birth</b>	<b>Number of workers</b>	<b>% of all migrants in the industry</b>
1.	England	129	14.4%
2.	China, People's Republic of	111	12.4%
3.	India	78	8.7%
4.	Samoa	60	6.7%
5.	Philippines	51	5.7%
6.	South Africa	48	5.4%
7.	Fiji	45	5.0%
8.	Tonga	39	4.4%
9.	Australia	39	4.4%
10.	Korea, Republic of	36	4.0%

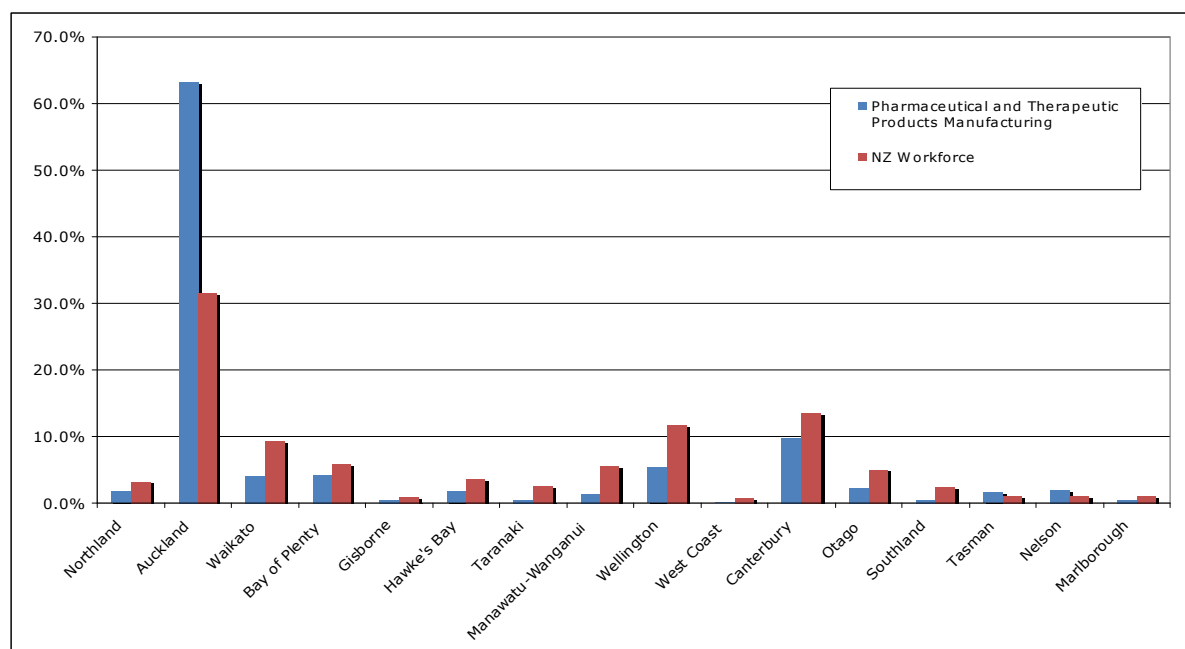
Source: 2006 Census of Population and Dwellings, Statistics New Zealand

## 2.5 Region

Some industries are spread across New Zealand while others are concentrated in a particular region or regions. The concentration of an industry may have an impact on how training is delivered and also on how resources are spread around the country. The particular regions where industries are located also has an impact on future planning as different regions are projected to grow and develop differently over time.

The regional council areas with the largest number of workers employed in the Pharmaceutical and Therapeutic Products Manufacturing industry are Auckland Region, Canterbury Region and Wellington Region. These regions employ 63.3%, 9.8% and 5.5% respectively of all workers in the Pharmaceutical and Therapeutic Products Manufacturing industry. The regional distribution for all regions is shown in figure 4 below. The regions where the Pharmaceutical and Therapeutic Products Manufacturing industry is most over-represented are Auckland Region, Nelson Region and Tasman Region.

*Figure 4: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by region compared to all industries*



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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### 3. What skills do people in the industry have?

This chapter examines the skill levels of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry. The current skills of workers are obviously very important to consider when thinking about future skill and training needs. Unfortunately, the skills of workers are very difficult to measure or quantify. One frequently used proxy for general skill level is level of qualification. Using qualifications as a proxy has some shortcomings including not capturing information about specific skills, skills that are not covered by formal qualifications, or the actual quality of skills, but can still provide a very useful indicator of the overall level of skill of workers.

Qualifications of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry, as reported in the 2006 Census, provide an indication of the current skill level of the workforce as a whole. Census data about qualifications relates to both secondary and post-school qualifications. The current level of qualifications held by workers in an industry is important to take into account when considering skills and training needs. People with low or no qualifications may need different types of training and may have different learning needs than people with advanced qualifications. For example, people with few qualifications often have greater literacy and numeracy needs. In addition, people with low or no qualifications, who may not have had positive education or training experiences in the past, may need more active support when undertaking training.

The field of study of workers' qualifications is also examined in this section. This data provides an indication of the types of skills that workers are likely to have. Using this data the mix of skill sets available in an industry can be analysed as can the relevance of workers' previous training to the industry in which they work.

This section also includes two topics based on the 2006 Adult Literacy and Life Skills (ALL) Survey. The first contains information about the critical foundation skills of literacy and numeracy. Information about literacy and numeracy is crucial when considering skill and training needs for an industry as these skills provide the basis for other types of skill development. The second provides information about participation in upskilling. This measure is important because it gives an indication of the number of workers who are participating in further training. More information about the ALL survey is available from the Ministry of Education on the Education Counts website at:

[www.educationcounts.govt.nz/goto/all](http://www.educationcounts.govt.nz/goto/all).

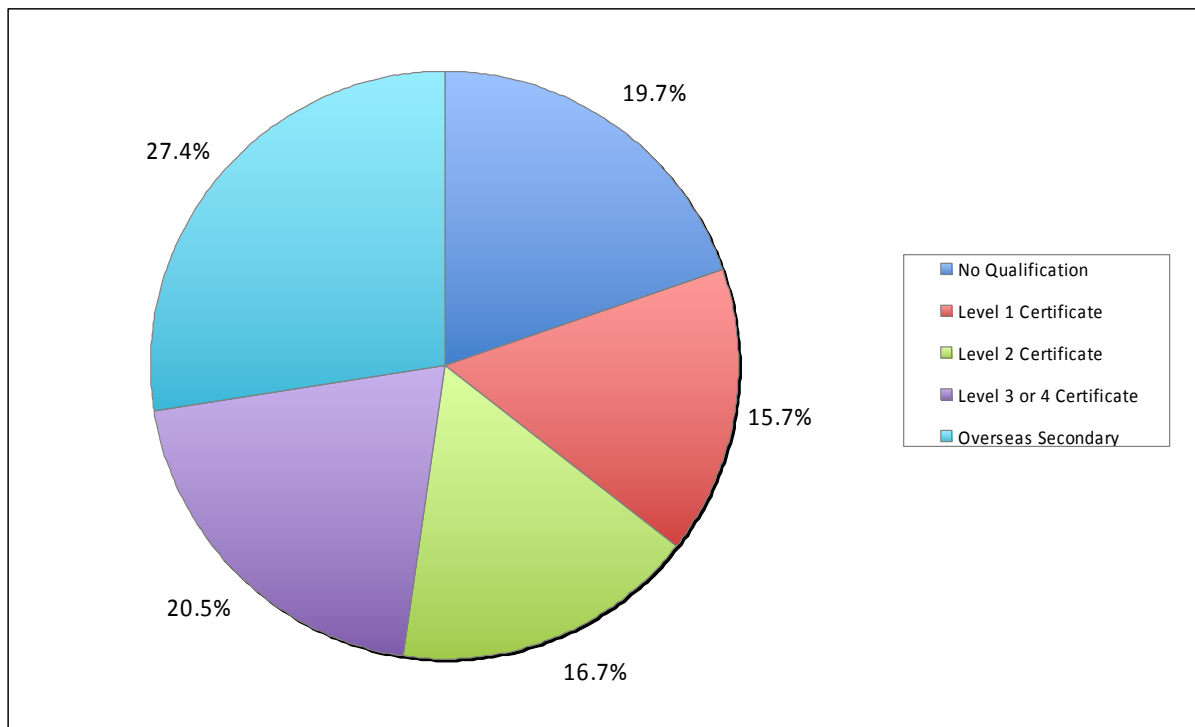
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### 3.1 Secondary school qualifications

Secondary school qualifications are those gained while in secondary school usually completed while a person is a teenager or young adult. Secondary qualifications are important to consider as they provide core skills and are often a basis for further learning. These qualifications are usually relatively general rather than focusing on a specific field. Information from the Census relates to all people aged 15 and over that were employed so includes young people who are employed but have not yet completed secondary school.

People working in the Pharmaceutical and Therapeutic Products Manufacturing industry on average have higher qualifications earned at secondary school than the average for all workers. In particular, 19.7% of workers in the industry have no formal secondary qualification compared to 25.1% of the total workforce while 20.5% have a level 3 or 4 Certificate compared to 19.7% of all workers. Another considerable difference in secondary qualifications for the Pharmaceutical and Therapeutic Products Manufacturing industry is that 27.4% of workers have an overseas secondary qualification compared to 13.4% of workers in all industries

*Figure 5: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by highest secondary qualification*



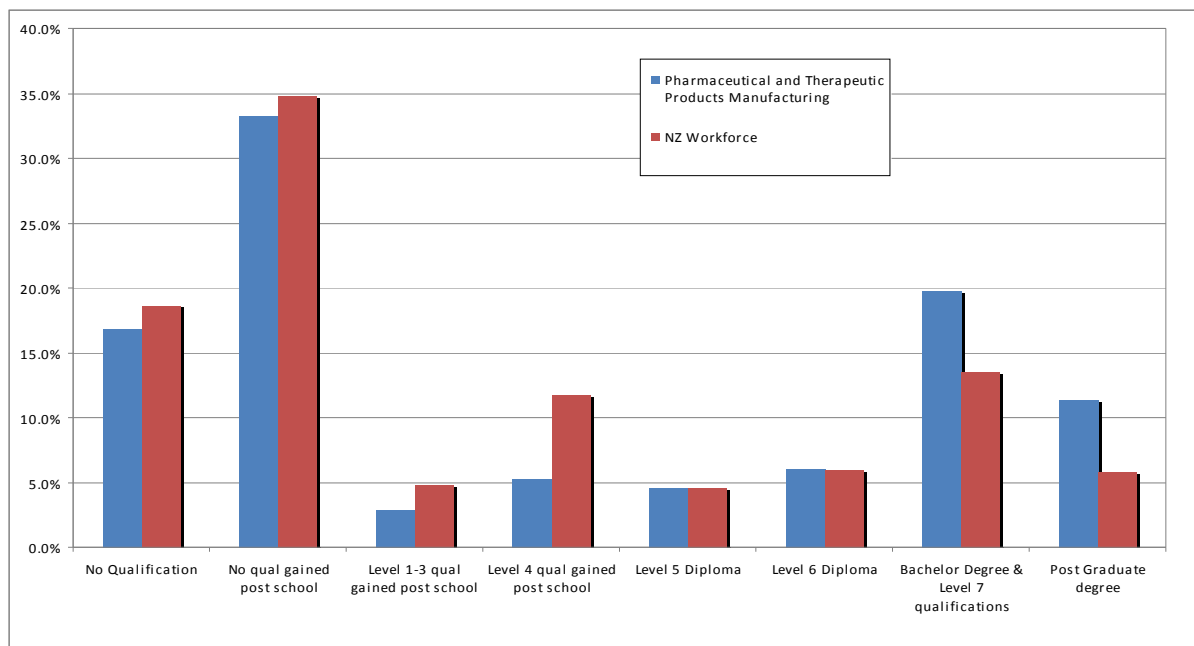
Source: 2006 Census of Population and Dwellings, Statistics New Zealand

### 3.2 Post-school qualification

Post-school qualifications include all qualifications completed throughout adulthood other than those gained at secondary school. These qualifications can be completed through a range of providers and include qualifications gained through industry training. Post-school qualifications are important to consider as they are often more specific to industry needs than school qualifications.

In the Pharmaceutical and Therapeutic Products Manufacturing industry 50.1% of workers have no post-school qualifications, 8.2% have a certificate (level 1-4) gained after leaving school, 10.6% have a diploma (level 5 or 6) and 31.1% have a bachelor or higher degree. This compares to 53.5% of all workers who have no post-school qualifications, 16.6% with a certificate, 10.6% with a diploma and 19.4% with a bachelor or higher degree.

Figure 6: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by highest post-school qualification<sup>2</sup>



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

<sup>2</sup> Highest post school qualification is the highest qualification, if any, gained after leaving secondary school. This may in a small number of cases be lower than a qualification a person has gained at school.

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### *3.3 Field of Study of Highest Qualification*

Qualifications in NZ each have an associated 'field of study' which represents the topics or subjects covered and skills learned by gaining a qualification. Fields of study are classified using the New Zealand Standard Classification of Education (NZSCED) which includes over 350 different fields such as Chemistry, Nursing, English, and Marine Construction.

In the 2006 Census people were asked about the highest post-school qualification that they held. Using this information Statistics NZ determined both the level of the qualification (the previous section in this report) and the field of study.

Analysing the fields of study of people's qualifications at an industry level helps illustrate the types of formally recognised skills people in the industry have or need. In particular, the most common fields of study can be determined and an indication of the relevance of qualifications to an industry can be identified. This can then be used to help identify the types of skills likely to be needed in the industry in the future, as well as common career paths for workers.

In some industries the majority of workers have qualifications in a small number of specific areas. An example of one such industry is the veterinary industry where 74% of workers with a post-school qualification have either 'Veterinary Science' or 'Veterinary Assisting' as their highest field of study. In other industries workers have qualifications in a much wider range of areas and there are significant numbers of workers with qualifications in different fields of study. An example of an industry with a wide range of qualification fields of study is the banking industry where only 10% of workers held a post-school qualification in the largest field of study 'Banking and Finance' and significant numbers of workers held qualifications in a wide range of areas such as 'Accounting', 'Economics', 'Tourism', and 'Secretarial and Office Studies'.

The most common field of study for workers in the Pharmaceutical and Therapeutic Products Manufacturing industry is 'Chemical Sciences not further defined' which is held by 12.4% of workers in the industry with a qualification with an identifiable field of study. Overall the 10 qualification fields of study which are held by the largest numbers of people in the Pharmaceutical and Therapeutic Products Manufacturing industry made up 42% of all identifiable tertiary qualifications in the industry.

For this report, fields of study have been classified as being in one of four groups based on relevance to the Pharmaceutical and Therapeutic Products Manufacturing industry. These are:

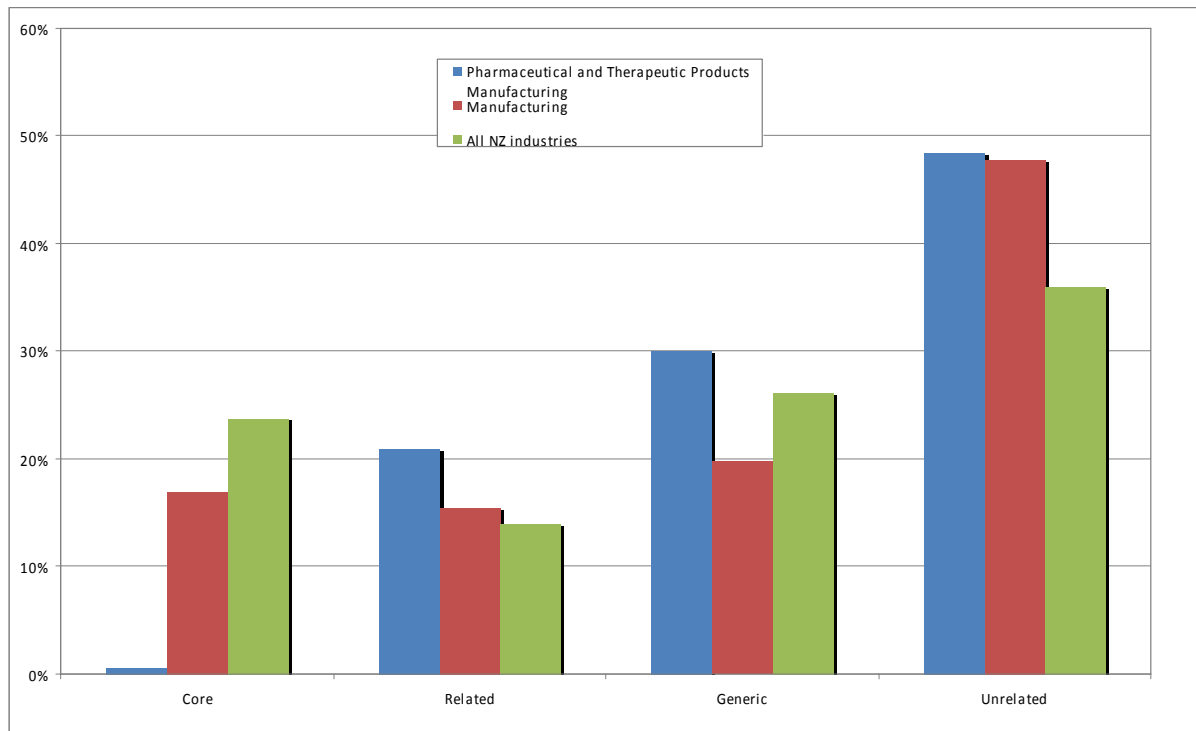
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- **Core relevance**- fields of study relating to skills which are of primary importance to the industry and are directly related to the main roles of people working in the industry.
  - **Related**- fields of study relating to skills which are in some way related to the industry although not generally the ones needed to carry out the main roles of people working in the industry.
  - **Generic**- fields of study relating to skills which are not specific to the industry but instead are used across many industries (such as accountancy and management) so are likely to be needed in the industry but are not the skills needed for most workers. (Note- for industries such as accounting where a generic field of study is of core importance the relevant field of study has been classified as being of core relevance.)
  - **Unrelated**- fields of study relating to skills which are unlikely to be directly related to the industry or are only needed for a small number of people in exceptional cases.

Overall in the Pharmaceutical and Therapeutic Products Manufacturing industry 0.6% of workers with identifiable tertiary qualifications had a qualification with a field of study that was of core relevance to the industry. A further 20.9% had a qualification with a field of study that was related, 30.1% had generic qualifications and 48.4% had a field of study that was not related to the industry.

There are higher proportions of people in the Pharmaceutical and Therapeutic Products Manufacturing industry with unrelated, related and generic qualifications compared to all NZ industries but a lower proportion with core qualifications compared to all NZ industries.

A comparison between the Pharmaceutical and Therapeutic Products Manufacturing industry, the higher level industry which the Pharmaceutical and Therapeutic Products Manufacturing industry is part of (the Manufacturing industry) and all NZ industries is shown in the following graph.

Figure 7: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by relevance of field of study of highest qualification compared to the higher level industry and NZ as a whole



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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### *3.4 Fundamental Skills - Literacy and Numeracy*

A particular skills issue facing many industries is low levels of literacy and numeracy. Raising levels of these fundamental skills can lead to increased productivity of workers, better functioning businesses, greater worker opportunities, and provides a basis for development of further skills and ultimately more productive and economically successful industries. While these skills are critical, literacy or numeracy problems may not be obvious where workers adopt coping mechanisms. In addition, the stigma that is often attached to low levels of literacy and numeracy means that many workers are reluctant to ask for or receive training in these areas. Identifying literacy and numeracy issues in the workplace can lead to better provision of training solutions that incorporate literacy and numeracy most effectively.

The Adult Literacy and Life Skills (ALL) Survey is an international comparative assessment that provides information about the literacy and numeracy of adults aged 16 to 65 years old. The ALL survey in New Zealand was conducted on behalf of the Ministry of Education in conjunction with the OECD and a range of international agencies in 2006. ALL measures literacy and numeracy skills through participants completing a booklet of test items. In this report 'low' literacy or numeracy includes people in the lowest two of five categories for literacy or numeracy.

In the ALL survey respondents that were employed were categorised into nine industry groupings. These groupings are based on the International Standard Industrial Classifications 1989 (ISIC) so differ slightly from ANZSIC industrial classifications but are similar enough to allow meaningful comparison. The largest share of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry fall within the "Manufacturing" ISIC grouping.

In the Manufacturing group 50% of workers were found to have low literacy, compared to the 40% of workers nationally who have low literacy.

In the Manufacturing group 56% of workers were found to have low numeracy, compared to the 46% of workers nationally who have low numeracy.

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### 3.5 Participation in upskilling

Information about participation in upskilling is important to consider when examining skills in an industry as it can give information about the number of people that are involved in learning in a formal sense and also those that are involved in increasing their knowledge and skills more generally. Continuing learning is important to people of all ages regardless of its exact content as it encourages ongoing skill development.

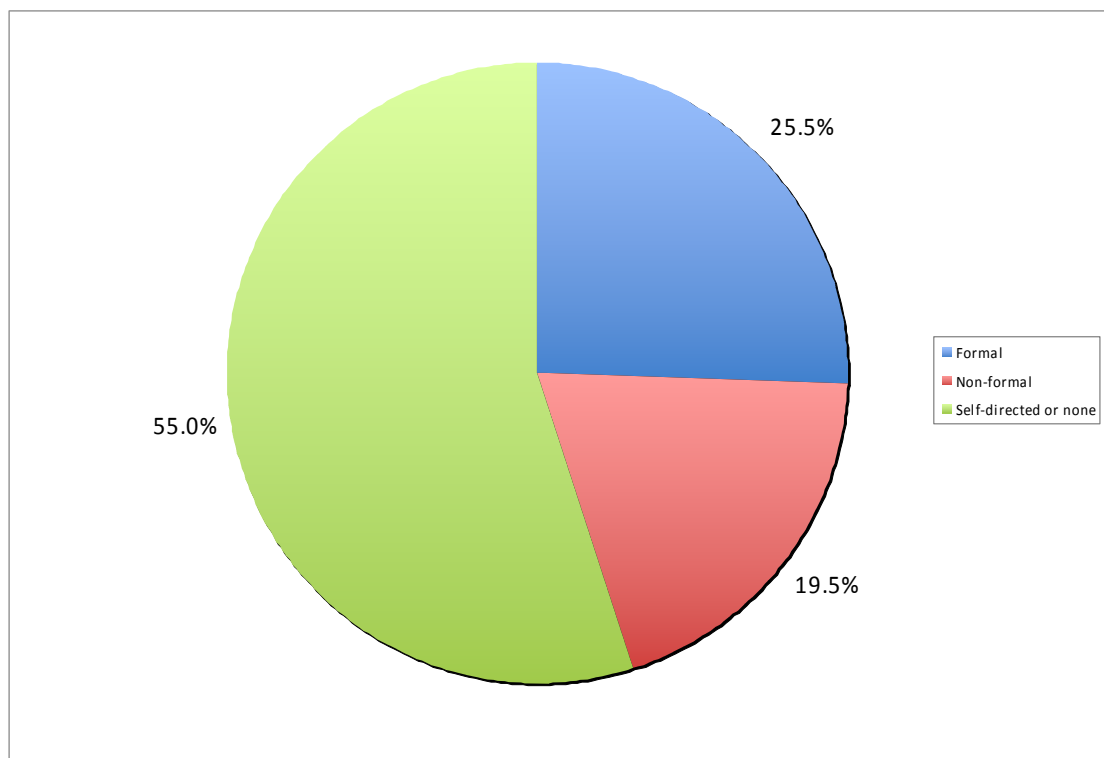
The ALL survey collected information about upskilling by asking respondents to identify the types of upskilling that they were involved in over the past year from a list of 30 options. These upskilling activities ranged from things like full time tertiary study to taking a guided museum tour. Activities were categorised into three groups for analysis. These are:

- **Formal** up-skilling refers to full-time or part-time participation in any course that is part of a programme of study leading toward a certificate, degree or diploma (for example, participation in a plumbing apprenticeship).
- **Non-formal** up-skilling refers to participation in any course that is not part of a programme of study leading toward a certificate, degree or diploma (for example, participation in a photography course at night-school).
- **Self-directed or none** refers to either no participation in any up-skilling activities, or participation in up-skilling activities such as guided tours, trade fairs or learning from instructional media.

As with information from ALL about literacy and numeracy, information from ALL about upskilling of those that were employed was categorised into nine industry groupings based on the International Standard Industrial Classifications (ISIC). The largest share of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry fall within the “Manufacturing” ISIC grouping.

In the Manufacturing group 25% of workers were engaged in formal upskilling, compared to 23% of workers nationally. In addition, a further 19% of workers are engaged in non-formal upskilling, compared to the 29% of workers nationally. The remaining 55% of workers in the Manufacturing group were engaged in either self-directed learning or no learning at all.

Figure 8: Participation in upskilling by people working in the Pharmaceutical and Therapeutic Products Manufacturing industry



Source: Adult Literacy and Life Skills Survey, Ministry of Education

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#### **4. What types of work are people in the industry doing? And what are work conditions like?**

The types of work and the way in which people work provide important insights into an industry as well as its training and skill needs. Working conditions, such as hours of work and pay, are an important factor in determining what types of workers are recruited and retained in an industry. The types of jobs people are doing is also an important factor as it has an impact on who is attracted to an industry and also what skill and qualification levels workers need. These factors also have an impact on training needs as they can affect what types of training are most needed and what training models might be most appropriate.

In this section the occupation of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry is considered first to get an insight into the types of work people are doing. Subsequently income, hours of work, and workplace injuries, three key measures of work conditions, are examined. Worker turnover rates at both a firm and industry level are then examined to get an idea of worker stability in the industry. Finally, work conditions in the Pharmaceutical and Therapeutic Products Manufacturing industry in Australia are examined to compare what is happening between the two countries and provide an insight into movements within our common labour market.

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## 4.1 Occupations

Most industries employ people to perform a wide variety of tasks or jobs. For example, a service industry may employ people to work directly with customers, people to do accounts and payroll, managers, people who do marketing and a range of other jobs. It is important to understand what types of jobs most people in an industry are doing in order to work out what types of skills need to be developed for the majority of workers and also what training should be considered for jobs which are essential but might not be seen as the core business.

Jobs in New Zealand are classified using a skill-based classification known as the Australian and New Zealand Standard Classification of Occupations (ANZSCO) 2006. ANZSCO identifies a set of occupations covering all jobs in the Australian and New Zealand labour markets, defines these occupations according to their attributes and groups them into categories.

Occupations in ANZSCO are classified into eight major groups. Occupations in these groups share similar tasks and also broadly similar skill levels. The eight major groups are Managers, Professionals, Technicians & Trades Workers, Community & Personal Service Workers, Clerical & Administrative Workers, Sales Workers, Machinery Operators & Drivers and Labourers. Examining the proportions of workers in an industry that are employed in occupations in each of these groups can give a general idea about the major types of work and also the general skill levels of occupations within an industry.

The percentage of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry employed in each major group is shown in table 3 below along with the same breakdown for all workers in New Zealand. The most common major occupational group for people working in the Pharmaceutical and Therapeutic Products Manufacturing industry is the Managers group. Of all people working in the Pharmaceutical and Therapeutic Products Manufacturing industry 22.8% of people work in this group compared to 18.2% of all workers in New Zealand.

*Table 3: The percentage of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry and all NZ industries by major occupation group*

<b>Major Group</b>	<b>Pharmaceutical and Therapeutic Products Manufacturing</b>	<b>All NZ industries</b>
1. Managers	22.8%	18.2%
2. Professionals	17.1%	20.0%
3. Technicians & Trades Workers	13.9%	12.9%
4. Community & Personal Service Workers	2.5%	8.4%
5. Clerical & Administrative Workers	14.8%	12.9%
6. Sales Workers	7.2%	9.9%
7. Machinery Operators & Drivers	5.9%	6.1%
8. Labourers	15.8%	11.7%

Source: 2006 Census of Population and Dwellings, Statistics New Zealand

The categories at the most detailed level of the ANZSCO structure are called 'occupations'. An occupation is defined as a set of jobs that require the performance of similar or identical sets of tasks. As it is rare for two actual jobs to have identical sets of tasks, in practical terms, an occupation is a set of jobs whose main tasks are characterised by a high degree of similarity. There are just under 1,000 separate occupations defined in ANZSCO.

There were at least 10 people working in 44 different ANZSCO occupations in the Pharmaceutical and Therapeutic Products Manufacturing industry at the time of the 2006 Census. However, the majority of people work in a small number of these occupations. The most common occupation in the Pharmaceutical and Therapeutic Products Manufacturing industry is 'Container Filler' which is the occupation of 6.9% of people working in the industry. The ten most common occupations of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry are shown in table 4 below.

*Table 4: The number of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by occupation and the share of all workers in the industry in each occupation*

<b>Most common occupations</b>	<b>No. of workers</b>	<b>% of all workers</b>
Container Filler	147	6.9%
Labourers nec	123	5.8%
Sales Representatives nec	87	4.1%
General Clerk	75	3.5%
Sales and Marketing Manager	72	3.4%
Medical Laboratory Technician	66	3.1%
Chief Executive or Managing Director	66	3.1%
Chemical Plant Operator	63	2.9%
Storeperson	60	2.8%
Corporate General Manager	54	2.5%

Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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## 4.2 Income

Income is one of the most fundamental and tangible measures of the returns that individuals get from work. Therefore, information about income is important to know when considering how to attract people to an industry, possible problems with staff retention and when comparing an industry with other similar industries. Both average income as well as the distribution of income are important to consider. It should be noted, in some industries, such as those with large numbers of volunteers, non-monetary returns (such as a sense of contributing to society or personal satisfaction) can also play an important role in attracting and retaining people.

One important factor that can impact on income is the number of hours a person works. In industries with a high proportion of part time work, average incomes will be lower than an industry where people work longer hours even if all other factors are the same. Similarly, in some industries incomes are high due to long hours of work. Therefore, this information about income should be considered in conjunction with the information about hours of work that is presented in the following section.

Information in the Census is about gross total personal income rather than income from only wages and salaries. Therefore, other sources of income including government transfers (such as benefits), investment income and rents are included in Census measure. However, wages and salaries represent the majority of total personal income and so total personal income is a reasonable proxy for income from work.

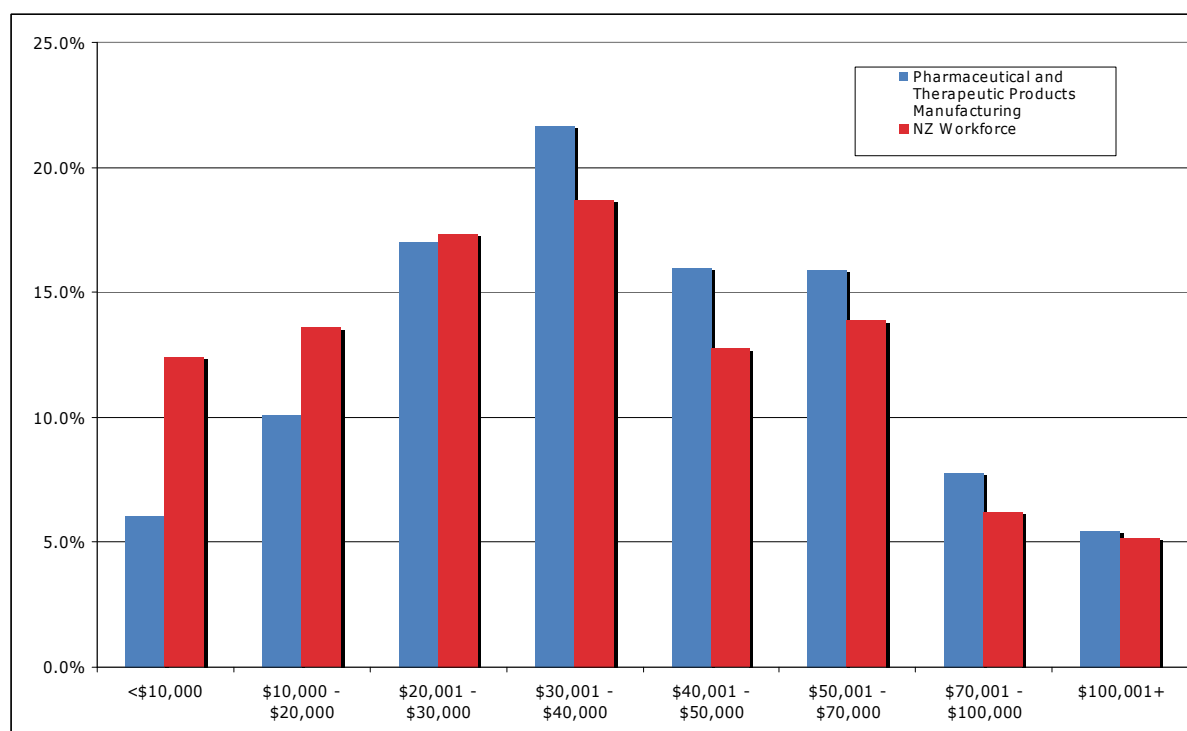
At the time of the 2006 Census, the mean (average) income for people working in the Pharmaceutical and Therapeutic Products Manufacturing industry was \$43,400, which was \$4,500 higher than the national mean income of \$38,900.

The Quarterly Linked Employer Employee Dataset (LEED) contains information about the amount of money people earn from wages or salaries and in late 2008 was released using ANZSIC 2006 industry classifications. This information has the advantage of separating wages and salaries from other income sources but some information, such as income distribution, is not available so LEED should therefore be used in conjunction with, rather than replace, Census data on income.

In the year to September 2008, the mean earnings from wages and salaries for people in the Pharmaceutical and Therapeutic Products Manufacturing industry was \$54,489, which was \$7,909 higher than the national mean earnings from wages and salaries of \$46,580.

A second income variable that is useful to consider is the distribution of workers in an industry across income bands as reported in the Census. There are also differences between the Pharmaceutical and Therapeutic Products Manufacturing industry and all NZ industries in the spread of workers across income bands. The largest differences in the income distribution between the Pharmaceutical and Therapeutic Products Manufacturing industry and the average across NZ industries are a higher proportion of people earning \$40,001 - \$50,000 and a lower proportion of people earning <\$10,000.

*Figure 9: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by income band*



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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A third income variable that is useful for industries to examine is the ratio of earnings between existing staff and new hires, a measure found in LEED. This is useful to consider because:

*“When labour is hard to get, businesses are likely to use earnings to both retain and attract employees.... An increasing ratio of new to continuing jobs suggests that businesses were using earnings to attract new staff. A decreasing ratio suggests businesses were trying to retain labour rather than attract new staff.”<sup>3</sup>*

In the year to September 2008 new staff in the Pharmaceutical and Therapeutic Products Manufacturing industry earned on average 78.4% of the average earnings for existing staff. This is a smaller pay gap than the industry average five years ago when new staff earned on average 76.9% of the average earnings for existing staff.

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<sup>3</sup> From the Statistics New Zealand website, Quarterly LEED technical notes.

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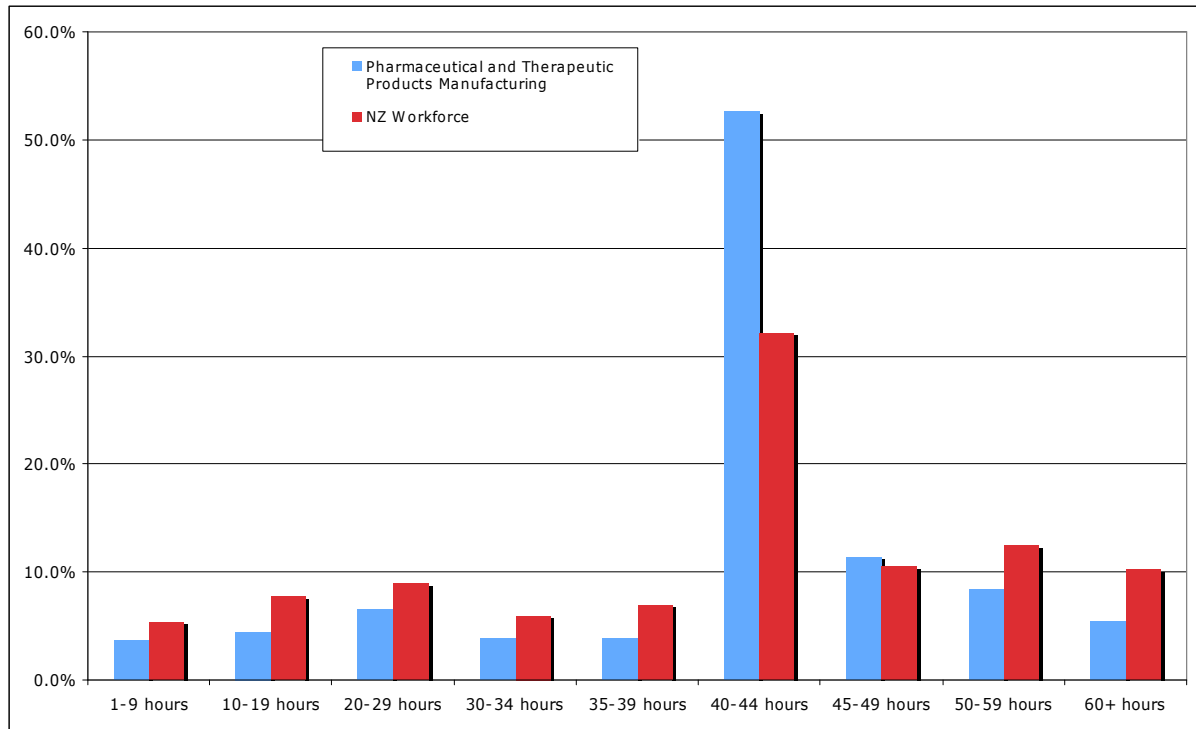
### *4.3 Hours worked*

The number of hours that people work per week is an important indicator of work conditions. Hours of work can vary considerably from industry to industry due to the prevalence of part-time work, the degree of shift or on call work, and in some cases the nature of the work. Hours of work can have a significant impact on the types of people who work in an industry. For example, industries with a considerable proportion of part-time work are likely to attract significant numbers of students and young people while industries with very long hours are less likely to be appealing to people with young children. Training and skill needs may also be impacted by hours of work. For example, if an industry has large numbers of workers working very few hours it may be more difficult for training to take place, and employees or employers may be less likely to take up training opportunities.

Over time the number of hours that people work per week has changed considerably. The percentage of people who work the 40 hours per week that was once considered standard has decreased while the proportions of people working part time or working very long hours have both increased.

In the Pharmaceutical and Therapeutic Products Manufacturing industry 56.4% of workers work around 40 hours per week (35 - 44 hours), a considerably larger proportion than the 39% of all workers who work that number of hours. Part time work is less common in the Pharmaceutical and Therapeutic Products Manufacturing industry than in NZ as a whole with 14.6% of workers working less than 30 hours compared to 22% of all NZ workers. Very long hours of work are less common in the Pharmaceutical and Therapeutic Products Manufacturing industry than in all NZ industries, with 13.8% of people in the industry employed for more than 50 hours compared to 22.7% of all workers.

Figure 10: The proportion of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry by hours worked per week



Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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#### *4.4 Work-related injuries and fatalities*

Workplace safety is an important aspect of overall work conditions. Safe and healthy workplaces are obviously beneficial to workers in terms of avoiding injuries and illness and are also beneficial to firms, and industries more generally, by increasing productivity, reducing time lost due to injury and sickness and making work more attractive to potential workers.

While general workplace safety is difficult to measure, there are measures of the number of injuries and fatalities that are work-related. Statistics New Zealand collects information about the number of claims made by workers to the Accident Compensation Commission (ACC) for accidents that are work-related. This means that statistics are not comprehensive in terms of all accidents that occur but instead generally represent accidents where injuries were serious enough to result in a claim to ACC.

Work-related injury statistics are classified using ANZSIC 1996, an earlier version of the ANZSIC 2006 classification used elsewhere in this report. Statistics for ANZSIC 2006 industries have been calculated using the concordance between the two classifications and so should be seen as indicative only.

In 2008 there were 100 claims for work related injuries in the Pharmaceutical and Therapeutic Products Manufacturing industry. This number of injury claims is -58% less than the 240 claims which were made on average per year in the industry during the years 2003-2007. In comparison, across all NZ industries there were 224,900 work-related injury claims made in 2008, 7% fewer than the average number per year during the period 2003-2007.

The majority of work related injury claims each year are concentrated in a small number of industries. In 2008 42 industries had 1,000 or more industry claims each and these industries made up more than 50% of all injury claims. The Pharmaceutical and Therapeutic Products Manufacturing industry included none of these individual industries.

A small number of work-related injuries each year result in fatalities. Since the number of fatalities is relatively small they are only reported at a grouped industry level to ensure confidentiality. The grouped industry that Pharmaceutical and Therapeutic Products Manufacturing is most closely associated with is "Manufacturing".

There were 11 claims for fatal workplace injuries in Manufacturing in 2008 compared to an average of 11 per year in the previous five years. There are four industry groups in which the majority of workplace fatalities occur, including Manufacturing. Fatalities in these four industry groups have made up more than 75% of all reported, identifiable workplace fatalities since 2003.

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#### *4.5 Worker turnover rates*

Worker turnover is a measure of the number of people who either start a new job in an industry or leave their existing job in the industry. This provides information about the level of change in workers in an industry. Worker turnover is important for an industry to consider because a rapidly changing workforce may be less productive as new people take time to develop industry specific skills. At the same time, some degree of worker turnover is positive because new workers bring new skills and new ideas into an industry.

From a training point of view, a high level of turnover may mean more training in core industry skills is needed if there are large numbers of new employees. Large number of departing employees may impact on training completions and also on the number and quality of more senior staff to arrange and support training or mentor trainees. In addition, training can encourage workers to stay in an industry by providing development and career pathways.

Turnover can be measured at both the firm and industry level. Firm level turnover occurs when a worker moves between firms or leaves a firm to take part in another activity such as retirement or childcare. Firm level turnover can have significant impacts on the individual firms involved but can have a range of impacts at an industry level depending on whether workers move to firms within the same industry.

Industry level turnover occurs when people leave an industry in which they have been employed to work in another industry or to leave the labour force. This measure of turnover differs from firm level turnover as it does not include people who move from one firm to another within the same industry. Industry level turnover is important to measure when considering skills and training because exiting workers will most likely need to be replaced by workers who may require skill development.

##### *Firm Level Turnover*

Information about worker turnover is available from quarterly LEED data. This provides a measure of the turnover on a quarterly basis using the numbers of people starting new jobs in an industry or leaving existing jobs in the industry. The latest LEED information available relates to the September 2008 quarter. Results reported here are an average of four quarters to account for seasonal variation. In addition, some small industries are grouped together in LEED to account for confidentiality issues.

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On average in the year to September 2008, 408 people started a new job in the Pharmaceutical and Therapeutic Products Manufacturing industry per quarter while 481 people per quarter left or finished their jobs in the industry.

New starts and departures resulted in a turnover rate of 13% of workers per quarter in the Pharmaceutical and Therapeutic Products Manufacturing industry per quarter in the year to September 2008, a smaller rate than the national turnover rate of 16.8%.

The turnover rate in the Pharmaceutical and Therapeutic Products Manufacturing industry in the year to September 2008 was greater than the rate five years earlier, in the year to September 2003, when the rate was 11.2% per quarter.

### *Industry Level Turnover*

Industry level turnover statistics have been calculated for the Industry Training Federation by Statistics New Zealand using quarterly LEED data. In these statistics the turnover rate is calculated as the percentage of people who were in a particular industry in a reference quarter and were then not in the industry in any of the following four quarters. This means that people who work in seasonal industries such as fruit harvesting and skiing and are employed in the same industry for part of the year each year are not counted as having left the industry, and neither are people who take several months off before returning the industry in which they were previously employed. As with firm level turnover some very small industries have been grouped together due to confidentiality issues.

Of all people working in the Pharmaceutical and Therapeutic Products Manufacturing industry in June 2007 10.2% left the 5-digit industry they were previously working in over the following year. This is less than the NZ average of 11.9% across all industries for the same time period. The proportion of people who left the industry in the year from June 2007 was greater than 5 years earlier when 8.7% left the industry.

The information prepared by Statistics New Zealand also includes a breakdown of where people who have left a particular industry are working one year after leaving the industry. The breakdown includes three categories- workers who are working in another industry within the same ANZSIC 2-digit industry, those working in a different industry, and those who are no longer in employment in NZ. In terms of skill needs, workers who are working in the same 2-digit industry are likely to be using a similar set of skills as in their previous industry, workers in a different industry will often need to be retrained or learn new skills, and those who are no longer in employment in NZ may be using their skills elsewhere such as in overseas employment or in another activity such as childcare or full time study.

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Of those who were no longer working in the same industry, 2.5% were working in another industry within the same larger industry (2-digit level) while 51.4% were working in a different industry and 46.1% were no longer in employment in NZ. Compared to NZ as a whole this is a larger proportion of people working in a different industry and people no longer in employment in NZ but a smaller proportion of people working in the same larger industry.

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#### *4.6 Special topic- comparison with Australia*

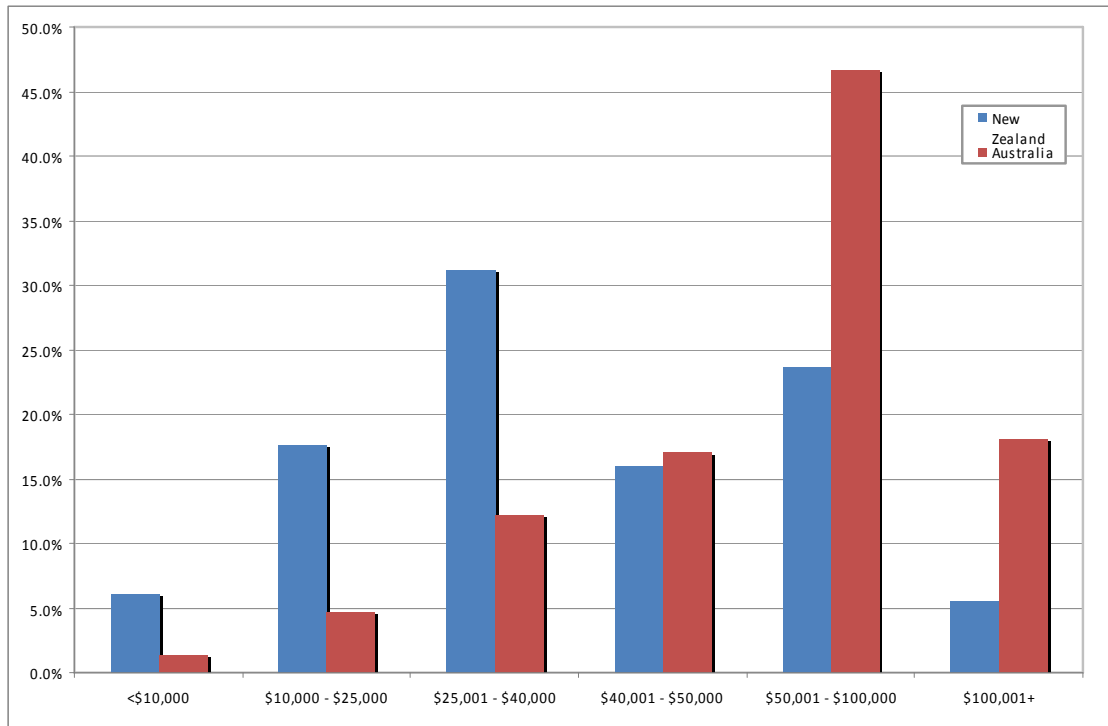
Skill and labour shortages have been a problem for many industries in NZ over the past decade as demand for labour has been strong while the supply of labour has been more limited. One of the factors that has impacted on labour supply is emigration of New Zealanders, particularly to Australia. Migration of New Zealanders to Australia has been high over the past decade, and has increased in the past few years reaching a 30-year high of 34,000 in late 2008. One of the reasons why some workers are moving to Australia is the perception of better employment opportunities and working conditions in Australia, particularly in respect to higher incomes. Since we share a common labour market with Australia workers can easily move between the two countries to take advantage of these different conditions.

In this section some key indicators – industry size, income and hours worked – are examined for the Pharmaceutical and Therapeutic Products Manufacturing industry in Australia using the Australian 2006 Census. Comparisons can be made between the two countries since industries in NZ and Australia are classified using the same classification system, ANZSIC 2006. However, these figures should be treated as indicative only as there are some differences in the way the data is collected, particularly for income. The figures also relate to a slightly different time period as the Australian 2006 Census was conducted in August 2006 while the New Zealand 2006 Census was conducted in March 2006.

In 2006 there were 18,151 people working in the Pharmaceutical and Therapeutic Products Manufacturing industry in Australia or 0.2% of the total Australian workforce compared to 0.11% of the NZ workforce. This means that the Pharmaceutical and Therapeutic Products Manufacturing industry is larger in Australia in terms of numbers of workers and also in terms of share of all workers.

In order to compare incomes all income figures from the Australian Census have been converted to New Zealand dollars using the exchange rate from August 2006. In general the income distribution of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry is lower in New Zealand than in Australia. In particular, 23.7% of NZ workers in the Pharmaceutical and Therapeutic Products Manufacturing industry earn less than \$25,000 a year compared to 6% of workers in Australia. In addition, 29.2% of workers in the industry in NZ earn more than \$50,000 per year while in Australia 64.8% of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry earn more than this amount. A detailed breakdown of income distribution in New Zealand and Australia is shown in figure 9.

Figure 11: The income distribution of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry in New Zealand and Australia



Source: 2006 Census of Population and Dwellings, Statistics New Zealand and 2006 Census of Population and Housing, Australian Bureau of Statistics

In the NZ Pharmaceutical and Therapeutic Products Manufacturing industry 56.4% of workers work around 40 hours per week (35 - 44 hours), a larger proportion than the 56.3% of Australian workers in the industry who work that number of hours. Part-time work is more common in the Pharmaceutical and Therapeutic Products Manufacturing industry in NZ than in Australia with 14.6% of workers in NZ working less than 30 hours compared to 13.2% of workers in the Pharmaceutical and Therapeutic Products Manufacturing industry in Australia. Very long hours of work are less common in the Pharmaceutical and Therapeutic Products Manufacturing industry in NZ than in Australia, with 13.8% of people in the industry in NZ employed for more than 50 hours compared to 15.7% of those in Australia.

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## 5. What are characteristics of firms in the industry?

Information about the characteristics of firms is important when thinking about the nature of the industry and also training and skill needs. Characteristics such as firm size, location and the prevalence of owner operated firms can have a considerable impact on the ease of accessing training, the range of skills needed, and how an ITO can best communicate with the industry as a whole.

In this section firm size is the first topic examined. Secondly, employment status (the percentage of workers who are employees, employers and self-employed) is analysed. This is followed by analysis of the spread of workers in firms in major urban, small urban and rural areas. Finally firm births and deaths, new and closing firms, are examined in the final part of this section.

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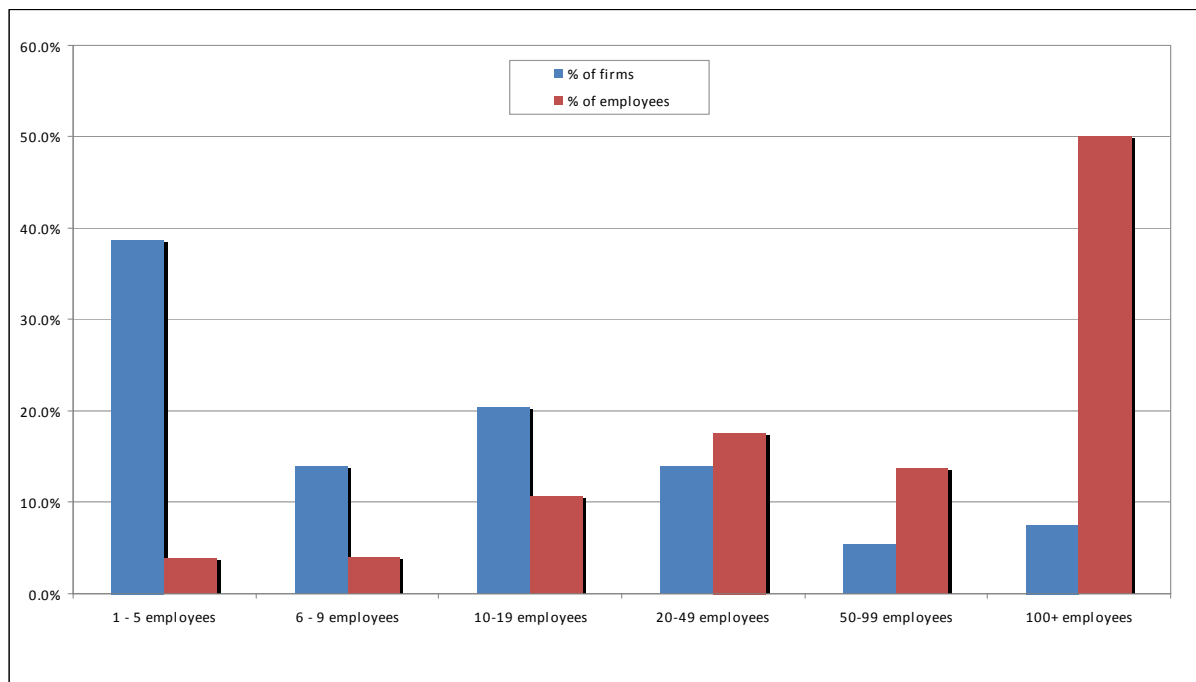
## 5.1 Firm Size

Firm size is a measure of the size of firms in terms of number of employees. In this section both the number of firms with various employee number bands as well as the numbers of workers employed at those firms are examined. The size of firms in an industry is important to consider when thinking about skill and training needs as it can impact on the types of training needed, ease of participating in training, and likelihood of accessing skill and training resources. Firms that do not have workers, such as those that are registered but currently inactive, are excluded from this analysis. The most recent information that is available about firm size is from Business Demography for 2009.

Across all NZ industries the vast majority of businesses are either small (79.8%), employing fewer than 10 people, or medium (17.1%), employing 10 – 49 people. However, the majority of people work in very large businesses with nearly half of all workers (46.6%) working in a business of 100 people or more.

Like the majority of NZ industries, small firms make up the largest share of all firms in the Pharmaceutical and Therapeutic Products Manufacturing industry. The industry is comprised of 52.7% small firms (1-9 employees), 34.4% medium sized firms (10-49 employees), 5.4% large firms (50-99 employees), and 7.5% very large firms (100+ employees). In terms of workers small firms employ 8% of all workers in the Pharmaceutical and Therapeutic Products Manufacturing industry while medium sized firms employ 28.3% of workers, large firms employ 13.7% of workers and very large firms employ 50.1% of workers. A detailed breakdown of firms and employees by firm size is shown in figure 12 below.

Figure 12: The proportion of firms and employees in the Pharmaceutical and Therapeutic Products Manufacturing industry by firm size



Source: Business Demography, Statistics New Zealand

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## 5.2 Employment Status

Employment status is a measure of workers' employment arrangements with the firm they work for. Close to 80% of workers in New Zealand are employees, which means they have an employment contract and receive remuneration, usually in the form of wages or salaries. People who are self employed work in a business that they own and are classified as either 'employers' if they have staff or 'self employed without employees' if they do not. Unpaid family workers are people who work without pay in a business owned by a relative, the majority of these workers work in agriculture or in small shops such as dairies and takeaway services.

Employment status is an important indicator to consider when examining training needs as Industry Training currently only covers employees. This means that industries that have significant numbers of people who are not employees may face issues around accessing training.

Like the majority of industries in NZ, most workers in the Pharmaceutical and Therapeutic Products Manufacturing industry are employees, with 88.3% being employees. This is more than the 78.4% of workers in all industries that are employees. Compared to all NZ industries, the Pharmaceutical and Therapeutic Products Manufacturing industry has smaller proportions of people that are employers, self-employed or unpaid family workers than across NZ industries. A detailed breakdown is shown in table 5 below.

*Table 5: The percentage of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry and all NZ industries by employment status*

<b>Employment Status</b>	<b>Pharmaceutical and Therapeutic Products Manufacturing</b>	<b>All NZ industries</b>
Employee	88.3%	78.4%
Employer	4.8%	7.4%
Self-Employed without Employees	6.5%	12.2%
Unpaid Family Worker	0.4%	2.1%

Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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### 5.3 Location of Firms

The region and types of areas in which firms are located has an impact on future planning for the industry as well as on skill and training needs. The location of firms and workers is important to consider in the face of an increasing shift of people from rural to urban areas. This will impact on industries that are heavily concentrated in rural areas as they may face shortages of workers and some industries may face shortages of customers or clients. Conversely, industries that are concentrated in urban areas may experience an increase in labour supply. In terms of skill development and training, the location of firms impacts on how training is best accessed or delivered. In urban areas there is generally better access to training providers such as Institutes of Technologies and Polytechnics (ITPs), Private Training Establishments (PTEs), and Universities, while in more rural areas training might be best accessed using new technologies, distance learning, or all on-job methods.

The region in which firms are located can provide insight into where the industry is concentrated and therefore where there may be a need for a particular focus in terms of training and labour supply. It is also useful to know if there are regions where there is an over-representation of firms as these are areas where the industry may comprise a larger share of employment opportunities than would otherwise be expected.

The regional council areas with the largest number of businesses in the Pharmaceutical and Therapeutic Products Manufacturing industry are Auckland Region, Canterbury Region and Waikato Region. These regions have 44.6%, 18.8% and 8.6% respectively of all businesses in the Pharmaceutical and Therapeutic Products Manufacturing industry. The regions where the Pharmaceutical and Therapeutic Products Manufacturing industry is most over-represented are Nelson Region, Tasman Region and Canterbury Region.

Further insights can be found by looking at the location of firms in terms of whether they are in an urban or rural area. In this section the location of firms have been divided into three types of areas: major urban areas, small urban areas, and rural areas based on the Territorial Authority in which they were located. These groups were chosen based on several characteristics including population, the prevalence of different types of tertiary providers, the range of services available and the variety of types of industries and occupations present. Major urban areas include the greater urban areas around Auckland, Hamilton, Wellington, Christchurch and Dunedin, small urban areas include smaller cities and provincial centres such as Tauranga, New Plymouth, Nelson and Timaru, while rural areas are areas outside of the main or small urban areas.

The largest percentage of people working in firms in the Pharmaceutical and Therapeutic Products Manufacturing industry are located in major urban areas, with 81.9% of people

working in firms in these areas compared to 11.1% in small urban areas and 7% in rural areas. This distribution is considerably different than the distribution for all industries as the Pharmaceutical and Therapeutic Products Manufacturing industry has smaller proportions of people in firms in small urban and rural areas and a larger proportion in major urban areas. A detailed breakdown is shown in table 6 below.

*Table 6: The percentage of people working in the Pharmaceutical and Therapeutic Products Manufacturing industry and all NZ industries by location of firms*

<b>Urban/Rural Split</b>	<b>Pharmaceutical and Therapeutic Products Manufacturing</b>	<b>All NZ industries</b>
Major Urban	81.9%	56.4%
Small Urban	11.1%	22.3%
Rural	7.0%	21.3%

Source: 2006 Census of Population and Dwellings, Statistics New Zealand

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#### *5.4 Firm births and deaths*

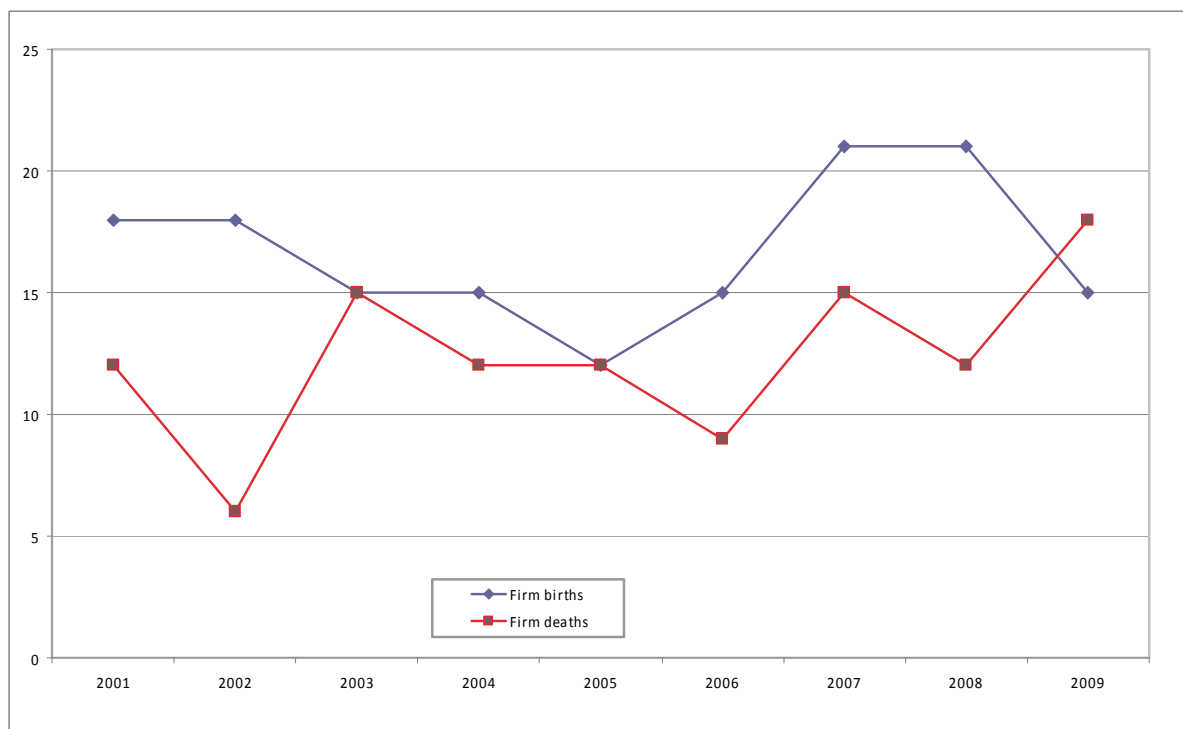
One of the types of information available from Business Demography data relates to firm 'births' and firm 'deaths'. A firm birth is defined as a new enterprise being created while a firm death is defined as an existing enterprise closing.

Firm births and deaths are important to consider both from an industry perspective and also from a training perspective. In terms of industry, firm births provide an indication of people's willingness and confidence in starting enterprises in the industry, while firm deaths provide an indication of the survival of firms. In terms of training, an industry with high rates of firm births may have unique training needs as new firms will need to put training arrangements in place, while industries with high rates of firm deaths need to consider the impact of closure on existing trainees.

The latest available information about firm births and deaths relates to the year to February 2008. In the year to February 2009 there were 15 firm births in the Pharmaceutical and Therapeutic Products Manufacturing industry or 0% of all firm births in the same period. While many of these firms had no workers, new firms collectively employed 18 people. In the year to February 2009 there were 18 firm deaths in the Pharmaceutical and Therapeutic Products Manufacturing industry or 0% of all firm deaths in the same period. While many of these firms had no workers, collectively closing firms employed 26 people. The net result of firm births and deaths in the Pharmaceutical and Therapeutic Products Manufacturing industry in the year to February 2009 was a decrease of 3 firms.

The changes in firm births and deaths over time can be driven by a range of factors including changes in the economy more generally, changes in the size of firms in the industry, and changes in perceptions about the viability of operating a business in the industry. There was the same number of firm births in the Pharmaceutical and Therapeutic Products Manufacturing industry in the year to February 2009 than in the same period in 2004. There was 6 more firm deaths in the Pharmaceutical and Therapeutic Products Manufacturing industry in the year to February 2009 than in the same period in 2004. Annual firm births and deaths from 2001 – 2008 are shown in the figure below.

Figure 13: Firm births and deaths in the Pharmaceutical and Therapeutic Products Manufacturing industry 2001 - 2008



Source: Business Demography, Statistics New Zealand

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## 6. What other information might be useful?

While this Industry Profile covers key baseline information about the Pharmaceutical and Therapeutic Products Manufacturing industry there is also a great deal of other information which may be useful for informing industry planning and considering skill and training needs. Some of this information is currently available from other sources, including the ITO or industries themselves, some is not yet available but will be in the future and some will require further research. This section outlines some of these types of information.

### ***Multiple variable breakdowns***

Most of the information in this industry profile is based around analysis of industry by a single variable such as region or gender. More in depth analysis involving multiple variables such as industry by age and ethnicity could be done using existing statistical information held by the ITF or through obtaining further cross tabulations from Statistics New Zealand.

### ***Length of time in industry***

An important indicator for determining skill and training needs is the length of time that workers have been in the industry. This is important as people who have been in the industry for a long period of time are likely to have different training needs from people who have just started. In addition, the average length of time is important because it can influence the timing or types of training provided. This information is not currently available from any official data sources but is possibly something that ITOs or other industry groups could investigate.

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## 7. Where to go for further information

The information in this report has come from a range of sources including Statistics New Zealand, the Ministry of Education, and the Australian Bureau of Statistics. These organisations all hold information that can be very useful when doing analysis about industries, skills, and other labour market issues. This section provides a short overview of the information available from each source and links to information available on the internet. There is also a range of other organisations that have relevant information available about specific industries or provide economic commentary such as the Ministry of Agriculture and Fisheries, the Department of Labour, leading banks, and economic consulting agencies.

### ***Statistics New Zealand***

Statistics New Zealand is New Zealand's national statistical office and is the country's major source of official statistics. There are a range of statistics that are relevant to industry, skill development and the labour market including 2006 Census, Business Demography, the Linked Employer-Employee Dataset (LEED), and the Household Labour Force Survey (HLFS). All of these are available on the Statistics New Zealand website:

[www.stats.govt.nz](http://www.stats.govt.nz)

### ***Ministry of Education***

The Ministry of Education is the government's lead advisor on the New Zealand education system. As part of this role they collect a range of education statistics and undertake research on educational topics including the ALL survey which features in this report. This information is available on the Ministry of Education's 'Education Counts' website:

[www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

### ***Australian Bureau of Statistics***

The Australian Bureau of Statistics (ABS) is Australia's national statistical agency and provides statistics on a wide range of topics including industry and the economy. Many of the classifications used by the ABS are the same as those used by Statistics NZ which enables direct comparison of statistics. Data and other information is available on the ABS website:

[www.abs.gov.au](http://www.abs.gov.au)

### ***Industry Training Federation***

The Industry Training Federation (ITF) is a membership-based organisation, representing the 39 Industry Training Organisations (ITOs) in New Zealand to improve the policy for and delivery of industry skill development and workplace learning. A range of information about skills as well as research on training and skill development is available from the ITF website:

[www.itf.org.nz](http://www.itf.org.nz)