Southland Region Labour Market Assessment 2014-2031

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January 2015

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Te Whare Wānanga o Waikato

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Referencing information:
Roskruge, M.J. & Pawar, S. (2015). *Southland Region Labour Market Assessment*. Commissioned Report. Hamilton, New Zealand: University of Waikato, National Institute of Demographic and Economic Analysis.

Acknowledgements

We gratefully acknowledge the participants of the Southand Labour Market Workshop, the Venture Southland team, Prof. Natalie Jackson & Dr. Bill Cochrane for their contributions to this report. We also thank Prof. Peggy Koopman-Boyden for providing internal peer review.

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Executive Summary

This report provides some insights into the future labour market conditions in the Southland Region from 2014 through to 2031. To develop an understanding of the future, we first assess historical information about the changes in population, employment, industries and occupations in Southland. These historical data, feedback from the Venture Southland labour market workshop, and broad regional and national trends, are then used to project both future labour supply and labour demand for the Southland Region, from 2014 to 2031. The findings are then drawn together to form broad conclusions on the implications for the Southland Regional labour market.

The Past

Population

Southland Region's population has been relatively stable over the past decade, growing by a modest 2.7 per cent (2,463 people) over the 2006-2013 period. However, the population is ageing both numerically (increase in the number of people aged 65 years or more) and structurally (increase in the proportion of people aged 65 year or more). While the 15 to 64 age group experienced a net growth of just 1 per cent, the population of residents aged 65 years or more increased by 15 per cent over 2006-2013.

Workforce

Southland has one of the highest workforce participation rates in New Zealand, 72.5 per cent compared to the New Zealand average 69 per cent. However, this is driven by the number of people in the labour force aged 55 years or more, with one in every five people in the labour force belonging to this older age group. In 2001, there were approximately two entrants to replace each exit from the Southland region's workforce. By 2013, this had declined to only slightly over one entrant to every exit, suggesting a shortage of new workers is likely, particularly in occupations with specific skill requirements.

Industry and Occupation

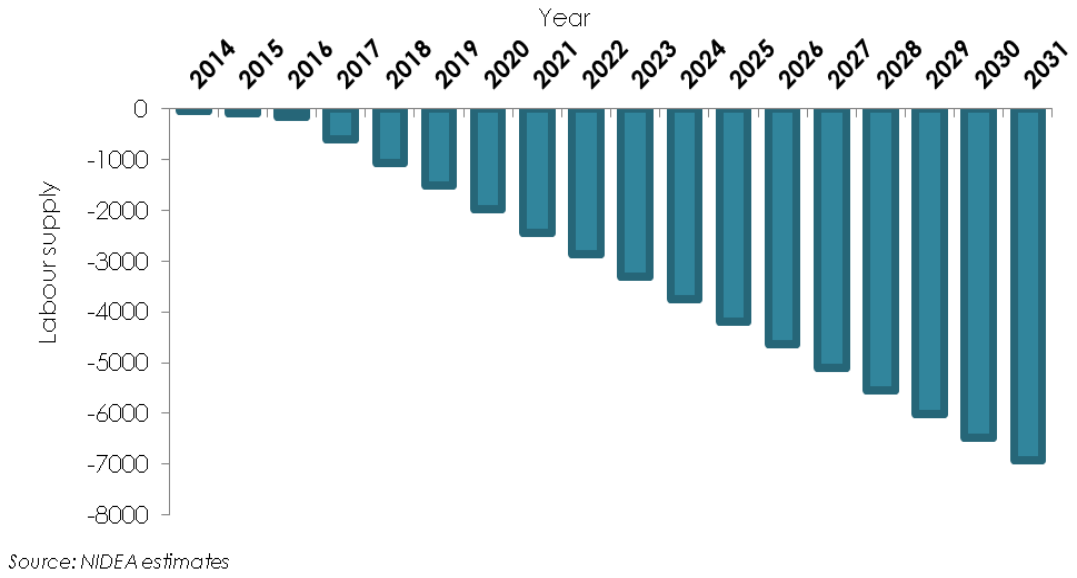
There has been significant transition in the industry and occupation mix for the Southland Region. In particular, there has been a clear shift from meat and wool production to dairy, with two of the three largest industries, Meat & Meat Product Manufacturing, and Grain, Sheep & Beef Cattle Farming, experiencing the largest workforce downsizing while Dairy farm worker as an occupation has risen from fifth position in 2006 to become the most common occupation in Southland in 2013. Outside of agriculture, there has been strong growth in the interlinked industries, Community Care Services and Hospitals & Nursing Homes, as well the Building and Construction industry was also observed and this is reflected in growth by related occupations.

Almost all industries and occupations across the Southland Region (as well as nationally) are experiencing workforce ageing with declining Entry/Exit ratios and an increasing proportion of the employed workforce aged 55 years or more.

The Future

The size of the Southland Region is projected to remain relatively constant over the next sixteen years. However, while the population stays the same size, it is projected to age structurally and numerically over this period, resulting in a shrinking workforce. As shown in Figure E1 below, compared to 2014 Labour supply is likely to fall by 2,000 by 2020, 4,000 by 2025 and 6,000 by 2030, a 12 per cent reduction in sixteen years.

Figure E1: Reduction in labour supply compared to 2014.



Source: NIDEA estimates

While supply of labour is projected to decrease, with sustained economic growth, demand for labour in Southland is projected to increase as shown in Figure E2 below. This growth is projected to add between 1,000 and 4,000 new positions by 2020, rising to between 4,000 and 12,000 new positions by 2030.

Figure E2: Growth in labour demand, 2014-2031.

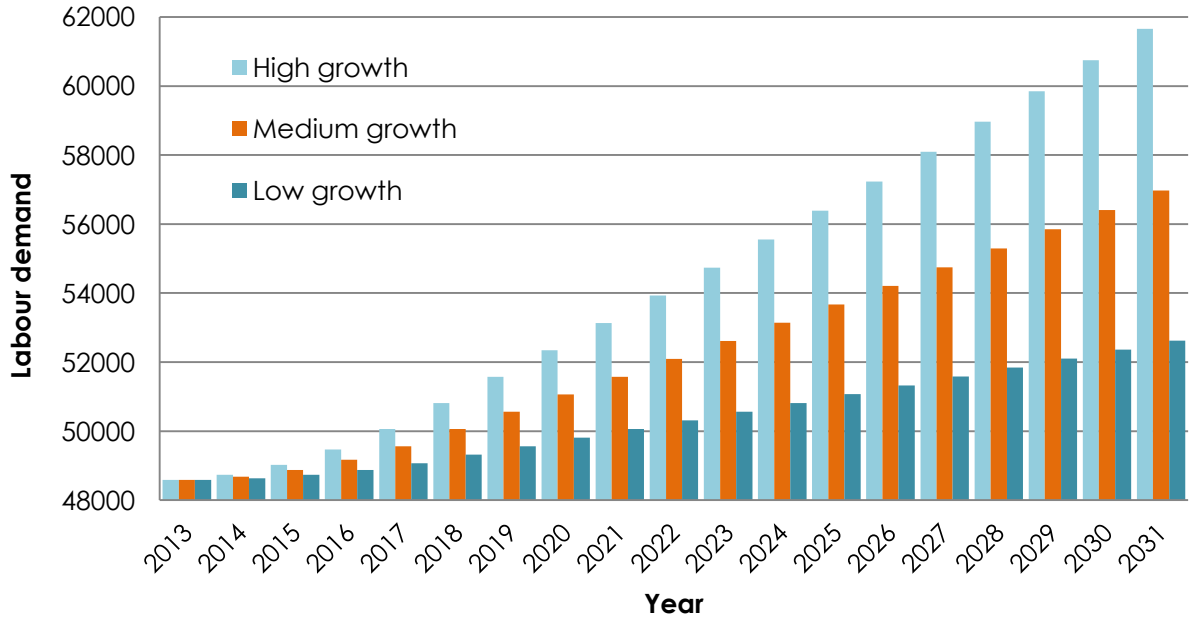
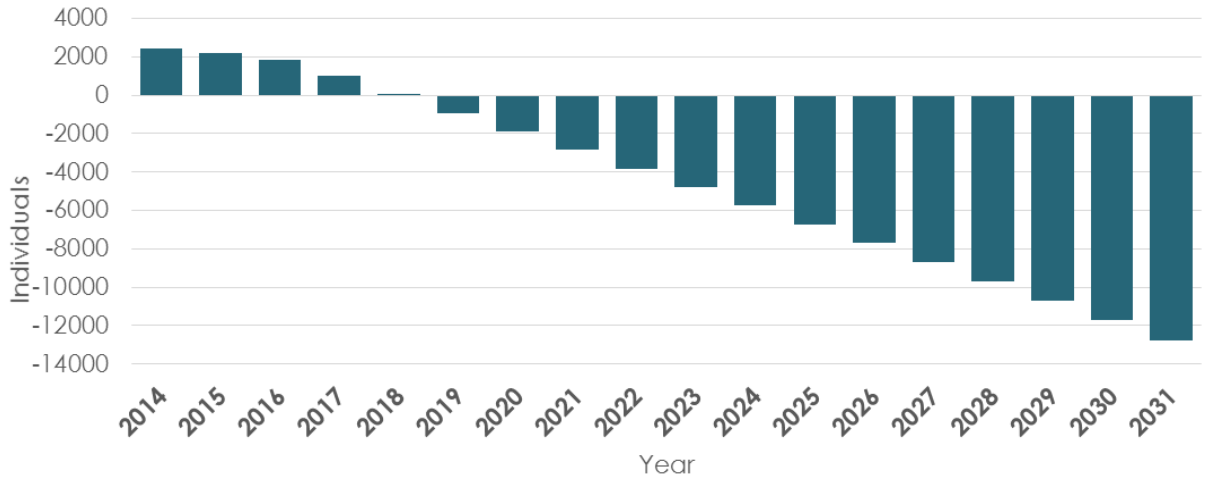


Figure E3 shows the net labour market for the Southland Region from 2014 to 2031 using the medium projections. By 2023, Southland is estimated to have a labour force shortage of approximately 5,000 people, rising to over 12,000 by 2031. Based on the NIDEA projection model, it appears that by 2016 this shortage will begin to be generalised across industries and occupations as individuals leaving the labour force through structural ageing will increasingly not be replaced by new workers moving into the labour force.

Figure E3: Labour supply less labour demand, 2014-2031.



In this report, we test several scenarios on the supply side (increased migration, increased labour force participation by older workers, younger workers and among women) as well as a negative scenario on the demand side (closure of the Tiwai Point Aluminium smelter). Regardless of the scenario, the rapidly aging Southland population and shrinking workforce continued to result in a shortage of labour. It is likely that a combined approach, using a range of policy tools and initiatives with local government, communities and stakeholders will be required to maintain or grow the Southland economy and prevent the closure of businesses and restraints on growth due to employee shortages. In particular, there is a clear need to find strategies to activate the latent youth workforce, which is not only important for replacing workers exiting the labour market but also to begin developing those specialist skills which will be required as experienced workers exit. There is also a role for attracting and retaining both domestic and international migrants to Southland, with this strategy showing the most promise of those modelled. The growing and strengthening Filipino community in Southland is a good example of how this strategy can be realised.

Overall, there is a clear need for the Southland Region to develop plans collaboratively to facilitate greater labour supply to meet the labour demand required to continue to experience economic growth. This is particularly urgent as other regions and countries are also facing similar challenges to the Southland Region, and many strategies will be increasingly difficult to implement in a global environment of high competition for labour.

1. Introduction

1.1 Background

This report was commissioned by Venture Southland in September 2014 to provide an update of the *Southland Labour Market Demand Assessment* report by Infometrics published in 2008. This report investigates some of the changes in the Southland Region's labour market, with a particular focus on the 2007 to 2013 period between the previous report and the 2013 census, and uses these changes to project labour force demand and supply from 2014 through to 2031. The aim of this report is to allow Venture Southland in partnership with their stakeholders to develop strategies to mitigate some of the labour market challenges identified in the report, as well as strategies to take advantage of the opportunities presented.

1.2 Scope and structure

The primary purpose of the *Southland Region Labour Market Assessment 2014-2031* is to assess the Southland Region's workforce and labour market, with a particular focus on industry, occupation, skills and education. To achieve this, the historical growth in demand and supply of labour by occupation, industry and qualification is assessed. Once this historical foundation is well established, we project the supply and then demand for labour in the Southland Region. On the supply side, there is a particular focus on assessing the demographic drivers of changes to labour supply, while the demand side is concerned with changes in the Southland Region's economy and industry mix. Following these projections, changes in demand and supply are considered together, to provide an understanding of what impact the current path would have on the region's development.

The report is structured as follows:

- The remainder of this introductory section presents a brief description of the concepts used in this report, the datasets which are utilized and a summary of the proposed research.
- Section two provides some of the historical data which has been used to better understand the changes and drivers of the labour market and to project future labour supply and demand. Particular attention is given to population and migration as well workforce and business trends.
- Section three presents the findings on labour supply and labour demand over the 2014-2031 period, as well as describing the projection methods used and providing an assessment of the implications for the Southland Region's labour market.

1.3 Understanding labour markets

Labour markets are the environment and process by which employers' labour needs are matched to the labour offered by people in the workforce (Department of Labour, 2008). Labour markets are comprised of employers willing to purchase labour, with the collective volume of labour sort by employers termed "labour demand", and the number of people willing and able to provide labour, termed "labour supply". When the amount of labour demanded by employers in the labour market is equal to the supply of labour by people, then the market is in equilibrium. Where demand for labour is greater than supply of labour, then there is a shortage of workers, and when supply of labour is greater than demand for labour, there is a surplus of labour, often resulting in unemployment.

Labour supply is determined by the number of people from the working-age population (defined as the usually resident, non-institutionalised, civilian population aged 15 and over) who are participating in the labour market, termed "labour force participation". Labour force participation is calculated as the proportion of the working-age population who are either employed or actively looking for work. Those who are working-age but not employed and not actively looking for work (e.g. students, retirees) are considered to not be in the labour force. Labour supply may be qualitatively different, as different individuals offer unique personal characteristics, skills, attributes, qualifications and experience. While skills and qualifications are difficult to directly measure, occupation can be used as a proxy for skills and qualifications.

Due to the collection of the census, and the relative stability of populations over time, the supply of labour can be calculated with relative degree of confidence. In contrast, labour demand is much more difficult to determine. This is primarily due to labour demand being driven by a range of economic conditions, including local, regional, national and international economic factors (for example, dairy prices and demand for labour by dairy firms), changes in the way in which businesses operate over time (for example, outsourcing or centralising labour) and changes in the requirement of labour in the production process (for example, where firms are able to automate previously manned roles).

By understanding both labour supply and labour demand, businesses, policy makers, planners and other groups are able to better plan for future labour market conditions, and invest in mitigating the impact of these changes on the local economy.

1.4 Data sources

This report makes use of data drawn from a wide range of sources. In particular, Statistics New Zealand datasets are drawn on heavily to provide an understanding of the underlying trends in population and employment. The following datasets are used in this report:

- Estimated resident population (2013 Base), subnational population by ethnic group, age, and sex, at 30 June 1996, 2001, 2006, and 2013.
- Subnational Population Projections (Medium Series) by Age and Sex, 2006(base)-2031 (October 2012 update).
- Usually resident population by age and sex for 2001, 2006 and 2013 Censuses at the Region, Territorial Authority and Census Area Unit level.
- Area of Usual Residence (2013 and 2006) and Usual Residence 5 Years Ago Area Unit (2013 Areas) by Age Groups for the Census Usually Resident Population Count.
- Live births by area, regional councils (total population) (Annual-June).
- Deaths by area, regional councils (Māori and total population) (Annual-June).
- Permanent & long-term migration by age, sex and NZ area (Annual-June).
- Area of Usual Residence (2001, 2006 and 2013) and Work and Labour Force Status by Age Groups and Sex for the census usually resident population count aged 15 years and over.
- Household Labour Force Survey – Labour Force Status by Sex by Regional Council (Annual-Jun).
- Area of Usual Residence, Industry (ANZSIC96 V4.1) and Status in Employment by age (5 Year Groups to 85 years and over) and sex for the employed census usually resident population count aged 15 years and over, Census 2001, 2006 and 2013.
- Area of Usual Residence and Occupation (NZSCO99 v1.0) by Age Groups and Sex for the Employed Census Usually Resident population count aged 15 years and over, Census 2001, 2006 and 2013.

For some data sources, there are specific considerations which should be noted, and these are listed below.

Population

Unless stated otherwise, the population figures used in this report use the estimated resident population (ERP) of New Zealand. The ERP is an estimate at a given date (usually 30 June) of all the people who are usually resident in the country. This estimate includes all residents present in New Zealand and counted by the census Usually Resident Population (URP), residents who are temporarily overseas (who are not included in the census), and an adjustment for residents missed or counted more than once by the census (net census undercount). Visitors from overseas are excluded. The estimated resident population also includes an update for births, deaths, and net migration (arrivals less departures) of residents during the period between census night and the given date.

For the projected population, the Statistics New Zealand Medium population projections assume medium fertility, medium mortality, and medium net migration is used. These assumptions are then adjusted in each of the scenarios as described in section three.

The census URP count is a count of all people usually living in New Zealand, who were present in the country on census night and filled in the census form. Specifically, the census URP count is as at midnight on a given census night and excludes visitors from overseas, residents who were temporarily overseas and therefore not present on census night and the unit non-responders.

Industry

To describe the industry composition of the Southland region, we use the Australian and New Zealand Standard Industrial Classification (ANZSIC) 1996, jointly developed by Statistics New Zealand and the Australian Bureau of Statistics, is used to compile and analyse industry statistics in New Zealand and Australia. Industries are formed by grouping business units that are mainly engaged in undertaking similar economic activities. ANZSIC is a hierarchical classification with four levels with each level providing more detailed dissection of the level above, for example Agriculture, Forestry and Fishing is a ANZSIC level 1 industry classification, which is comprised of several level 2 industries such as Agriculture, Aquaculture, Forestry and logging. A detailed description of the ANZSIC 1996 can be found on the statistics New Zealand website, http://www.stats.govt.nz/browse_for_stats/industry_sectors/anzsic96-industry-classification.aspx

Occupation

This report uses the New Zealand Standard Classification of Occupations 1999 (NZSCO99). The scope of the statistical standard is all occupations and jobs in the Australian and New Zealand labour markets undertaken for pay or profit, including jobs occupied by people working for themselves. The statistical standard is not designed to cover work not undertaken for pay or profit, for example, voluntary work.

An occupation is defined as a set of jobs that require the performance of similar or identical sets of tasks. NZSCO99 classifies occupations according to two criteria – skill level and skill specialisation. Occupations are organised into progressively larger groups on the basis of their similarities in terms of both skill level and skill specialisation. NZSCO99 is a hierarchical classification with five levels, with the lowest level (Level 5) giving the most detailed information on skill level for analytical purposes. More detail of the NZSCO99 classifications can be found at http://www.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/occupation.aspx

2. Historical trends

This section describes some of the recent trends in the Southland region which were assessed as part of the labour market projections. Particular focus is given to changes between the 2006 and 2013 census to provide context to the changes since the 2007 Labour Market Demand Assessment. This section will firstly consider general trends in population change in the Southland Region, followed by specific discussion of trends in migration, workforce activity, skills and qualifications, industry mix and occupation mix.

2.1 Population change in Southland

Population overview

The population of the Southland Region has been relatively stable since the *Southland Labour Market Demand Assessment* (Infometrics, 2008) was published. In 2001, the Census URP estimated the Southland Region's population to be 91,005, declining from previous censual period. A slight decrease of 129 people was then observed between the 2001 and 2006 census periods, suggesting that the population decline which had been observed in the Southland Region in the 1990s was stabilizing. Between the 2006 and 2013 census, the Southland population grew by 2,463 or 2.7 per cent to 93,340. While this remains below the national average of 5.3 per cent it represents a largely unexpected change, driven primarily through reduced internal out-migration, discussed further in section 2.2.

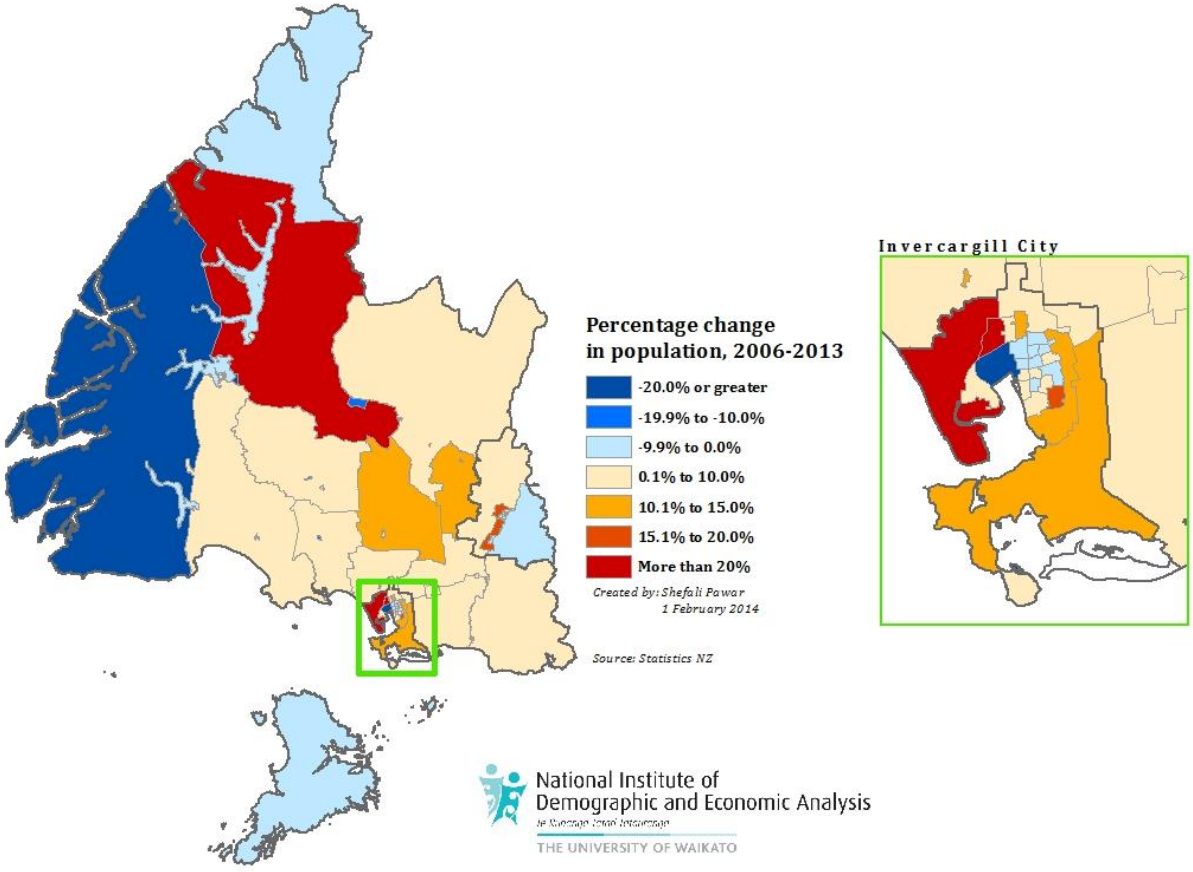
The population in the Southland Region remains concentrated in Invercargill City, with around 51,690 people living there in 2013, approximately 55 per cent of the Southland Region's population. Of the remaining 45 per cent, roughly two thirds (29,610) live in the Southland District and one third (12,035) live in the Gore District. Both Southland District and Invercargill City observed net gains in population of 4.1 per cent and 2.7 per cent respectively, while Gore District observed a slight decline of 0.6 per cent between 2006 and 2013.

At a more disaggregate level, there was also significant variation in population changes across the Census Area Units (CAUs) which constitute the Southland Region. Figure 2.1 shows the percentage change in population between 2006 and 2013 of the CAUs which constitute the Southland Region. Of the 68 CAUs (with more than 10 people resident)[1] in the region, two-fifths (27 CAUs) experienced a decline in population (shown in blue on the map). Only six CAUs had a notable

[1] The Southland Region is made up of 78 Census Area Units (CAUs), 10 have a population of 10 people or less, leaving 68 populated CAUs.

increase of more than 15 per cent in population numbers (shown in red and orange). In particular, we see population losses of 20 per cent or greater in Fiordland, Mossburn, Manapouri and West Invercargill, while parts of Gore, Invercargill and Hokonui/Kaweku all recorded gains of between 10 and 20 per cent. The strongest growth was recorded in the Te Anau and north-western suburbs of Invercargill, with growth over 20 per cent. The variations in growth patterns across Southland are relevant in a labour market context as it facilitates examination of the implications of population movements on labour market access for businesses at a level not possible from the more macro-approach taken in this report.

Figure 2.1: Population change at the area unit level, Southland Region, 2006-2013

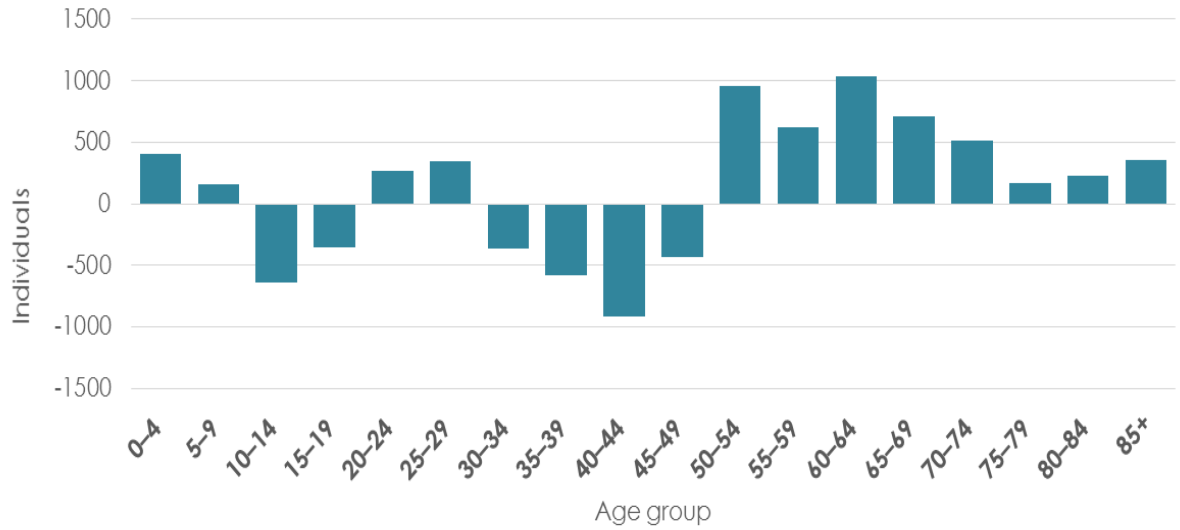


Age composition

Population change in the Southland Region has been not uniform across age groups. Figures 2.2 and 2.3 shows the percentage change in the Southland Region's population over the last two inter-censual period (2001-2006, 2006-2013) by sex and age group, both in total change (Figure 2.2) and as a proportion of the total (Figure 2.3). These figures show that, as elsewhere in New Zealand, the population of the Southland Region is ageing both numerically (increase in the number of people aged 65 years or more as seen in Figure 2.2) and structurally (increase in the proportion of people aged 65 year or more as seen in Figure 2.3). Population ageing is a key driver of this change,

however, migration also plays a part with net migration gains at older ages adding to numerical ageing, while net migration losses at younger ages may be accelerating structural ageing. While population ageing is evident in these figures, there were small increases in the population of young children (0-9 years) and young adults (20-29 years) over the 2006-2013 period. This positive change is primarily in males, and may be linked to local training institutes such as the Southern Institute of Technology (SIT), or to the nature of the agricultural work in the Southland Region, which may appeal to young males.

Figure 2.2: Numeric change in population by age group, 2006 to 2013

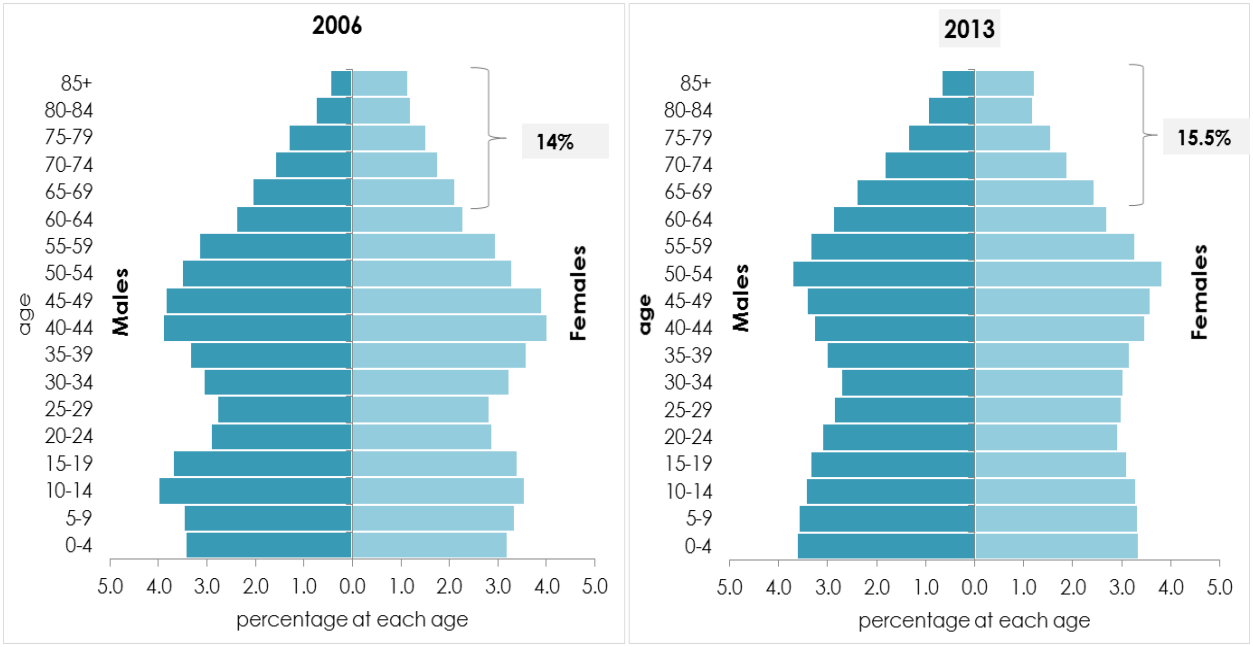


Source: NIDEA & Statistics New Zealand

Figure 2.2 shows the numeric change in population by age group for the Southland Region from 2006 to 2013. A net change of 2,460 additional individuals was observed over this period, Figure 2.2 shows that this gain was not equally distributed across age groups. While the 15 to 64 age group experienced a net growth of just 1 per cent, the population of residents aged 65 years or more increased by 15 per cent over 2006-2013. This suggests that while the Southland Region grew numerically over this period, there was little impact on labour supply. In particular, the loss of population in the 10-19 and 30-49 age groups is concerning from a labour supply perspective, particularly the younger group which represents the key labour market entry demographic.

Figure 2.3 shows the changes in age structure by sex over the short seven year period between Censuses. Here, the largest population group moves from 40-44 in 2006 to 50-54 in 2013. The proportion of those aged 65 and over also increases, from 14.0 per cent in 2006 to 15.5 per cent in 2013.

Figure 2.3: Comparison of age structure for males and females, 2006 and 2013
Source: NIDEA & Statistics New Zealand



2.2 Migration

While natural increase accounts for some of the observed changes in population structure, migration is a significant and varying driver of population change in the Southland Region. This section will discuss net migration, being the net population change taking into account gains from inward migration and losses from outward migration. In addition, migration will be considered in two separate components, domestic migration between different areas within New Zealand and international migration between the Southland Region and international destinations.

Domestic migration

This section looks at the 'usual residence five years ago' indicator collected at each Census. This indicator is used to examine where a person's usual residence was five years prior to the Census. For example, in the 2006 Census this indicator referred to a person's usual residence in March 2001, linked by where they were living on census night in 2006. Due to the 2011 Census being postponed until 2013, the question refers to a person's usual residence in March 2008 rather than 2006. The internal migrants have been split into internal inward migration - into the Southland Region (Arrivals) and internal outward migration – out of Southland Region (Leavers). Table 2.1 shows the number and proportion of the population either staying in Southland (Stayers), migrating out of the Southland Region or migrating into the Southland Region over the five year periods, 2001-2006 and 2008-2013.

Table 2.1: Usual residence five years ago, Southland Region, Census 2006 and 2013

	2001-2006		2008-2013	
	n	%	n	%
Stayers	67,362	*74.1*	67,434	*72.3*
Internal Inward Migration*	11,496	*12.7*	11,793	*12.6*
From Overseas	3,138	*3.5*	3,600	*3.9*
Not born 5 years ago	6,039	*6.6*	6,441	*6.9*
No Fixed Abode/Not Elsewhere Included	2,835	*3.1*	4,062	*4.4*
Usually Resident Population of Southland Region	90,870	*100.0*	93,330	*100.0*

Summary:		
Internal Inward Migration (Arrivals)	+11,496	+11,793
Internal Outward Migration (Leavers)	-11,277	-8,961
Net Internal Migration Flow	+219	+2,832

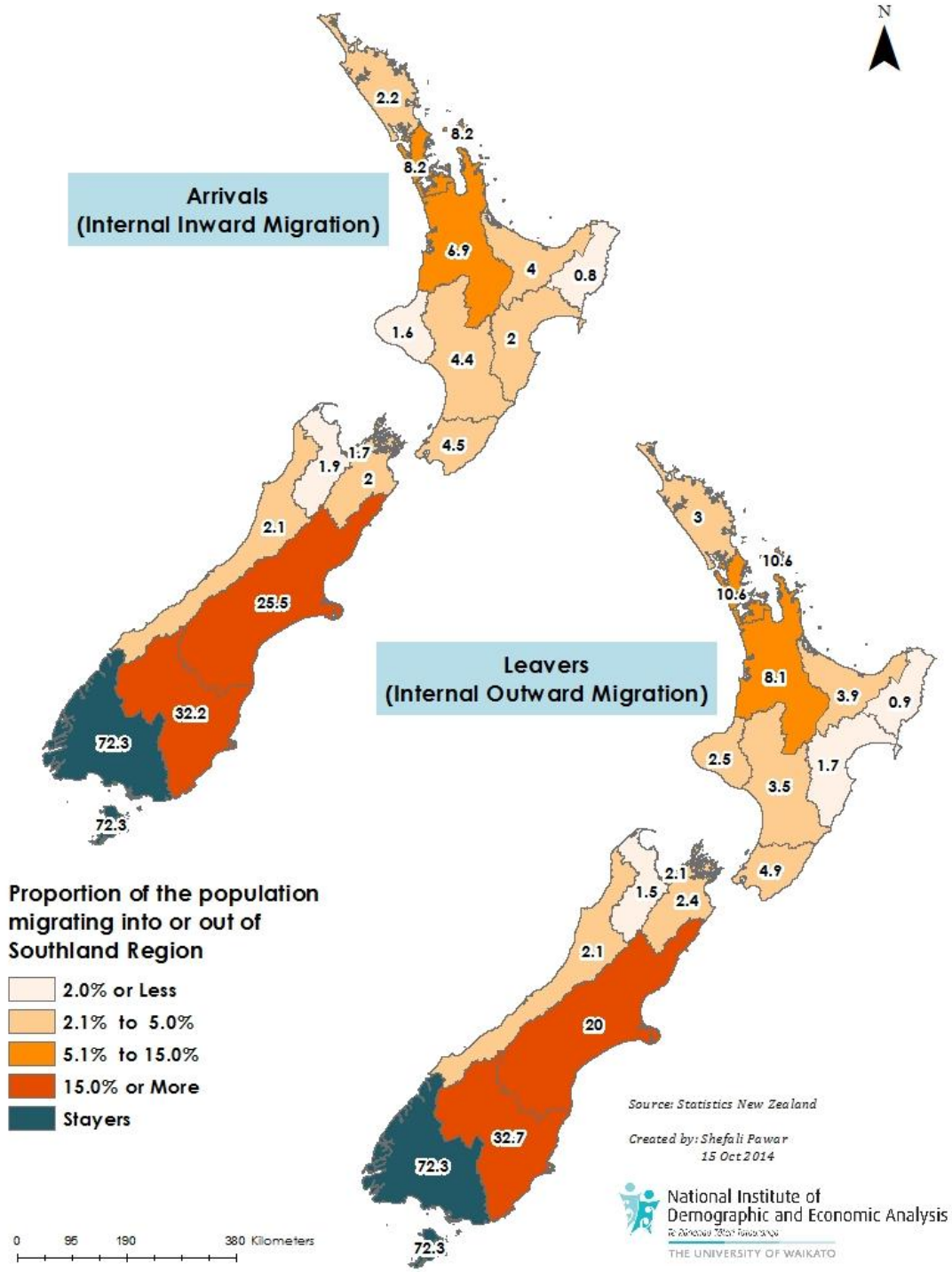
**Includes arrivals into Southland with source region not defined (categorised in the Census as 'New Zealand not further defined')*

Source: NIDEA & Statistics New Zealand

Table 2.1 shows that internal migration remained relatively stable between the two inter-censual periods, with the important exception that approximately 2,300 fewer people leaving the Southland region over 2008-2013 compared to the 2001-2006 period. Also of note is the higher percentage of residents of no fixed abode or not elsewhere included, which increased by 1,227 or 42 per cent.

Figure 2.4 allows more detailed exploration of the source and destination regions of these internal migrants to and from the Southland Region. This map shows the proportion of internal migrants who arrived into the Southland Region or left Southland for another region between 2008 and 2013.

Figure 2.4: Internal migration into or out of Southland from/to other regions of New Zealand, Census 2013

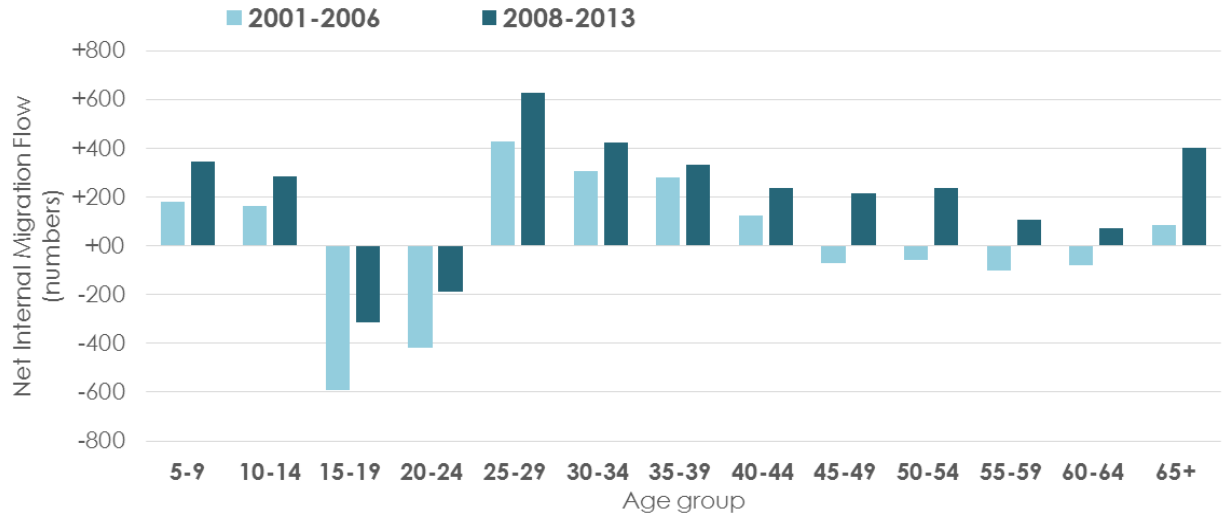


The majority (57.7 per cent) of the internal inward migrants or arrivals into Southland over the 2008-2013 period came from the Otago and Canterbury regions. Other significant sources of internal in-migrants include Auckland (8.2 per cent), Waikato (6.9 per cent), Wellington (4.5 per cent) and Manawatu-Wanganui (4.4 per cent). Of the people leaving Southland, again the majority (52.7 per cent) went to Otago and Canterbury. Other significant destinations for internal out-migrants were Auckland (10.6 per cent), Waikato (8.1 per cent) and Wellington (4.5 per cent).

It appears that the net internal migration flow is driven by a reduced number of people who lived in Southland in 2008 living in the Canterbury region in 2013. This was discussed in the Southland Labour force workshop, with participants suggesting that it was likely an artefact arising from the two Christchurch earthquakes. The participants suggested that this trend was unlikely to continue, particularly due to increased centralisation of business and government out of the Southland Region and into the Canterbury Region.

The net internal migration gain of 2,832 people over 2008-2013 is not spread uniformly across all age groups, and this is shown in Figure 2.5. While there were net gains across all groups aged 25 years or more as well as in the two youngest age groups (0-14 years); net losses were seen for the 15-19 and 20-24 year age groups, which probably partly represents youth moving out to other regions for education. This net migration loss for the 15-24 year age group has declined in magnitude since the previous period, 2001-2006.

Figure 2.5: Net internal migration flow by age group, Southland Region, 2001-2006 and 2008-2013



Source: NIDEA & Statistics New Zealand

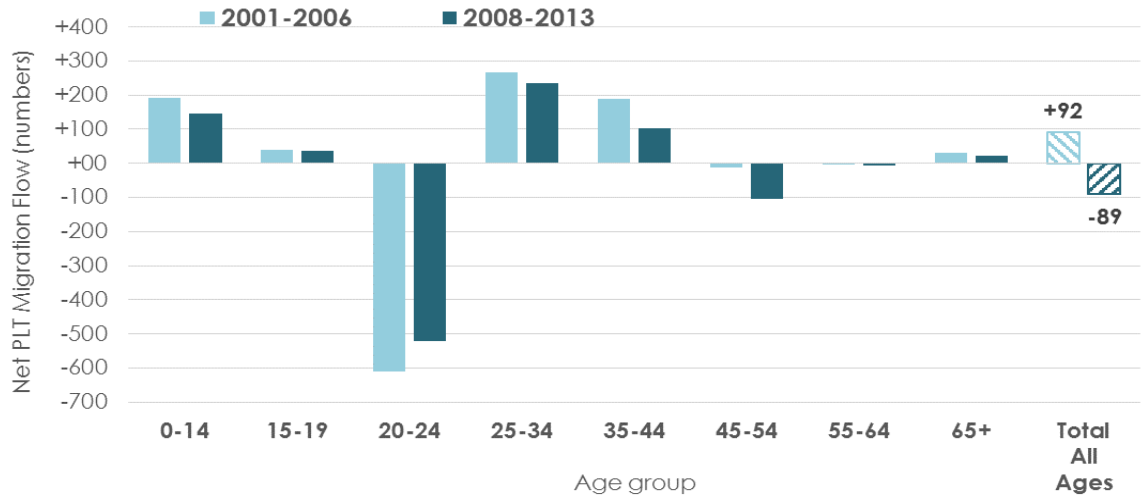
When comparing the 2001-2006 and 2008-2013 periods, there were greater gains or reduced losses in all age groups. Of particular note is the comparatively large increase in the net migration gain of people aged 65 years or more these two periods. For the primarily labour market age groups 15-65, net migration added approximately 1,800 additional people.

Overseas migration

Alongside internal migration, overseas migration is also an important driver of population change, and therefore labour supply. Net Permanent Long Term (PLT) migration flow (collected via arrival and departure cards) and the age profile of these overseas inward and outward migrants. PLT arrivals include overseas migrants who arrive in New Zealand intending to stay for a period of 12 months or more (or permanently), plus New Zealand residents returning after an absence of 12 months or more. This measure does not include people who arrive in the Southland Region for less than 12 month periods (e.g. for short periods of work). Therefore, this is an underestimate of the inflow of migrants from overseas. PLT departures include New Zealand residents departing for an intended period of 12 months or more, plus overseas visitors departing New Zealand after a stay of 12 months or more.

Over 2008-2013, there was a net loss (more people leaving the region than arriving) of 89 people to overseas migration. There are noticeable differences in the net overseas flow across the broad age groups as seen in Figure 2.6 below. There were small or no net gains or losses in all age groups except the 20-24 year age group which experienced a net loss of 520 people over 2008-2013. This is only slightly lower than the net loss of 610 people experienced in the previous period, 2001-2006.

Figure 2.6: Net PLT migration flow by age group, Southland Region, 2001-2006 and 2008-2013



Source: NIDEA & Statistics New Zealand

Table 2.2 presents an estimate of the birthplace of migrants who arrived five years or less prior to the census year. This table suggests that there has been a striking change in the country of birth for new migrants into the Southland Region. Prior to 2008, new migrants were born predominately in the UK or Ireland and Australia. However, Table 2.2 suggests that migrants from Asia have more than doubled as a proportion of new migrants, comprising almost half of all overseas migrants who have been in New Zealand less than five years prior to the census, particularly in the 20-39 age group.

Table 2.2: Birthplace of new migrants living in the Southland region by census year

Birthplace	2001	2006	2013
Australia	21 %	16 %	10 %
Pacific Islands	5 %	4 %	7 %
United Kingdom and Ireland	24 %	28 %	15 %
Europe (excl. UK and Ireland)	17 %	12 %	6 %
North America	7 %	6 %	4 %
Asia	18 %	19 %	48 %
Middle East and Africa	6 %	13 %	7 %
Other	1 %	1 %	3 %
Total	100 %	100 %	100 %

Source: NIDEA & Statistics New Zealand

Labour market implications of migration

This section looks at the 'usual residence five years ago' indicator for the employed population of Southland Region aged 15-64 years (Table 2.3) to enable a better understanding of the population impacts on the underlying labour force and labour markets. The 2013 Census recorded 44,607 people aged between 15 and 64 years who were in either full time or part time employment across the region. Of these, more than 80 per cent (or every four out of five) were residents of Southland over the 2008-2013 period, a similar proportion to that see in the previous 2001-2006 period. Comparison between the two censual periods reveals very little variation. The 2008-2013 period was associated with slightly higher inward and outward mobility amongst people aged 15-64, and a small net gain of 120 rather than the net loss of 696 people observed in the 2001-2006 period. Employed people migrating into the Southland Region from other parts of New Zealand accounted for 10.7 per cent of the usually resident employed 15-64 year population of the region, while 4.6 per cent were migrants from overseas. Again, these trends are similar to those observed over the previous period. This suggests relative stability in the labour market as a result of migration, despite the large increase in net migration over 2008-2013.

Migration between the Southland Region and overseas destinations is also an important and growing area of consideration. While there remains a net outflow to overseas destinations amongst 20-24 year age group, gains are observed in the 25 and 44 year age group, particularly in migrants born in Asia. While in the short term there is no evidence that inward migration will provide a panacea for labour supply challenges in the Southland Region, consideration of the future role and source countries of the overseas born workforce should be considered.

Table 2.3: Usual residence five years ago for employed people aged 15-64 years, 2006 & 2013

	2001-2006		2008-2013	
	n	%	n	%
Stayers	37,092	*80.7*	36,003	*80.7*
Internal Inward Migration*	5,655	*12.3*	4,773	*10.7*
From Overseas	1,956	*4.3*	2,070	*4.6*
No Fixed Abode/Not Elsewhere Included	1,269	*2.8*	1,761	*3.9*
Southland Employed Population aged 15-64 years	45,972	*100.0*	44,607	*100.0*

Summary:		
Internal Inward Migration (Arrivals)	+5,655	+4,773
Internal Outward Mifration (Leavers)	-6,351	-4,653
Net Internal Migration Flow (Employed, 15-64 yrs)	-696	+120

**Includes arrivals into Southland with source region not defined (categorised in the Census as 'New Zealand not further defined')*

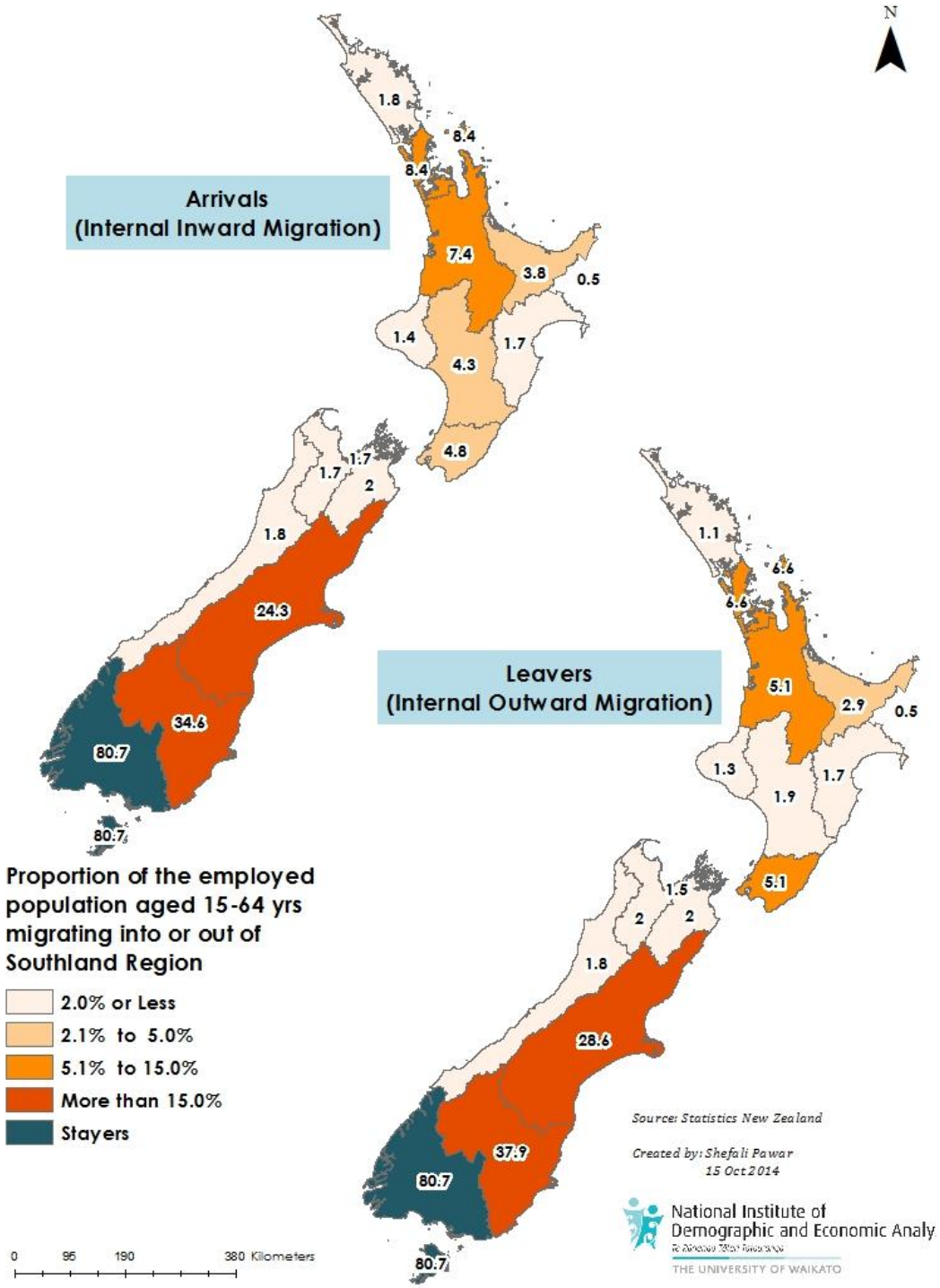
Source: NIDEA & Statistics New Zealand

Figure 2.7 shows the source region from where the internal employed in-migrants (aged 15-64 years) arriving in the Southland Region over the 2008-2013 period came from.[2] As seen previously with the total internal in-migrant population, the majority (60 per cent) of arrivals into the region who enter employment came from the Otago and Canterbury regions. The other significant sources were Auckland (8.4 per cent), Waikato (7.4 per cent), Wellington (4.8 per cent) and Manawatu-Wanganui (4.3 per cent). Of the employed people leaving Southland, two-thirds (66.5 per cent) went to Otago and Canterbury. The other three significant destinations for the leavers were Auckland (6.6 per cent), Waikato and Wellington (5.1 per cent).

In comparison to the internal migration of the general population displayed in Figure 2.5, Figure 2.7 suggests differences between the general population and employed population which may have interesting labour market implications. In particular, while Figure 2.5 suggests that the Southland Region tends to lose population to northern, and particularly agricultural regions, we see that among 15-64 year olds the Southland Region recorded a net gain in population from all northern regions other than Wellington, Gisborne and Hawke's Bay. In contrast, while the general population experienced a net gain from Canterbury and Otago, the 15-64 year old group experienced a net loss into these regions over the same time period. These together suggest that the Southland Region loses labour force participants to Canterbury and Otago and gains them from North Island agricultural regions and Auckland.

[2] Excludes the arrivals into Southland with source region not defined.

Figure 2.7: Internal Migration into or out of Southland from/to other regions of New Zealand for the employed population aged 15-64 years, 2013 Census



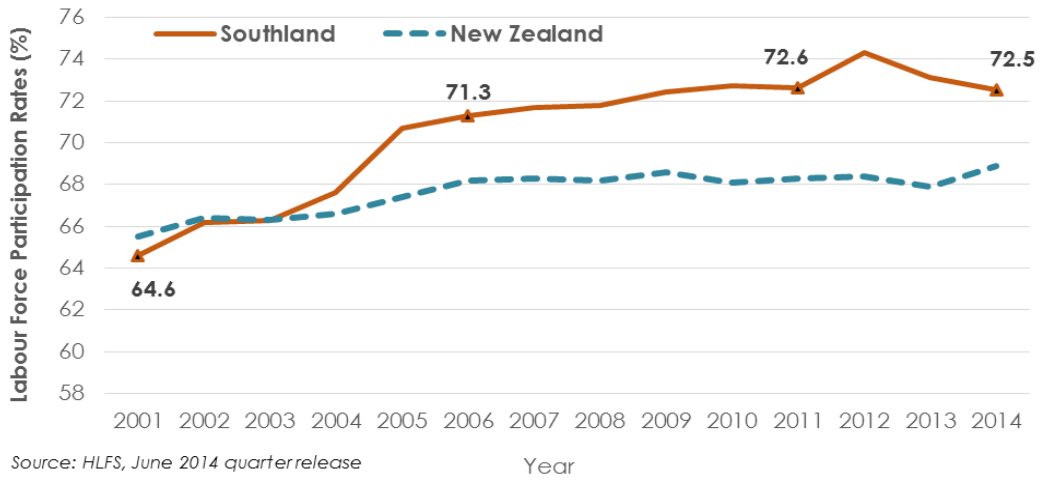
2.3 Workforce trends

This section examines the work and labour force information for the Southland population. This analysis uses data sourced from the Household Labour Force Survey (HLFS) and the 2001, 2006 and 2013 Censuses. HLFS provide New Zealand's official employment and unemployment statistics.

Labour force participation

As described in section one, the labour force participation rate measures the proportion of the working age population, defined as the population fifteen years old or older, who participate in the labour force. To participate in the labour force, individuals must be either employed or actively seeking work. If an individual is not actively seeking work, perhaps due to studying, health or retirement, then they will be considered as not participating in the labour force. Understanding the labour force participation rate is important for projecting future labour supply as it allows researchers to estimate the change in supply resulting from a change in population structure. Figure 2.8 shows the labour force participation rates in the Southland Region over the 2001-2014 period with comparative national data also included.

Figure 2.8: Labour force participation rates for Southland and New Zealand, 2001-2014

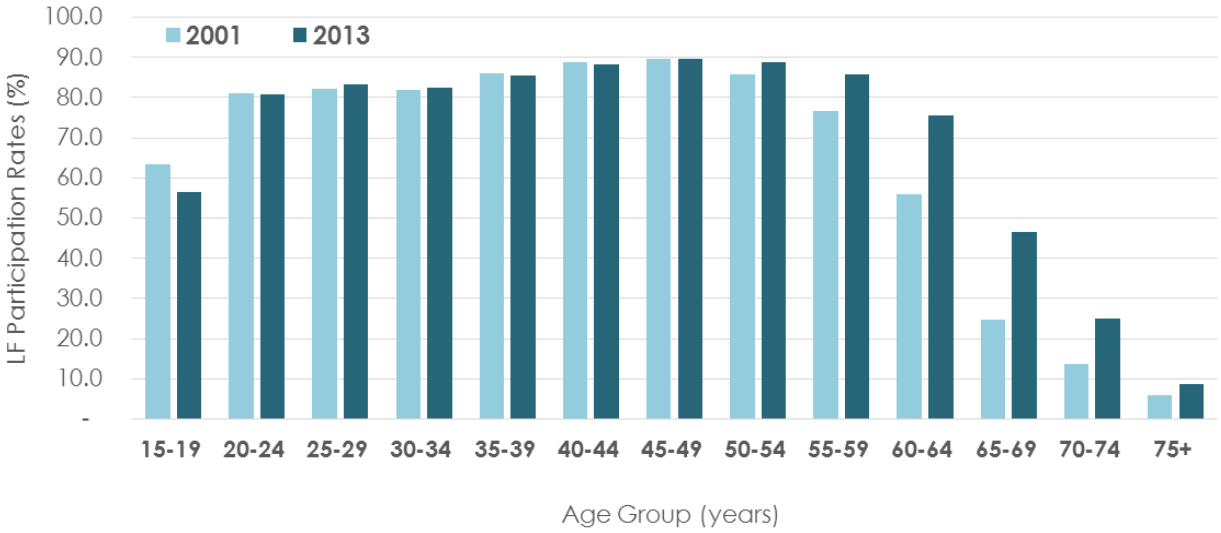


Source: HLFS, June 2014 quarter release

Participation in the labour force across the Southland Region has been consistently higher than the national average since 2003, with a marked increase in 2004/05. Participation has risen year-on-year until a peak was reached in 2012, and a slight decline was observed through to 2014. This trend has resulted in an increase of about eight percentage points in the labour force participation rate in the region; from 64.6 per cent in 2001 to 72.5 per cent of its working age population aged 15 years or more, either employed or looking for employment in 2014. The rates after 2005 are much higher than that seen nationally. Compared to the other regions across New Zealand, Southland has one of the highest participation rates, second only to Wellington (72.9 per cent) and much higher than the national average of 68.9 per cent in 2014 (see Appendix Figure A1 and Table A1).

Figure 2.9 shows the labour force participation rates in the Southland Region across age groups recorded at the 2001 and 2013 Census. This rate is highest for people aged between 40 and 54 years. Over the 2001-2013 period, the participation rate among young people aged 15-19 years has noticeably declined (from 63.3 per cent in 2001 to 56.6 per cent in 2013). One of the possible reasons for this decline is the increase in the participation of this age group in education. However, this any losses in this age group are small in comparison to the large increase in the participation of older people aged 55 years or more in the labour force.

Figure 2.9: Labour Force participation rates by age group, Southland Region.

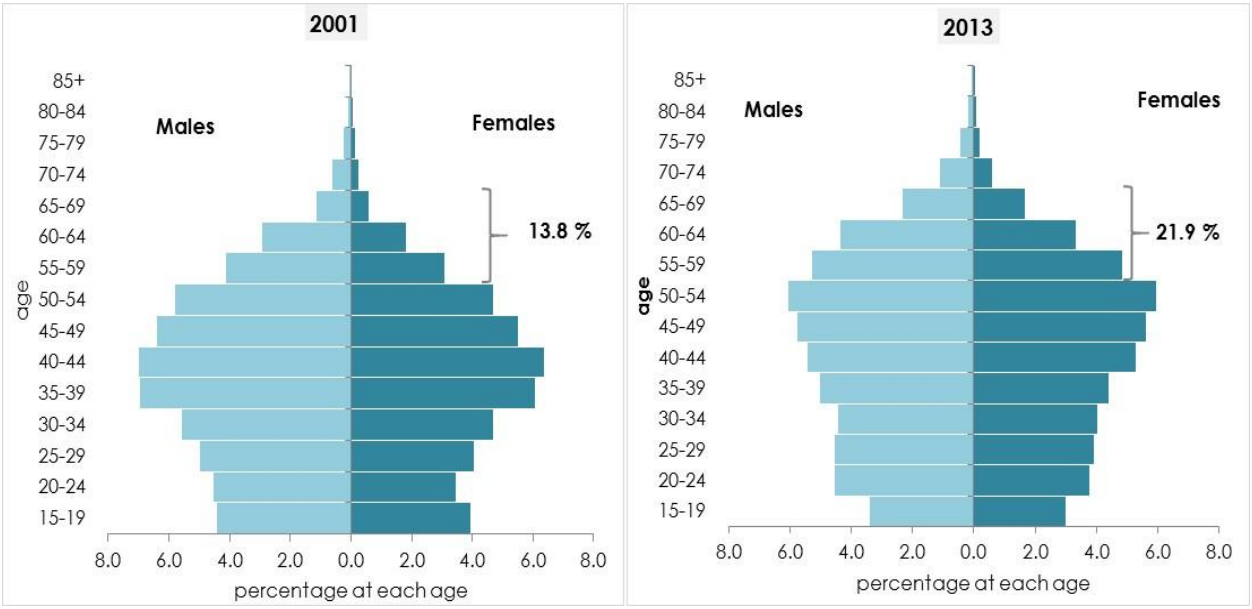


Source: NIDEA & Statistics New Zealand

As seen in total population data, the labour force of the Southland Region is also undergoing significant numerical and structural ageing. Figure 2.10 shows the age profile of the region's labour force aged 15 years and older in 2001 and 2013. Over the 2001-2013 period, the number of people in the labour force aged 55 years or more has increased by 69.5 per cent (numerical ageing). In 2001, only 13.8 per cent of the region's total labour force was aged 55 years or more and this has increased to 21.9 per cent in 2013 with one in every five people in the labour force belonging to this older age group (structural ageing).

One of the important indicators of an ageing labour force is the Entry/Exit ratio. That is, the ratio of people entering the workforce (15-29 years) to those leaving it (55-69 years). In 2001, there were approximately two entrants to replace each exit from the Southland region's workforce. In 2013, this has declined to only slightly over one entrant to every exit. The population data presented in section 2.1 suggests that this trend is likely to continue in the Southland Region, with the potential for an Entry/Exit ratio of less than one, indicating that the labour force will numerically decline as more individuals exit the labour force than are entering.

Figure 2.10: Southland Region labour force age profile and entry/exit ratios, 2001 & 2013



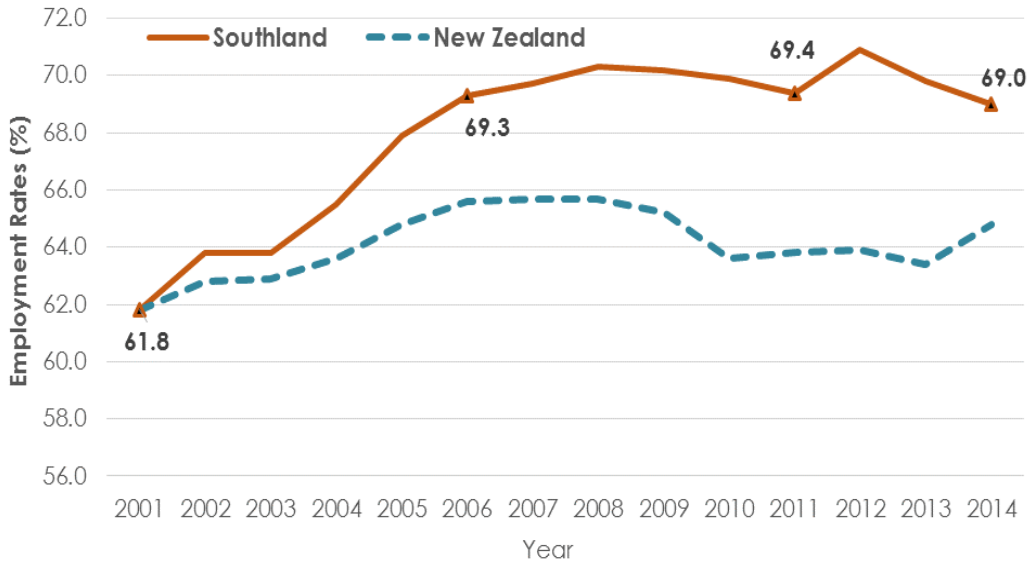
	2001	2013
Entry(15-29years):Exit(55-69 years) Ratio:	1.8	1.1

Source: NIDEA & Statistics New Zealand

Employment

The employment rate gives the proportion of the total population aged fifteen years old or older who are employed either full time or part time, expressed as a percentage of the total working age population (15 years old or older). Figure 2.11 shows the employment rates in the Southland Region over the 2001-2014 period compared to the average New Zealand employment rate for each year.

Figure 2.11: Employment rates for Southland and New Zealand, 2001-2014



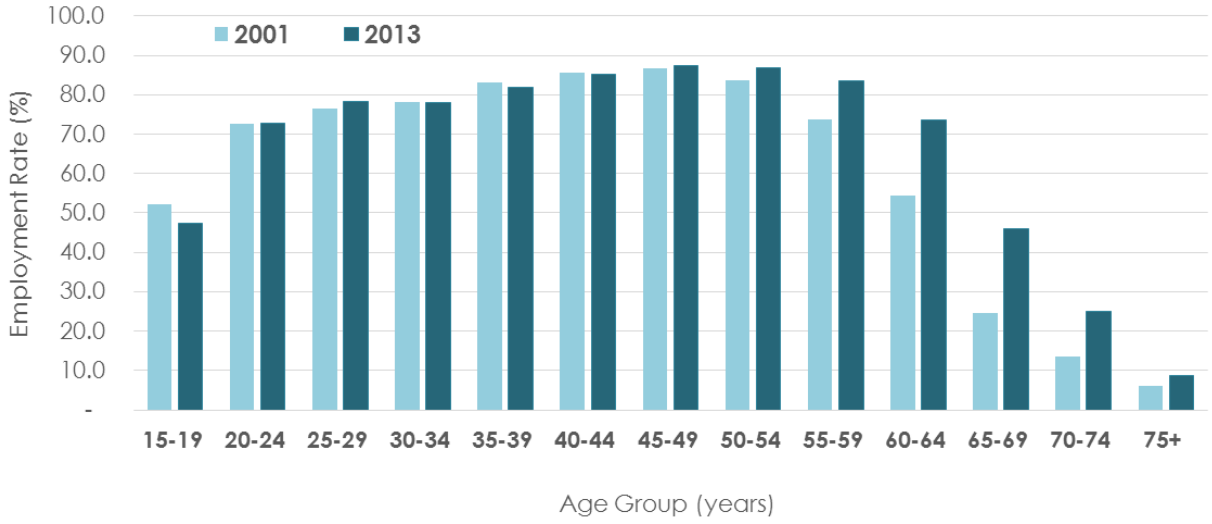
Source: NIDEA & Statistics New Zealand

In 2001, the employment rate across the Southland Region was equal to that recorded for New Zealand as a whole (61.8 per cent). However, unlike the trend seen nationally, over the next twelve years the rates for the Southland Region have risen, reaching a peak in 2012 (70.9 per cent) before declining to 69.0 per cent in 2014. The 2014 rate is the lowest recorded since 2006.

Employment rates for each New Zealand region is presented in the Appendix Figure A2. Currently, the Southland Region is equal with the Canterbury Region at having the highest employment rates across the country with 69.0 per cent of the working age population in full or part time employment. This rate is closely followed by Wellington at 68.7 per cent. This high level of employment suggests that the high labour force participation observed in Figure 2.8 represents largely employed rather than those actively seeking work. While the high employment rate should be seen as a positive for the Southland Region labour market, it does raise some concerns in that the market is unlikely to be able to easily find additional workers within the existing working age population.

Figure 2.12 shows employment rates in the Southland Region by age group recorded at the 2001 and 2013 Census. This figure shows that in the middle age groups 20 to 54, employment rates have remained relatively constant. However, the data suggests that the employment rate for the 15-19 year age group has declined over this period, and given this is reflected in the labour force participation data it suggests unemployment rather than young people entering study or otherwise not actively seeking work. The employment rate among older people aged 50 years or more has increased markedly over this period, most significantly for those aged 60 years or more.

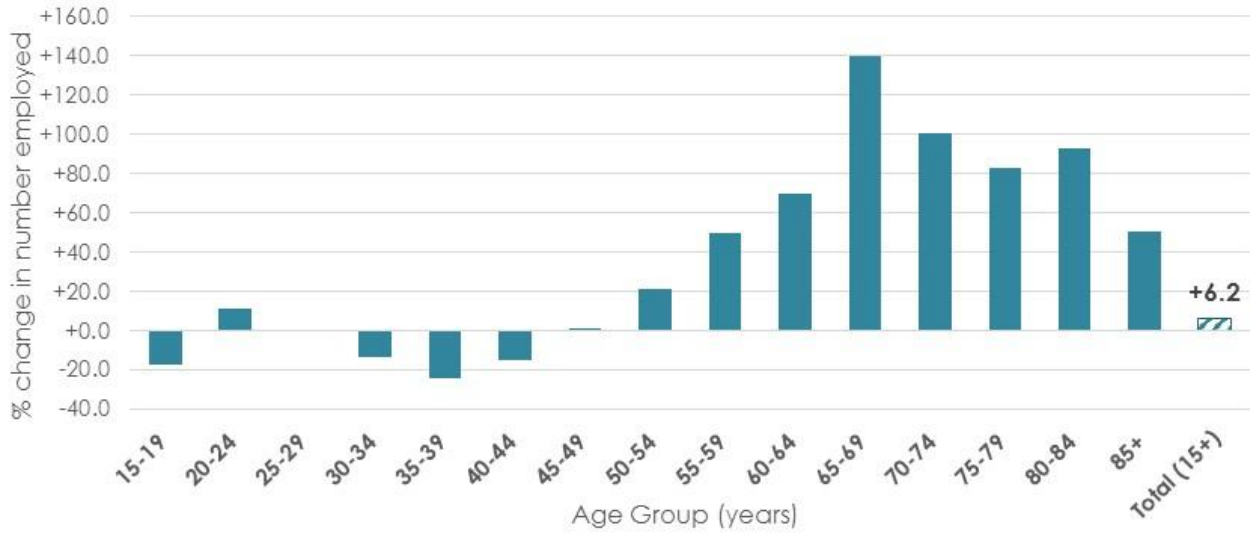
Figure 2.12: Employment rates by age group, Southland Region.



Source: NIDEA & Statistics New Zealand

Figure 2.13 shows the percentage change in the number of employed people by age group. Overall, there has been an increase of 6.2 per cent in the number of employees in the Southland Region, or an additional 2,823 people. This equates to an average annual increase of 1.2 per cent per annum in employment. This increase can be attributed to both the growing number of older people participating in the Southland Region's labour market but also to the trend of older people working longer. There are large increases in all age groups older than 50 years while the numbers at all younger ages either show little or no increase or have declined over this period. This alongside the findings in earlier figures suggests that the Southland Region labour market is increasingly relying on participation by older employees in order to offset the changes in population composition.

Figure 2.13: Percentage change over 2001-2013 in the number of employed people aged 15+ years, Southland Region

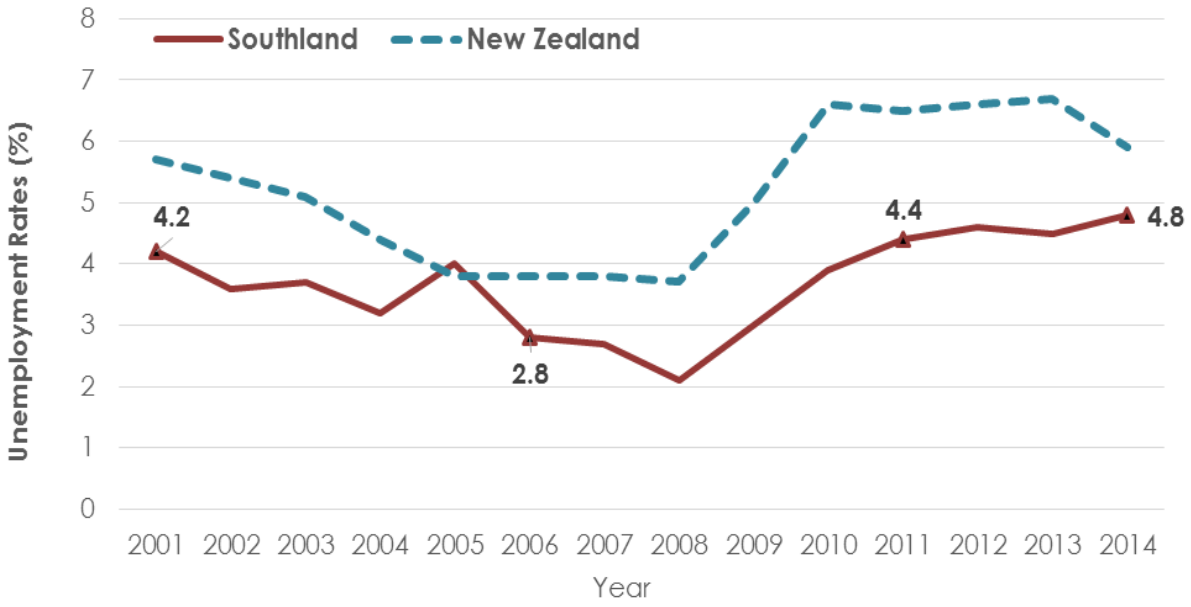


Source: NIDEA & Statistics New Zealand

Unemployment

The unemployment rate gives the proportion of the population fifteen years old or older who are unemployed, expressed as a percentage of the labour force. Figure 2.14 shows the unemployment rates in the Southland Region over the 2001-2014 period in comparison to the national average unemployment rate.

Figure 2.14: Unemployment rates for Southland and New Zealand, 2001-2014

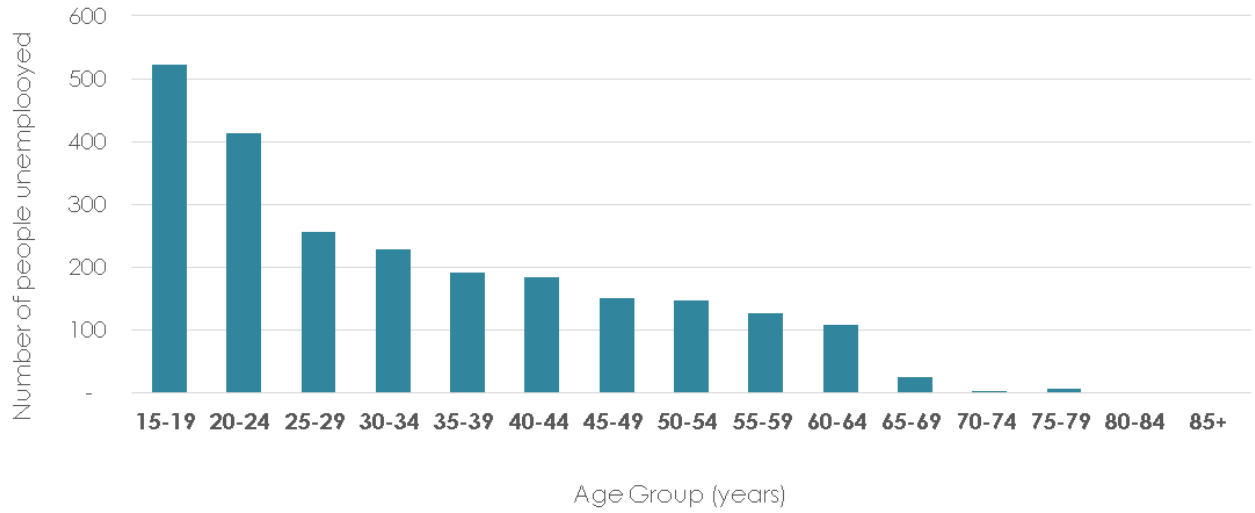


Source: NIDEA & Statistics New Zealand

The unemployment rate across Southland declined from 4.2 per cent in 2001 to only 2.1 per cent in 2008, with 2005 being the only observed outlier. However, after 2008, the unemployment rates in Southland have seen an upward trend, reaching a peak of 4.8 per cent in 2014, which is the highest rate recorded over the entire thirteen year period from 2001 to 2014, but remains substantially lower than the national average of 5.9 per cent. Compared to the other regions across New Zealand, Southland has the fourth lowest rate of unemployment after Canterbury, Otago and Tasman regions. Unemployment rates for each New Zealand region is presented in the Appendix Figure A3.

There were 2,364 people who were unemployed in the Southland Region in 2013, and this unemployment was not distributed equally among age groups. Figure 2.15 shows the absolute number of people recorded as unemployed in 2013. As can be seen, almost one-quarter (22 per cent) of the unemployed are aged between 15 and 19 years old, and the majority (51 per cent) are aged under 30. This suggests that for the Southland Region, increasing youth employment may be one option for addressing any shortfall in the supply of labour.

Figure 2.15: Number of people unemployed in the Southland Region by age group, 2013.



Source: NIDEA & Statistics New Zealand

Workforce across the Southland Region

Table 2.4 presents the changes in workforce status across the territorial authorities (TAs) which comprise the Southland Region. The results suggest that the Southland District has a much greater labour force participation and employment rate in comparison to the other two TAs within the region. Both Gore District and Invercargill City have similar workforce statistics. The noticeable difference however is that over the period, Gore District has remained relatively constant while there is a clear trend in greater labour force participation and employment in Invercargill City. Invercargill City also records this highest unemployment rate, potentially as individuals choose Invercargill to 'queue' for employment in an area where the greatest number of jobs are available and the social amenities are most accessible. There is also likely an impact on the distribution of the workforce based on the type of jobs available in each region, and this will be investigated in sections 2.4 and 2.5 which examine the industry and occupation composition of the Southland Region. For a more detailed breakdown, see Appendix Table A1 for work and labour force status by TA, and Appendix Table A2 for a breakdown of work and labour force by age group for the Southland Region.

Table 2.4: Change in workforce statistics by Southland Region TA, 2001-2013.

	Southland District			Gore District			Invercargill City		
	2001	2006	2013	2001	2006	2013	2001	2006	2013
Employed	15,984	16,527	16,503	6,369	6,354	6,093	22,905	25,335	25,488
Unemployed	453	330	441	219	198	246	1,869	1,401	1,677
Not in the Labo	5,217	4,842	5,349	2,991	2,820	2,955	13,488	12,456	12,813
Work & LF Statu	378	297	786	60	180	330	504	861	1,464
Total 15+ popul	22,032	21,993	23,079	9,642	9,549	9,624	38,769	40,050	41,442
LF Participation	75.9	77.7	76.0	68.8	69.9	68.2	64.7	68.2	67.9
Employment Ra	73.8	76.2	74.0	66.5	67.8	65.6	59.9	64.6	63.8
Unemployment	2.8	2.0	2.6	3.3	3.0	3.9	7.5	5.2	6.2

Note: All rates calculated by excluding the population with 'Work and LF Status Unidentifiable'

Source: NIDEA & Statistics New Zealand

Implications for the labour market

Across the presented data on workforce trends in the Southland Region and constituent TAs, we see a strong pattern of participation and employment compared to the national average. There is also an evident trend in increased participation by older workers, and this will be taken into account when projecting labour supply. Differences in gender do not appear to be particularly obvious in the Southland Region, with strong labour force participation and employment in both gender groups.

The findings suggest that Southland Region may find difficulty in increasing labour supply through increasing labour force participation alone. While there is a clear trend of increasing participation rates among older workers, the Entry/Exit ratio suggests that even with a reduction in workers exiting the labour force it is likely that there will not be enough young people moving into the labour market to offset older workers leaving. Youth unemployment and participation is an area which could be examined, with increasing participation a possible strategy for mitigating some of the impact of the ageing Southland Region population structure. However, the high level of youth unemployment compared to other age groups suggests that there might be a matching issue between youth and the type of work offered in the Southland Region which may be a barrier to this strategy.

Overall, these findings suggest that the ageing population of the Southland Region will pose a challenge for the labour supply within the region, even with increasing labour force participation and employment among older workers. Opportunities exist to improve the participation of youth in the labour force, however, any strategy that was developed to assist in this would need to be considerate of the ability to match the Southland Region's youth with jobs.

2.4 Business trends

The preceding sections have dealt primarily with factors related to the supply side of the Southland Region's labour market. This section will being analysis of the opposite side of the labour market, labour demand. To achieve this, the section will introduce some business trends for the Southland Region, in particular industry data, which will allow us to better understand the labour demand side of the Southland Region labour market.

Labour demand is reflected in the level of employment by industry. Table 2.5 shows the distribution of the employed workforce of Southland across the 17 ANZSIC Level 1 industry groups (see section 1.4) as recorded in the 2001 and 2013 census. The regional workforce is predominantly employed in the service or tertiary sector, with more than half (55 per cent) of the workforce of the region employed in service sector industries such as Retail Trade or Health and Community Services. The secondary sector comprises the next largest, with 25 per cent of the workforce employed in Manufacturing, Construction, Transportation or Utility services. The primary sector comprises 20 per cent of employment despite Agriculture, Forestry and Fishing being the largest single category. Compared to 2001, there has been a clear shift away from secondary sector employment, in particular manufacturing, and towards service sector employment, particularly Education, Health and Community Services and Personal services. Retail Trade employment has remained stable as a percentage over this twelve year period.

Table 2.5: Level 1 industry grouping of the employed workforce in Southland

Industry	2001		2013		% Change 2001-2013
	n	(%)	n	(%)	
Agriculture, Forestry and Fishing	8,868	*19.6*	9,324	*19.4*	**+5.1**
Manufacturing	7,830	*17.3*	6,285	*13.1*	**-19.7**
Retail Trade	5,178	*11.4*	5,445	*11.3*	**+5.2**
Health and Community Services	3,243	*7.2*	4,398	*9.1*	**+35.6**
Property and Business Services	2,691	*5.9*	3,249	*6.8*	**+20.7**
Construction	2,688	*5.9*	3,213	*6.7*	**+19.5**
Education	2,220	*4.9*	2,958	*6.2*	**+33.2**
Accommodation, Cafes and Restaurants	1,980	*4.4*	2,100	*4.4*	**+6.1**
Transport and Storage	1,791	*4.0*	1,929	*4.0*	**+7.7**
Wholesale Trade	1,758	*3.9*	1,848	*3.8*	**+5.1**
Personal and Other Services	1,467	*3.2*	1,725	*3.6*	**+17.6**
Government Administration and Defence	1,041	*2.3*	1,110	*2.3*	**+6.6**
Finance and Insurance	945	*2.1*	1,098	*2.3*	**+16.2**
Cultural and Recreational Services	753	*1.7*	894	*1.9*	**+18.7**
Communication Services	312	*0.7*	285	*0.6*	**-8.7**
Mining	126	*0.3*	177	*0.4*	**+40.5**
Electricity, Gas and Water Supply	96	*0.2*	129	*0.3*	**+34.4**
Not Elsewhere Included	2,280	*5.0*	1,914	*4.0*	**-16.1**
Total	**45,261**	*100.0*	**48,084**	*100.0*	**+6.2**

Source: NIDEA & Statistics New Zealand

As shown in Table 2.5, the largest four industries in the Southland Region in 2013, collectively employing 53 per cent of the Southland labour force, are Agriculture, Forestry and Fishing, Manufacturing, Retail Trade and Health and Community Services. These four industries have maintained their dominance over the preceding decade, however, this dominance has slipped from the 55 per cent of the labour force they employed in 2001. The two industries which have seen the most significant changes in terms of number of employed workforce are the Health and Community Services sector (35.6 per cent growth or 1,155 additional people) and the Manufacturing Industry with a decline of 19.7 per cent or 1,545 job losses over this 12 year period. Other notable increases in employed workforce were in the Property and Business services, Construction and Education industries.

To explore labour demand by industry further, the following analysis uses Statistics NZ's Level 3 grouping of industries (see section 1.4). This equates to 158 industries across New Zealand. Only those industries across Southland that employ 300 people or more have been included in the analysis presented in this section.

In 2013, there were 43 industries across the Southland Region that employed 300 people or more. Appendix Table A3 lists these industries along with the number of people they employed in 2001, 2006 and 2013. Similar data for total New Zealand is included in Appendix Table A4, with the 43 largest industries across the country listed for these three census years. Almost three-quarters (73.8 per cent or 35,481 people) of the employed workforce in 2013 worked in one of these 43 industries across the Southland Region. About four per cent did not state their industry of employment and the remaining workforce was spread across 112 other industries in the region.

Largest industries

Table 2.6 lists the top 10 industries in the Southland Region and New Zealand in 2001, 2006 and 2013, sorted in descending order of the number of people employed in each industry, and Figure 2.16 shows percentage change over 2001-2013 period in the number of people employed by these ten industries across the region.

Four of every ten employed persons (39.5 per cent) in the region work in one of these ten industries. Grain, Sheep & Beef Cattle Farming is Southland Region's largest industry, and has been so over the 2001-2013 period. This industry employed approximately 7.8 per cent of Southland's employed workforce in 2013. Although maintaining its status of being the region's largest industry, the number of people it employs has declined by 19.2 per cent with 834 fewer employed in 2013 compared to 2001.

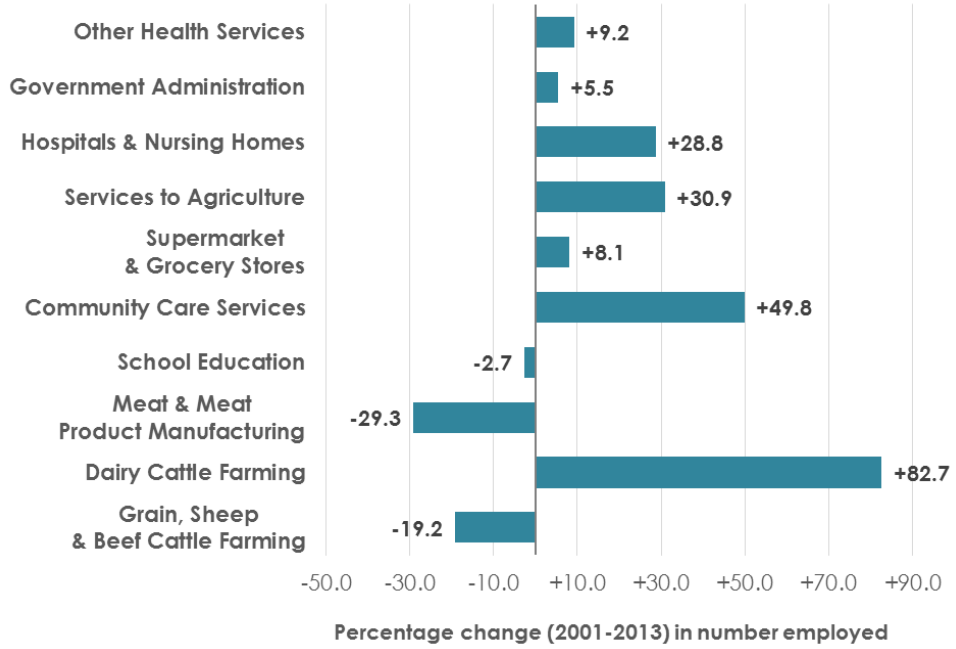
Table 2.6: The 10 largest industries in the Southland Region, 2001, 2006 and 2013

2001	2006	2013
1. Grain, Sheep & Beef Cattle Farming	1. Grain, Sheep & Beef Cattle Farming	**1. Grain, Sheep & Beef Cattle Farming**
2. Meat & Meat Product Manufacturing	2. Meat & Meat Product Manufacturing	**2. Dairy Cattle Farming**
3. School Education	3. Dairy Cattle Farming	**3. Meat & Meat Product Manufacturing**
4. Dairy Cattle Farming	4. School Education	**4. School Education**
5. Supermarket & Grocery Stores	5. Supermarket & Grocery Stores	**5. Community Care Services**
6. Government Administration	6. Community Care Services	**6. Supermarket & Grocery Stores**
7. Community Care Services	7. Services to Agriculture	**7. Services to Agriculture**
8. Services to Agriculture	8. Government Administration	**8. Hospitals & Nursing Homes**
9. Other Health Services	9. Motor Vehicle Services	**9. Government Administration**
10. Other Livestock Farming	10. Accommodation	**10. Other Health Services**

Source: NIDEA & Statistics New Zealand

Dairy Cattle Farming has moved from being the fourth largest industry in 2001 to the second largest in 2013 with 1,401 additional people employed over the 2001-2013 period (82.7 per cent). Increased demand for New Zealand's dairy products has led to conversion to dairying from other forms of farming and is likely to have contributed to significant growth in this industry (Statistics NZ 2012).

Figure 2.16: Percentage change in employment numbers in the 10 largest industries in Southland, 2001-2013



Source: NIDEA & Statistics New Zealand

Other industries which have changed over this period include Meat & Meat Product Manufacturing, which is Southland's third largest industry moving down from its second position in 2001. The industry has employed 879 fewer people in 2013, a decline of 29.3 per cent over the 2001-2013 period. School Education has dropped to the fourth position with a small decline of 2.7 per cent in people employed. Community Care Services, Hospitals & Nursing Homes and Other Health Services have all seen an increase in the number of people employed over 2001-2013. The baby boomers began to retire in 2011, and it is likely that this trend reflects the emerging impacts of structural and numerical ageing, which is increasing demand for such services, and this growth in employment by these industries is likely to continue as population ageing continues in the region. As people age there is a greater likelihood of having a disability and needing assistance (Ministry of Health, 2002) and as the proportion of those nearing and passing retirement age swell there will be an increased requirement for healthcare services. Hospitals & Nursing Homes, for instance, did not even feature in the ten largest industries of Southland in 2001.

Growing industries

In the previous section, overall trends in the 10 largest industries in Southland Region were examined. However, this presents only part of the picture. To understand growth in new labour demand, it is also important to consider which industries are changing rapidly, including both industries which have seen the greatest growth in terms of the number of additional people employed over the 2001-2013 period, and industries that have experienced the most significant percentage change in employment numbers over same period.

Of the 43 largest industries across the Southland Region, the industries that had experienced the highest growth in terms of the number of additional people employed in 2013 as compared to 2001 were identified (also see Appendix Table A4). Figure 2.17 shows the ten industries across the Southland Region that recorded the greatest increase in the numbers employed over this twelve year period, along with the percentage change in each industry. Appendix Figure A4 shows the corresponding data at the national level.

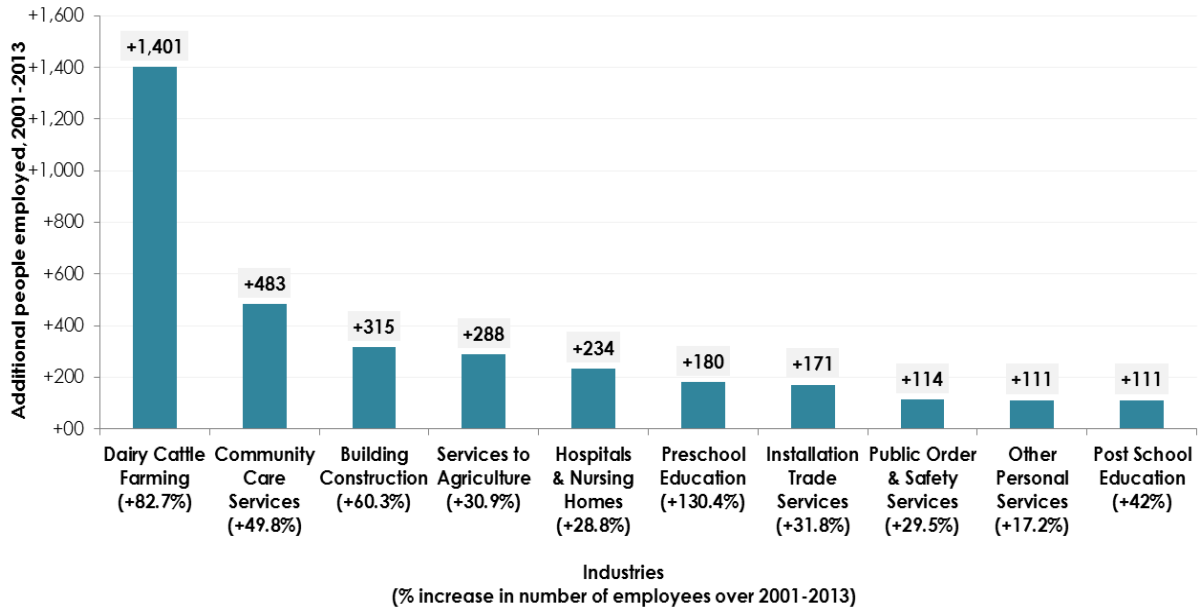
As noted earlier, Dairy Cattle Farming gained the largest number of workers between 2001 and 2013 in the Southland Region, followed by Community Care Services (+483 additional people or 49.8 per cent increase). Growth in the interlinked industries, Community Care Services and Hospitals & Nursing Homes, is likely to be sustained as the ageing population will require greater provision of healthcare.

A significant growth in the number of employees was also recorded for the Building and Construction industry, with 315 additional people employed over 2011-2013 (60.3 per cent increase). A part of this increase could be attributed to the Christchurch rebuild and growth in Auckland (Ministry of Business, Innovation & Employment 2013), with Southland Region businesses involved in these projects.

When both the additional numbers employed and percentage change over the 2001-2013 period are examined, the industry that stands out in the Southland Region is Preschool Education which saw a growth of 130 per cent. However, this growth was slightly below the growth in the Preschool Education industry across all New Zealand (143 per cent) in terms of percentage change between 2001 and 2013 (see Appendix Figure A4). Government policy has been the primary driver for this growth. In 2007 the Government launched their policy to fully fund the cost of Early Childhood Education (ECE) up to 20 hours (Ministry of Education, 2014). Participation in ECE has climbed steadily since 2004. Nearly 96 per cent of children attended ECE in the six months prior to starting school in 2013 (Ministry of Education, 2013), up from 93 per cent in 2004. Participation of two and three year-olds has also increased with around 64 per cent and 94 per cent enrolling, respectively. Although an increased number of younger children may begin to attend, this is unlikely to be sustained because the number of children born will not increase appreciably over the next 40 years

(Statistics New Zealand, 2011). It is also possible that the increase in the number of employees in both preschool education and childcare services has reached peak demand for labour as the policy has been fully implemented.

Figure 2.17: Top 10 (of the 43 largest) industries in the Southland Region, which recorded the greatest growth in terms of number of additional people employed over 2001-2013



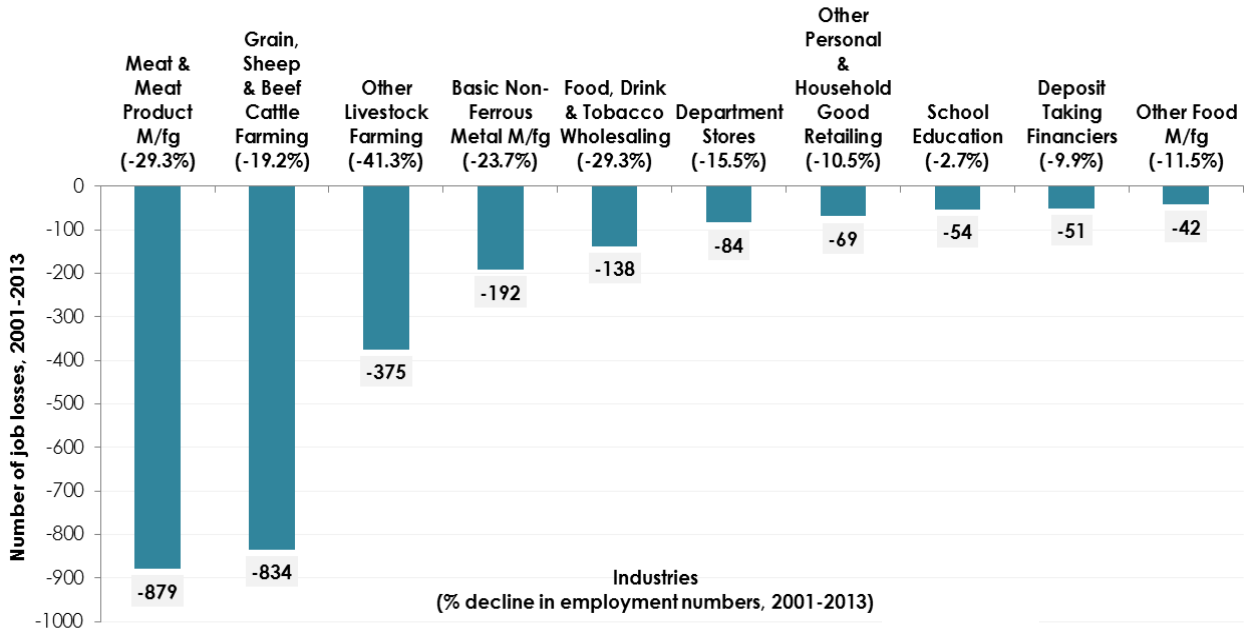
Source: NIDEA & Statistics New Zealand

In order to project future labour demand, the creation of new jobs needs to be considered. Through this section, it appears that new jobs are being created in the Southland Region in a range of industries, particularly those relating to Dairy, Health and Retirement Care and Education. While the Education sector may have reached the end of growth, and Dairy growth will need to be carefully considered against the industries which are replaced as land is a major input into production, it appears that Health and Retirement industry growth is likely to continue to add new jobs to the regional economy as the population ages.

Declining industries

In this section, industries (of the 43 employing more than 300 people) that have experienced the largest reduction in the number of people employed over the 2001-2013 period are identified. Figure 2.18 shows the ten industries that experienced the greatest number of job losses over the 2001-2013 period.

Figure 2.18: Declining industries in absolute numbers and percentage change (2001-2013) in the Southland Region (among industries employing 300+ people)



Source: NIDEA & Statistics New Zealand

As noted earlier, two of the three largest industries in the Southland Region, Meat & Meat Product Manufacturing, and Grain, Sheep & Beef Cattle Farming, have experienced the largest workforce downsizing. The linked industry of Other Livestock Farming also recorded a significant decline of 41.3 per cent, with 375 fewer people employed in 2013 compared to 2001. Of particular interest is the fact that not only have these three industries lost a large absolute number of the employed workforce but have also experienced the marked negative percentage changes at a time when the overall workforce has expanded.

It is important to consider that business and production is complex, and there are likely factors other than the reduction in the size of the industry which could cause a drop in workers. For example, changes in the factors which influence production, such as capital deepening or the automation of manufacturing processes, as well as economies of scale and scope which are generated from economic activity such as the amalgamation of farms, increasing farm and herd sizes as well as subcontracting may all result in a reduction in labour force requirement without a

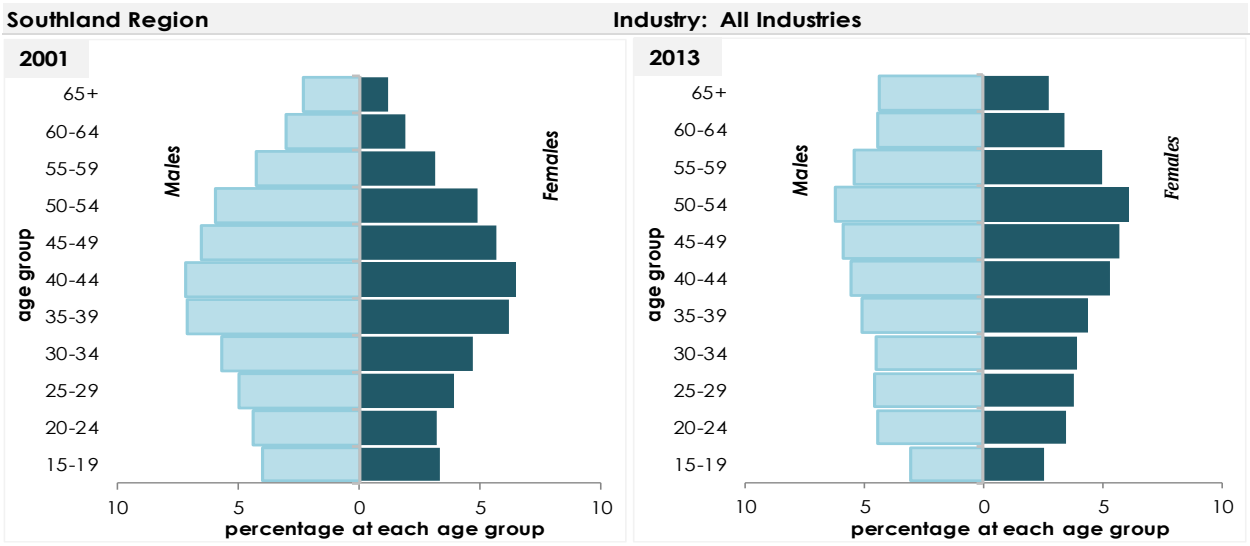
loss in production or productivity (Dairy NZ, 2013). In addition, firms may choose to downsize due to the preferences of owners, or workers leaving the industry may not be replaced due to the inability to find suitable replacement labour, or because the position remained open due to the tenure or other characteristics of the departing worker only (Wilson & Tipples 2005; Jackson forthcoming).

Ageing industries

A further challenge to the Southland Region labour market is the Entry/Exit ratios of industries which employ a large number of older workers. Entry/Exit ratios are an important indicator of the ageing of the population that affects the provision of labour for industries. This ratio describes the number of people at labour market 'entry age' (15-29 years) compared to the number of people approaching or in the retirement zone (55+ years). An Entry/Exit ratio of one represents the same number of young people moving into working age as there are older people who may exit the workforce, while a ratio above one would represent more people entering the labour market than about to be exiting it, and more people would be at a potential exit age than at entry age if the ratio was below one. The Entry/ Exit ratios presented below only take into account the employed population in each industry rather than the potential labour force which also includes unemployed people who are looking for work.

The extent (and speed) of population ageing and its impact on employed labour force Entry/Exit ratios differ greatly by industry. Industries which employ large proportions of younger people, such as the general retail sector, by definition have youthful age structures and those employing large proportions of older people (especially in senior management positions) have older age structures. However, industrial employment patterns by age are not of interest simply because they differ, but rather, in the context of population ageing, they provide important information for issues such as future labour supply and succession planning (Jackson & Pawar, 2014).

Figure 2.19: Age-sex structure of employed workforce 2001 and 2013, Southland Region



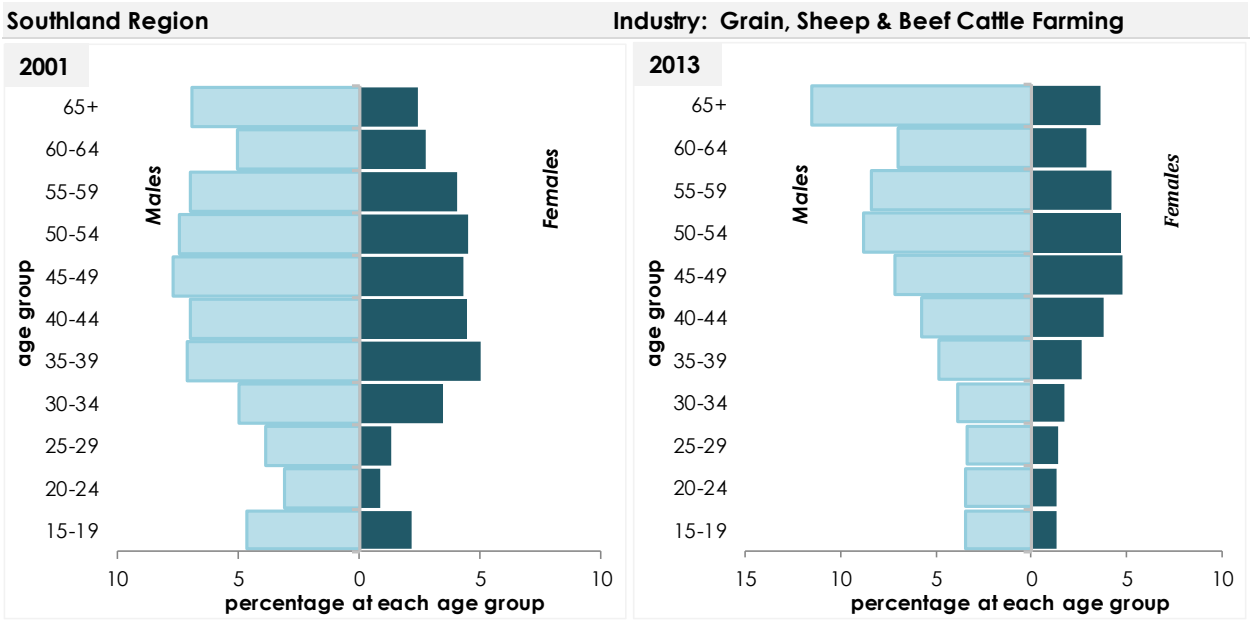
	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	40.8	43.7	**+7.1**	40.0	43.1	**+7.8**
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	1.2	0.7	**-41.7**	1.8	0.9	**-50.0**
% aged 55 years or more	15.8	25.4	**+60.8**	14.6	23.6	**+61.6**

Source: NIDEA & Statistics New Zealand

Figures 2.19 to 2.22 show the age-sex structure for Southland's total employed workforce and that for the three largest industries in the region, along with some key demographic indicators of ageing for the Census years, 2001 and 2013. The data have been customised by Statistics New Zealand to be consistent in terms of industry across time.

The Southland Region's total employed labour force is both slightly younger and ageing at a marginally lower rate when compared to New Zealand as a whole, with the average age of employed persons increased by 7.1 per cent over the 2001-2013 period (compared to 7.8 per cent nationally). Almost all industries across the Southland Region as well as nationally are experiencing workforce ageing with declining Entry/Exit ratios and an increasing proportion of the employed workforce aged 55 years or more. Between 2001 and 2013 the percentage of Southland's employed population aged 55+ years increased from 15.8 to 25.4 per cent (an increase of 60.8 per cent) compared with an increase from 14.6 to 23.6 per cent for total New Zealand (gaining 61.6 per cent). The Entry/Exit ratio for the Southland Region also shows a significant drop from 1.2 in 2001 (12 people at entry age to 10 people at exit age) to 0.7 (7 at entrance age per 10 at exit age). The pattern of ageing, however, differs across industries.

Figure 2.20: Age-sex structure of the Grain, Sheep & Beef Cattle Farming industry in the Southland Region; 2001 and 2013



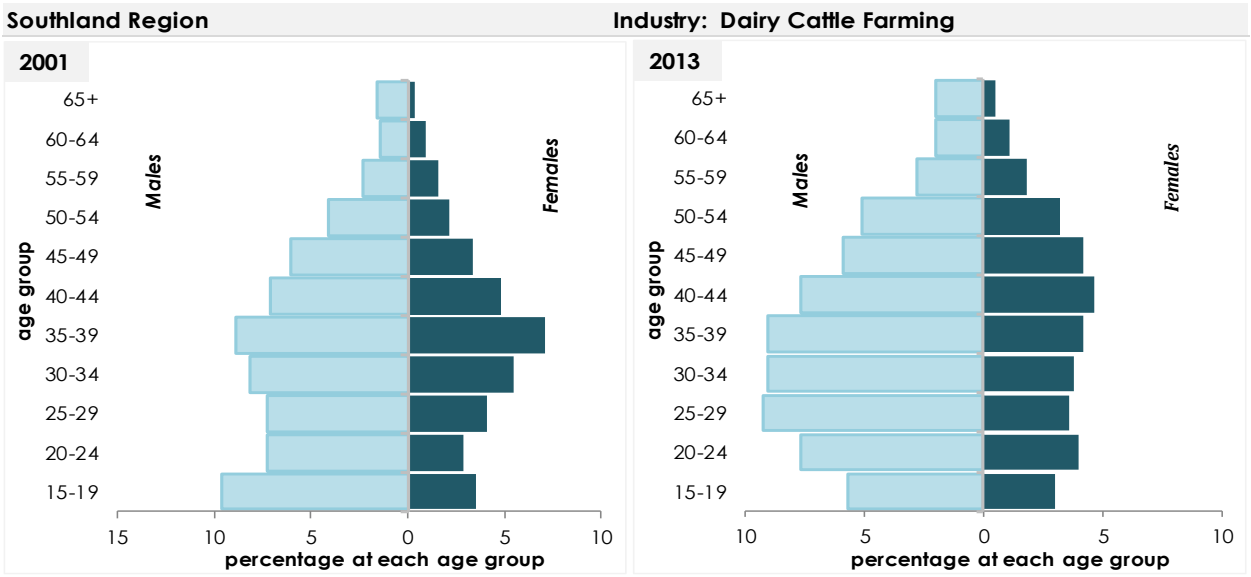
	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	45.1	48.2	**+6.9**	46.1	50.1	**+8.7**
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	0.6	0.4	**-33.3**	0.5	0.3	**-40.0**
% aged 55 years or more	28.0	37.6	**+34.2**	30.4	44.8	**+47.4**

Source: NIDEA & Statistics New Zealand

Figure 2.20 shows the age-sex structure for the largest industry in the Southland Region, Grain, Sheep & Beef Cattle Farming. This industry employed about 3,500 people in 2013, is predominantly male and has one of oldest age profiles in the region with an average age of 48.2 years (increase of 6.9 per cent from 2001) and 37.6 per cent of the workforce aged 55 years or more (increase of 34.2 per cent). There are only four entrants to every 10 people exiting the workforce. The age profile of this industry's workforce in the region is only slightly younger than that seen nationally. Potential drivers of the rapid ageing of this industry include the reluctance of established or older farm owners to convert to dairy farming, either due to the requirement to re-skill or due to the time horizons required to realise the gains from conversion being beyond the time the owner would like to remain in the industry.

The Southland Region's second largest industry, Dairy Cattle Farming, is shown in Figure 2.21. This industry also employs primarily males, but is comparatively young, having the fourth youngest age profile. The Dairy Cattle Farming industry across the region is also younger than that nationally with an average age of 37.5 years (compared to 41.6 years) and only 10.6 per cent of the workforce aged 55 years or more, compared to 22.7 per cent nationally. The younger age profile of this industry is even more apparent when comparing the Entry/Exit ratio, with four entrants to every three persons leaving the workforce. However, like all other industries in the region as well as nationally, the Dairy Cattle Farming industry is also ageing.

Figure 2.21: Age-sex structure of the Dairy Cattle Farming industry in the Southland Region; 2001 and 2013

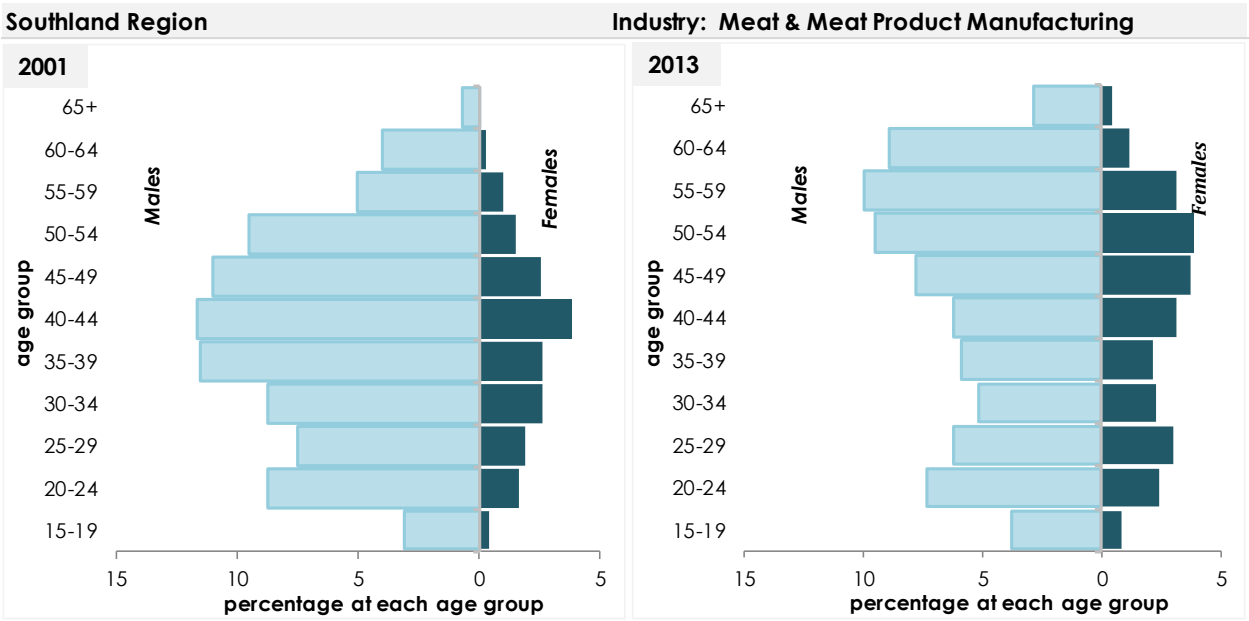


	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	36.0	37.5	**+4.2**	40.4	41.6	**+3.0**
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	4.2	3.1	**-26.2**	1.5	1.2	**-20.0**
% aged 55 years or more	8.3	10.6	**+27.0**	17.2	21.1	**+22.7**

Source: NIDEA & Statistics New Zealand

The third largest industry in Southland, Meat & Meat Product Manufacturing. The workforce for this industry is primarily male, with an average workforce age of 43.7 in 2013. This makes the industry slightly older than the national workforce of this industry but younger than the Grain, Sheep & Beef Cattle Farming. With only nine entrants to every 10 exits and where more than a quarter (26.8 per cent) of the workforce is aged 55 years or more, this industry is also rapidly ageing as seen in Figure 2.22.

Figure 2.22: Age-sex structure of the Meat & Meat Product Manufacturing industry in the Southland Region; 2001 and 2013



	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	40.0	43.7	**+9.3**	39.4	42.0	**+6.6**
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	2.1	0.9	**-57.1**	2.3	1.2	**-47.8**
% aged 55 years or more	11.2	26.8	**+139.8**	11.4	21.6	**+89.5**

Source: NIDEA & Statistics New Zealand

2.5 Occupation trends

Estimating the demand and supply of skills in the labour market is very difficult, with few good proxies for individual skills and abilities, and extreme challenges in finding direct measures (Department of Labour, 2011). However, occupational data can provide information about the roles that people are undertaking and how these have changed over recent years. As skills are multi-dimensional and the same skill set can be used in a variety of industries, occupation data provides a better indicator for identifying skill trends.

Table 2.7 shows the distribution of the employed workforce of Southland across the nine NZSCO Level 1 occupational groups as recorded in the 2001 and 2013 Census (see section 1.4 for more detail on NZSCO). Within the Southland Region, Agriculture & Fishery Workers and Service & Sales Workers continue to be the top two occupations between 2001 and 2013, with the relative employment share for both occupations remaining relatively stable over time. There has been a large decline in the number of people across the region working as Plant and Machine Operators and Assemblers 1,056 fewer people (-16.2 per cent) employed in this occupation in 2013 compared with 2001. There has also been a small decline in the number of people employed as Clerks. All other occupations are growing with the most significant growth recorded for Technicians and Associate Professionals, gaining 1,227 additional positions (36.9 per cent), an additional 1,122 people employed in Professional categories (27 per cent) and 1,023 additional people employed as Legislators, Administrators and Managers (25.5 per cent).

Table 2.7: NZSCO Level 1 occupational grouping of the Southland workforce, 2001 and 2013

Occupation	2001		2013		% Change 2001-2013
	n	(%)	n	(%)	
Agriculture and Fishery Workers	8,103	*17.9*	7,923	*16.5*	**-2.2**
Service and Sales Workers	6,168	*13.6*	6,381	*13.3*	**+3.5**
Plant and Machine Operators and Assemblers	6,519	*14.4*	5,463	*11.4*	**-16.2**
Professionals	4,152	*9.2*	5,274	*11.0*	**+27.0**
Legislators, Administrators and Managers	4,011	*8.9*	5,034	*10.5*	**+25.5**
Technicians and Associate Professionals	3,324	*7.3*	4,551	*9.5*	**+36.9**
Trade Workers	3,573	*7.9*	3,909	*8.1*	**+9.4**
Clerks	4,038	*8.9*	3,714	*7.7*	**-8.0**
Labourers and Elementary Service Workers	2,832	*6.3*	3,459	*7.2*	**+22.1**
Not Elsewhere Included	2,541	*5.6*	2,376	*4.9*	**-6.5**
Total	**45,261**	*100.0*	**48,084**	*100.0*	**+6.2**

Source: NIDEA & Statistics New Zealand

The analysis presented below uses Statistics New Zealand's NZSCO level 5 grouping (lowest level) of occupations. While suppression by Statistics New Zealand of uncommon occupations at Level 5 makes analysis of small occupations unfeasible, NZSCO level 5 data is ideal for the analysis of well-defined and large occupation groupings, for example Dairy Farmer or Dairy Farm Worker in the Southland Region.

There are 562 occupations categorised at NZSCO Level 5. Only those occupations which engage 200 or more people across the Southland Region have been analysed here. As occupational trends for men differ quite significantly from women, some disaggregation of the data has also been done by sex. In 2013, there were 51 such occupations in the Southland Region. Appendix Table A5 lists these 51 occupational groupings, sorted in descending order of number of people employed in 2013, for the Southland Region. Comparative data from the 2001 and 2006 Censuses have also been included.

In 2013, 62 per cent (29,883 people) of the Southland Region's employed workforce worked in one of these 51 occupations. Approximately 12 per cent did not specify their occupation and the remaining were spread thinly across 428 level 5 occupational categories.

Ten most common occupations

Table 2.8 lists the 10 most common occupations across the Southland Region and Figure 2.23 shows the percentage change in employment numbers over the 2001-2013 period for each of these occupations. Appendix Table A6 lists the 10 most common occupations across New Zealand for comparison.

Table 2.8: The ten most common occupations in Southland, 2001, 2006 and 2013

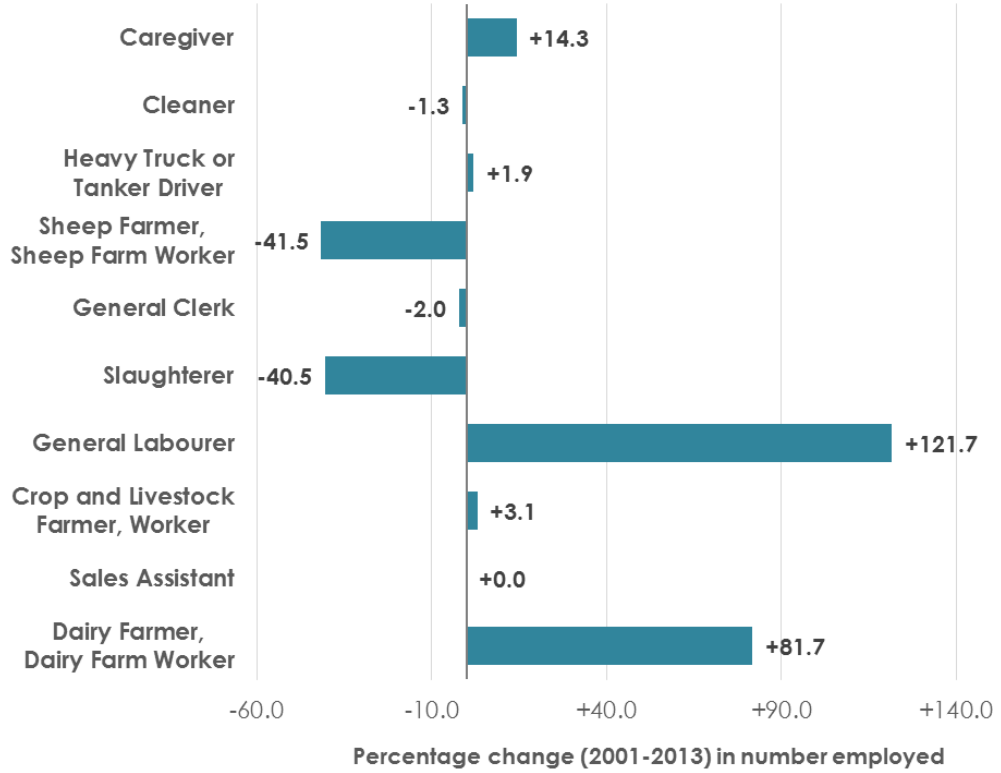
2001	2006	2013
1. Slaughterer	1. Sales Assistant	**1. Dairy Farmer, Dairy Farm Worker**
2. Sales Assistant	2. Slaughterer	**2. Sales Assistant**
3. Sheep Farmer, Sheep Farm Worker	3. Crop and Livestock Farmer, Worker	**3. Crop and Livestock Farmer, Worker**
4. Crop and Livestock Farmer, Worker	4. Sheep Farmer, Sheep Farm Worker	**4. General Labourer**
5. Dairy Farmer, Dairy Farm Worker	5. Dairy Farmer, Dairy Farm Worker	**5. Slaughterer**
6. General Clerk	6. General Labourer	**6. General Clerk**
7. Cleaner	7. General Clerk	**7. Sheep Farmer, Sheep Farm Worker**
8. Heavy Truck or Tanker Driver	8. Heavy Truck or Tanker Driver	**8. Heavy Truck or Tanker Driver**
9. Caregiver	9. Cleaner	**9. Cleaner**
10. General Manager	10. Caregiver	**10. Caregiver**

Source: NIDEA & Statistics New Zealand

Dairy Farmer or Dairy Farm Worker has risen from the fifth position in 2001 and 2006 to become the most common occupation in the Southland Region with 1,125 additional people working (81.7 per cent) over the 2001-2013 period. On the other hand, Sheep Farmer/Farm Worker dropped from third position to seventh position over this period, with a decline of 41.5 per cent (813 fewer people working). The three related occupations, Dairy Farmer/Farm Worker, Crop and Livestock Farmer and Sheep Farmer/Farm Worker, in the top 10 listing reflect the predominantly agricultural nature of the industry in the Southland Region. The reduction in Crop and Livestock farm workers and Sheep farmers or Sheep farm workers has also been shadowed by reduction in the number of Slaughterers, falling from the most common occupation in 2001 and second most common in 2006 to fifth position in 2013.

Sales Assistant maintained its position as the second most common occupation in the region; however, there has been no increase in the number of workers over the last twelve years. General Clerk, Heavy Truck and Tanker Driver, Cleaner and Caregiver have all relatively maintained their position over the two inter-censual periods. The occupation from this list which saw the most significant increase was that of General Labourer. It did not feature in the top 10 list in 2001 but was the fourth most common occupation in 2013 with more than doubling of the workforce (122 per cent or 858 additional people) over 2001-2013. This is directly related to the growth in the Building Construction industry of Southland noted in Section 2.4.

Figure 2.23: Percentage change in employment numbers in the 10 most common occupations in Southland, 2001-2013



Source: NIDEA & Statistics New Zealand

Table 2.9 gives the same information for the region by sex (top 10 occupations for males and females in 2013). Corresponding list for New Zealand can be found in Appendix table A7.

Table 2.9: Ten most common occupations by gender in Southland, 2013

Males	Females
1. Dairy Farmer, Dairy Farm Worker	1. Sales Assistant
2. Crop and Livestock Farmer, Worker	2. General Clerk
3. General Labourer	3. Dairy Farmer, Dairy Farm Worker
4. Slaughterer	4. Caregiver
5. Heavy Truck or Tanker Driver	5. Cleaner
6. Sheep Farmer, Sheep Farm Worker	6. Registered Nurse
7. Sales Assistant	7. Crop and Livestock Farmer, Worker
8. General Manager	8. Primary School Teacher
9. Builder (Including Contractor)	9. Information Clerk and Other Receptionist
10. Motor Mechanic	10. Office Manager

Source: NIDEA & Statistics New Zealand

There is a strong gender bias in many occupations. Males are engaged predominantly in manual or farming jobs which tend to be situated in the primary or secondary sectors, while a large proportion of females are engaged in occupations relating to tertiary or service sector jobs such as Sales Assistant, Nurse, Teacher and Caregiver. Dairy Farmer/Dairy Farm Worker is listed as the most common occupation for males in the Southland Region, and it is interesting to note that it is the third most common occupation for women in the region but does not feature among the ten top occupations for women nationally. Sales Assistant is one of the only occupations that does not show a strong sex bias, holding first position for females in the Southland Region as well as nationally; and also featuring as a popular occupation for males in the region and across New Zealand.

Growing occupations

The types of occupations which are growing in terms of the number of additional people employed over the 2001-2013 period is another important indicator of the type of labour which is both supplied and demanded in the labour market. While the net numeric change in jobs by occupation may show the drivers for the current market, it is also important to consider the occupations which are showing the most significant percentage change in terms of employees within an occupation category. This factor, identifying those occupations that may not currently be employing large numbers but are rising rapidly, may allow identification of future drivers of labour force demand.

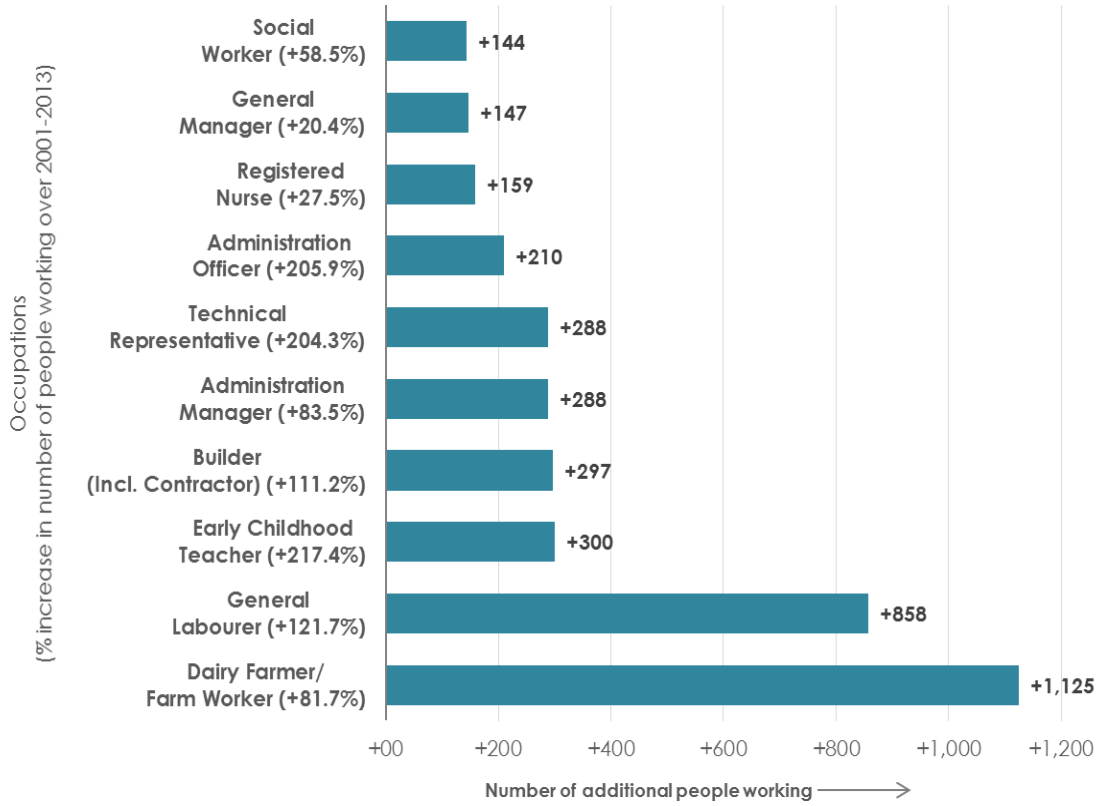
Numerically growing occupations

The ten occupations (among the 51 occupations employing 200 or more people in the Southland Region) that experienced the highest growth in terms of the number of additional people engaged in 2013 as compared to 2001 are shown in Figure 2.24.

Apart from significant growth for the two occupations, Dairy Farmer or Farm Worker and General Labourer already noted earlier, the other occupations seeing notable growth in terms of absolute numbers of additional people employed in 2013 compared with 2001 were Early Childhood Teacher (217 per cent increase), Builder or Contractor (111 per cent increase), Administration Manager (83.5 per cent increase), and Technical Representative (204 per cent increase).

The upsurge in the number of Early Childhood Teacher mirrors its industry-level increase due to the government's recent early childhood policy changes, the implications of which were discussed in the Section 2.4. While both Early Childhood Teacher and Builder show clear linkages with industry data due to their specific qualifications required, it is less clear what is driving the increase in the number of people employed as Administration Officers, potentially the change in the role of what was previously personal assistants and secretaries. The increase in Technical Representatives is likely to be tied with continued dairy conversion and the growth of the Southland Region's dairy industry.

Figure 2.24: Fastest growing occupations numerically in the Southland Region, 2001-2013

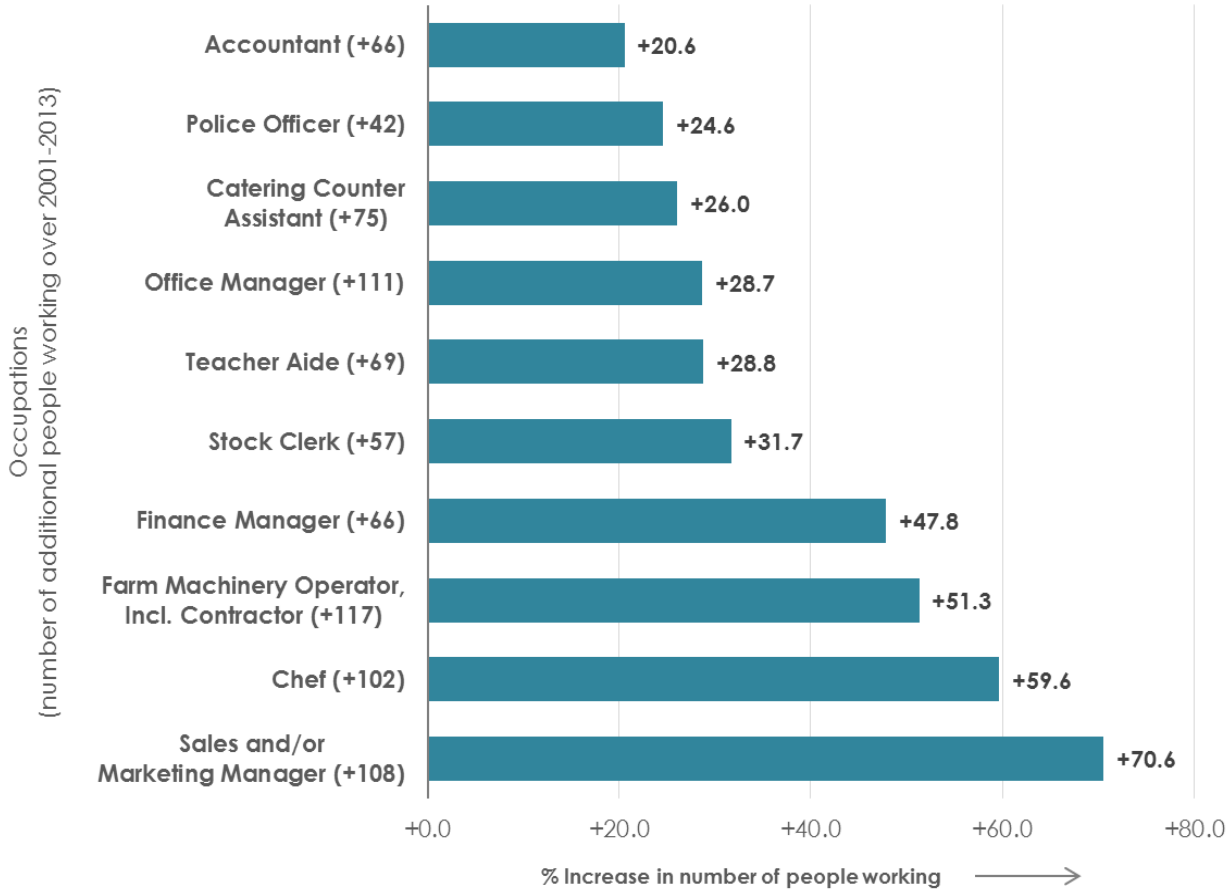


Source: NIDEA & Statistics New Zealand

Proportionally growing occupations

Figure 2.25 presents the ten occupations of those with 200 or more people which grew the fastest as a proportion of overall occupation share over the 2001 to 2013 period where not included in Figure 2.25. The absolute numbers of additional people engaged in these occupations may not be as significant in magnitude as for the first ten occupations presented in Figure 2.25, but they have shown noticeable change that might indicate future employment opportunities.

Figure 2.25: Other occupations in the Southland Region, which grew the most over 2001-2013



Source: NIDEA & Statistics New Zealand

The majority of these occupations, with the exception of Farm machinery operators are in the tertiary or service sectors. The most rapidly growing occupation was Sales and/or Marketing Manager which grew by 70.6 per cent, while Finance Manager grew by 48 per cent. Within the food and hospitality sector, Chef (59.6 per cent increase) and Catering Counter Assistant (26 per cent increase) are both growing. Overall, it appears that with the exception of Farm Machinery Operator, service sector based jobs are experiencing the high growth in share of occupation, although they remain far below the absolute and proportional growth rates of many of the occupations listed in Figure 2.25.

Declining occupations

Only three occupations among the 51 with 200 or more people employed in 2013 have experienced a notable decline in employee numbers from 2001 to 2013, Slaughterer, Secretary and Sheep Farmer or Sheep Farm Worker. The Slaughterer occupation experienced the largest absolute decrease, with a decreased of 972 fewer roles or 40.5 per cent. Sheep Farmer or Sheep Farm Worker declined by 41.5 per cent, or 813 fewer roles and finally Secretary declined by 35.3 per cent, or 165 fewer people employed in this occupation. Decreases in the Secretary occupation is likely reflecting the changing role of secretaries towards more administrative support roles, as seen by the growth in administration officers and administration managers. Both Slaughterer and Sheep Farmer or Sheep Farm Worker decreases are the result of dairy conversion in the Southland Region. Across these two industries, there are now 1,785 fewer people employed. This is at least in part offset by the rise in Dairy farmer as an occupation, with 1,125 additional people employed in this occupation. This leaves a net loss of employment of occupations of 660, and may explain some of the industry level decline in manufacturing and growth in agriculture seen in Table 2.5 However, it is likely that dairy conversion results in other employment opportunities being generated which are not directly observed here, such as Dairy Factory Worker and Tanker Driver. In addition, as dairy is currently a higher-value product, the increased economic benefit of conversion should have a multiplier effect on tertiary sector employment due to increased consumption and spending.

Ageing occupations

As larger numbers of older people reach retirement age and either retire or reduce their labour force attachment, there will be increasing demand for new 'replacement' workers in certain occupations. This opportunity can be detected in occupations that are ageing faster than others (see Appendix Table A5). All occupations across the Southland Region as well as in New Zealand are ageing structurally, with increases in the average age of the employed workforce and increases of the proportions aged 55 years and over, having a direct impact on occupations which are likely to feature in labour demand due to employee replacement. The pattern of ageing differs across occupations, with some ageing more rapidly, suggesting that structural ageing will influence labour demand differently across occupations.

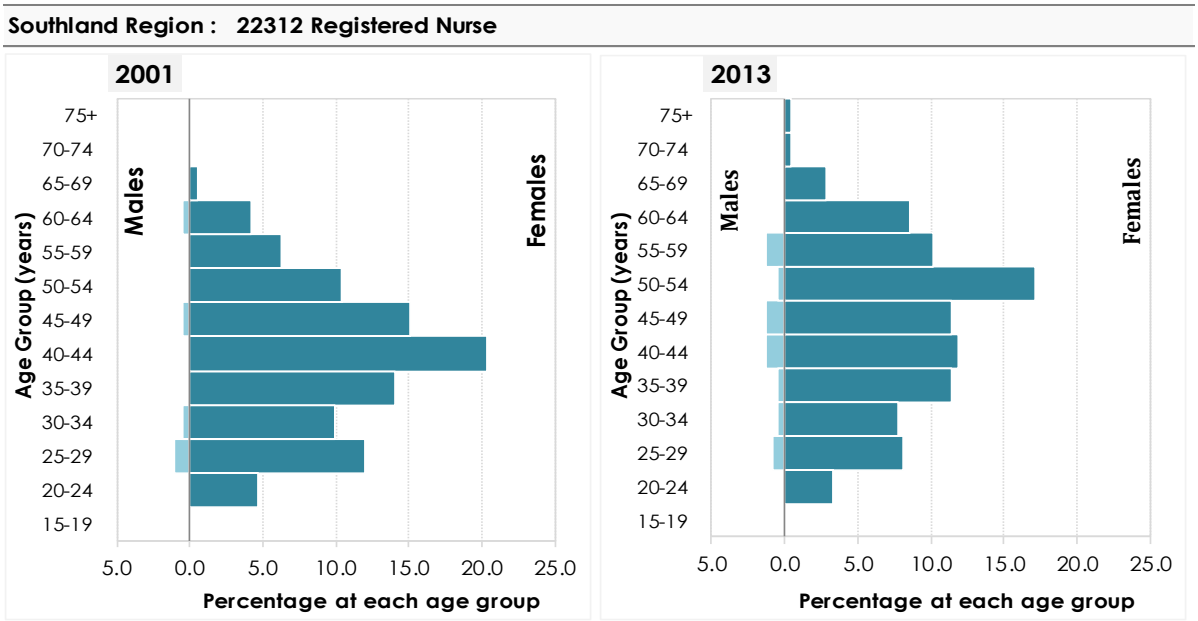
Occupations in the Southland Region that had the highest average age among its workforce as recorded in 2013 were:

- Sheep Farmer, Sheep Farm Worker (51.2 years)
- General Manager (49.9 years)
- Office Manager (48.6 years)
- Caregiver (48.6 years)
- Cleaner (47.7 years)

Occupations that are ageing fast are likely to demand new labour to replace workers who are exiting the labour force. While finding new workers is likely to pose a challenge in these industries due to the demographically tight labour supply conditions estimated for the Southland Region, it will also provide opportunities for succession planning and for capital deepening to be utilised to reduce reliance on labour. For instance, in New Zealand the average age of Registered Nurses rose by 3 years between 2001 and 2013, from 42.6 to 45.6 years (see Figure 2.26). One-quarter of the nursing workforce nationwide is now over the age of 55. With the Entry/Exit ratio dropping from 1.1 (11 entrants per 10 exits) in 2001 to 0.6 (6 entrants per 10 exits) in 2013 there is a clear challenge to find replacement workers emerging.

A similar picture emerges for Caregivers (Figure 2.27) with the Entry/Exit ratio dropping from 0.7 to 0.4 nationally and the proportion of 55+ year olds increasing. The Caregivers in the Southland Region are ageing even more rapidly, with the proportion aged 55+ years more than doubling over 2001-2013. With the numerical and structural ageing of the population noted earlier, the demand for these service providers is only going to increase in the coming years.

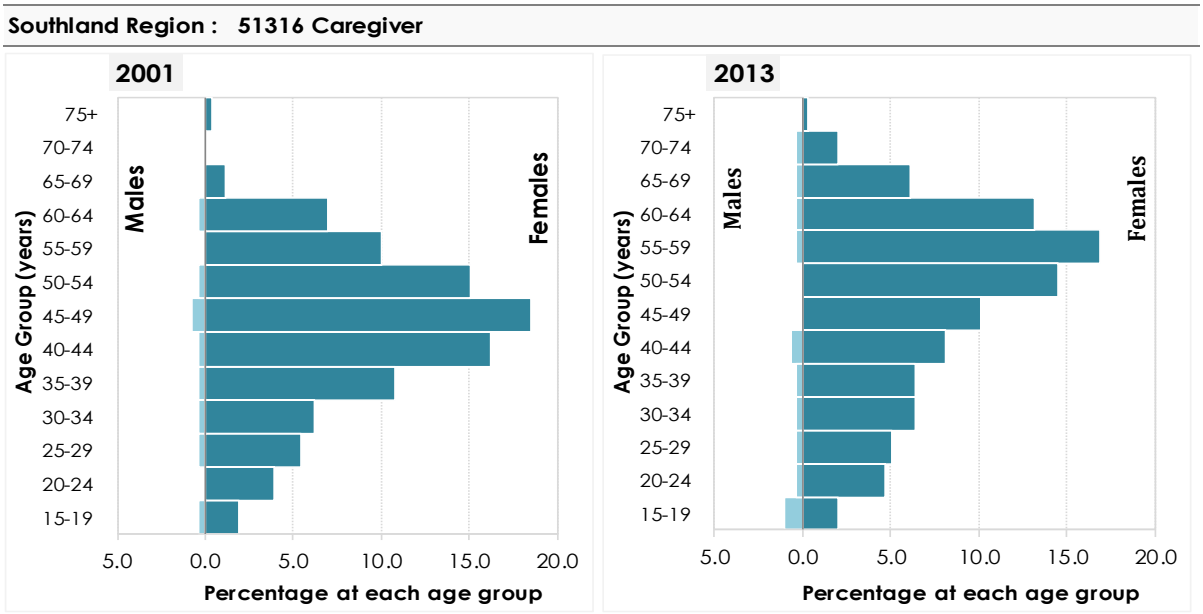
Figure 2.26: Age-sex structure of Registered Nurses, 2001 and 2013, Southland Region



	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	41.7	45.5	*+9.1*	42.6	45.6	*+7.0*
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	1.5	0.5	*-66.7*	1.1	0.6	*-45.5*
% aged 55 years or more	11.5	23.7	*+106.1*	13.0	25.4	*+95.4*

Source: NIDEA & Statistics New Zealand

Figure 2.27: Age-sex structure of Caregivers, 2001 and 2013, Southland Region



	Southland Region			New Zealand		
	2001	2013	% Change	2001	2013	% Change
Average Age (in years)	45.0	48.7	***+8.2***	44.3	47.8	***+7.9***
Entry (15-29 yrs) : Exit (55+ yrs) Ratio	0.6	0.3	***-50.0***	0.7	0.4	***-42.9***
% aged 55 years or more	18.9	39.9	***+111.1***	19.7	36.3	***+84.3***

Source: NIDEA & Statistics New Zealand

3. Labour market projections

This section provides the findings of the labour supply and labour demand models which were developed by NIDEA, drawing on the findings of the preceding historical analysis for the Southland Region. The section begins with estimations of labour supply for Southland, including both a baseline and several scenarios to provide some examples of potential mitigating factors which were discussed in consultation with Venture Southland and in the labour market workshop. Following this, Section 3.2 presents projections of labour demand under several scenarios and examines the potential impact of the Tiwai Point Aluminium smelter closure. The findings of both labour supply and demand will be considered together in section 3.3 and broad conclusions drawn around the challenges facing the Southland Region over the next sixteen years.

3.1 Labour supply

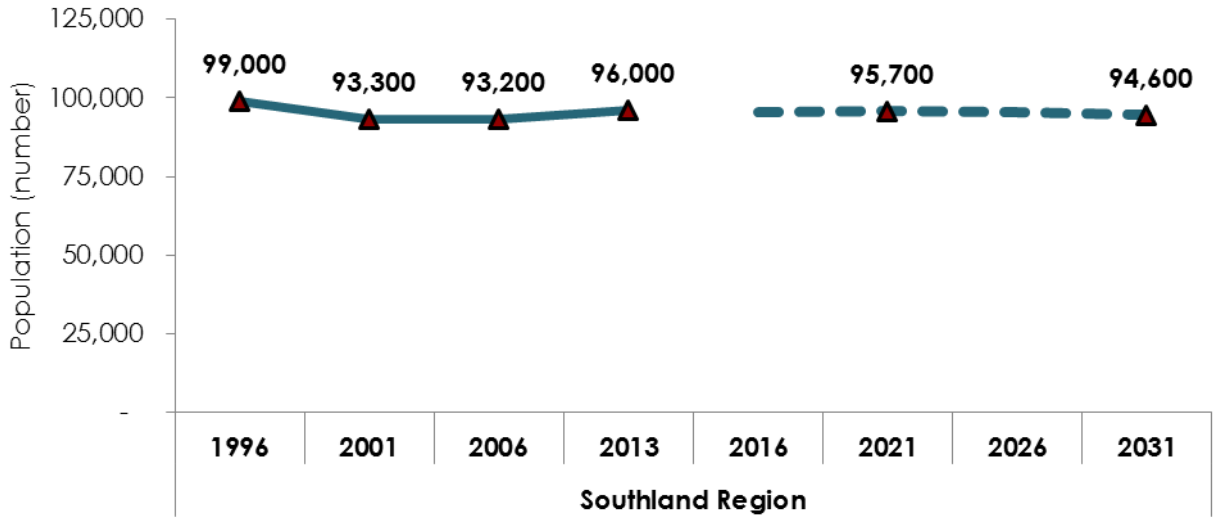
This section presents the projections for labour supply in the Southland Region from 2014-2031. Because of the nature of structural change in populations, the impact on labour supply due to this factor can be considered robust over the sixteen year period projected in this section. However, two factors which show significant variation over time are less easily predicted. These are net migration and, particularly over the preceding decade, propensity to participation in the labour force. These factors offer the greatest opportunities for changing labour supply, but also introduce some variability into the labour supply model, reducing the accuracy of the projections.

To begin estimating the future labour supply for the Southland Region, a baseline model was developed which allowed projection of labour supplied under likely labour force participation rates by age and sex. The baseline labour demand projection reflects 'business as usual', without significant changes in participation rates or population movements from what has been experienced over the last several inter-censual periods. The baseline model does not take into account major economic or policy developments, such as significant relaxation of immigrant entry criteria for people moving to the Southland Region, or large scale greenfield investment in a new industry.

Modelling labour supply

The labour supply brings together projected changes in the Southland Region's population structure with the underlying labour participation preferences of sub-groups within the population. Figure 3.1 shows the 2013 Census based estimated resident population and the 2006 based medium population projections for the Southland Region. The population of Southland declined by 5.9 per cent (5,800 people) over the 1996-2006 period and then increased by 3.0 per cent (2,800 people) over 2006-2013. The overall Southland Region population is projected to remain relatively stable over the next seventeen years, falling from 96,000 in 2013 to 94,600 in 2031, an approximate 1.5 per cent decline.

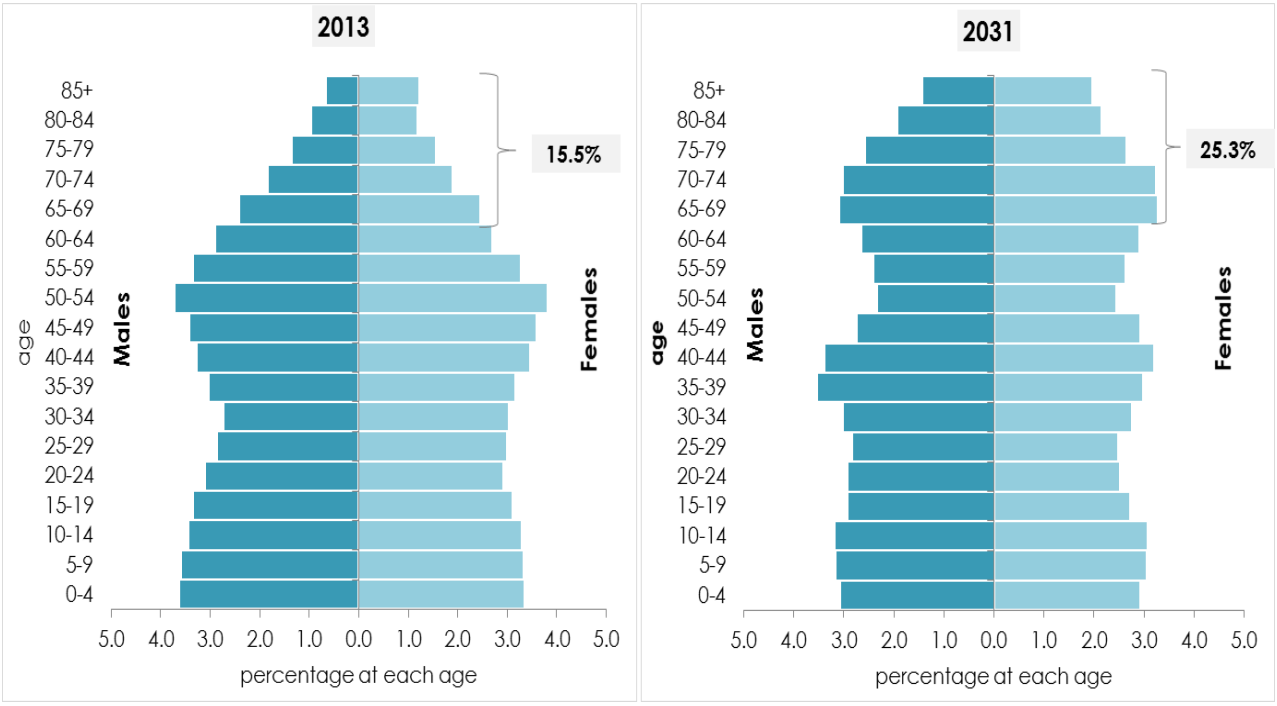
Figure 3.1: Actual and projected Southland Region population, 1996 to 2031.



Source: NIDEA & Statistics New Zealand

The relatively static regional population shown in Figure 3.1 suggests that the absolute population size is unlikely to be a major driver of changes in the labour supply. However, as seen in Figure 3.2, while the population size remains static, the population structure changes over this time period. In particular, Figure 3.2 shows structural ageing of the Southland Region in projected. In 2013, people aged 65 and older make up 15.5 per cent (approximately 15,000 people) of the total resident population of the region. The projections suggest this is likely to change significantly by 2031, when one in every four residents projected to be in this oldest age group (25.3 per cent or 24,000 people). The proportion of the population aged less than 25 years is projected to decline from 33.1 per cent (32,000) in 2013 to 29.6 per cent (28,000) by 2031, meaning 4000 less young people living in the Southland Region.

Figure 3.2: Age-sex structure for Southland Region, estimated population in 2013 and medium series projected population in 2031



Source: NIDEA & Statistics New Zealand

Table 3.1 presents the numeric changes in population by broad age group which underpins these changes in population structure. While the populations in 2013 and 2031 remain constant, we can see that all age groups under 65 are likely to experience reductions in their proportion of the underlying population structure, while the 65 years and older group increases by over 60 per cent, with 9,000 more people entering this age group. As labour force participation has traditionally declined rapidly once the age of pension eligibility is reached, this is one of the largest drivers of the change in labour supply for the Southland Region suggested by the model.

Table 3.1: Change (per cent) in population by age group, Southland Region, 2006-2013 and 2013-2031

Age Group (years)	Population		Change, 2013-2031		Contribution to Change (%) 2013-2031
	2013	2031	n	%	
0-14	19,820	17,460	-2,360	-11.9	-176.1
15-29	17,610	15,500	-2,110	-12.0	-157.5
30-44	17,930	17,810	-120	-0.7	-9.0
45-64	25,690	19,920	-5,770	-22.5	-430.6
65+	14,930	23,950	+9,020	+60.4	+673.1
Total	**95,980**	**94,640**	**-1,340**	**-1.4**	**100.0**

Source: NIDEA & Statistics New Zealand

The participation rate for the Southland Region is estimated using historic labour force participation rates to identify both trends and averages. Labour force participation rates are estimated for both age and sex and applied to the underlying age structure to create a baseline projection of labour supply in the Southland Region.

Baseline labour supply scenario

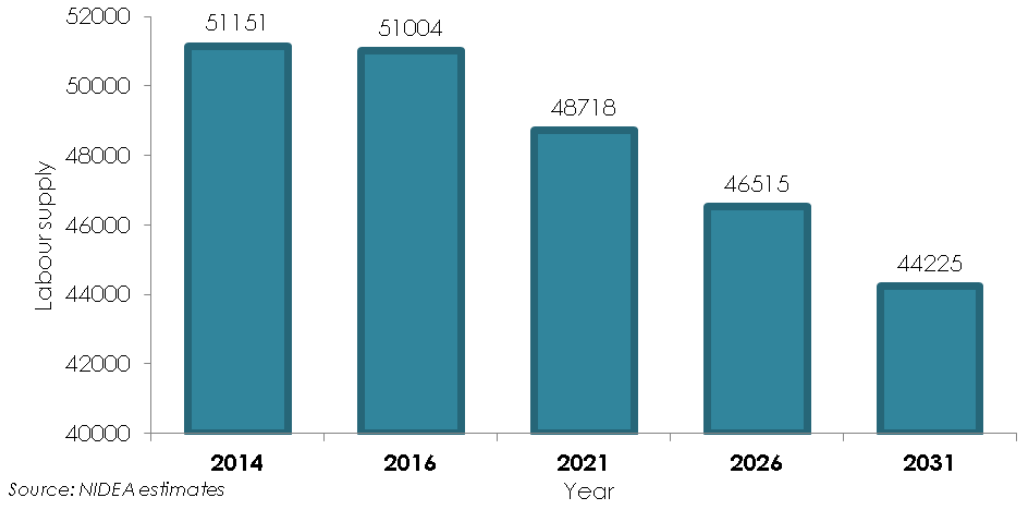
To begin to project labour supply in the Southland Region, firstly a baseline model was created. The baseline model provides an understanding of what is likely to happen under 'business as usual', that is, if the current trends which have been observed over the past twelve years continues throughout the projected sixteen year period. While this baseline model does not include any particular strategies or initiatives, it should be noted that programmes which have been tried and successful in the past will be included in the data used to build the projection model. To get variation on the baseline model would require something new to shift the underlying path dependency for the Southland Region.

In order to build a baseline model to allow projection of labour supply, the findings of section two are drawn on heavily. In particular, the population age sex structure and labour force participation age sex structure are fundamental to creating a baseline propensity to participate at each five-year age group.

In comparison to the census, the baseline amount of labour supplied is slightly higher (approximately 1 per cent). This is primarily due to the baseline model allocating individuals whose labour force status was unidentifiable in the census being proportioned into the labour force in the model according to the underlying probability of being either in or out of the workforce based on age and gender.

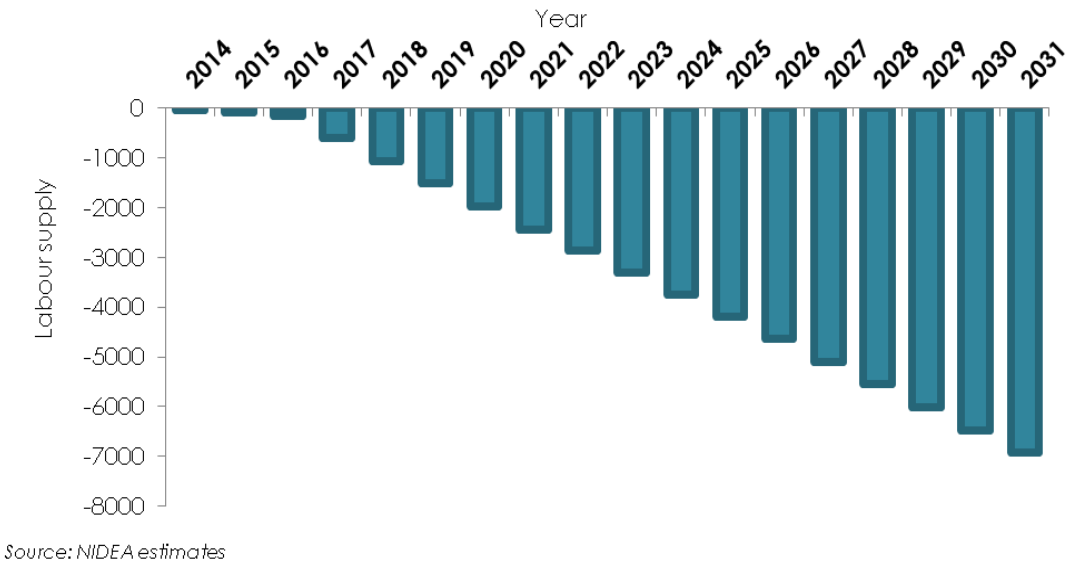
Under the 'business as usual' baseline scenario, the population of the Southland Region is expected to remain relatively stable at approximately 95,000 over the sixteen year period from 2014 through to 2031. With the absolute population stable, the primary drivers of labour supply become demographic change and changes in the preferences around participation in the labour market for the Southland Region's population. Given these factors, it appears that labour supply will remain relatively static at approximately 51,000 workers in the labour force from 2013 through to 2016. However, from 2016 onwards the structurally ageing population begins to reduce the supply of labour in the region's economy, with labour supply falling to 48,700 in 2021, 46,500 in 2026 and 44,200 in 2031. Figure 3.3 presents the baseline scenario labour supply for the Southland Region.

Figure 3.3: Baseline projected Southland Region labour supply, 2014 to 2031



As can be seen from Figure 3.3, the projected labour supply remains relatively constant between 2014 and 2016, with the major change in labour supply occurring after 2016 when the baby boom cohort increasingly exits the labour force. This results in an almost linear decrease of around 450 people exiting the labour force and not being replaced every year. While there is a decrease in labour supply, the absolute population remains stable, and this is reflected in falling labour force participation due to retirement. The numeric change in labour supply compared to 2013 in the baseline scenario is presented in Figure 3.4. With the baby-boom generation having entered the age of pension eligibility, there is projected to be a continuing decline in labour supply under the baseline through to 2031.

Figure 3.4: Absolute change in labour supply in baseline scenario, 2013 to 2031.



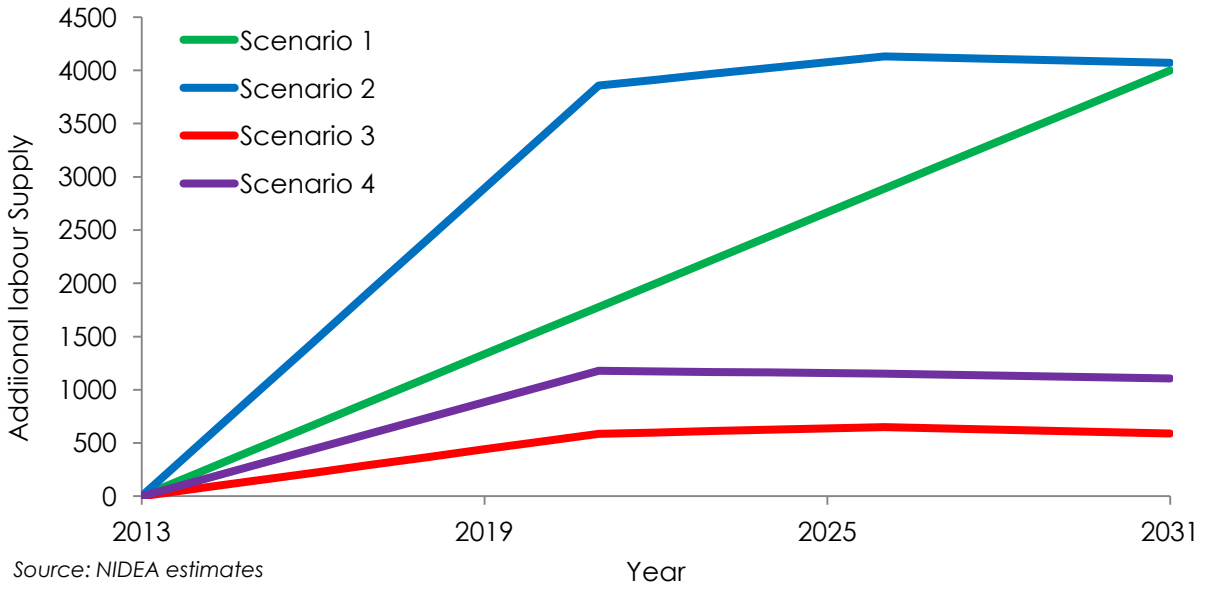
Alternative scenarios

The base labour supply in the Southland Region is presented in Figure 3.3. While this provides an understanding of a 'business as usual' outcome resulting from both population change and participation preferences, it is possible that other factors not directly modelled may offset some of the stark decline in labour supply suggested by the baseline model. While there are a number of economic drivers which could bring about these changes, primarily increased wages being offered due to scarcity of workers and increased vacancies allowing employees to better match with job openings, it is also possible that planning and strategy implementation, either at a local or central level, may change participation preferences and population. The following four scenarios were tested using the labour supply model:

- Scenario 1: An increase in net migration by 300 working-age individuals per annum. This was seen in 2008-2013 through decreased out-migration, and discussed at the Southand Labour Market Workshop as potentially arising from the large increase in migrants from the Philippines into the Southland Region.
- Scenario 2: An increase in the labour force participation rate of people aged fifty five and over by 2021 to match the preceding five-year age groups labour force participation (a change not dissimilar to that observed between 2001 and 2013).
- Scenario 3: A 12 per cent increase in the labour force participation rate of youth aged 24 and under by 2021 (rising youth employment near 2001 levels).
- Scenario 4: An increase in the labour force participation of women by 2021, closing the participation rates between men and women by 25 per cent (slightly less than the approximate 30 per cent gap closure between men and women in the Southland Region between 2001 and 2013).

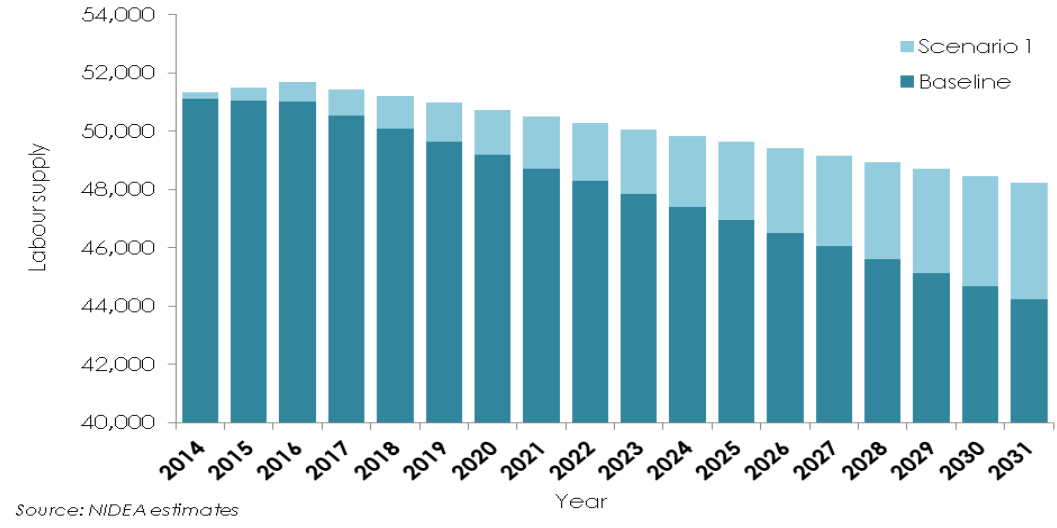
The net impact of each scenario is shown in Figure 3.5 of each scenario from 2014 through to 2031. These scenarios should not be interpreted as exact values. Their purpose is to illustrate the relative impact pursuing each scenario could have on labour supply. This may help policy makers understand the potential impact of their targets and prioritise initiatives. Due to most scenarios becoming fully implemented in 2021, there are some clear inflection points which are likely to be much more gradual should these scenarios be observed.

Figure 3.5: Impact of scenarios 1 to 4 on labour supply.



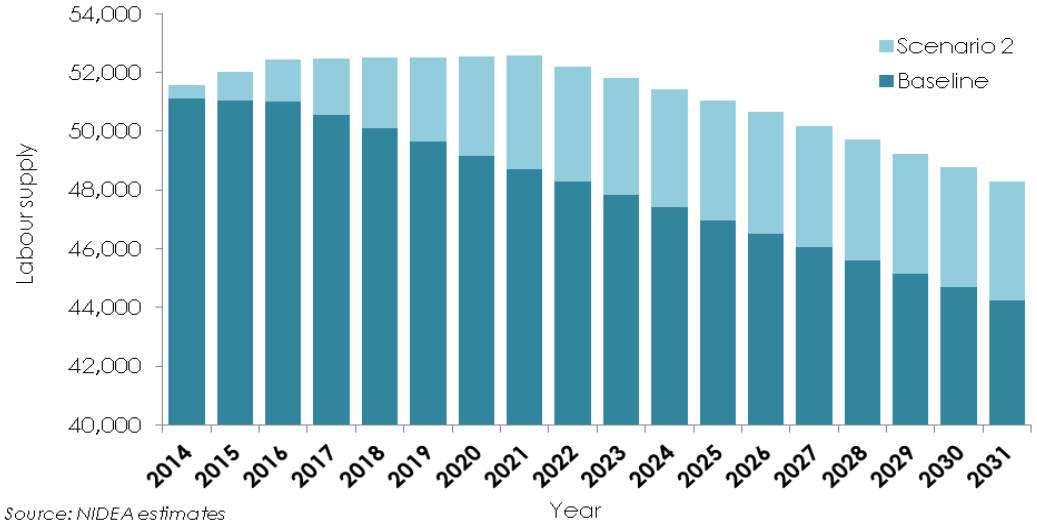
Of the four scenarios modelled, scenario 1 is the only one which impacts on the absolute size of the Southland population by placing an additional 300 working-age individuals into the region every year, with age profiles similar to that of the average migrant age profile over the preceding twelve years from 2001 to 2013. Other population changes were not feasible to model as a scenario as increases in fertility, even if fully realised immediately, would only just be starting to have an impact on the labour market by 2031 (with children born in 2015 turning 16 by 2031), while changes in mortality have only a very marginal impact on labour supply. The findings from scenario 1 suggest that approximately 220 additional people would be added to the Southland Region's labour force annually if net migration was increased by 300 working age individuals. This results in a near linear climb in labour supply, but does not offset the decrease from structural ageing, as shown in Figure 3.6. Under this scenario, labour supply falls to 48,225, with a 40 per cent decrease in the reduction of labour supply compared to the baseline only by 2031.

Figure 3.6: Baseline labour supply with scenario 1



Scenario 2 examines the impact on labour supply should the recent trend in the increase of labour force participation by workers 60 and over continue at a similar pace to the changes over the past twelve years, rather than the reduced pace modelled in the baseline. Figure 3.7 shows the impact of this policy on labour supply over the 2014-2031 period. As can be seen, scenario 2 results in labour supply being much more stable between 2016 and 2021 when compared to the baseline alone. However, the structural ageing begins to offset the gains from the changing participation preferences, which are modelled as complete by 2021, with further changes in preferences potentially requiring radical policy change such as an increase in the pension eligibility age about 70. Once preferences have changed, structural ageing moves the labour supply downward, with a fall to approximately 48,300 by 2031. Scenario 2 does not make any adjustments from a decrease in the volunteer workforce which may occur should older people remain in the paid workforce.

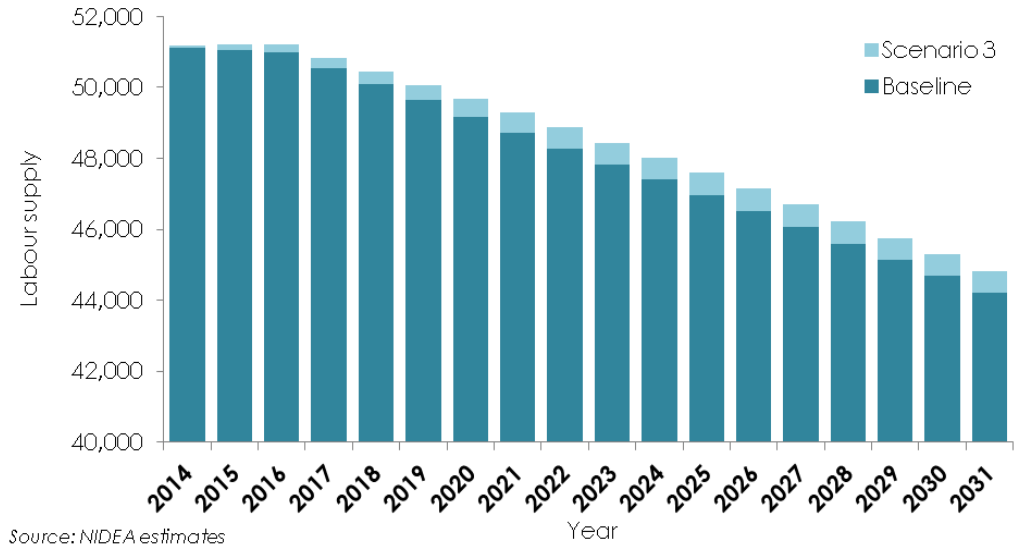
Figure 3.7: Baseline labour supply with scenario 2



In section 2.4, it was noted that there has been a significant decrease in youth participation in the labour force, with up to 700 young people currently not participating in the labour force and not in study. Activation of latent youth work force, potentially through local policies and initiatives, is likely to be an important strategy for boosting labour supply.

Scenario 3 assumes that these young people could begin to participate in the labour force if there was a shortage, potentially due to policy and community activities, more favourable workplace conditions and/or better matching opportunities for young people. Assuming that the participation rate for both men and women increases by 12 per cent by 2021 (selected as it returns youth labour force participation to 2001 levels), there is likely to be an additional 220 participants by 2016, peaking at an additional 649 participants by 2026 before declining slightly, as seen in Figure 3.8.

Figure 3.8: Baseline labour supply with scenario 3



The final scenario tested is scenario 4, which models the impact of the reduction in the labour force participation gap between men and women continuing until the gap has closed by 25 per cent by 2021. Under this scenario, an additional 1,000 women are participating in the workforce by 2020, and this remains fairly stable, varying between 1,100 and 1,200 additional women in the labour force, through to 2031.

Figure 3.9: Baseline labour supply with scenario 4

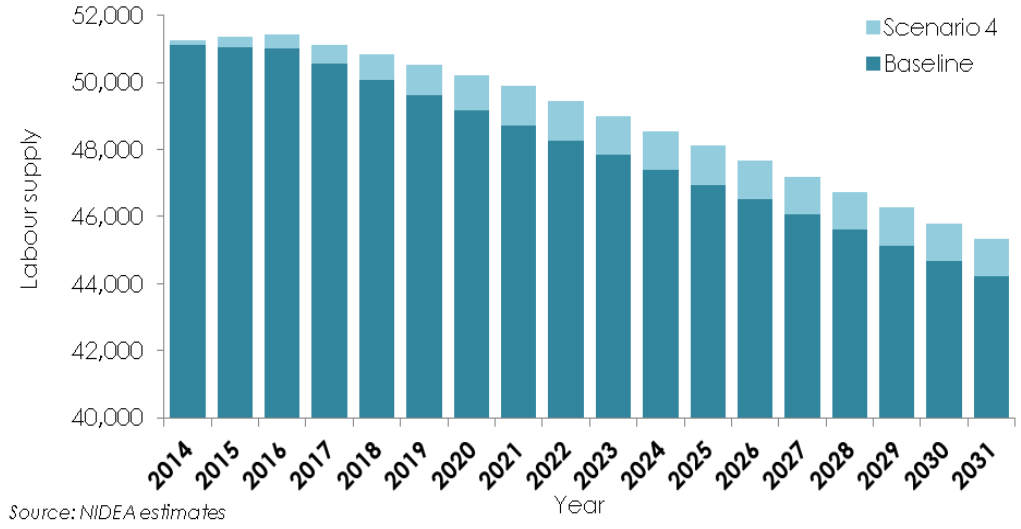
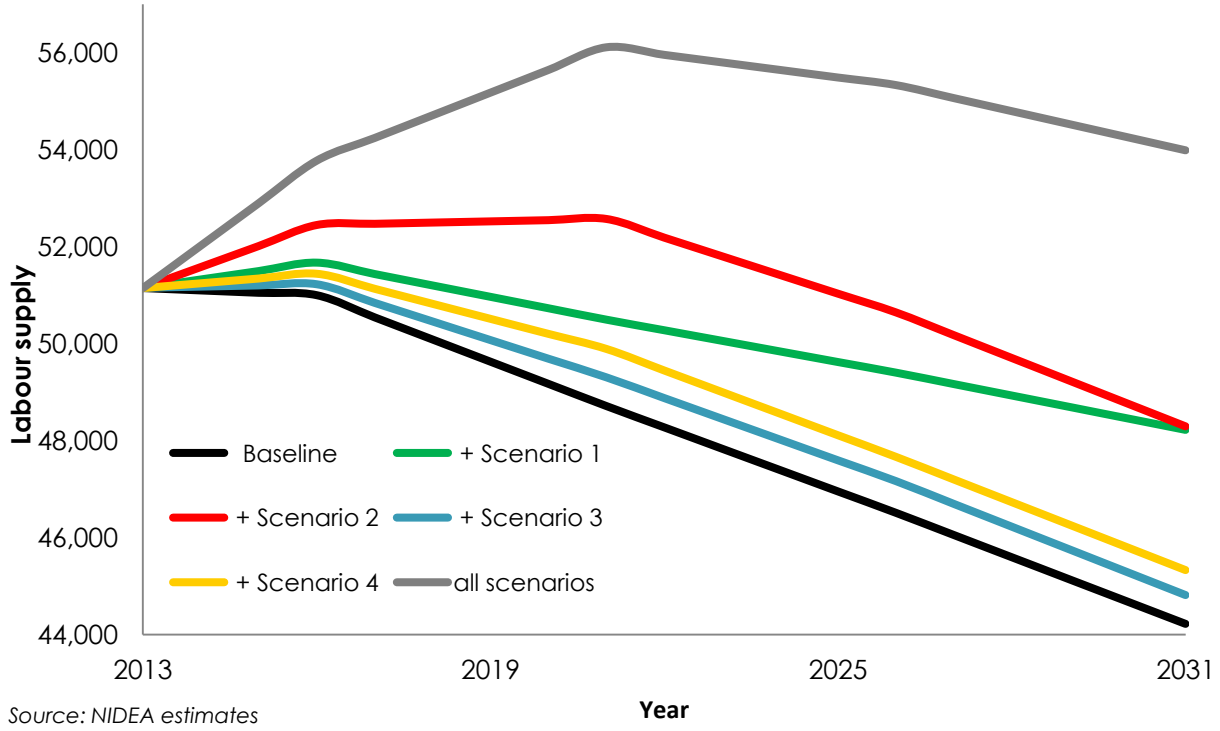


Figure 3.10 shows the total impact of each of the four scenarios in comparison to the baseline projection, and also includes a hypothetical upper bound from realising all four scenarios at once (the 'all scenarios' series).

Figure 3.10: Comparison of labour supply under each scenario and all scenarios combined



Source: NIDEA estimates

Summary of labour supply

There is some indication that the Southland Region is already facing labour supply shortages in key areas. Based on the NIDEA projection model, it appears that by 2016 this shortage will begin to be generalised across industries and occupations as individuals leaving the labour force through structural ageing will increasingly not be replaced by new workers moving into the labour force. The baseline scenario suggests that the absolute number of labour supplied in the Southland Region may fall by 13 per cent from 2016 through to 2031.

The tested scenarios suggest that completely offsetting the impact of structural ageing is likely to be very challenging, and even an optimistic outcome from changes in preference and successfully attracting migrants is unlikely to fully offset the decline in the absolute size of the workforce. Two modelled scenarios which appeared to have a particularly large impact on reducing the decline in labour supply was the increases in net migration (either through reduced leavers or increased arrivals) and increased labour force participation by people in 65 and over age group. However, while Scenarios 2 and 4 (increased participation by women and people aged 55 and over) require a change in the preferences of the working age population in the Southland Region, which may be difficult to influence through local government policy and initiatives, scenarios 1 and 3 (increased migration, increased youth participation) are likely to be directly applicable to the initiatives and policies which could be developed locally, such as overseas recruitment drives and supporting migrant communities and assisting young people transition into the labour market, and in particular into meaningful work.

3.2 Labour demand

This section will provide estimates from a model of labour demand for the Southland Region over the 2014 to 2031 period. While historic change in industry and business trends allow for some understanding of the future demand for labour, the reasons for growth in industries and changes in employment are very complex, and include many factors which are not easily modelled. In addition, businesses are able to reactive to changing economic conditions, meaning that reactions to the challenges posed by the falling labour supply observed in section 3.1 are likely to be evident and not captured in the base model. All findings in this section should, therefore, be considered with a high degree of uncertainty, as they show what demand could look like should business conditions in the future look like business conditions today.

For simplicity, in this report we interpret labour demand to be the sum of the number of positions which are filled, and the number of positions which are vacant within the Southland Region at any given time. This may differ from other measures of labour demand, which consider hours of work or FTE rather than employees, or which vary across other dimensions (such as wages).

In contrast to the labour supply model, which drew on labour force participation rates, the labour demand model presented here draws on employment rates as a measure of the number of jobs in the Southland Regional economy. The model also utilises demographic and business data obtained primarily from Statistics New Zealand and NIDEA collections.

The labour demand projections in this report assume that business conditions, including real wages and labour productivity, remain relatively constant over the modelled time period. Business cycles are not explicitly modelled, however, historic averages used appear to cover two recent cycles (2001-05, 05-08) which provides some confidence that the trend averages are robust to some variation.

Projections of labour demand

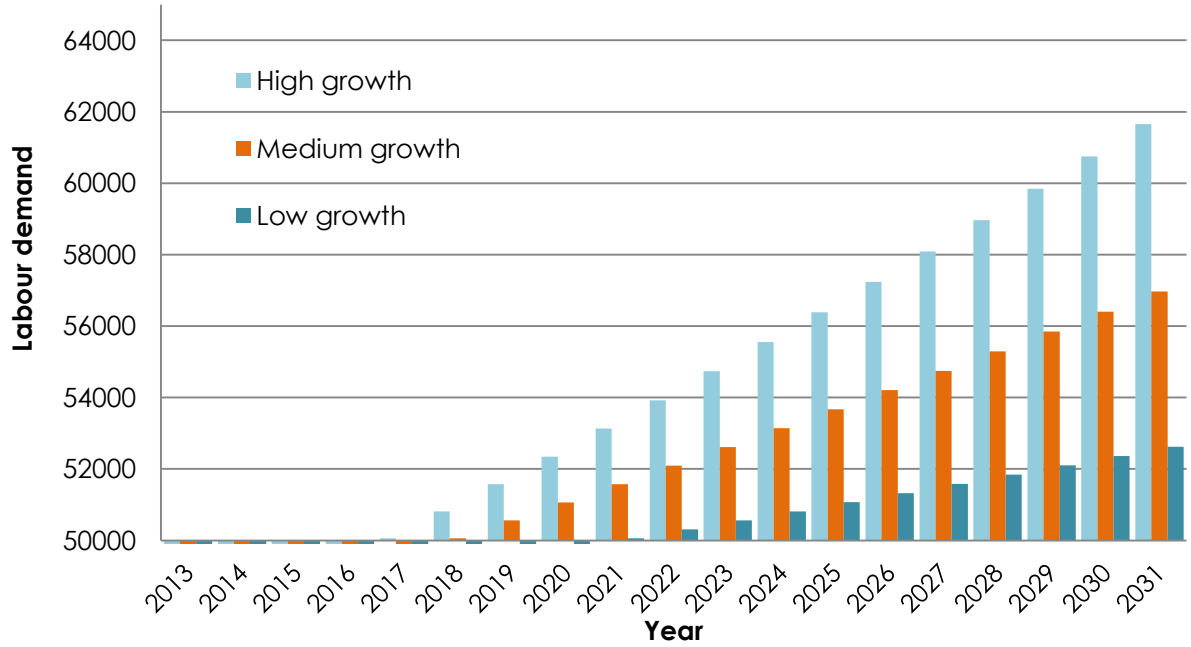
Since the 2007 Labour market assessment report, employment in the Southland Region appears to have passed a complete cycle, rising from 48,000 in 2007 to a peak of 52,500 in 2012, and falling again to the current rate of 48,200 (Household Labour Force Survey, adjusted to 2006 Census and 2013 Census. However, the rate of decline has started to slow and may be approaching an up-swing, with an approximate 350-500 vacancies open across the Southland Region.

To model the future for demand for labour, we begin with a baseline level of labour demand in the economy in 2013, assumed to be the sum of those employed (48,084) and open vacancies (estimated at 500). This is demand for employees is then modelled out to 2031 using three simple growth assumptions. Each assumption assumes that from the current near-zero rate of growth,

labour demand will rise 2015 and reach a constant rate by 2021, after which time it will average at one of the three growth estimations. In the low estimation, this growth is averaged at 0.5 per cent per annum from 2021, approximating the ten year average for the region. Under the medium estimation, growth rises to 1 per cent per annum, which is similar to the rate which has been estimated for Southland in several publications (Infometrics, 2008, 2011) and indicated by the Venture Southland team. Finally, we estimate a high scenario, with growth rising to 1.5 per cent per annum by 2021.

Figure 3.10 presents the results of the three growth assumptions for the Southland Region. Under these scenarios, labour demand remains relatively stable under until 2017 at approximately 49,500 employees. By 2023, the high growth estimate suggests labour demand of approximately 54,500, while medium growth is 52,500 and low growth sits near 50,500. By 2031, the estimated labour demand is estimated to be between 52,500 with low average growth and 61,500 with high average growth.

Figure 3.11: Growth in labour force demand, 2014-2031



Source: NIDEA estimates

Compared to the findings of the 2007 Southland labour market report, the labour demand growth modelled in this report is much more conservative. This is likely due to the 2007 report preceding several years of strong employment growth, whereas the recent decline in employment and relatively cool employment market are expected to take several years to return to the growth averages.

Greenfield investment and additional employment growth

The baseline labour demand model captures the 'business as usual' growth in employment from economic activity. However, where large new developments occur which result in one off shocks to employment in the region these are unlikely to be captured by the projection model and may increase labour demand beyond what is modelled. Following the Southland labour market workshop and through consultation with Venture Southland, several new projects were identified for the Southland Region which if initiated are likely to increase labour demand above the current baseline, and these are presented in Table 3.2.

Table 3.2: New projects and suggested FTE impact

Project	FTE impact	Year completed	Greenfield in 2014?
Dairy sector growth	1050	2023	No
Construction project	500	2023	No
Silicon smelting	350	2020	Yes
Oil & Gas exploration	200	2018	Yes
Remote working	150	2018	?
Food processing plant	75	2017	Yes
Biotech science and research	100	2015	Yes
Minerals based manufacturing	40	2015	Yes

Source: Venture Southland estimates

While all of these projects could potentially be considered 'greenfield', both Dairy sector growth and construction projects such as the Christchurch rebuild should be captured in the 'business as usual' demand model as they have been occurring over the last several years and, therefore, their trends are observed in the Statistics New Zealand employment data used in these projections. However, other projects such as the Silicon smelter, Oil and Gas exploration and the new food processing plant may be considered greenfield developments in our projections as no precedent for their impact is present in the data. Assuming these developments generate more employment than the natural greenfield development that has occurred than has been observed recently then a rise in labour demand greater than what is modelled should be considered. Table 3.3 presents the numeric growth rate for the low (0.5 per cent p.a.), medium (1 per cent p.a.) and high (1.5 per cent p.a.) models along with the impact of the proposed greenfield investment signalled by Venture Southland.

Table 3.3: Labour demand growth per annum.

Year	Low growth	Medium growth	High growth	Greenfields
2014	49	97	146	311
2015	97	195	292	171
2016	146	293	441	171
2017	196	393	594	146
2018	245	496	751	58
2019	247	501	762	58
2020	248	506	774	0
2021	249	511	785	0
2022	250	516	797	0
2023	252	521	809	0
2024	253	526	821	0
2025	254	531	833	0
2026	255	537	846	0
2027	257	542	859	0
2028	258	547	871	0
2029	259	553	884	0
2030	260	558	898	0
2031	262	564	911	0

Source: NIDEA estimates

Potential shocks from industry decline and disinvestment

The Southland Regional economy appears to have diversified over the past decade, making the local labour market comparatively more resilient to demand shocks from disinvestment. However, there remains a few sectors or employers which, due to their size and/or economic impact, may create a market shock should there be declines or disinvestments, which in turn could potentially have a large negative impact on the labour market. In particular, closure of the Tiwai Point Aluminium Smelter and declines in the Agricultural sector due to their exposure to largely exogenously determined markets and role in the local economy fit into this category. In addition to the direct impact of shocks to these employers, a subsequent second order shocks to the general Southland economy and Retail sector through reduced consumption and investment is also of concern.

Infometrics (2012) completed a comprehensive review of the potential economic impact of the closure of the Tiwai Point Aluminium Smelter. The smelter manufactures high-purity aluminium for export markets, with an estimated economic impact of $450-$550 million per annum on Southland Regional GDP, approximately 10 per cent of the regions GDP. The smelter is a large direct and indirect employer within the Southland Region, with a staff of approximately 750-800. It is estimated to generate an additional 2400-3200 FTE worth of employment through indirect employment with firms contracting to the plant, as well as the effect the contribution to the economy has on consumption and investment expenditure, which in turn creates employment, for example in the retail sector (Infometrics, 2012).

There has been uncertainty around the future of the smelter, with employment declining from over 1,500 in the early 1990s to around 1,000 at the turn of the century. However, employment at current levels has been stable over the 2001-2013 period considered in the modelling of labour demand and supply in this report, meaning that no trend in employment change at the smelter is controlled for in the projections, and therefore a shock is not offset in the other projections.

The impact of the smelter closing is difficult to estimate. To illustrate a potential outcome of the closure on the findings of this report, we drawing heavily on the findings of the Infometrics (2012) report, and combine these with our estimates of labour demand and supply. Assuming the smelter ceases operations sometime between 2016 and 2019, demand for labour is estimated to decrease by approximately 2,420 positions compared to the medium labour demand scenario in Table 3.3 above, equivalent to a 5 per cent decline in labour demand. This is likely to be coupled by an increase of out-migration from the Southland Region by approximately 2 per cent (950 labour force participants). Table 3.4 below shows the estimated impact of the smelter closure on the labour market, and the difference relative to the medium projections in this report.

Table 3.4 Estimated impact of Tiwai Point closure on projected labour demand and supply

	Labour market with closure (Medium projection base)			Change from medium demand projection	
Year	Supply	Demand	Difference	Supply	Demand
2016	51,004	49,169	1,835	0	0
2021	47,750	49,150	-1,400	-970	-2,425
2026	45,600	51,650	-6,050	-915	-2,550
2031	43,350	54,300	-10,950	-875	-2,670

Source: Infometrics and NIDEA estimates

There is a very high degree of uncertainty around the findings of Table 3.4. However, one conclusion which was robust to several different specifications was that there will remain a labour shortage in the Southland Region beyond 2021 even with the closure of the smelter removing 2,400 positions from the labour market. Despite this, the loss of the high wage positions at the smelter, the ability for smelter employees to transfer their skills to other employment positions, and the social and community impacts of the smelter closure and subsequent out-migration of families all mean that the smelter closure is likely to have a severe adverse impact on the Southland Region, even if there are positions available for workers to fill.

Labour demand by industry

Under the three growth scenarios, labour demand is expected to grow to from 48,500 in 2014 to between 50,500 and 54,650 by 2023. We project labour demand to 2023 rather than 2031 here due to the high volatility in labour demand by industry and occupation, meaning that projections out to 2031 at this level would likely be too inaccurate to be meaningful.

Tables 3.5 and 3.6 provide the estimated labour demand and growth in labour demand for the 2013 to 2023 period. In all scenarios, strong growth is recorded in the Mining, Electricity, Gas and Water, Construction as well as Health and community services industries. While the absolute growth in several of these industries is small due to the few people currently employed in the industry, both Construction and Health and Community Services are large industries in the Southland Region's labour market. It is, however, possible that the Construction industry will begin to slowdown in growth as the rebuilding of Christchurch slows near the end of the decade.

Table 3.5: Projected labour demand by industry, 2013-2023

Industry	Employment	Employment 2023		
ANZSIC96 lvl1	2013	Low	Medium	High
Agriculture, Forestry and Fishing	9422	9,705	10,098	10,506
Mining	179	232	241	251
Manufacturing	6351	4,473	4,654	4,842
Electricity, Gas and Water Supply	130	164	171	178
Construction	3247	4,278	4,451	4,631
Wholesale Trade	1867	1,886	1,963	2,042
Retail Trade	5502	5,668	5,898	6,136
Accommodation, Cafes and Restaurants	2122	2,205	2,295	2,387
Transport and Storage	1949	2,093	2,178	2,266
Communication Services	288	251	261	272
Finance and Insurance	1109	1,254	1,305	1,357
Property and Business Services	3283	3,831	3,986	4,147
Government Administration and Defence	1122	1,172	1,219	1,268
Education	2989	3,216	3,346	3,481
Health and Community Services	4444	5,628	5,856	6,092
Cultural and Recreational Services	903	1,039	1,081	1,125
Personal and Other Services	1743	1,989	2,070	2,154
Unallocated	1934	1,479	1,539	1,601
Total	**48584**	**50562**	**52612**	**54734**

Source: NIDEA estimates

Table 3.6: Projected growth in labour demand by broad industry, 2013-2023

Industry	Employment growth (% p.a.)			Employment growth (persons)		
ANZSIC96 lvl1	Low	Medium	High	Low	Medium	High
Agriculture, Forestry and Fishing	0.3%	0.7%	1.2%	283	677	1,084
Mining	2.9%	3.5%	4.0%	53	62	72
Manufacturing	-3.0%	-2.7%	-2.4%	-1,878	-1,697	-1,509
Electricity, Gas and Water Supply	2.6%	3.1%	3.6%	34	40	47
Construction	3.2%	3.7%	4.3%	1,031	1,205	1,384
Wholesale Trade	0.1%	0.5%	0.9%	19	95	175
Retail Trade	0.3%	0.7%	1.2%	166	396	634
Accommodation, Cafes and Restaurants	0.4%	0.8%	1.2%	83	173	265
Transport and Storage	0.7%	1.2%	1.6%	144	229	317
Communication Services	-1.3%	-0.9%	-0.6%	-37	-27	-16
Finance and Insurance	1.3%	1.8%	2.2%	144	195	248
Property and Business Services	1.7%	2.1%	2.6%	548	703	864
Government Administration and Defence	0.4%	0.9%	1.3%	50	98	147
Education	0.8%	1.2%	1.6%	227	357	492
Health and Community Services	2.7%	3.2%	3.7%	1,184	1,412	1,648
Cultural and Recreational Services	1.5%	2.0%	2.5%	136	178	222
Personal and Other Services	1.4%	1.9%	2.4%	246	327	411
Unallocated	-2.4%	-2.0%	-1.7%	-455	-395	-333
Total	**0.4%**	**0.8%**	**1.3%**	**1978**	**4028**	**6150**

Source: NIDEA estimates

Labour demand by occupation

Tables 3.7 and 3.8 below shows the projected employment and growth in employment by broad occupation between 2014 and 2023. In all scenarios, the strongest growth is seen in the highly skilled tertiary sector occupations, particularly Professionals, Technical and Associated Professionals and Legislators, Administrators and Managers. This is largely due to both growth in the service industries but also the increasing mechanisation of the workplace. Strong growth is also estimated for Labourer and Elementary occupations in all scenarios, driven primarily by construction projects and a shift towards general labouring as seen in section 2.5.

There is comparatively weak or negative growth in the Agricultural and Fisheries workers, Clerks, Trade workers as well as Service and Sales worker occupation categories, while the only strong decline seen is in Plant and Machine operators, with labour demand falling from 5,520 in 2013 to between 4,200 and 4,500 by 2023, although several of the proposed greenfield projects are manufacturing based such as the Oats processing plant, and this may offset some of these losses.

Table 3.7: Projected labour demand by occupation, 2013-2023

Occupation	Employment	Employment 2023		
NZSCO99 lvl1	2013	Low	Medium	High
Legislators, Administrators and Managers	5086	6,105	6,353	6,609
Professionals	5332	6,459	6,721	6,992
Technicians and Associate Professionals	4598	5,856	6,094	6,339
Clerks	3751	3,297	3,431	3,570
Service and Sales Workers	6448	6,530	6,794	7,069
Agriculture and Fishery Workers	8006	7,613	7,921	8,241
Trade Workers	3949	4,227	4,399	4,576
Plant/Machine Operators	5520	4,206	4,376	4,553
Labourers/Elementary occupations	3494	4,108	4,275	4,447
Other	2402	2,161	2,248	2,339
Total	**48584**	**50562**	**52612**	**54734**

Source: NIDEA estimates

Table 3.8: Projected growth in labour demand by broad occupation, 2014-2023

Occupation	Employment growth (% p.a.)			Employment growth (persons)		
NZSCO99 lvl1	Low	Medium	High	Low	Medium	High
Legislators, Administrators and Managers	2.0%	2.5%	3.0%	1,019	1,267	1,523
Professionals	2.1%	2.6%	3.1%	1,127	1,389	1,660
Technicians and Associate Professionals	2.7%	3.3%	3.8%	1,259	1,496	1,742
Clerks	-1.2%	-0.9%	-0.5%	-454	-320	-182
Service and Sales Workers	0.1%	0.5%	1.0%	82	347	621
Agriculture and Fishery Workers	-0.5%	-0.1%	0.3%	-394	-85	234
Trade Workers	0.7%	1.1%	1.6%	279	450	627
Plant/Machine Operators	-2.4%	-2.1%	-1.8%	-1,314	-1,143	-966
Labourers/Elementary occupations	1.8%	2.2%	2.7%	614	781	953
Other	-1.0%	-0.6%	-0.3%	-241	-154	-63
Total	**0.4%**	**0.8%**	**1.3%**	**1977**	**4028**	**6149**

Source: NIDEA estimates

Projections of occupational replacement

Job openings in an occupation are a result of both employment growth (new demand) and the need to replace workers who leave the occupation (replacement demand). Estimations were conducted following the methodology utilised by Infometrics (2008) and Shah and Burke (2001), with adjustments for the seven year gap between 2006 and 2013 using an estimated 2011 population and the medium employment growth by occupation series estimated by NIDEA. No adjustments are made here for changes in propensity to be employed by occupation or migration.

Table 3.9: Estimated Net replacement demand rate and openings by broad occupation.

Occupation	2006-2011		2011-2016		2016-2021	
	Rate (%)	Openings (n)	Rate (%)	Openings (n)	Rate (%)	Openings (n)
Legislators/Managers	*2.7*	135	*3.0*	145	*3.0*	145
Professionals	*3.0*	155	*3.3*	170	*3.1*	150
Associate prof./ Technicians	*2.4*	105	2.6	115	2.6	110
Clerks	*1.7*	60	*1.8*	65	*1.9*	65
Service/Sales workers	*2.8*	175	*2.9*	180	*3.1*	185
Agriculture/Fisheries workers	*2.3*	185	*2.7*	210	2.6	195
Trade workers	*2.7*	100	*2.7*	100	*2.9*	105
Plant/Machinery operators	*0.3*	15	*0.1*	5	*0.0*	0
Elementary occupations	*2.2*	75	*2.3*	75	*2.5*	80
Total	**2.1**	**1005**	**2.3**	**1065**	**2.3**	**1035**

Source: NIDEA estimates

Table 3.9 suggests that the annual replacement demand was 2.1 per cent of the workforce, meaning 1,005 workers were needed to replace those leaving their current occupations. This rate is expected to rise to 2.3 per cent for the 2011-2016 and 2016-2021 periods. The openings by occupation remain relatively stable over the modelled period. The openings for Clerk and Plant/Machinery operator occupation categories are lowered due to projected decline in employment in these occupations. The occupations with the greatest requirement for replacement labour include Professionals, Legislators/Managers and Service/Sales workers.

Projections of qualification demand

Qualification demand by 2023 is estimated firstly by finding the net labour demand by taking the net replacement demand (adjusted to 2014-2023 estimates) and medium series net new demand from 2014-2023 for each NZSCO99 occupation group (including declining groups). This, multiplied by the 2006 Census occupation/qualification matrix for the Southern Region provides an estimate of the demand for labour by qualification between 2014 and 2023. These values represent broad estimates of the sum of the types of qualifications which will be demanded to fill vacancies left either through replacement demand (approximately one third) or new jobs created (approximately two thirds) by 2023.

Table 3.10: Estimated labour demanded by qualification in 2023.

Qualification level	Labour demand	Percentage
No Qualification	900	14%
Level 1,2 or 3 Certificate	1,900	30%
Level 4 Certificate	1,000	16%
Level 5 or 6 Diploma	950	15%
Degree (inc Honours)	1,200	19%
Masters/PhD	350	6%
Total	**6,300**	**100%**

Source: NIDEA estimates

Table 3.10 presents the aggregate results from the qualification demand estimations. These results suggest that Level one to three Certificates are the qualification which will be most sort after by employers. While this appears to be a qualification level desirable across the spectrum of occupations, it is particularly likely to be demanded by managers in the retail, service or hospitality sectors, and specialized managers. Elementary occupations were by far the largest occupation group which will seek employees with no formal qualification, and Level four Certificates are demanded primarily in both Trade and Technician positions. Diploma, Degree and Post-graduate qualifications were all required primarily to meet the growth and replacement in the associate professional, professional and managerial occupations. In particular, growth in Education, Health and Specialised management positions are all likely to place demand on appropriate Degree level qualifications.

3.3 The balance between supply and demand

This section draws together the analysis on the future demand for labour and the supply of labour in the Southland Region. Table 3.11 presents the expected baseline supply and demand for labour over the 2014-2031 period, with the net impact presented in the balance column.

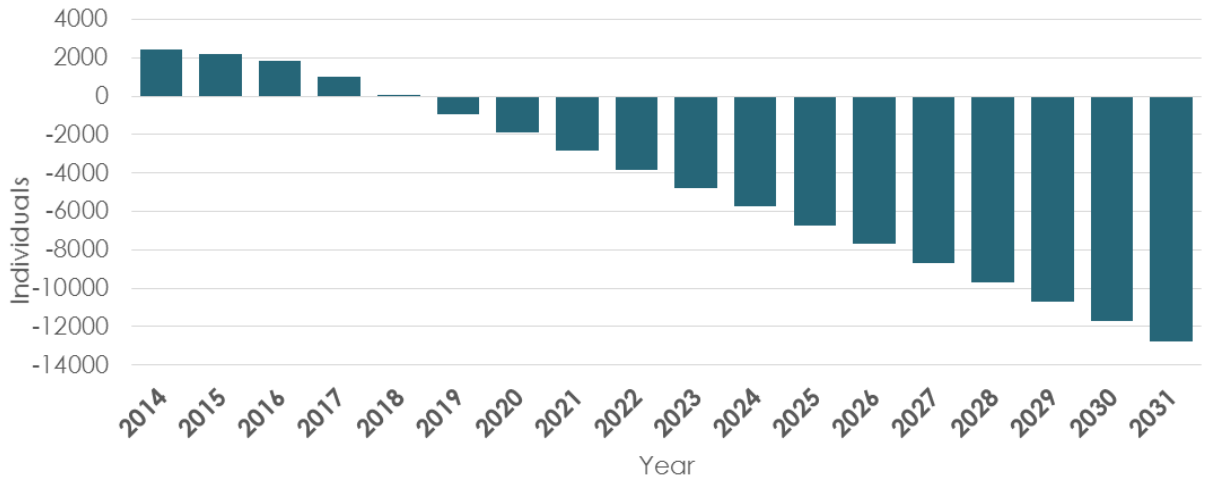
Table 3.11: Labour market impact of changes in supply and demand for labour, 2014-2031

Year	Baseline supply	Medium demand	Balance
2014	51,102	48,681	2,421
2015	51,053	48,876	2,177
2016	51,004	49,169	1,835
2017	50,547	49,563	984
2018	50,089	50,058	31
2019	49,632	50,559	-926
2020	49,175	51,064	-1,889
2021	48,718	51,575	-2,857
2022	48,277	52,091	-3,813
2023	47,837	52,612	-4,775
2024	47,396	53,138	-5,741
2025	46,956	53,669	-6,713
2026	46,515	54,206	-7,690
2027	46,057	54,748	-8,691
2028	45,599	55,295	-9,696
2029	45,141	55,848	-10,707
2030	44,683	56,407	-11,724
2031	44,225	56,971	-12,746

Source: NIDEA estimates

As can be seen, in 2014 there is a slight surplus of workers offering labour in the Southland Region's labour force compared with the medium-series baseline demand. Due primarily to population ageing, there is a consistent decrease in baseline labour supply from 2014, resulting in a shortage of labour in 2019, which is expected to increase annually throughout the modelled period, even with rising labour participation rates. In contrast, labour demand over the period increases year-on-year due to economic expansion, resulting in an increasingly widening gap between labour supply and labour demand. The turning point in this projection model occurs in 2018, where demand for labour outstrips supply. This trend continues under both 'business as usual' baseline scenarios, and in 2031 there is a shortfall of over 14,000 individuals, or almost a quarter of jobs in the market place remaining unfilled. This relationship can be seen graphically in Figure 3.12.

Figure 3.12: Labour supply less labour demand, 2014-2031.



Source: NIDEA estimates

While the shortfalls in employment predicted by the baseline models are very large, they assume that no adjustments or strategies are utilized to overcome some of the challenges. It is highly likely that with the situation modelled above, there would be strong growth in wages as firms compete for increasingly scares labour. This rise in wages coupled with an inability to fill some positions should result in increased job destruction as positions where the average production value of labour is below the rising wage or where rising wage bills make substitution away from labour towards capital intensive production methods feasible. In addition, small businesses may close or merge to take economies of scale as new employees or new business owner-operators are not easily accessible in the market.

While these scenarios may depress labour demand, labour supply may also be adjusted through strategic investment and incentives in growing the baseline population. In particular, attracting migrants into the Southland Region as seen in Scenario 1 may have a dramatic impact on labour supply. Through increasing labour force participation, both with early child care and flexible work hours to allow greater participation among families and greater flexibility and changing workplaces to make them more suitable for older people are two approaches which may negate the labour supply concerns.

There is also the possibility that the economy will be constrained through the lack of employees, and the growth potential which has been observed for the Southland Region will not be achieved as development is held back by a lack of labour.

Overall, there is a clear need for the Southland Region to develop plans collaboratively to facilitate greater labour supply to meet the labour demand required to continue to experience economic growth. This is particularly urgent as other regions and other countries are facing similar challenges to the Southland Region, and many strategies will be increasingly difficult to implement in an environment of high competition for labour globally.

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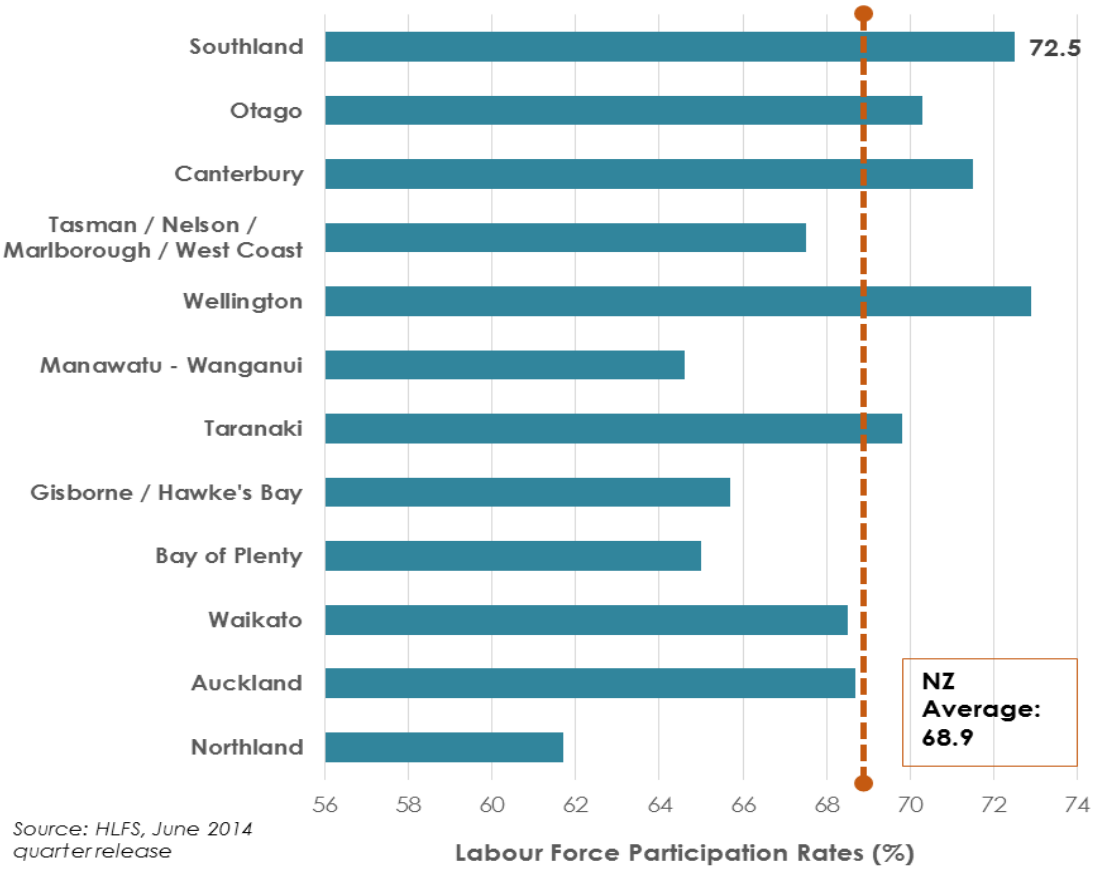
Appendices

Figure A1: Labour force participation rates by region, 2014



Source: HLFS, June 2014 quarter release

Table A1: Work and Labour Force Status of population aged 15+ years, Southland Region and TAs

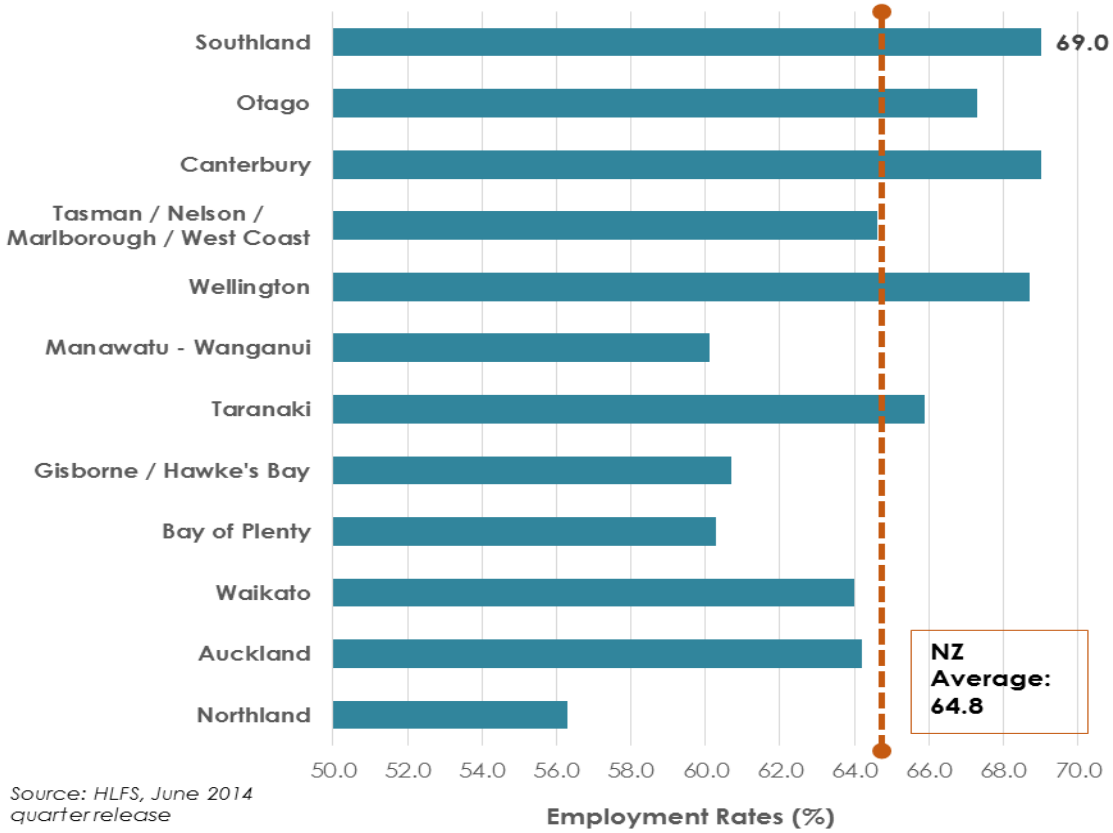
	Southland District			Gore District			Invercargill City			Southland Region		
	2001	2006	2013	2001	2006	2013	2001	2006	2013	2001	2006	2013
Employed	15,984	16,527	16,503	6,369	6,354	6,093	22,905	25,335	25,488	45,261	48,216	48,084
Unemployed	453	330	441	219	198	246	1,869	1,401	1,677	2,541	1,926	2,364
Not in the Labour Force	5,217	4,842	5,349	2,991	2,820	2,955	13,488	12,456	12,813	21,696	20,118	21,120
Work & LF Status Unidentifiable	378	297	786	60	180	330	504	861	1,464	939	1,338	2,580
Total 15+ population	22,032	21,993	23,079	9,642	9,549	9,624	38,769	40,050	41,442	70,437	71,595	74,145
LF Participation Rate (%)	75.9	77.7	76.0	68.8	69.9	68.2	64.7	68.2	67.9	68.8	71.4	70.5
Employment Rate (%)	73.8	76.2	74.0	66.5	67.8	65.6	59.9	64.6	63.8	65.1	68.6	67.2
Unemployment Rate (%)	2.8	2.0	2.6	3.3	3.0	3.9	7.5	5.2	6.2	5.3	3.8	4.7

Note: All rates calculated by excluding the population with 'Work and LF Status Unidentifiable'

Table A2: Number of people in the labour force by age group, Southland Region

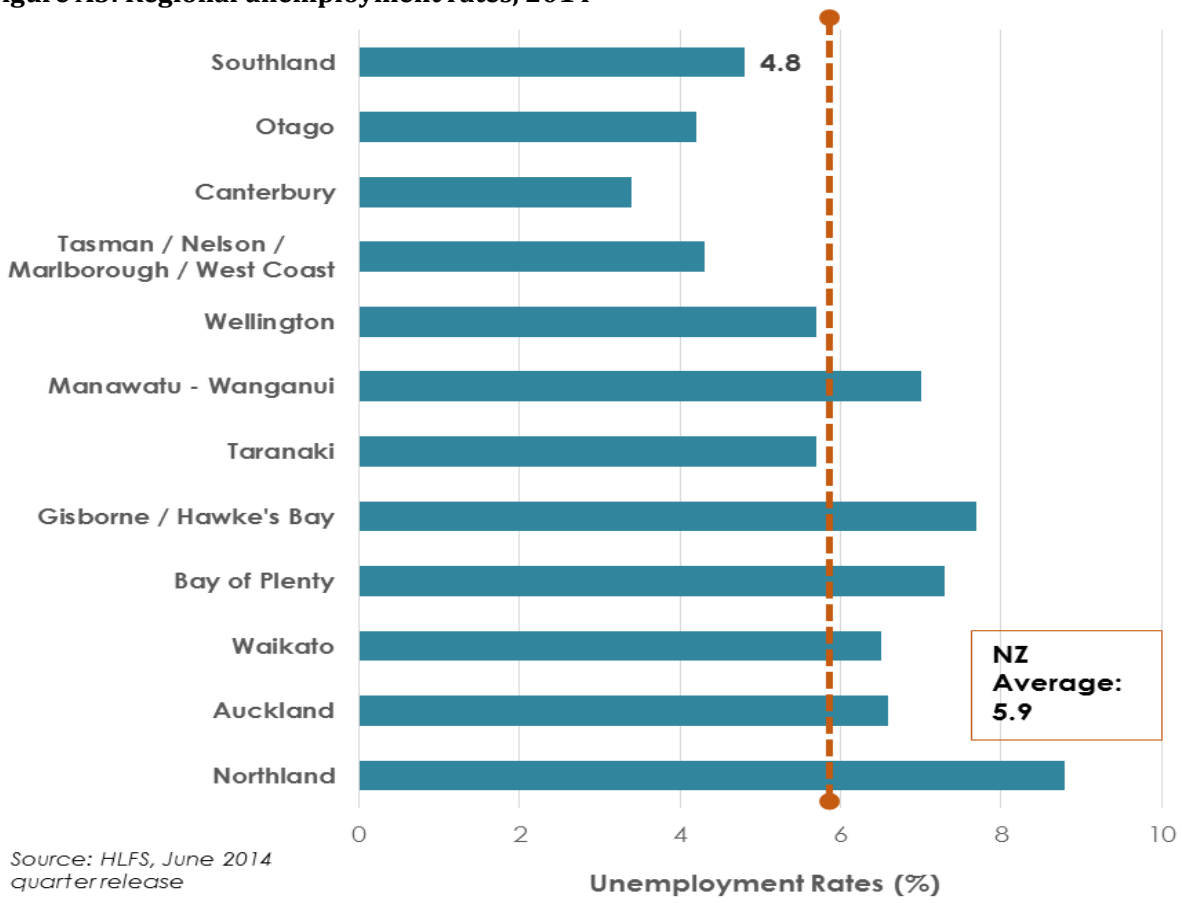
Age Group	Employed						Unemployed						Labour Force					
	2001			2013			2001			2013			2001			2013		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-19	1,809	1,503	3,312	1,476	1,245	2,721	303	390	693	246	276	522	2,112	1,893	4,005	1,722	1,521	3,243
20-24	1,983	1,449	3,429	2,115	1,680	3,798	186	204	390	186	228	414	2,169	1,653	3,819	2,301	1,908	4,212
25-29	2,274	1,776	4,050	2,187	1,836	4,020	120	174	294	102	156	255	2,394	1,950	4,344	2,289	1,992	4,275
30-34	2,577	2,127	4,704	2,154	1,887	4,041	93	129	222	81	150	228	2,670	2,256	4,926	2,235	2,037	4,269
35-39	3,237	2,784	6,024	2,466	2,100	4,563	96	120	213	75	120	192	3,333	2,904	6,237	2,541	2,220	4,755
40-44	3,255	2,919	6,174	2,679	2,547	5,226	93	126	216	66	117	183	3,348	3,045	6,390	2,745	2,664	5,409
45-49	2,973	2,553	5,526	2,841	2,754	5,595	96	90	186	66	84	150	3,069	2,643	5,712	2,907	2,838	5,745
50-54	2,700	2,193	4,893	2,994	2,925	5,925	72	63	132	72	75	147	2,772	2,256	5,025	3,066	3,000	6,072
55-59	1,914	1,428	3,345	2,613	2,382	4,998	72	51	123	63	63	126	1,986	1,479	3,468	2,676	2,445	5,124
60-64	1,374	858	2,232	2,130	1,650	3,783	42	18	60	69	42	108	1,416	876	2,292	2,199	1,692	3,891
65-69	552	279	834	1,170	828	1,998	3	3	6	12	12	24	555	282	840	1,182	840	2,022
70-74	300	132	429	555	306	861	3	-	3	3	-	3	303	132	432	558	306	864
75-79	120	69	186	225	111	339	-	-	-	6	-	6	120	69	186	231	111	345
80-84	48	36	81	108	42	156	3	-	-	-	-	-	51	36	81	108	42	156
85+	27	18	48	39	33	72	-	3	3	-	-	-	27	21	51	39	33	72
Total (15+)	25,140	20,121	45,261	25,752	22,332	48,084	1,170	1,368	2,541	1,038	1,323	2,364	26,310	21,489	47,802	26,790	23,655	50,448

Figure A2: Regional employment rates, 2014



Source: HLFS, June 2014 quarter release

Figure A3: Regional unemployment rates, 2014



Source: HLFS, June 2014 quarter release

Table A3: Industries in the Southland region employing more than 300 people across the region in 2013

Southland Region	Number employed			% Change 2001 -2013	Average age (in years)			% Change 2001 -2013	Entry(15-29yrs): Exit(55+ yrs) Ratio			% Change 2001-2013
	2001	2006	2013		2001	2006	2013		2001	2006	2013	
Grain, Sheep & Beef Cattle Farming	4,338	4,257	3,504	**-19.2**	45.1	46.6	48.2	**+6.9**	0.6	0.4	0.4	**-31.1**
Dairy Cattle Farming	1,695	2,022	3,096	**+82.7**	36.0	36.6	37.5	**+4.2**	4.2	3.7	3.1	**-24.5**
Meat & Meat Product Manufacturing	3,003	2,655	2,124	**-29.3**	40.0	41.4	43.7	**+9.3**	2.1	1.4	0.9	**-58.9**
School Education	1,983	1,968	1,929	**-2.7**	43.7	43.9	46.3	**+6.0**	0.9	0.8	0.4	**-53.9**
Community Care Services	969	1,269	1,452	**+49.8**	45.3	46.0	47.5	**+4.9**	0.6	0.5	0.4	**-31.9**
Supermarket & Grocery Stores	1,296	1,317	1,401	**+8.1**	32.3	34.4	37.5	**+16.2**	8.2	3.9	2.2	**-72.9**
Services to Agriculture	933	1,092	1,221	**+30.9**	36.9	38.2	40.2	**+9.0**	3.1	2.2	1.6	**-50.4**
Hospitals & Nursing Homes	813	822	1,047	**+28.8**	42.7	44.4	46.5	**+8.8**	1.1	0.7	0.5	**-56.0**
Government Administration	984	1,035	1,038	**+5.5**	43.6	43.8	46.9	**+7.5**	0.7	0.8	0.4	**-36.2**
Other Health Services	915	864	999	**+9.2**	44.0	45.5	48.7	**+10.6**	0.8	0.5	0.3	**-65.8**
Motor Vehicle Services	867	999	939	**+8.3**	37.3	38.5	41.0	**+9.9**	3.1	2.2	1.5	**-51.3**
Road Freight Transport	888	894	870	**-2.0**	40.9	43.0	45.6	**+11.4**	1.7	0.8	0.5	**-68.2**
Accommodation	798	942	858	**+7.5**	40.1	41.5	43.1	**+7.6**	1.8	1.2	0.9	**-47.5**
Building Construction	522	891	837	**+60.3**	40.6	38.8	39.9	**-1.8**	1.5	2.3	1.7	**+11.5**
Cafes & Restaurants	744	831	774	**+4.0**	30.7	32.0	32.7	**+6.4**	10.6	7.5	5.5	**-48.0**
Other Personal Services	645	756	756	**+17.2**	36.8	40.0	41.5	**+12.9**	3.4	1.6	1.4	**-59.6**
Legal & Accounting Services	660	723	750	**+13.6**	38.5	39.4	42.3	**+9.9**	3.0	2.0	1.1	**-62.7**
Installation Trade Services	537	648	708	**+31.8**	40.3	40.2	41.9	**+4.0**	1.8	2.0	1.2	**-32.7**
Other Business Services	564	654	651	**+15.4**	42.7	44.7	44.6	**+4.5**	1.0	0.6	0.8	**-26.6**
Specialised Food Retailing	543	648	633	**+16.6**	35.2	35.7	36.2	**+3.1**	4.2	3.6	2.8	**-32.0**
Basic Non-Ferrous Metal Manufacturing	810	762	618	**-23.7**	42.6	44.6	48.2	**+13.2**	1.2	0.6	0.2	**-84.8**
Other Personal & Household Good Retailin	657	774	588	**-10.5**	40.0	40.3	42.9	**+7.1**	1.6	1.5	1.0	**-35.7**
Non-Building Construction	504	519	552	**+9.5**	41.8	42.7	44.1	**+5.6**	1.2	1.0	0.8	**-35.2**
Other Livestock Farming	909	675	534	**-41.3**	45.3	47.5	48.8	**+7.7**	0.5	0.4	0.4	**-28.0**
Public Order & Safety Services	387	429	501	**+29.5**	42.0	42.7	44.9	**+6.9**	1.0	0.8	0.5	**-48.6**
Property Operators & Developers	486	405	495	**+1.9**	43.4	44.6	44.8	**+3.1**	0.9	0.7	0.7	**-21.0**
Marketing & Business Management Service	408	624	465	**+14.0**	39.0	42.5	43.8	**+12.1**	2.1	1.1	0.8	**-59.8**
Deposit Taking Financiers	516	474	465	**-9.9**	39.5	39.1	42.1	**+6.4**	2.4	3.5	1.2	**-47.9**
Machinery & Equipment Wholesaling	399	414	459	**+15.0**	39.0	40.9	41.3	**+5.8**	2.1	1.6	1.4	**-33.4**
Department Stores	543	450	459	**-15.5**	34.8	36.6	38.9	**+11.7**	4.8	3.2	1.9	**-59.9**
Furniture, Houseware & Appliance Retailing	366	444	420	**+14.8**	41.4	38.8	43.4	**+4.8**	1.4	2.5	0.8	**-38.2**
Industrial Machinery & Equipment M/fg	327	408	417	**+27.5**	40.0	38.9	43.0	**+7.4**	1.8	2.1	0.9	**-47.6**
Dairy Product Manufacturing	339	300	408	**+20.4**	36.6	40.6	44.0	**+20.3**	6.2	1.7	0.8	**-87.9**
Medical & Dental Services	330	333	381	**+15.5**	43.6	45.9	49.4	**+13.2**	0.7	0.5	0.3	**-62.7**
Sport	273	324	378	**+38.5**	37.3	39.7	40.1	**+7.5**	2.7	1.9	1.6	**-38.9**
Building Completion Services	318	435	378	**+18.9**	40.7	41.0	42.5	**+4.6**	1.6	1.5	1.0	**-34.8**
Post School Education	264	291	375	**+42.0**	44.3	46.0	47.2	**+6.6**	0.6	0.4	0.4	**-37.3**
Pubs, Taverns & Bars	348	345	354	**+1.7**	36.6	34.7	34.2	**-6.7**	3.1	3.9	5.1	**+62.0**
Motor Vehicle Retailing	369	348	342	**-7.3**	37.8	38.9	44.0	**+16.3**	3.8	2.4	0.7	**-80.4**
Food, Drink & Tobacco Wholesaling	471	375	333	**-29.3**	40.4	42.6	45.4	**+12.5**	2.0	1.0	0.5	**-74.0**
Farm Produce Wholesaling	273	258	330	**+20.9**	40.6	42.6	44.8	**+10.2**	1.5	1.0	0.7	**-53.4**
Other Food Manufacturing	366	303	324	**-11.5**	38.1	42.6	44.4	**+16.5**	3.1	0.9	0.8	**-75.7**
Preschool Education	138	204	318	**+130.4**	40.5	40.1	40.3	**-0.6**	2.0	2.5	1.4	**-28.1**
Industries employing over 300 persons in 2013	33,498	35,181	35,481	**+5.9**								
Southland Region: Total Employed Labour Force	45,264	48,219	48,081	**+6.2**	40.8	41.7	43.7	**+7.1**	1.5	1.2	0.9	**-42.9**

Table A4: Top (in terms of no. of employees) 43 industries in New Zealand in 2013

New Zealand	Number employed			% Change 2001 -2013	Average age (in years)			% Change 2001 -2013	Entry(15-29yrs): Exit(55+ yrs) Ratio			% Change 2001-2013
	2001	2006	2013		2001	2006	2013		2001	2006	2013	
School Education	77,187	80,724	83,454	**+8.1**	44.0	45.1	47.0	**+6.9**	0.8	0.6	0.4	**-58.2**
Government Administration	47,421	53,514	63,774	**+34.5**	41.9	42.6	45.1	**+7.5**	1.2	1.0	0.6	**-51.6**
Hospitals & Nursing Homes	43,221	45,444	54,537	**+26.2**	42.3	44.2	45.8	**+8.4**	1.2	0.7	0.5	**-52.8**
Marketing & Business Management Service	38,529	53,388	54,090	**+40.4**	39.5	41.0	43.3	**+9.4**	2.1	1.4	0.9	**-58.5**
Other Business Services	44,043	52,431	52,779	**+19.8**	39.8	40.6	42.4	**+6.4**	1.9	1.5	1.1	**-42.5**
Community Care Services	37,203	43,254	52,698	**+41.6**	44.2	46.3	47.6	**+7.6**	0.7	0.5	0.4	**-42.8**
Cafes & Restaurants	42,441	50,337	52,206	**+23.0**	31.0	31.6	32.7	**+5.4**	9.7	7.6	6.1	**-37.0**
Supermarket & Grocery Stores	42,762	46,899	48,150	**+12.6**	31.4	33.1	36.3	**+15.8**	8.0	4.8	2.7	**-65.9**
Other Health Services	32,790	37,653	46,587	**+42.1**	43.4	44.4	46.6	**+7.3**	0.8	0.6	0.4	**-47.1**
Building Construction	28,713	46,344	44,553	**+55.2**	39.9	39.6	41.2	**+3.3**	1.8	1.8	1.3	**-27.6**
Dairy Cattle Farming	35,037	33,507	36,195	**+3.3**	40.4	40.9	41.6	**+2.9**	1.5	1.3	1.2	**-16.3**
Legal & Accounting Services	30,039	34,272	35,934	**+19.6**	40.2	41.7	44.0	**+9.4**	1.8	1.2	0.8	**-54.2**
Specialised Food Retailing	28,482	34,122	35,307	**+24.0**	34.2	33.8	35.1	**+2.6**	5.1	4.8	3.8	**-25.7**
Grain, Sheep & Beef Cattle Farming	36,621	38,634	33,330	**-9.0**	46.1	47.8	50.1	**+8.6**	0.5	0.4	0.3	**-40.4**
Computer Services	18,348	25,980	32,910	**+79.4**	36.6	38.3	40.5	**+10.6**	5.6	3.0	1.8	**-68.4**
Motor Vehicle Services	33,498	37,044	32,433	**-3.2**	36.9	38.4	41.7	**+12.9**	3.4	2.3	1.2	**-64.1**
Other Personal Services	26,445	30,939	32,217	**+21.8**	38.4	40.0	42.4	**+10.4**	2.5	1.6	1.1	**-55.0**
Other Personal & Household Good Retailir	29,991	35,895	32,103	**+7.0**	39.7	40.2	42.2	**+6.3**	1.8	1.5	1.1	**-35.7**
Installation Trade Services	24,168	31,380	31,515	**+30.4**	39.7	40.0	42.0	**+5.9**	2.0	1.8	1.2	**-38.9**
Technical Services	18,906	28,581	31,491	**+66.6**	41.4	41.6	43.2	**+4.4**	1.4	1.2	0.9	**-35.7**
Post School Education	24,873	26,391	30,063	**+20.9**	42.7	43.6	45.3	**+6.0**	1.1	0.8	0.6	**-44.3**
Accommodation	26,193	30,747	27,675	**+5.7**	39.3	40.0	42.5	**+8.2**	2.0	1.6	1.1	**-46.1**
Machinery & Equipment Wholesaling	25,896	27,126	27,117	**+4.7**	39.0	40.8	43.5	**+11.7**	2.4	1.5	0.8	**-64.7**
Public Order & Safety Services	16,491	20,064	25,296	**+53.4**	40.7	42.6	44.9	**+10.2**	1.6	0.8	0.6	**-64.6**
Deposit Taking Financiers	20,598	22,887	23,856	**+15.8**	37.6	38.7	40.8	**+8.7**	4.8	2.7	1.6	**-66.3**
Non-Building Construction	14,865	18,555	23,712	**+59.5**	41.5	42.3	43.8	**+5.5**	1.3	1.1	0.9	**-34.8**
Medical & Dental Services	16,680	19,677	23,208	**+39.1**	43.9	45.5	47.9	**+9.0**	0.7	0.5	0.3	**-51.9**
Road Freight Transport	19,524	22,566	22,416	**+14.8**	40.6	42.7	45.6	**+12.4**	1.7	0.9	0.6	**-65.8**
Building Completion Services	19,305	24,711	22,224	**+15.1**	39.4	39.8	42.4	**+7.8**	2.1	1.8	1.1	**-47.3**
Clothing & Soft Good Retailing	15,543	20,178	21,531	**+38.5**	38.1	36.5	37.6	**-1.4**	2.4	2.6	2.3	**-4.2**
Horticulture & Fruit Growing	26,898	23,796	21,102	**-21.5**	42.0	44.3	46.5	**+10.7**	1.1	0.7	0.5	**-51.3**
Sport	12,783	17,379	21,090	**+65.0**	37.2	37.6	37.9	**+1.9**	2.7	2.4	2.3	**-12.6**
Preschool Education	8,598	11,487	20,898	**+143.1**	39.9	40.3	41.5	**+4.1**	2.2	1.9	1.3	**-39.6**
Furniture, Houseware & Appliance Retailing	16,500	20,841	20,544	**+24.5**	38.9	38.6	40.8	**+4.8**	2.2	2.1	1.4	**-33.9**
Meat & Meat Product Manufacturing	21,648	21,474	20,376	**-5.9**	39.4	40.3	42.0	**+6.6**	2.3	1.7	1.2	**-46.4**
Property Operators & Developers	16,428	20,493	20,013	**+21.8**	43.9	44.7	47.7	**+8.6**	0.8	0.7	0.4	**-45.8**
Other Education	15,870	20,541	19,662	**+23.9**	42.1	43.2	45.4	**+8.0**	1.2	0.9	0.6	**-50.6**
Real Estate Agents	14,604	21,432	18,915	**+29.5**	45.8	46.1	48.4	**+5.7**	0.5	0.5	0.3	**-33.2**
Services to Agriculture	15,072	18,621	18,585	**+23.3**	39.5	40.7	43.0	**+8.9**	1.9	1.4	1.0	**-47.0**
Food, Drink & Tobacco Wholesaling	16,326	17,262	17,928	**+9.8**	38.8	39.5	41.6	**+7.2**	2.5	1.9	1.3	**-48.8**
Industrial Machinery & Equipment M/fg	16,182	17,733	17,388	**+7.5**	40.7	42.0	44.2	**+8.4**	1.5	1.1	0.8	**-46.1**
Other Wholesaling	19,521	18,888	17,229	**-11.7**	40.8	42.0	44.6	**+9.4**	1.6	1.1	0.7	**-56.1**
Interest Groups	12,999	14,949	16,317	**+25.5**	42.3	43.8	45.6	**+7.9**	1.1	0.8	0.6	**-50.0**
Industries employing over 300 persons in 2013	1,129,242	1,318,140	1,383,408	**+22.5**								
New Zealand: Total Employed Labour Force	1,727,274	1,985,781	2,001,015	**+15.8**	40.0	41.1	43.1	**+7.7**	1.8	1.4	0.9	**-46.4**

Figure A4: 10 fastest growing (of the 43 largest) industries in terms of number of additional people employed over 2001-2013 in New Zealand

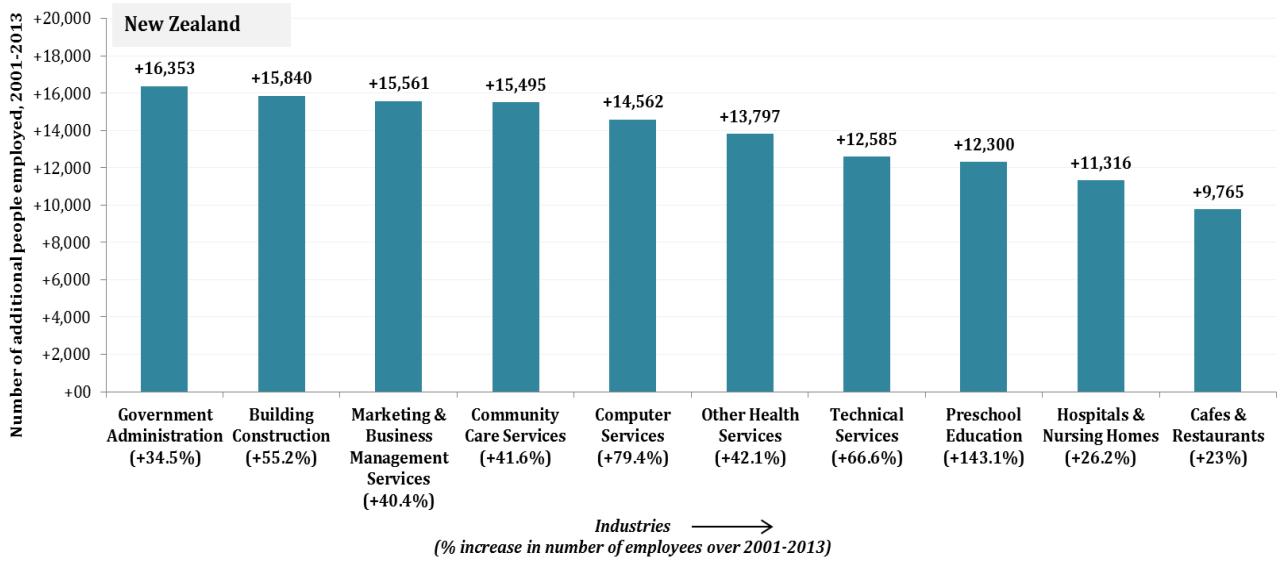


Table A5: Occupations in the Southland region employing more than 200 people across the region in 2013

Southland Region	Number Employed			% Change 2001 -2013	Average age (in years)			% Change 2001 -2013	% 55+ years			% Change 2001 -2013
	2001	2006	2013		2001	2006	2013		2001	2006	2013	
Dairy Farmer, Dairy Farm Worker	1,377	1,638	2,502	**+81.7**	36.8	35.6	37.2	**+1.3**	7.8	6.6	8.4	**+7.1**
Sales Assistant	2,223	2,346	2,223	**+0.0**	35.3	36.4	39.4	**+11.7**	9.2	12.9	20.3	**+120.6**
Crop and Livestock Farmer, Worker	1,914	1,947	1,974	**+3.1**	39.8	41.8	43.3	**+8.8**	21.7	22.8	27.5	**+27.0**
General Labourer	705	1,395	1,563	**+121.7**	37.5	39.9	42.5	**+13.3**	12.8	17.4	24.4	**+91.3**
Slaughterer	2,400	2,001	1,428	**-40.5**	38.7	39.9	42.2	**+9.2**	9.6	15.1	25.0	**+159.4**
General Clerk	1,215	1,293	1,191	**-2.0**	41.2	43.1	45.7	**+10.8**	12.6	20.9	25.7	**+104.0**
Sheep Farmer, Sheep Farm Worker	1,959	1,653	1,146	**-41.5**	48.4	48.7	51.2	**+5.7**	31.6	33.8	43.6	**+38.0**
Heavy Truck or Tanker Driver	933	978	951	**+1.9**	41.4	44.0	45.5	**+9.9**	14.2	22.7	28.4	**+100.0**
Cleaner	942	936	930	**-1.3**	43.6	44.8	47.7	**+9.3**	22.3	29.5	37.1	**+66.4**
Caregiver	777	918	888	**+14.3**	44.9	46.2	48.6	**+8.1**	18.9	27.7	39.9	**+110.7**
General Manager	720	765	867	**+20.4**	45.3	46.4	49.9	**+10.3**	17.6	24.3	34.6	**+96.9**
Registered Nurse	579	597	738	**+27.5**	41.7	43.3	45.5	**+9.1**	11.5	14.1	23.7	**+106.6**
Retail Manager	663	732	672	**+1.4**	45.0	43.9	46.4	**+3.1**	17.6	20.6	27.7	**+56.8**
Primary School Teacher	669	651	666	**-0.4**	42.1	42.0	42.5	**+1.1**	12.1	16.5	20.3	**+67.4**
Administration Manager	345	558	633	**+83.5**	43.4	43.2	45.4	**+4.5**	14.7	15.1	21.0	**+43.0**
Builder (Including Contractor)	267	510	564	**+111.2**	42.7	36.3	37.3	**-12.7**	22.5	12.9	17.1	**-23.9**
Secondary School Teacher	477	534	522	**+9.4**	42.1	41.7	43.8	**+4.0**	11.9	15.1	22.9	**+91.3**
Office Manager	387	441	498	**+28.7**	45.8	44.5	48.6	**+6.1**	14.8	15.5	28.3	**+90.7**
Information Clerk and Other Receptionist	405	555	486	**+20.0**	38.5	40.8	44.3	**+15.0**	8.8	16.8	28.2	**+219.8**
Early Childhood Teacher	138	231	438	**+217.4**	42.3	40.7	39.8	**-6.0**	6.5	10.5	15.1	**+131.1**
Technical Representative	141	348	429	**+204.3**	39.6	36.6	40.8	**+3.0**	6.4	7.8	17.5	**+173.9**
Mixed Livestock Farmer or Farm Worker	411	402	405	**-1.5**	45.7	42.2	40.2	**-12.2**	24.1	17.2	18.5	**-23.1**
Motor Mechanic	381	414	402	**+5.5**	38.2	36.7	40.0	**+4.8**	11.0	13.1	22.2	**+101.6**
Social Worker	246	297	390	**+58.5**	43.0	43.7	46.4	**+7.9**	14.6	16.3	29.2	**+99.7**
Accountant	321	351	387	**+20.6**	38.0	40.2	40.7	**+7.1**	11.1	14.7	13.3	**+19.5**
Catering Counter Assistant	288	306	363	**+26.0**	30.4	29.3	30.0	**-1.3**	6.3	3.9	7.4	**+19.0**
Electrician	306	324	360	**+17.6**	40.3	37.5	40.2	**-0.3**	10.8	13.8	17.6	**+63.6**
Carpenter and/or Joiner	330	411	351	**+6.4**	40.5	40.9	41.8	**+3.0**	14.4	19.7	22.2	**+54.2**
Farm Machinery Operator, Incl. Contractor	228	249	345	**+51.3**	38.8	41.8	41.2	**+6.3**	18.2	26.5	24.3	**+33.9**
Machinery Mechanic	294	309	336	**+14.3**	39.6	41.1	41.1	**+3.9**	13.1	18.4	18.9	**+44.1**
Administration Officer	102	207	312	**+205.9**	44.0	45.2	47.1	**+6.9**	14.7	20.0	30.1	**+104.7**
Teacher Aide	240	279	309	**+28.8**	42.2	42.7	46.7	**+10.9**	7.4	12.8	23.3	**+214.6**
Secretary	468	387	303	**-35.3**	44.6	46.6	46.7	**+4.8**	16.7	25.8	32.7	**+96.0**
Checkout Operator	270	300	303	**+12.2**	26.2	29.9	30.6	**+16.8**	1.1	7.0	11.9	**+969.3**
Kitchenhand	246	282	291	**+18.3**	32.1	31.2	33.6	**+4.7**	7.3	11.8	16.7	**+127.8**
Chef	171	228	273	**+59.6**	30.8	31.0	36.2	**+17.2**	1.8	5.3	11.0	**+515.4**
Sales and/or Marketing Manager	153	258	261	**+70.6**	41.5	40.7	42.4	**+2.2**	5.9	10.6	12.6	**+114.9**
Sales Representative	276	288	270	**-2.2**	41.0	42.3	43.4	**+5.9**	8.8	16.5	18.9	**+114.9**
Hairdresser	243	261	261	**+7.4**	33.0	33.3	34.5	**+4.6**	3.7	5.7	8.0	**+117.2**
Waiter	255	264	255	**+0.0**	26.7	27.1	28.3	**+5.9**	2.4	6.7	7.1	**+200.0**
Accounts Clerk	234	237	249	**+6.4**	39.9	40.3	45.6	**+14.2**	10.1	12.7	22.0	**+116.8**
Stock Clerk	180	216	237	**+31.7**	39.9	42.7	43.8	**+9.8**	16.9	18.3	26.6	**+56.8**
Shearing Contractor/Shearer	294	285	237	**-19.4**	35.7	36.2	37.6	**+5.3**	7.1	6.3	10.0	**+40.0**
Packer	294	231	216	**-26.5**	36.3	39.1	38.8	**+7.0**	8.2	13.0	17.8	**+118.2**
Other Catering Services Manager	261	204	213	**-18.4**	38.7	40.0	42.0	**+8.7**	12.6	17.4	16.9	**+33.7**
Police Officer	171	207	213	**+24.6**	37.5	40.9	44.2	**+18.0**	3.5	7.4	11.1	**+216.7**
Production Manager (Manufacturing)	201	216	210	**+4.5**	40.4	41.9	46.5	**+15.2**	11.8	13.9	24.3	**+106.4**
Butcher	177	198	210	**+18.6**	42.5	41.5	44.0	**+3.6**	13.8	16.4	27.5	**+99.6**
University & Higher Education Lecturer/Tutor	177	219	204	**+15.3**	43.3	46.2	47.5	**+9.6**	13.3	23.3	27.9	**+109.6**
Finance Manager	138	204	204	**+47.8**	38.2	41.3	44.6	**+16.9**	2.2	10.3	20.3	**+813.0**
Hotel or Motel Manager	192	207	204	**+6.3**	49.6	46.7	46.9	**-5.4**	33.8	28.6	32.4	**-4.4**
Occupations with 200+ employed in 2013	26,784	29,268	29,883	**+11.6**								
Southland Region: Total Employed 15+ Population	45,264	48,213	48,084	**+6.2**	40.8	41.7	43.7	**+7.1**	1.5	1.2	0.9	**-42.9**

Table A6: The top 10 most common occupations in New Zealand, 2001, 2006 and 2013

2001	2006	2013
1. Sales Assistant	1. Sales Assistant	**1. Sales Assistant**
2. General Clerk	2. General Clerk	**2. General Clerk**
3. General Manager	3. General Manager	**3. General Manager**
4. Cleaner	4. General Labourer	**4. Administration Manager**
5. Retail Manager	5. Administration Manager	**5. General Labourer**
6. Primary School Teacher	6. Cleaner	**6. Cleaner**
7. Secretary	7. Retail Manager	**7. Technical Representative**
8. Dairy Farmer, Dairy Farm Worker	8. Technical Representative	**8. Registered Nurse**
9. Crop and Livestock Farmer, Worker	9. Primary School Teacher	**9. Retail Manager**
10. Registered Nurse	10. Caregiver	**10. Caregiver**

Table A7: The top 10 most common occupations in New Zealand by gender, 2013

Males	Females
1. General Manager	1. Sales Assistant
2. Sales Assistant	2. General Clerk
3. General Labourer	3. Registered Nurse
4. Builder (Including Contractor)	4. Caregiver
5. Heavy Truck or Tanker Driver	5. Primary School Teacher
6. Administration Manager	6. Cleaner
7. Crop and Livestock Farmer, Worker	7. Early Childhood Teacher
8. Dairy Farmer, Dairy Farm Worker	8. Technical Representative
9. Computer Applications Engineer	9. Information Clerk and Other Receptionist
10. Sales and/or Marketing Manager	10. Administration Manager