An Assessment of the Demand for and Supply of Labour in Southland Region

for Venture Southland

Prepared by Infometrics Ltd

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Executive Summary

Optimism is high in Southland after five years of economic underperformance

The mood in Southland is optimistic which is borne out by numerous recent indicators showing strong growth in employment, GDP, job vacancies and house prices. This follows a slow period of below average growth. Southland's economy expanded by 1.1%pa over the past five years compared with 3.2%pa at the national level. Performance of the economy is volatile and is heavily influenced by the fortunes of Agriculture. The Manufacturing industry is even larger than Agriculture and provides some measure of stability. However, about half of manufacturing relates to primary sector processing (food, textiles, wood) which also rises and falls with primary sector activity.

A range of industries have contributed to employment growth

Nearly 3,000 jobs were created in Southland between 2002 and 2007. Sub-industries related to the building and real estate boom showed strong growth as did those associated with dairy farming. Job losses in meat processing accompanied the high rate of conversion of farms from sheep to dairy.

Rapid growth in demand for highly skilled occupations and high level qualifications

Although overall employment growth measured just 1.2%pa between 2002 and 2007 there was rapid growth in demand for Associate Professionals/Technicians (4.3%pa), Professionals (2.8%), Legislators/Managers (4.0%pa), and Trades (2.6%). This trend was mirrored in the growth in demand for higher level qualifications. Growth in demand for individuals with Graduate and Post Graduate degrees increased by 2.2%pa and 2.7%pa, respectively. By contrast, demand at Level 1, 2 or 3 Certificate rose by only 0.9%pa.

High level of unfilled vacancies

It is estimated that there were about 1,700 ready-to-fill vacancies in Southland in December 2007. This equated to a vacancy rate of 3.5% which was considerably higher than the national rate of 1.9%. Vacancies occurred across all occupational categories but were highest for Agriculture/Fishery Workers and Service/Sales Workers.

Labour force eroded through external migration

Although Southland has experienced an average of about 800 permanent and long term arrivals (people intending to stay 12 months or more) each year between 1998 and 2007, this has been slightly exceeded by the number of departures (about 980). The small net losses are fairly evenly spread across all skill levels. The majority of arrivals are from English speaking countries including United Kingdom, Australia and USA. Australia is by far the most popular destination for departing Southlanders.

Further net losses through internal migration

Southland gained about 8,900 people from other regions of New Zealand between 2001 and 2006 but lost almost 11,300 to other regions. Southland was a net gainer from the northern-most regions including Northland, Auckland and Waikato. The region's greatest net losses were to Canterbury and Otago, most probably due to the outflow of students to those regions. The majority of net population losses are in the 15 to 24 years age category.

Areas of undersupply and oversupply in education and training

A comparison of the composition of enrolments over the period 2003 to 2006 with the composition of new job openings in terms of qualification level and field of study revealed some areas of under and over supply. Possible areas of undersupply include Information Technology; Education; Food Hospitality and Personal Services; and Management and Commerce. An oversupply existed in the Creative Arts and Society and Culture. The field of agriculture was well supplied by education and training.

Baseline forecasts suggest improved economic performance in the future

Southland's mix of industries gives it the potential to grow at about 2%pa until 2016 under a business as usual scenario.

New projects in the pipeline

Numerous projects with differing chances of success have been identified. While some of these could be regarded as part of the baseline economic expansion (Kaiwera Downs Wind Farm, Edendale expansion, new dairy factory) others could help change the course of Southland's economy. These new investments have been incorporated into two economic scenarios. A Positive Scenario includes the Lignite to Liquids project and a second new dairy factory while the Optimistic Scenario includes all the afore mentioned projects as well as a Silicon Smelter, a Biotechnology facility and a third dairy factory. The Positive Scenario lifts annual growth to 2.9%pa while the Optimistic Scenario lifts growth to 3.5%pa over the forecast period.

Moderate growth in new jobs

In the Baseline Scenario about 5,100 new jobs would be created between 2007 and 2016 (560pa), most of which would be in the service industries. Employment in manufacturing and mining would decline due to productivity gains. Job growth would rise to 7,300 (820pa) in the Positive Scenario and 9,500 (1,060pa) in the Optimistic Scenario. In these scenarios strong employment growth would be experienced in both the manufacturing and mining industries.

Highest demand for the highly skilled

Highly skilled occupations (managers, professionals, associate professionals/technicians) will experience strongest employment growth in all scenarios. The Positive and Optimistic scenarios lift growth in demand for some of the lower skilled occupations including Plant/Machine Operators and Elementary occupations due to the strong growth in the manufacturing and mining industries. A summary table (see Appendix A) provides estimates of growth in employment for approximately 150 occupations.

Further labour required to replace departing workers

Job openings occur not only from employment growth but due to workers leaving their existing jobs due to retirement, leaving the workforce etc. More than 7,000 job openings (800pa) are likely to occur in Southland between 2007 and 2016 due to replacement. Total job openings (new jobs + replacement demand) will amount to more than 12,500 (1,360pa) in the base scenario and 14,500 (1,620pa) in the Positive Scenario.

But the labour force will grow slowly through natural growth

If there is no net migration the labour force in Southland will grow by less than 3,000 between 2007 and 2016 (300 pa). Rising age-specific participation will be countered by the ageing of the population.

A labour shortfall is predicted

With the labour force growing by only 300pa in the absence of net migration and 1,400 new job openings occurring due to employment growth and replacement a shortfall of more than 1,000 will occur on average each year in the Baseline Scenario. This shortfall will be additional to the shortfall existing at the beginning of the forecast period (ie the 1,700 existing vacancies). The shortfalls will be even higher in the other scenarios. This disequilibrium situation is clearly not sustainable and a number of outcomes are possible. These include:

- Southland makes up the labour shortfall by attracting migrants from other regions of New Zealand and other parts of the world.
- Southland Employers strive for higher productivity growth (for instance by deepening capital intensity) than is embodied in our scenarios. However, Southland's ability to achieve productivity growth in many industries is restricted by the small size of the economy and the varied nature of work which limits the capacity for specialisation and increased automation.
- The economy is constrained by the labour shortfall and does not achieve its growth potential as estimated in the scenario.

Introduction

This report provides an assessment of the demand for and supply of labour in Southland, both in the past and the future. It investigates the historical performance of the Southland economy which drives its labour market. The historical growth in demand for labour by industry, occupation and qualification is analysed. On the supply side, historical trends in internal and external migration are presented together with an analysis of education and training.

A thorough investigation of historic trends is important as an understanding of the past provides a platform for forecasting the future. The focus of this report is the future and we investigate Southland's prospects for future economic growth. We interpret what those trends mean for the demand for labour in Southland in terms of occupations and qualifications. The growth in demand for labour is contrasted with expected growth in supply and some broad conclusions are drawn on the future balance between labour demand and supply.

1. HISTORICAL ANALYSIS

Current Economic and Labour Market Conditions

The mood in Southland optimistic and this is borne out by a number of recent indicators:

- The unemployment rate dropped to 1.6% in the December 2007 quarter which is by far the lowest in the country. Southland also has the highest labour market participation rate in the country with 72.8% of the working age population in the labour force.
- Employment growth in the year to December 2007 was 3.0% as measured in the Quarterly Employment Survey.
- GDP expanded by 2.3% in the year to September 2007 (Infometrics estimate)
- House prices rose by 36% over the year to January 2008 according to Quotable Value. This was by far the highest in the country.
- The number of advertised vacancies measured in the Department of Labour's Job Vacancy Monitor increased by 45% in the December quarter compared with the same quarter 12 months ago.

Historical GDP

GDP in Southland amounted to $2,738 million in the year to September 2007, which accounted for 2.1% of New Zealand's total GDP (Table 1). The Manufacturing industry makes the largest contribution (19.7%) to Southland's economy. This industry is dominated by Metal Product Manufacturing (which includes the Tiwai Point Aluminium Smelter[1]; 9.7%) and Food, Beverage and Tobacco Manufacturing (8.2%). Agriculture, Forestry and Fishing is the second largest industry which accounts for 17.4% of the region's economy. Finance, Insurance and Business Services is the next largest industry (16.5%), followed by Trade and Accommodation, Restaurants and Bars (15.0%).

Southland's dependence on Agriculture and Manufacturing has decreased over the past ten years. Agriculture's share of the economy has dropped from 20.1% in 1997 to 17.4% in 2007 while Manufacturing's share declined from 22.7% to 19.7%. Industries that have experienced significant increase in shares include Construction (3.7% to 5.6%),

[1] Tiwai Point Aluminium Smelter has considerable backward and forward linkages with the Southland economy. It is estimated that the smelter contributed 18% of Southland region's GDP if we include all the output of goods and services from industries that supply the smelter and the industries that supply goods and services to households that spend income earned at the smelter and supplying industries (Infometrics and Southern Institute of Technology, 2005. *Assessment of the Economic and Social Impacts of the Tiwai Point Aluminium Smelter on the Southland Economy*.

Communication Services (1.5% to 2.7%) and Education and Health (5.5% to 8.1%).

All major primary and secondary industries are overrepresented in Southland. An industry in Southland is regarded as overrepresented if its contribution to the national industry total is larger than Southland's total contribution to the national economy ie 2.1%. By far the most overrepresented major industry is Agriculture, Forestry and Fishing which contributes 5.9% of New Zealand's total GDP in that industry. Also overrepresented are Mining (3.1%), Manufacturing (2.9%), Construction (2.5%) and Electricity, Gas and Water Supply (2.3%). The most overrepresented sub-industry is Metal Product Manufacturing which accounts for 11.9% of the industry's national GDP.

The most underrepresented industries include Communication Services (0.9%), Cultural and Personal Services (0.9%) and Finance, Insurance and Business Services (1.3%).

Table 1. Southland GDP by industry, 1997-2007

	GDP by industry ($m, 96 prices)			Industry share of regional GDP		Region's share of national GDP
	Sep-97	Sep-02	Sep-07	Sep-97	Sep-07	Sep-07
Agriculture, Forestry and Fishing	**481**	**495**	**478**	**20.1%**	**17.4%**	**5.9%**
Agriculture	438	454	437	18.3%	16.0%	6.9%
Fishing	15	12	15	0.6%	0.5%	7.2%
Forestry and logging	28	30	26	1.2%	1.0%	1.7%
Mining	**76**	**56**	**38**	**3.2%**	**1.4%**	**3.1%**
Manufacturing	**542**	**515**	**539**	**22.7%**	**19.7%**	**2.9%**
Food, beverage and tobacco manufacturing	195	188	211	8.2%	7.7%	3.2%
Textile and apparel manufacturing	14	7	5	0.6%	0.2%	0.7%
Wood and paper product manufacturing	44	33	32	1.8%	1.2%	1.4%
Printing, publishing and recorded media	17	12	7	0.7%	0.2%	0.5%
Petroleum, chemical, plastic and rubber product manu.	4	5	2	0.2%	0.1%	0.1%
Non-metallic mineral products manufacturing	12	7	8	0.5%	0.3%	0.9%
Metal product manufacturing	233	245	253	9.7%	9.2%	11.9%
Machinery and equipment manufacturing	20	16	19	0.8%	0.7%	0.7%
Furniture and other manufacturing	3	2	2	0.1%	0.1%	0.3%
Electricity, gas and water supply	**55**	**67**	**55**	**2.3%**	**2.0%**	**2.3%**
Construction	**90**	**127**	**152**	**3.7%**	**5.6%**	**2.5%**
Trade and accommodation, restaurants and bars	**296**	**337**	**412**	**12.4%**	**15.0%**	**2.0%**
Wholesale trade	107	138	154	4.5%	5.6%	1.5%
Retail trade	137	146	199	5.7%	7.3%	2.4%
Accommodation, restaurants and bars	52	53	59	2.2%	2.1%	2.8%
Transport and storage	**76**	**126**	**95**	**3.2%**	**3.5%**	**1.5%**
Communication services	**35**	**86**	**74**	**1.5%**	**2.7%**	**0.9%**
Finance, insurance and business services	**343**	**379**	**451**	**14.3%**	**16.5%**	**1.3%**
Finance and insurance	91	80	117	3.8%	4.3%	1.4%
Property services	62	87	114	2.6%	4.2%	1.6%
Business services	83	83	95	3.5%	3.5%	0.9%
Ownership of owner-occupied dwellings	107	129	124	4.5%	4.5%	1.6%
Government Administration and Defence	**137**	**78**	**91**	**5.7%**	**3.3%**	**1.6%**
Central government admin and defence	63	39	39	2.6%	1.4%	0.9%
Local government administration	74	39	52	3.1%	1.9%	3.3%
Education and Health	**133**	**191**	**221**	**5.5%**	**8.1%**	**1.9%**
Education	46	73	72	1.9%	2.6%	1.6%
Health and community services	87	118	148	3.6%	5.4%	2.1%
Cultural and Personal services	**46**	**55**	**39**	**1.9%**	**1.4%**	**0.9%**
Cultural and recreational services	16	18	15	0.7%	0.5%	0.6%
Personal and other community services	30	38	25	1.3%	0.9%	1.3%
Unallocated	**80**	**82**	**92**	**3.3%**	**3.4%**	**1.8%**
TOTAL GROSS DOMESTIC PRODUCT	**2390**	**2595**	**2738**	**100.0%**	**100.0%**	**2.1%**

Source: Infometrics and Statistics New Zealand

The Southland economy has underperformed relative to the national economy (Table 2). Between 1997 and 2007 (September years) GDP in Southland grew by 1.5% pa compared with 3.1% growth at the national level. The gap is slightly larger over the past five years with Southland growth measuring 1.4%pa and national growth measuring 3.2%pa.

Between 1997 and 2007 strong growth was measured in Communication Services (7.7%pa), Construction (5.5%pa) and Education and Health

(5.2%pa). A decline in output was measured in Mining (-6.8%pa), Government Administration and Defence (-3.9%pa), and Cultural and Personal Services (-1.6%pa). The two largest industries, Agriculture, Forestry and Fishing and Manufacturing both declined very slightly (-0.1%pa) over the ten year period.

Table 2. Average annual % growth in GDP by industry, 1997-2007 (September years)

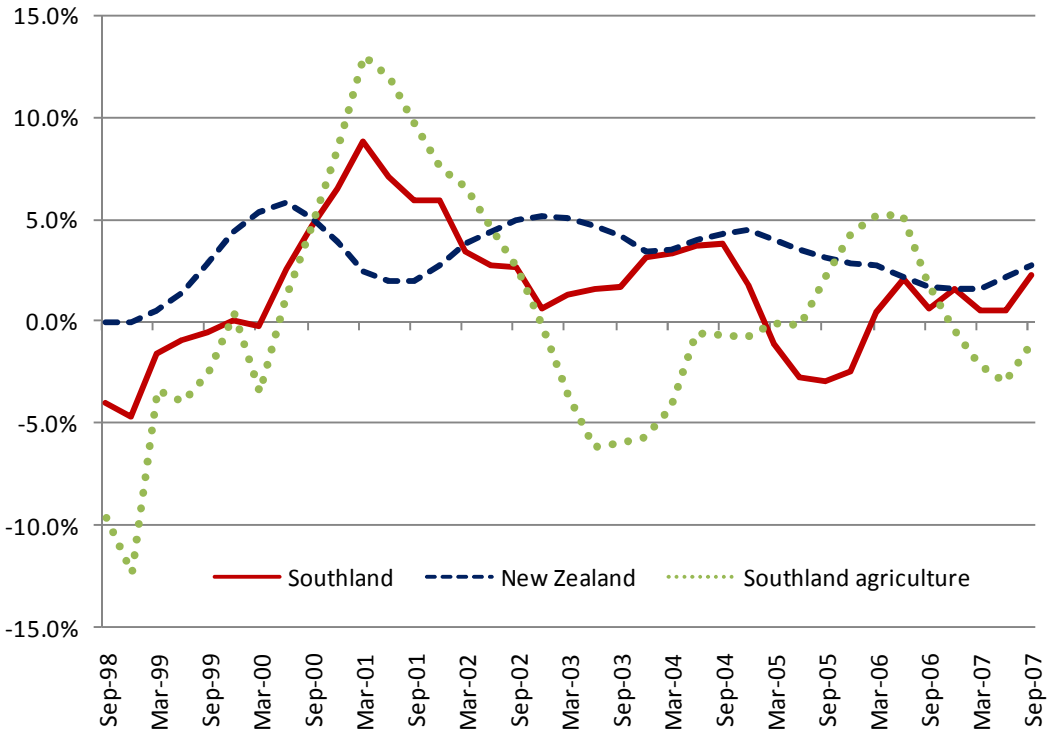
	1997-2007		2002-2007	
	Southland	NZ	Southland	NZ
Agriculture, Forestry and Fishing	**-0.1%**	**1.3%**	**-0.7%**	**2.0%**
Agriculture	0.0%	1.3%	-0.8%	2.7%
Fishing	-0.2%	-2.6%	4.9%	-2.7%
Forestry and logging	-0.6%	2.2%	-2.6%	-0.2%
Mining	**-6.8%**	**-2.3%**	**-7.5%**	**-1.4%**
Manufacturing	**-0.1%**	**1.4%**	**0.9%**	**1.5%**
Food, beverage and tobacco manufacturing	0.8%	2.6%	2.4%	4.0%
Textile and apparel manufacturing	-9.9%	-2.8%	-5.4%	-1.0%
Wood and paper product manufacturing	-2.9%	1.2%	-0.3%	0.2%
Printing, publishing and recorded media	-8.7%	-0.1%	-11.1%	0.7%
Petroleum, chemical, plastic and rubber product manu.	-5.3%	-0.8%	-11.6%	-2.1%
Non-metallic mineral products manufacturing	-3.8%	3.1%	1.4%	5.5%
Metal product manufacturing	0.8%	2.4%	0.6%	0.9%
Machinery and equipment manufacturing	-0.6%	1.4%	3.0%	0.7%
Furniture and other manufacturing	-6.0%	1.3%	-5.2%	-0.2%
Electricity, gas and water supply	**0.1%**	**0.7%**	**-3.9%**	**1.1%**
Construction	**5.5%**	**3.5%**	**3.7%**	**4.7%**
Trade and accommodation, restaurants and bars	**3.4%**	**3.5%**	**4.1%**	**3.3%**
Wholesale trade	3.7%	3.2%	2.2%	1.8%
Retail trade	3.8%	4.3%	6.4%	5.4%
Accommodation, restaurants and bars	1.2%	2.6%	2.2%	2.7%
Transport and storage	**2.2%**	**3.0%**	**-5.5%**	**2.8%**
Communication services	**7.7%**	**8.2%**	**5.2%**	**5.2%**
Finance, insurance and business services	**2.8%**	**4.1%**	**3.5%**	**3.5%**
Finance and insurance	2.6%	4.8%	7.9%	4.7%
Property services	6.3%	3.7%	5.7%	3.1%
Business services	1.3%	4.4%	2.6%	4.3%
Ownership of owner-occupied dwellings	1.5%	3.3%	-0.7%	1.8%
Government Administration and Defence	**-3.9%**	**0.2%**	**3.3%**	**5.4%**
Central government admin and defence	-4.6%	0.5%	0.1%	5.4%
Local government administration	-3.4%	-0.6%	6.1%	5.4%
Education and Health	**5.2%**	**4.4%**	**3.0%**	**2.9%**
Education	4.6%	4.0%	-0.2%	1.1%
Health and community services	5.5%	4.7%	4.7%	4.2%
Cultural and Personal services	**-1.6%**	**1.9%**	**-6.5%**	**3.9%**
Cultural and recreational services	-1.0%	0.8%	-3.8%	4.8%
Personal and other community services	-1.9%	3.6%	-7.9%	2.8%
Unallocated	**1.5%**	**2.8%**	**2.4%**	**4.1%**
TOTAL GROSS DOMESTIC PRODUCT	**1.5%**	**3.1%**	**1.4%**	**3.2%**

Source: Infometrics and Statistics New Zealand

Figure 1 shows the growth in GDP in Southland, New Zealand and Agriculture in Southland over the past ten years. In the first half of the period the dominance of agriculture is stark – a decline in agricultural production in 1998 and 1999 pulled the regional economy down while a resurgence in agriculture from 2000 to 2003 led to a boom in the region. Over the next five years the performance of agriculture does not dominate the performance of the regional economy to the same extent, although the early agricultural boom probably flowed through to other

industries, such as construction, in later years. Southland was able to withstand a downturn in agriculture in 2003 and 2004 largely due to a construction boom. Over that period construction grew about 25%pa and was the largest contributor to growth. The construction industry was not able to sustain these levels of activity and slowed in 2005. The slowdown in construction countered an improvement in agriculture resulting in negative overall growth.

Figure 1. GDP growth: Southland and New Zealand (annual average % change, September years)



Historical Employment

Employment by industry

Total employment in Southland grew from about 43,700 in 1997 to 50,500 in 2007. The largest employing industries in 2007 were Agriculture, Forestry and Fishing and Manufacturing, both of which had nearly 8,500 jobs. Together these industries account for about a third of employment in Southland. The next largest employers are Retail Trade (12.4% of Southland employment) and Health and Community Services (9.4%).

Southland accounts for 2.4% of total employment in New Zealand which is somewhat larger than its share of GDP (2.1%). This indicates that output per employee (a measure of productivity) is lower on average in Southland than the rest of the country. Industries that are overrepresented in Southland (ie industries whose share of the industry's national total exceeds the region's share of total employment) include Agriculture, Forestry and Fishing (6.5% of national total), Manufacturing (3.2%) and Mining (2.8%).

Table 3. Southland employment by major industry, 1997-2007 (September years)

Industry	Employment by industry			Industry share of regional total	Region's share of national total
	1997	2002	2007	1997	2007
Agriculture, Forestry and Fishing	7,840	9,570	8,450	16.7%	6.5%
Mining	230	150	140	0.3%	2.8%
Manufacturing	9,390	8,560	8,350	16.5%	3.2%
Electricity, Gas and Water Supply	270	150	100	0.2%	1.8%
Construction	2,430	2,640	3,320	6.6%	1.9%
Wholesale Trade	1,810	1,840	2,790	5.5%	2.2%
Retail Trade	5,590	5,740	6,270	12.4%	2.5%
Accommodation, Cafes and Restaurants	2,470	2,480	2,900	5.7%	2.6%
Transport and Storage	1,780	2,120	2,170	4.3%	2.6%
Communication Services	410	510	460	0.9%	1.7%
Finance and Insurance	910	700	860	1.7%	1.6%
Property and Business Services	2,800	3,200	3,720	7.4%	1.1%
Government Administration and Defence	1,270	1,000	1,080	2.1%	1.6%
Education	2,490	2,820	2,960	5.9%	1.8%
Health and Community Services	3,460	3,920	4,760	9.4%	2.5%
Cultural and Recreational Services	540	770	820	1.6%	1.4%
Personal and Other Services	1,370	1,550	1,400	2.8%	1.8%
Total	45,070	47,720	50,550	100.0%	2.4%

Source: Infometrics Regional Industry Employment Model

Total employment in Southland grew at a rate of 1.2%pa between 1997 and 2007, somewhat lower than the growth of 2.1% measured in the national economy. The rate of growth measured in the past five years (1.2%) was the same as the ten year rate. Industries showing strongest growth in employment over the past ten years include Wholesale Trade (4.4%), Cultural and Recreational Services (4.2%), Construction (3.2%), and Health and Community Services (3.3%).

Table 4. Growth in employment by major industry, 1997-2007 (September years)

	1997-2007		2002-2007	
Industry	**Southland**	**NZ**	**Southland**	**NZ**
Agriculture, Forestry and Fishing	0.7%	0.9%	-2.5%	-2.8%
Mining	-5.2%	2.0%	-1.4%	6.6%
Manufacturing	-1.2%	-0.2%	-0.5%	0.4%
Electricity, Gas and Water Supply	-9.1%	-5.4%	-6.8%	0.5%
Construction	3.2%	5.1%	4.7%	8.5%
Wholesale Trade	4.4%	1.4%	8.7%	2.6%
Retail Trade	1.2%	1.6%	1.8%	2.0%
Accommodation, Cafes and Restaurants	1.6%	3.0%	3.1%	2.9%
Transport and Storage	2.0%	1.3%	0.4%	2.5%
Communication Services	1.1%	-0.1%	-2.1%	-0.5%
Finance and Insurance	-0.5%	1.2%	4.2%	4.0%
Property and Business Services	2.9%	4.3%	3.1%	4.6%
Government Administration and Defence	-1.6%	1.9%	1.5%	3.7%
Education	1.7%	1.7%	0.9%	2.0%
Health and Community Services	3.3%	2.7%	4.0%	2.3%
Cultural and Recreational Services	4.2%	2.4%	1.2%	2.8%
Personal and Other Services	0.2%	2.7%	-2.0%	3.6%
Total	1.2%	2.1%	1.2%	2.6%

Source: Infometrics Regional Industry Employment Model

Table 5 shows the 30 sub-industries (at level 5 of the ANZSIC classification) with the highest employment in Southland in the year to September 2007. Agricultural and associated downstream sub-industries occupy the top three positions (sheep farming, meat processing, and dairy cattle farming) with a further three represented further down the ranking (Shearing Services: 13, Service to Agriculture nec[2]:15 and Log Sawmilling: 21). Health Services also feature prominently occupying the fourth and sixth positions (Hospitals: 4 and Health Services nec: 6). The importance of elderly care is reflected in that Accommodation of the Aged is the tenth largest employer. Education is a significant employer; with both Primary Education (5) and secondary (11) ranking near the top. Tourism has a significant impact on employment with Cafes and Restaurants (9), Pubs, Taverns and Bars (17), and Hotels (20) all featuring in the top thirty industries. Aluminium Smelting is only the twelfth largest employer despite its huge contribution to the region's economy (output per employee is extraordinarily high due to the capital intensity of Aluminium Smelting).

[2] Nec = not elsewhere classified

Table 5. Sub-industries with highest employment: 2007 (September year)

Rank	Industry	Employment
1	Sheep Farming	3,861
2	Meat Processing	3,607
3	Dairy Cattle Farming	2,075
4	Hospitals	1,214
5	Primary Education	1,155
6	Health Services nec	1,141
7	Supermarkets	1,093
8	Road Freight Transport	1,089
9	Cafes and Restaurants	1,080
10	Accommodation for the Aged	950
11	Secondary Education	832
12	Aluminium Smelting	817
13	Shearing Services	811
14	House Construction	646
15	Services to Agriculture nec	611
16	Department Stores	575
17	Pubs, Taverns and Bars	567
18	Local Government Administration	558
19	Accounting Services	556
20	Hotels (Accommodation)	551
21	Log Sawmilling	541
22	Cleaning Services	514
23	Central Government Administration	466
24	Commercial Property Operators and Developers nec	437
25	Automotive Repair and Services nec	435
26	Farm Produce and Supplies Wholesaling nec	419
27	Electrical Services	414
28	Building Supplies Wholesaling nec	410
29	Groceries and Dairies	394
30	Business Management Services	385

Source: Infometrics Regional Industry Employment Model

Table 6 shows the sub-industries that have experienced the largest absolute increases in employment over the five years to 2007. The strong growth in the Contract Staff Services is probably a consequence of changing employment practises (increasing use of casual labour) and the difficulties of finding staff.

The high rate of conversion from other types of farming to dairy has resulted in Dairy Cattle Farming experiencing the second largest increase in employment in Southland. Numerous other industries related to agriculture have shown strong growth include Services to Agriculture nec, Farm Produce and Supplies Wholesaling nec, Farm and Construction Machinery Wholesaling nec, Log Saw Milling, Dairy Product Manufacturing nec

The construction and real estate boom has resulted in a large increase in employment in the House Construction industry and other related industries including , Building Supplies Wholesaling nec, Commercial

Property Operators and Developers, Real Estate Agents, Timber Wholesaling and Services to Construction nec.

The increase in employment in Health Services nec reflects the increased expenditure on health by the state and the ageing population. The latter is also reflected in strong growth in Accommodation for the Aged.

Employment in Preschool Education has probably risen due to increased demand for early childhood education arising from the increase in female participation in the labour market. There has been a substantial increase in the number of children enrolled at Kindergartens despite the decline in the number of children of preschool age measured in the 2006 census (the number of 0-4s decreased from 6,440 to 6,200 between 2001 and 2006). A recent resurgence in the birth rate is likely to maintain the strong demand for early childhood education into the future. The number of births in Southland reached 1,350 in 2007 up from 1,200 in 2005.

Table 6. Sub-industries with largest increases in employment: 2002-2007 (September years)

Rank	Industry	Employment 2002	2007	Change 02-07
1	Contract Staff Services	0	348	348
2	Dairy Cattle Farming	1,771	2,075	305
3	House Construction	343	646	303
4	Building Supplies Wholesaling nec	126	410	284
5	Cafes and Restaurants	851	1,080	230
6	Farm Produce and Supplies Wholesaling nec	223	419	195
7	Accommodation for the Aged	755	950	195
8	Farm and Construction Machinery Wholesaling	201	376	175
9	Residential Care Services nec	125	277	152
10	Preschool Education	145	294	149
11	Hospitals	1,066	1,214	147
12	Commercial Property Operators and Developers	296	437	141
13	Local Government Administration	433	558	126
14	Real Estate Agents	171	294	123
15	Machinery and Equipment Wholesaling nec	74	197	122
16	Health Services nec	1,024	1,141	117
17	Services to Agriculture nec	509	611	101
18	Non-Residential Care Services nec	168	267	99
19	Inland Water Transport	192	280	88
20	Department Stores	495	575	80
21	Timber Wholesaling	68	147	79
22	Architectural Aluminium Product Manufacturing	47	123	77
23	Religious Organisations	26	100	74
24	Road and Bridge Construction	273	342	69
25	Business Administrative Services	81	150	68
26	Banks	227	293	67
27	Other Takeaway Food Stores (including sandwic	49	113	64
28	Construction Services nec	119	181	62
29	Painting and Decorating Services	145	204	60
30	Non-Residential Building Construction	318	377	58

Source: Infometrics Regional Industry Employment Model

Table 7 shows the sub-industries that experienced the largest decline in employment between 2002 and 2007. A decline in employment in the context of skill and labour shortages needs to be viewed with some caution. In some instances declining employment may reflect a supply constraint rather than declining demand for labour.

The largest declines were in Sheep and Deer Farming due to the shift to dairy. A decline in Meat Processing employment is also a consequence of this trend as well as productivity increases. Employment in a number of other agricultural and related industries showed significant decline including Sheep-Beef Cattle Farming, Wool Wholesaling (-73) and Beef Cattle Farming (-65).

Technological advances and higher productivity resulted in significant jobs losses (-243) in Newspaper Printing or Publishing. The decline in employment in Primary Education was a consequence of the merging of a number of primary schools in the early 2000s and the decreasing number of children of primary school age (the number of children aged 5-9 declined from 7,080 in 2001 to 6,360 in 2006).

Table 7. Sub-industries with largest employment decline: 2002-2007 (September years)

Rank	Industry	Employment 2002	2007	Change 02-07
1	Sheep Farming	4,342	3,861	-481
2	Deer Farming	402	129	-273
3	Newspaper Printing or Publishing	314	128	-185
4	Meat Processing	3,754	3,607	-147
5	Sheep-Beef Cattle Farming	315	171	-145
6	Interest Groups nec	205	76	-128
7	Leather Tanning and Fur Dressing excluding Fellmongery	154	40	-113
8	Plant Nurseries	186	90	-95
9	Primary Education	1,249	1,155	-95
10	Shearing Services	893	811	-82
11	Road Freight Transport	1,166	1,089	-77
12	Laundries and Dry-Cleaners	322	247	-75
13	Non-Building Construction nec	252	178	-73
14	Beef Cattle Farming	114	43	-71
15	Residential Property Operators nec	71	0	-71
16	Plywood and Veneer Manufacturing	71	6	-64
17	Wool Wholesaling	93	36	-57
18	Legal Services	330	277	-54
19	Postal Services	367	313	-54
20	Automotive Fuel Retailing	364	316	-48
21	Electrical and Electronic Equipment Wholesaling nec	96	50	-47
22	Security and Investigative Services (except Police)	73	26	-46
23	Psychiatric Hospitals	46	0	-46
24	Employment Placement Services	106	62	-45
25	Site Preparation Services	175	134	-42
26	Commercial Vehicle Wholesaling	41	0	-41
27	Cleaning Services	555	514	-41
28	Film and Video Production	42	1	-40
29	Fertiliser Manufacturing	89	49	-40
30	Corrective Centres	153	116	-37

Source: Infometrics Regional Industry Employment Model

Employment by occupation

Highly skilled occupations have shown strong growth in employment between 2002 and 2007. Table 8 shows that high growth was measured for Associate Professionals/Technicians (4.3%pa), Professionals (2.8%),

Legislators/Managers (4.0%pa), and Trades (2.6%). The growth in these skilled occupations was a consequence of industries that employ a high proportion of skilled people growing fast, and an increase in the proportion of skilled people being used across a wide spectrum of industries. The shift in demand towards higher skilled is reflected in the changing employment shares of the broad occupation categories.

Table 8. Employment by broad occupation: 2002-2007

	Employment		Change	Share of total	
Occupation	2002	2007	02-07	2002	2007
Legislators//Managers	5,300	6,400	4.0%	11.0%	12.7%
Professionals	5,400	6,200	2.8%	11.3%	12.2%
Associate Professionals/Technicians	3,900	4,900	4.3%	8.3%	9.6%
Clerks	4,700	4,700	-0.1%	9.9%	9.3%
Service/Sales Workers	6,300	6,700	1.4%	13.2%	13.3%
Agriculture/Fishery Worker	8,300	7,200	-2.9%	17.5%	14.2%
Trades Workers	3,800	4,300	2.6%	7.9%	8.4%
Plant/Machine Operators	6,800	6,600	-0.4%	14.2%	13.1%
Elementary Occupations	3,200	3,600	2.0%	6.8%	7.1%
Total	47,700	50,600	1.2%	100.0%	100.0%

Source: Infometrics estimates

Table 9 shows occupations that have experienced strongest growth in employment between 2002 and 2007. The high number of construction related occupations shows the impact of the construction boom on the demand for many occupations. Building related occupations that have experienced a large increase in demand are General Labourer, Builder, Roofer, and Carpenter and/or Joiner. A number of occupations associated with the provision of education and social services showed strong growth including Care Giver, Early Childhood Teacher, Secondary School Teacher, Social Worker, Police Officer and Teacher Aide.

The growth in employment in Dairy Farmer/Dairy Farm Worker reflects the shift in agricultural production from sheep farming to dairy. The growth between 2002 and 2007 is smaller than may be expected but significant growth had already occurred before 2002 (total employment in Dairy Farming increased from about 1450 in 2000 to 1770 in 2002).

Table 9. Occupations with largest employment increase: 2002-2007 (September years)

Rank	Occupation	2002	2007	Increase
1	General Labourer	743	1152	409
2	Technical Representative	361	686	325
3	Administration Manager	519	795	276
4	Care Giver	690	916	226
5	Dairy Farmer, Dairy Farm Worker	1342	1531	190
6	Builder (Including Contractor)	360	539	178
7	Sales and/or Marketing Manager	309	479	170
8	Sales Assistant	2133	2280	147
9	Machine Tool Operator	85	232	147
10	General Manager	1006	1133	126
11	Early Childhood Teacher	167	291	124
12	Meat Processing Worker	241	352	111
13	Information Clerk and Other Receptionist	495	600	105
14	Registered Nurse	704	806	102
15	Sales Representative	264	354	90
16	Carpenter and/or Joiner	306	394	88
17	Chef	272	359	87
18	Chief Executive and/or Managing Director	220	305	85
19	Finance Manager	196	281	85
20	Social Worker	231	314	83
21	Administration Officer	147	226	79
22	Retail Manager	733	802	69
23	Accountant	459	525	66
24	Builder's Labourer	121	187	66
25	Timber Processing Machine Operator	146	203	58
26	Loader and/or Checker	226	283	57
27	Computer Applications Engineer	107	160	53
28	Fruit, Vegetable and Nut Processing Machine Operator	22	75	53
29	Stock Clerk	266	318	52
30	Kitchenhand	260	309	49

Source: Infometrics estimates

Table 10 shows the occupations that experienced the largest decreases in employment in Southland between 2002 and 2007. A decline in employment in the context of skill and labour shortages needs to be viewed with some caution. In some instances declining employment may reflect a supply constraint rather than declining demand for labour.

The changing patterns of agricultural production have had a significant impact on many occupations. Agriculture related occupations that have experienced a significant decline in employment include Sheep Farmer/Sheep Farm Worker, Crop and Livestock Farmer/Worker, Shearing Shed Hand, Deer Farmer/Worker, Shearing Contractor, Forest Hand, Fish Processing Worker, Fruit Grower/Worker, Logger and Fishing Skipper, Fisherperson.

Table 10. Occupations with largest employment decline: 2002-2007 (September years)

Rank	Occupation	2002	2007	Decrease
1	Sheep Farmer, Sheep Farm Worker	1967	1644	-323
2	Cleaner	1144	1025	-118
3	Crop and Livestock Farmer, Worker	2206	2094	-111
4	Automated Machine Operator	114	8	-106
5	Shearing Shed Hand	269	166	-103
6	Deer Farmer, Deer Farm Worker	189	95	-94
7	Sawmill Labourer	163	71	-91
8	Secretary	483	394	-89
9	Nursery Grower, Nursery Worker	222	135	-87
10	Shearing Contractor/Shearer	358	283	-75
11	Heavy Truck or Tanker Driver	1095	1025	-70
12	Courier and Deliverer	284	216	-68
13	Fitter and Welder	252	191	-61
14	Packer	311	250	-61
15	Forest Hand	158	98	-60
16	Typist and Word Processor Operator	117	58	-59
17	Sewing Machinist	171	115	-56
18	Survey Interviewer	136	83	-54
19	Fish Processing Worker	101	54	-47
20	Grounds or Green Keeper	123	78	-45
21	Other Livestock Farmer, Other Livestock Farm Worker	139	99	-41
22	Nurse Aide	134	93	-41
23	Cook	259	219	-40
24	Fruit Grower, Worker	54	17	-37
25	Logger	74	37	-37
26	Forecourt Attendant	145	110	-35
27	Fishing Skipper, Fisherperson	189	155	-34
28	Ticket-Seller	80	47	-33
29	Light Truck or Van Driver	62	29	-33
30	Housekeeper (Private Service)	41	8	-33

Employment by qualification

This section investigates the growth in demand for qualifications between 2002 and 2007 by field of study and qualification level. The methodology used is outlined in Appendix B. Only trends at high levels of aggregation of field of study can be discussed in this report. Underlying the analysis is extremely detailed information showing trends in employment by 80 categories of field of study and nine categories of qualification level. The underlying spreadsheets are available on request to conduct further analysis.

Table 11 shows the number of people employed by the level of post school qualification and field of study in 2002 and 2007 and the growth in employment over the five year period. Almost 60% of employed people had no qualification. The highest number of post school qualifications was at the Level 4 Certificate which reflects the importance of trade and technical occupation in Southland. A large proportion of Level 4 Certificates are in the field of Engineering and Related Technologies due to the large engineering industry in Southland.

The growth in employment by qualification shows a very clear trend of growing demand towards higher level qualifications. The average annual growth in demand for qualifications between 2002 and 2007 progressively

rises from 0.7%pa for No Post School Qualifications to 2.7%pa for Post Graduate Degrees. This trend mirrors the trend observed in the previous section of fastest growth in demand for highly skilled occupations.

In terms of field of study the fastest growth was in the field of Architecture and Building which was a consequence of the construction boom. There was strong growth in demand across all levels of qualifications in this field of study. Strong growth in demand was also measured for qualifications in the Information Technology field of study, especially at the higher levels ie degree and Level 5&6 diploma. There was a decline in demand for Agriculture, Environmental and Related Studies qualifications due to the decline in employment measured in agriculture between 2002 and 2007. The overall decline for demand within this category may disguise increases in demand for sub-categories within the broader category. There is anecdotal evidence of strong demand for environmental related qualifications.

Table 11. Employment by qualification level and field of study

Field of study	No field of study	Natural and Physical Sciences	Information Technology	Engineering and Related Technologies	Architecture and Building	Agriculture, Environmental and Related Studies	Health	Education	Management and Commerce	Society and Culture	Creative Arts	Food, Hospitality and Personal Services	Total
Number of persons: 2002													
No post school qualifications	28726	0	0	0	0	0	0	0	0	0	0	0	28726
Level 1, 2 or 3 Certificate	0	32	143	379	144	395	65	29	558	185	75	457	2462
Level 4 Certificate	0	28	31	2485	915	557	571	89	570	279	217	472	6213
Level 5&6 Diploma	0	108	94	820	189	317	1028	814	731	427	210	54	4794
Bachelor Degree and Level 7 Qual.	0	442	118	297	55	129	690	578	911	1025	218	10	4474
Post-Graduate Degrees	0	195	22	70	14	29	232	88	181	336	36	2	1206
Total	28726	806	408	4050	1317	1428	2586	1599	2952	2253	755	995	47875
Number of persons: 2007													
No post school qualifications	29765	0	0	0	0	0	0	0	0	0	0	0	29765
Level 1, 2 or 3 Certificate	0	34	159	405	170	364	67	34	595	200	80	464	2572
Level 4 Certificate	0	33	34	2647	1064	509	600	96	594	298	211	496	6582
Level 5&6 Diploma	0	124	107	916	226	293	1155	887	808	461	227	60	5265
Bachelor Degree and Level 7 Qual.	0	485	140	340	71	121	798	620	1048	1120	233	10	4987
Post-Graduate Degrees	0	216	26	81	18	31	277	97	213	379	40	2	1381
Total	29765	892	466	4389	1549	1319	2898	1734	3258	2458	791	1032	50551
Annual growth: 2002-2007													
No post school qualifications	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Level 1, 2 or 3 Certificate	0.0%	1.1%	2.2%	1.3%	3.4%	-1.6%	0.7%	2.8%	1.3%	1.6%	1.3%	0.3%	0.9%
Level 4 Certificate	0.0%	2.8%	2.2%	1.3%	3.1%	-1.8%	1.0%	1.5%	0.8%	1.4%	-0.5%	1.0%	1.2%
Level 5&6 Diploma	0.0%	2.8%	2.6%	2.2%	3.6%	-1.6%	2.4%	1.7%	2.0%	1.5%	1.6%	2.0%	1.9%
Bachelor Degree and Level 7 Qual.	0.0%	1.9%	3.4%	2.8%	5.2%	-1.2%	3.0%	1.4%	2.8%	1.8%	1.4%	0.3%	2.2%
Post-Graduate Degrees	0.0%	2.1%	3.4%	3.1%	5.3%	0.9%	3.6%	2.0%	3.3%	2.4%	1.8%	2.1%	2.7%
Total	0.7%	2.1%	2.7%	1.6%	3.3%	-1.6%	2.3%	1.6%	2.0%	1.8%	0.9%	0.7%	1.1%

Source: Infometrics estimates

Current vacancies

This section presents estimates of the number of job vacancies as at December 2007. Job vacancies are defined as employee jobs available for immediate filling. The estimates were compiled using a variety of sources including the Department of Labour's Job Vacancy Monitor, ANZ Job Ad series and the relationships between newspaper vacancies and

actual vacancies measured in Australia. A full description of the methodology is given in Appendix B.

Table 12 shows that there were approximately 1,700 ready-to-fill vacancies in Southland in December 2007 quarter. This number of vacancies equated to a vacancy rate of 3.5% (the vacancy rate expresses total vacancies as a proportion of total employment) which was considerably higher than the national vacancy rate of 1.9%. The vacancy rate is typically inversely related to the unemployment rate.

Table 12. Job Vacancies (December 2007 quarter)

	Southland	New Zealand
Vacancies	1,700	40,800
Vacancy rate	3.5%	1.9%
Unemployment rate	1.6%	3.4%

Source: Infometrics and Statistics New Zealand

Job vacancies are distributed across all broad occupational categories (see Table 13). The highest number of vacancies is for Agriculture/Fishery Workers followed by Service/Sales Workers. An estimate of the number of vacancies by detailed occupational category is provided in Appendix A.

Table 13. Job Vacancies (December 2007 quarter)

Occupation	Vacancies
Legislators//Managers	80
Professionals	200
Associate Professionals/Technicians	160
Clerks	160
Service/Sales Workers	320
Agriculture/Fishery Worker	350
Trades Workers	120
Plant/Machine Operators	190
Elementary Occupations	130
Total	1,710

Source: Infometrics estimates

External and internal migration

This section investigates the movement of people into and out of Southland. It considers both internal migration ie Southlanders moving to other regions of New Zealand and people from regions moving into Southland and external migration ie Southlanders moving overseas and overseas residents moving into Southland.

External migration

External migration data collected via arrival and departure cards[3] show that Southland has experienced a net loss of individuals through migration in 8 of the last 10 years. The number of Permanent and Long Term (PLT)[4] arrivals has been trending upwards over the ten year period. It has averaged about 800 per year. Departures trended downwards between 1998 and 2002 but have been trending upwards since 2002 and have averaged about 980 per annum. The best year for Southland, in terms of migration, was 2003 when the region experienced a net inflow of 212 people.

Table 14. External PLT departures from and arrivals into Southland by year, 1998-2007

Year	Departures	Arrivals	Net
1998	1223	561	-662
1999	1107	612	-495
2000	1105	731	-374
2001	930	780	-150
2002	730	800	70
2003	767	979	212
2004	914	876	-38
2005	972	841	-131
2006	933	852	-81
2007	1128	950	-178
Average 98-07	981	798	-183

Source: Statistics New Zealand

Arrivals and departures are highest among Professionals but are spread fairly evenly across all other occupational categories (Table 14). Between 2002 and 2007 a small net inflow of Professionals and Agriculture/Fishery Workers was measured while all other occupational categories measured a small net outflow[5].

[3] A comparison of migration estimates from census data and arrival and departure cards suggests that the latter is a reasonably accurate measure of migratory flows.

[4] Permanent and long term refers to individuals who intend to stay or depart from New Zealand for more than 12 months. This measure may not capture individuals who arrive in Southland for short (ie less than 12 months) spells of work which anecdotally is common in the agricultural industry. For this reason our measures of external migration may underestimate inflows of labour.

[5] A large proportion of people do not declare their occupations on arrival and departure cards but a large proportion of these people are probably not economically active.

Table 15. External departures from and arrivals into Southland by occupation, 2002-2007(persons aged 15 and over, PLT)

Occupation	Departures	Arrivals	Net
Legislators//Managers	165	143	-22
Professionals	662	695	33
Associate Professionals/Technicians	293	221	-72
Clerks	162	126	-36
Service/Sales Workers	418	297	-121
Agriculture/Fishery Worker	212	225	13
Trades Workers	254	199	-55
Plant/Machine Operators	231	133	-98
Elementary Occupations	119	79	-40
Not stated	1595	1631	36

Source: Statistics New Zealand

Australia was the largest source of external migrants over the period 2002 to 2007 followed by England. External arrivals would include returning New Zealanders. Australia is by far the most popular destination for departing Southlanders, followed by England.

Table 16. Major source and destination countries, 2002-2007(persons aged 15 and over, PLT)

Country	Arrivals	Country	Departures
United Kingdom	1112	Australia	2366
Australia	1049	United Kingdom	903
United States of America	156	Ireland	120
Philippines	145	United States of America	109
Ireland	95	Canada	80
Japan	95	Republic of Korea	60
China	92	Not Stated	54
Germany	85	Japan	50
Canada	84	Germany	34
Not Stated	75	China	21
Republic of Korea	68	Netherlands	19
Netherlands	59	Thailand	19
South Africa	49	France	18
Fiji	45	South Africa	15
India	45	Sweden	15
Romania	33	Switzerland	15
Thailand	26	United Arab Emirates	14

Source: Statistics New Zealand

Internal migration

Southland gained about 8,900 people from other regions of New Zealand between 2001 and 2006 but lost almost 11,300 to other regions, according to data from the Population Census. The net loss of population

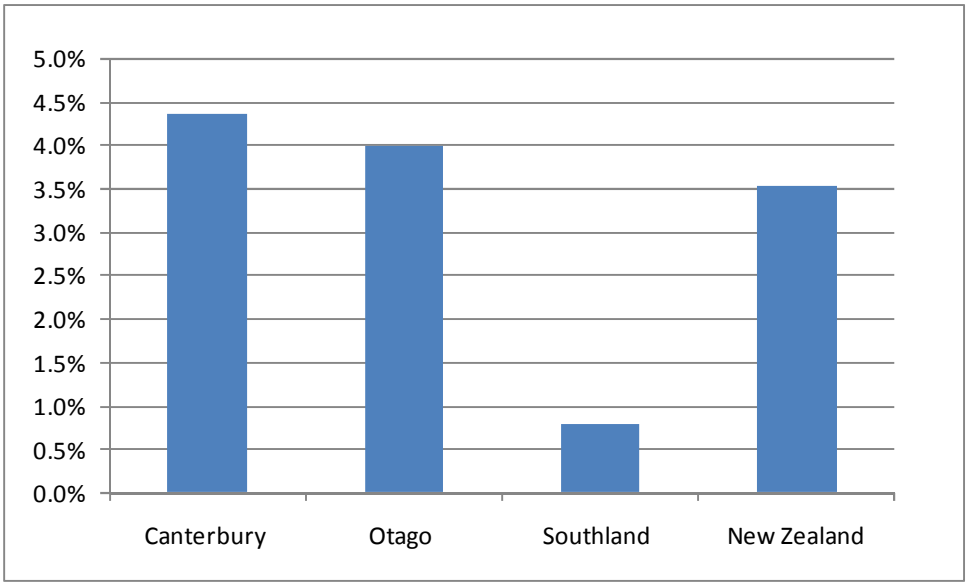
amounted to almost 2,400. Southland was a net gainer from the northern-most regions including Northland, Auckland and Waikato whereas its greatest net losses were to Canterbury and Otago. The movement of young Southlanders to study in Canterbury and Otago would account for a sizeable proportion of these outward flows. The strong economic performance of the latter regions coupled with their close proximity to Southland would probably have contributed to the net outflow. Over the intercensal period (2001 to 2006) the Canterbury economy expanded by 4.4%pa and the Otago economy by 4.0%pa. This contrasts with growth of only 0.8%pa in Southland (see Figure 2). The national economy expanded by 3.5%pa over this period.

Table 17. Internal departures from and arrivals into Southland by region, 2001-2006

	Out of Southland to:	Into Southland from:	Net Flow
Northland	153	264	111
Auckland	678	948	270
Waikato	447	729	282
Bay of Plenty	351	351	0
Gisborne	54	78	24
Hawke's Bay	141	156	15
Taranaki	132	219	87
Manawatu-Wanganui	333	309	-24
Wellington	471	435	-36
Tasman	213	138	-75
Nelson	147	186	39
Marlborough	288	213	-75
West Coast	177	189	12
Canterbury	3,120	1,782	-1,338
Otago	4,560	2,916	-1,644
Total	11,271	8,913	-2,358

Source: Statistics New Zealand

Figure 2. GDP growth of neighbouring regions, 2001-2006



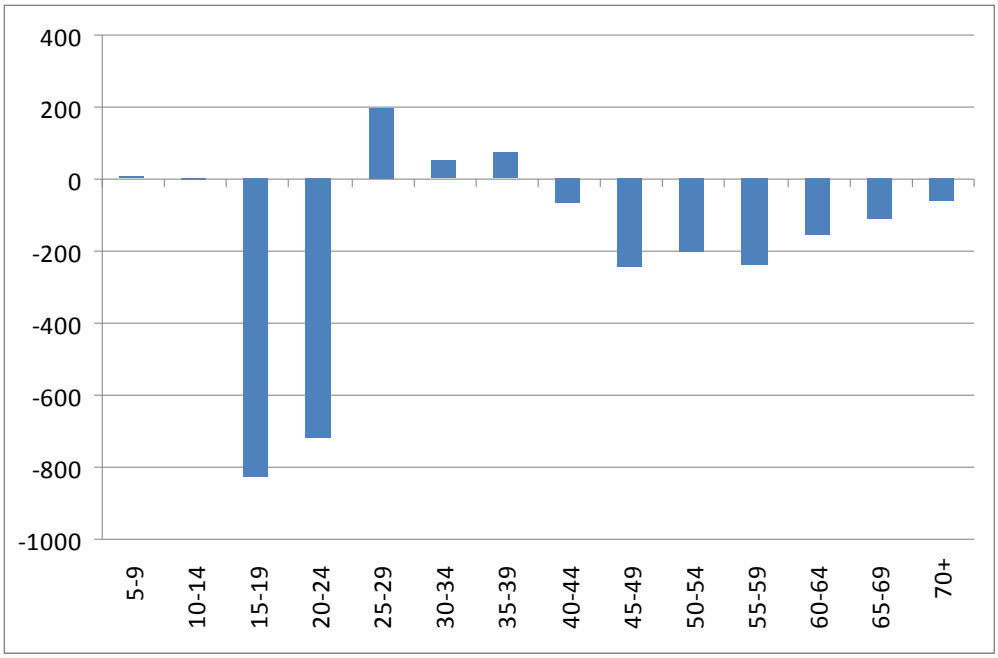
Population census data shows that there was a considerable net outflow of individuals between the ages of 15 and 24 over the period 2001 to 2006 (Table 18 and Figure 3). Anecdotally, many of these are individuals who leave Southland to study elsewhere in the country (most likely Otago and Canterbury). Net inflows were measured between the ages 25 and 39. Net outflows were measured in all 5-year age categories above 40, peaking in the category 45-49.

Table 18. Internal departures from and arrivals into Southland, by age category, 2001-2006

Age category	Departed from Southland	Arrived in Southland	Net
5-9	789	792	3
10-14	765	762	-3
15-19	1512	684	-828
20-24	1794	1071	-723
25-29	900	1092	192
30-34	825	876	51
35-39	786	861	75
40-44	792	726	-66
45-49	780	534	-246
50-54	618	411	-207
55-59	564	327	-237
60-64	396	243	-153
65-69	303	192	-111
70+	447	387	-60
0	11271	8913	-2358

Source: Statistics New Zealand

Figure 3. Net change in population, by age category, 2001-2006



Source: Statistics New Zealand

Education and Training provision – A comparison with growth in demand

This section investigates the composition of new skills attained through education and training in Southland over the past few years and contrasts it with the growth in demand for new skills. This task is complex and there are numerous caveats associated with the analysis. Given the caveats it is not possible to draw detailed conclusions about the appropriateness of the composition of training in Southland but it can provide some broad pointers.

Broad Approach

The broad approach is to contrast the composition of education and training enrolments (in terms of level and field of study) with the growth in demand for qualifications by level and field of study over a common period. Qualification completions would have been a more satisfactory measure than enrolments but the current data collection mechanism does not measure completions at a regional level. We have avoided a straight comparison of the level of demand growth with the level of new supply from education and training as the data is not sufficiently robust to support this type of analysis. The analysis covers the time period 2003 to 2006 and includes training funded by both Student Component Funding and the Industry Training Fund. The period of analysis was determined by the availability of data.

Agriculture has been removed from the analysis and conclusions about agriculture have been drawn separately from this analysis. Agriculture has been separated out for two reasons. Firstly, Agriculture is by far the

biggest field of study in Southland (it accounted for a quarter of all enrolments over the three year period) and it would dominate this analysis. Secondly, demand for agricultural qualifications did not grow over the period 2003-2006 as 2003 was the peak of the agricultural boom in Southland and 2006 was the trough of the downturn. That the period of our analysis coincides with a period of growth which is out of line with longer term trends could result in incorrect conclusions being drawn from the analysis.

A more detailed description of the method is provided in Appendix B.

Findings

Table 19 shows the qualification composition of growth in demand and contrasts it with the qualification composition of total enrolments over the period 2003 to 2006. Numerous adjustments have been made to the data to achieve comparability (see Appendix B for more details). For instance, the table shows that 13% of positions *requiring a qualification* that came open between 2003 and 2006 required a Level 1, 2 or 3 Certificate in Engineering and Related Technologies whereas 13% of all enrolments were at that level and field of study.

Table 19. Qualification composition of growth in demand and total enrolments, 2003-2006

Field of study	Natural and Physical Sciences	Information Technology	Engineering and Related Technologies	Architecture and Building	Agriculture, Environmental and Related Studies	Health	Education	Management and Commerce	Society and Culture	Creative Arts	Food, Hospitality and Personal Services	Total
Growth in demand												
Level 1, 2 or 3 Certificate	0%	1%	3%	7%	*	-14%	0%	1%	0%	-9%	24%	14%
Level 4 Certificate	2%	1%	1%	0%	*	7%	6%	9%	-3%	3%	2%	28%
Level 5&6 Diploma	-1%	1%	2%	1%	*	6%	4%	10%	5%	0%	0%	28%
Bachelor Degree and Level 7 Qual.	-2%	0%	0%	0%	*	3%	1%	1%	0%	0%	0%	4%
Post-Graduate Degrees	0%	0%	0%	0%	*	0%	0%	0%	0%	0%	0%	0%
Total	-1%	3%	7%	8%	*	2%	11%	20%	2%	-5%	26%	74%
Total enrolments												
Level 1, 2 or 3 Certificate	0%	0%	13%	1%	*	13%	1%	7%	10%	2%	14%	61%
Level 4 Certificate	0%	0%	5%	4%	*	0%	0%	5%	2%	0%	2%	18%
Level 5&6 Diploma	0%	0%	1%	0%	*	0%	1%	6%	1%	2%	0%	12%
Bachelor Degree and Level 7 Qual.	0%	1%	0%	0%	*	3%	2%	1%	1%	1%	0%	8%
Post-Graduate Degrees	0%	0%	0%	0%	*	0%	0%	1%	0%	0%	0%	1%
Total	0%	1%	18%	6%	*	17%	3%	19%	14%	5%	16%	100%

* Note: Agriculture has been excluded from this analysis - an explanation is provided in the section 'Broad Approach' above. Conclusions about agriculture are drawn separately.

Given the caveats around the data only tentative conclusions can be drawn.

Areas of possible undersupply:

- Information technology appears to be the most undersupplied field of study. Whereas 6% of positions that came open during the period required an IT qualification, only 1% of students were

enrolled in this field of study. The undersupply was largely at levels lower than bachelor degree.

- The next largest area of undersupply was education with 12% of positions requiring a qualification that came open requiring an Education qualification compared with 3% of total enrolments being in Education. The shortfall is largely at Level 5 and 6 diplomas and degrees.

- Food, hospitality and personal services were undersupplied, especially at Level 4. Almost a quarter of all positions coming open required a Level 4 qualification in Food, Hospitality and Personal Services but most enrolments were at a lower level.

- Management and Commerce qualifications also appeared to be undersupplied. The shortfall is largely at degree level – 11% of all positions coming open required a Management and Commerce degree yet only 2% of students were enrolled in this field of study.

Areas of possible oversupply:

- The most obvious area of oversupply was in the Creative Arts. Over the period under review the number of job closures exceeded job openings. Despite this, 5% of all enrolments were in the Creative Arts field of study.

- Society and Culture is another possible area of oversupply, although the oversupply is largely concentrated at the lower qualification levels.

Areas of mixed over and undersupply:

- In aggregate, the Health field of study appears to be an area of oversupply but this masks differences by qualification level. Oversupply is at levels 4 and below[6] while there is significant undersupply of Diplomas (level 5 to 7) and degrees.

Agriculture:

- The agriculture industry appears to be well supplied by education and training. Agriculture is by far the largest field of study accounting for more than a quarter of total enrolments over the period under review. More than a third of these enrolments were at Level 4 or higher.

[6] At first glance the provision of first aid courses would be the prime suspect for the oversupply of health qualifications. Theoretically short first aid courses should not be present in the data as we have filtered out all Short Awards (ie qualifications under 40 points). However, TEC note that miscoding by some providers may result in some Short Awards remaining in the data set.

2. THE FUTURE

Economic growth

This section presents projections of economic growth in Southland to 2016. This involves a number of steps:

Preparation of a base line forecast

The base line forecast presents a view of how Southland's economy is likely to grow on a 'business as usual' basis. It is a view of how the Southland economy will evolve under the likely international and national macroeconomic conditions the over the next few years. The baseline forecast does not take into account any major local economic shocks such as a large new investment which could change the course of the economy's development. The baseline forecast is developed using sophisticated time series analysis – further details of the methodology are provided in Appendix B.

Identification of potential new projects

Major projects that may change the course of Southland's development were identified through consultation with Venture Southland and during a workshop with major stakeholders held on 1 February 2008. Estimates of potential new employment generated by each project and timelines were also established at the workshop. Later the potential addition to GDP from each project was estimated using input-output multipliers. The workshop participants are shown in Appendix C.

Development of alternative economic scenarios

Two alternative economic scenarios were developed. A *Positive Scenario* incorporates a few of the major potential projects which have a reasonable chance of coming to fruition to the baseline forecast. The *Highly Optimistic Scenario* incorporates all the potential projects. It is difficult to predict which of these projects will succeed as there are a host of factors impacting on their chances including the political and legislative environment, relative commodity prices, energy prices and world macroeconomic conditions.

Development of a scenario forecasting tool

Because of the difficulty of predicting the chances of success of each project a tool has been developed for creating multiple economic scenarios. The tool generates labour demand forecasts for each economic growth scenario. The tool will enable the labour demand forecasts to be refreshed as new information about the potential projects emerges.

Base line scenario

Under a business as usual or baseline scenario the Southland economy is expected to grow at 2.0% pa between 2007 and 2016. This suggests an improvement in economic growth over the past ten years but is still short of the expected national growth rate of 2.6%pa.

The outlook to March 2012 is based on Infometrics' March 2008 economic forecasts. The New Zealand economy is expected to grow at

an average rate of 2.6% per year in the five years to March 2012. Key short-term influences on economic, industrial and regional performance include:

- Continued strong demand for labour
- Sustained inflation pressures
- High interest rate/exchange rate environment
- Slow improvements in the balance of payments
- Pre-election fiscal spend-up (corporate tax cuts, personal tax cuts, more spending)
- Drought takes cream from commodity bonanza
- House market moves into decline

The implications of these factors include:

- Household saving improvements (reduced housing wealth, lower government saving)
- Modest improvements in export performance
- Investment shifts from housing to labour saving equipment in business sector

Growth projections beyond 2012 are necessarily more simplistic in nature based on population projections and trend analysis of employment and productivity. Such projections do not account for business cycles and include fewer factors that might contribute to regional differences in economic performance.

Alternative scenarios

Potential new projects

A number of new projects which could significantly impact on Southland's economy were identified in collaboration with Venture Southland and various stakeholders. A challenge is to identify which of these projects is part of the region's baseline and which are additional to the baseline. The distinction is to some extent arbitrary. For a project to be additional to the baseline it generally needs to be a greenfields investment or a response to an exceptional macroeconomic circumstance, for instance rapidly increasing dairy prices.

The following new and ongoing projects were identified as part of the baseline scenario:

- Kaiwera Downs Wind Farm
- Expansion of Edendale milk processing plant
- Oil and gas exploration
- First new dairy factory[7]

[7] A new dairy processing plant for Gore district has been confirmed.

Oil and gas production were not included in the scenarios as if they did happen then production would probably only begin after our forecast period.

The projects included in the Positive and Optimistic scenarios and their expected number of direct jobs created and direct value added (GDP) at full production is shown in Table 20.

Table 20. New projects in Positive and Optimistic Scenario

Project	Direct new jobs at full production	Direct value added at full production ($million, 95/96 prices)
Positive scenario		
New dairy factory 2	100	$5.7
Lignite to Liquids	660	$213.7
Optimistic Scenario		
All postive scenario projects + Silicon Smelter	350	$113.3
New dairy factory 3	100	$5.7
Biotechnology facility	120	$5.1

Source: Infometrics estimates

GDP growth

If the projects included in the positive scenario were to succeed then GDP growth could rise to 2.9%pa over the forecast period. The additional success of the Optimistic scenario projects would lift growth to 3.5%pa.

In the baseline scenario Agriculture, Forestry and Fishing and Manufacturing make the largest direct contribution to GDP growth, accounting for more than a third of total growth. Property and Business Services make the next largest contribution to growth. In the positive and optimistic scenarios Manufacturing increases its contribution to GDP growth and mining overtakes Agriculture, Forestry and Fishing in terms of its contribution to growth (but not in terms of its absolute share of GDP).

Table 21. Projected growth by industry, 2007-2016

Industry	GDP growth (%pa) Baseline 07-16	Postive 07-16	Optimistic 07-16	Contribution to growth Baseline 07-16	Postive 07-16	Optimistic 07-16
Agriculture, Forestry and Fishing	1.9%	2.1%	2.2%	16.5%	12.0%	10.4%
Mining	-2.5%	16.2%	21.0%	-1.4%	13.6%	17.8%
Manufacturing	2.1%	3.8%	4.7%	20.8%	26.6%	28.0%
Electricity, Gas and Water Supply	1.6%	1.7%	2.0%	1.6%	1.1%	1.1%
Construction	2.1%	2.4%	2.7%	5.7%	4.4%	4.2%
Wholesale Trade	1.2%	1.5%	1.7%	3.3%	2.7%	2.6%
Retail Trade	2.0%	2.2%	2.4%	7.3%	5.4%	4.9%
Accommodation, Cafes and Restaurants	2.3%	2.4%	2.5%	2.5%	1.7%	1.5%
Transport and Storage	1.9%	3.4%	4.0%	3.3%	4.1%	4.1%
Communication Services	2.9%	3.0%	3.1%	4.1%	2.8%	2.4%
Finance and Insurance	2.5%	2.5%	2.7%	5.4%	3.7%	3.2%
Property and Business Services	2.6%	2.8%	3.2%	10.2%	7.3%	6.9%
Government Administration and Defence	1.5%	1.5%	1.6%	2.4%	1.6%	1.4%
Education	2.5%	2.6%	2.7%	3.4%	2.3%	2.0%
Health and Community Services	2.1%	2.1%	2.2%	5.8%	3.9%	3.3%
Cultural and Recreational Services	3.3%	4.2%	4.5%	0.9%	0.8%	0.7%
Personal and Other Services	2.8%	3.0%	3.1%	1.3%	0.9%	0.8%
Ownership of owner-occupied dwellings	1.4%	1.7%	2.0%	3.1%	2.6%	2.5%
Unallocated	2.5%	2.5%	2.5%	3.9%	2.6%	2.1%
Total	2.0%	2.9%	3.5%	100%	100%	100%

Source: Infometrics estimates

Projections of Employment growth by industry

In the baseline scenario total employment could grow from 50,600 to 55,600 between 2007 and 2016. Most of the growth is in the service industries including Health and Community Services, Retail Trade, Accommodation, Cafes and Restaurants and Property and Business Services. Employment would grow in Agriculture, Forestry and Fishing but decline in Manufacturing and Mining.

Total employment could rise from 50,600 in 2007 to almost 58,000 in the Positive scenario and 60,000 in the Optimistic scenario. In these scenarios there is even stronger growth in employment in the service industries compared with the base scenario, but unlike the base scenario there is also strong employment growth in Manufacturing and Mining.

Table 22. Projected employment by industry, 2007-2016

Industry	Employme 2007	Employment 2016 Baseline	Postive	Optimistic
Agriculture, Forestry and Fishing	8,450	9,090	9,290	9,310
Mining	140	90	450	640
Manufacturing	8,350	8,020	8,730	10,000
Electricity, Gas and Water Supply	100	140	140	140
Construction	3,320	3,670	3,790	3,890
Wholesale Trade	2,790	2,960	3,040	3,090
Retail Trade	6,270	7,280	7,440	7,560
Accommodation, Cafes and Restaurants	2,900	3,380	3,430	3,450
Transport and Storage	2,170	2,290	2,610	2,750
Communication Services	460	470	480	480
Finance and Insurance	860	990	1,000	1,010
Property and Business Services	3,720	4,160	4,230	4,410
Government Administration and Defence	1,080	1,120	1,120	1,130
Education	2,960	3,350	3,390	3,400
Health and Community Services	4,760	5,860	5,890	5,910
Cultural and Recreational Services	870	1,050	1,140	1,170
Personal and Other Services	1,340	1,730	1,750	1,770
Total	50,600	55,600	57,900	60,100

Source: Infometrics estimates

Table 23. Projected employment growth by industry, 2007-2016

Industry	Employment growth (%pa) Baseline 07-16	Postive 07-16	Optimistic 07-16	Employment growth (persons) Baseline 07-16	Postive 07-16	Optimistic 07-16
Agriculture, Forestry and Fishing	0.8%	1.1%	1.1%	640	840	870
Mining	-4.3%	14.2%	18.9%	-40	310	510
Manufacturing	-0.4%	0.5%	2.0%	-330	380	1650
Electricity, Gas and Water Supply	3.3%	3.4%	3.6%	40	40	40
Construction	1.1%	1.5%	1.8%	350	470	560
Wholesale Trade	0.6%	0.9%	1.1%	160	250	300
Retail Trade	1.7%	1.9%	2.1%	1010	1170	1280
Accommodation, Cafes and Restaurants	1.7%	1.9%	2.0%	490	530	560
Transport and Storage	0.6%	2.1%	2.7%	130	450	580
Communication Services	0.3%	0.5%	0.5%	10	20	20
Finance and Insurance	1.6%	1.7%	1.8%	130	140	150
Property and Business Services	1.2%	1.4%	1.9%	440	510	690
Government Administration and Defence	0.4%	0.4%	0.4%	40	40	40
Education	1.4%	1.5%	1.6%	390	430	440
Health and Community Services	2.3%	2.4%	2.4%	1100	1130	1150
Cultural and Recreational Services	2.1%	3.0%	3.3%	180	270	290
Personal and Other Services	2.8%	3.0%	3.1%	380	410	430
Total	1.1%	1.5%	1.9%	5100	7400	9600

Source: Infometrics estimates

Projections of Employment by occupation

In this section projected employment in each industry is converted to employment by occupation under the various scenarios. The increases in economic activity under the Positive and Optimistic scenarios occur mainly in the primary and secondary industries and this predominantly

impacts on the demand for occupations associated with those industries. However, there are flow on effects from the primary and secondary industries to the service industries and these impact on occupations associated with the service industries. The methods used for projecting employment by occupation are outlined in Appendix B.

The tables below show projected employment and growth in employment by broad occupation between 2007 and 2016. In all scenarios the strongest growth is experienced in the highly skilled categories of Managers/Legislators, Professionals and Associate Professionals/Technicians largely due to the growth in service industries. Strong growth is also recorded in all scenarios due to strong employment growth in the retail industry. The Positive and Optimistic scenarios lift growth in demand for some of the lower skilled occupations including Plant/Machine Operators and Elementary occupations due to the strong growth in the manufacturing and mining industries.

Table 24. Projected employment by broad occupation: 2007-2016

Occupation	2007	2016		
		Baseline	Postive	Optimistic
Legislators//Managers	6,420	7,650	7,990	8,390
Professionals	6,180	7,330	7,500	7,650
Associate Professionals/Technicians	4,870	5,890	6,140	6,400
Clerks	4,690	4,800	4,970	5,170
Service/Sales Workers	6,720	7,700	7,880	7,990
Agriculture/Fishery Worker	7,180	7,310	7,520	7,580
Trades Workers	4,270	4,450	4,640	4,820
Plant/Machine Operators	6,640	6,620	7,160	7,760
Elementary Occupations	3,580	3,870	4,100	4,300
Total	50,600	55,600	57,900	60,100

Source: Infometrics estimates

Table 25. Projected employment growth by broad occupation: 2007-2016

Industry	Employment growth (%pa)			Employment growth (persons)		
	Baseline 07-16	Postive 07-16	Optimistic 07-16	Baseline 07-16	Postive 07-16	Optimistic 07-16
Legislators//Managers	2.0%	2.5%	3.0%	1,240	1,570	1,980
Professionals	1.9%	2.2%	2.4%	1,150	1,320	1,470
Associate Professionals/Technicians	2.1%	2.6%	3.1%	1,020	1,270	1,530
Clerks	0.3%	0.6%	1.1%	110	270	480
Service/Sales Workers	1.5%	1.8%	1.9%	990	1,170	1,270
Agriculture/Fishery Worker	0.2%	0.5%	0.6%	130	340	400
Trades Workers	0.5%	0.9%	1.4%	180	370	550
Plant/Machine Operators	0.0%	0.8%	1.7%	-30	510	1,120
Elementary Occupations	0.9%	1.5%	2.1%	290	530	720
Total	1.1%	1.5%	1.9%	5,100	7,300	9,500

Source: Infometrics estimates

Table 26 shows occupations that are expected to experience the highest absolute growth in employment between 2007 and 2016. Corporate Managers rank the highest, partly because it is such a broad category. The dairy conversions are likely to drive the growth in Dairy Farmers and Workers and Other Agricultural Workers. A number of health and welfare related occupations are in the top 20 including Personal Care Workers (including Care Givers), Nursing Professionals and Social Work Associate Professionals (including Social Workers). The strong growth in Retail and Wholesale Trade is likely to drive the growth in demand for Sales Representatives, Salespersons and Cashiers.

Table 26. Occupations with highest absolute growth in employment: 2007-2016 (Baseline scenario)

Rank		Growth in employment
1	Corporate Managers	1130
2	Dairy Farmers and Workers	360
3	Labourers and Related Elementary Service Workers	290
4	Personal Care Workers	270
5	Sales Representatives	240
6	Nursing professionals	210
7	Salespersons, Demonstrators and Models	210
8	Other Agriculture Workers	170
9	Waiters and Bartenders	150
10	Administrative Associate Professionals	140
11	Carpenters and Joiners	130
12	Protective Services Workers	130
13	Metal and Mineral Products Processing Machine Operato	120
14	Social Work Associate Professionals	110
15	Cashiers, Tellers and Related Clerks	110
16	Legislators and Administrators	110
17	Receptionists and Information Clerks	100
18	Chefs and cooks	100
19	Primary Teaching Professionals	90
20	Computing Professionals	90

Source: Infometrics estimates

The conversion of sheep and other farms to dairy is expected to negatively impact on the employment of a number of occupations including Slaughterer and other Food Processing Workers, Sheep Farmers and Workers, Butchers.

Table 27. Occupations with largest absolute decline in employment: 2007-2016

Rank		Change in employment
1	Slaughterer and other food Processing workers	-390
2	Sheep farmers and workers	-310
3	Secretaries and Keyboard Operating Clerks	-130
4	Other animal farmers and workers	-80
5	Sheet-Metal Workers	-30
6	Butchers	-20
7	Forestry Workers and Loggers	-20
8	Ships' Deck Crews and Related Workers	-20
9	Fitters and Turners	-20
10	Painters and Paperhangers	-10

Source: Infometrics estimates

Projections of Occupational Replacement Demand

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). This section provides estimates of future net replacement demand by occupation ie the net number of positions that will come open due to individuals leaving each occupation. Our method takes into account the various reasons people leave occupations including retirement, leaving the workforce (either permanently or temporarily to start a family, study etc), career change or promotion, and poor health or death. We have attempted to take out the impact of migration (internal and external) as this is one of the policy levers that can be utilised to overcome labour shortfalls.

The method we have used to estimate net replacement demand in each occupation is based on the methodology developed by Shah and Burke[8] in Australia. Further details of our approach are provided in Appendix B.

Table 28 shows that the estimated net replacement demand rate for Southland is 1.5%pa. This rate means that, on a net basis, 800 new workers need to be found each year to replace individuals that leave their job due to retirement, leaving the workforce etc. These workers need to be found from new sources of labour supply such as new entrants to the labour market, migrants from other parts of New Zealand or the world or individuals re-entering the labour market. Service/sales workers and Clerks have the highest net replacement demand rate (2.6% and 2.1% respectively). In terms of absolute numbers the most number of job openings occur in Service/Sales Workers (180) and Agriculture/Fishery workers (120).

8 Shah C and Burke G. 2001. 'Occupational replacement demand in Australia'. *International Journal of Manpower*, Vol. 22, No. 7, pp. 648-663. Centre for the Economics of Education and Training, Monash University.

Table 28. Net replacement demand by broad occupation, Southland

	Net replacement demand rate	Annual job openings due to replacement
Legislators//Managers	1.0%	70
Professionals	1.4%	90
Associate Professionals/Technicians	1.3%	70
Clerks	2.0%	90
Service/Sales Workers	2.5%	180
Agriculture/Fishery Worker	1.6%	120
Trades Workers	1.3%	60
Plant/Machine Operators	1.4%	90
Elementary Occupations	1.2%	40
Total	1.5%	800

Source: Infometrics estimates

Table 29 shows occupations with the highest number of net annual job openings due to replacement. Many of the occupations are relatively low skilled. Apart from reflecting the large size of the occupations the high outflow is probably influenced by the high outflow of people from low skilled occupations (to other parts of the country, overseas, into training and higher skilled occupations) and earlier retirement ages due to the physically demanding nature of these jobs.

Table 29. Occupations with highest number of annual net job openings due to replacement, 2007-2016

Rank		Net annual job openings
1	Waiters and Bartenders	80
2	Corporate Managers	70
3	Salespersons, Demonstrators and Models	60
4	Slaughterer and other food Processing workers	50
5	Other animal farmers and workers	50
6	Cashiers, Tellers and Related Clerks	40
7	Labourers and Related Elementary Service Workers	40
8	Other Agriculture Workers	30
9	Dairy Farmers and Workers	30
10	Office Clerks	30
11	Primary Teaching Professionals	20
12	Nursing professionals	10
13	Receptionists and Information Clerks	10
14	Machinery Mechanics and Fitters	10
15	Secondary Teaching Professionals	10
16	Social Work Associate Professionals	10
17	Agricultural and Earthmoving Equipment Operators	10
18	Sheet-Metal Workers	10
19	Numerical Clerks	10
20	Chefs and cooks	10

Source: Infometrics estimates

The net replacement demand rate and total number of net job openings in about 150 occupations is shown in the occupational summary table in Appendix A.

Total demand for labour by occupation

This section draws together the previous sections which separately investigated growth in job openings due to employment growth (new demand) and job openings due to people leaving existing positions (replacement demand).

Table 30 shows that in the baseline scenario almost 1,400 job openings occur each year. The majority of these (about 60%) are due to replacement. The highest number of job openings occurs among Service/Sales Workers followed by Professionals and Managers. In the Positive scenario a total of more than 1,600 job openings occur each year. The number of new jobs slightly exceeds replacement.

Table 30. Total annual job openings by broad occupation, 2007-2016

	Baseline			Postive		
Occupation	**New jobs**	**Replace-ment**	**Total**	**New jobs**	**Replace-ment**	**Total**
Legislators//Managers	140	70	210	170	70	240
Professionals	130	90	220	150	90	240
Associate Professionals/Technicians	110	70	180	140	70	210
Clerks	10	90	100	30	90	120
Service/Sales Workers	110	180	290	130	180	310
Agriculture/Fishery Worker	10	120	130	40	120	160
Trades Workers	20	60	80	40	60	100
Plant/Machine Operators	0	90	90	60	90	150
Elementary Occupations	30	40	70	60	40	100
Total	560	810	1,370	820	810	1,630

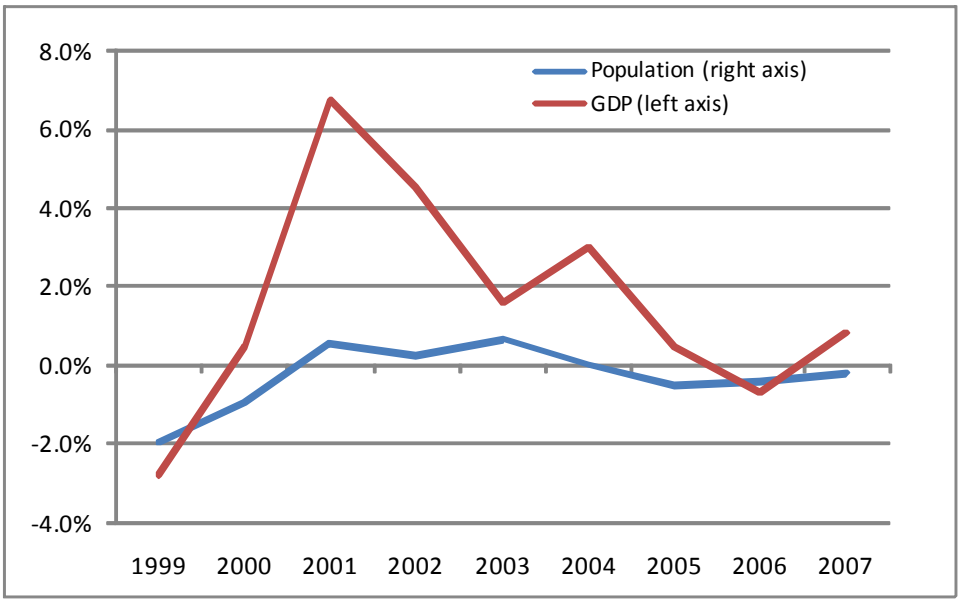
Source: Infometrics estimates

Labour Force

The Southland labour force grew from about 47,800 in 2002 to about 52,000 in 2007, despite the region's stable total population size over that period. The increase in the labour force came about due to an increase in labour force participation (the proportion of the working age population in the labour force) from about 66% in 2002 to about 71% in 2007.

The positive impact of rising age-specific labour force participation rates in the future will be to some extent be countered by the ageing of the population. Consequently, the majority of future growth in the workforce will be dependent on Southland's ability to improve its retention of existing population and attract new population. This in turn will be influenced by the performance of the economy – an expanding Southland economy will help grow the population. The link between economic growth and population growth is demonstrated in Figure 4.

Figure 4. Population and economic growth in Southland region, 1999-2007



Source: Statistics New Zealand and Infometrics estimates

Population projections compiled by Statistics New Zealand show the population declining on average by 0.2%pa over the period 2007 to 2016[9] (Table 31). The labour force would grow marginally over this period (0.2%pa or about 100 persons a year) due to rising labour force participation. These projections include an assumption that Southland experiences a net population loss of about 650 people each year through net migration. If the assumption about net migration is removed then the population is likely to growth slightly (0.2%pa) due to natural growth ie births exceeding deaths. With no net migration the labour force would grow by 0.6%pa or about 300 people per year over the whole period.

[9] This refers to the 'medium' projection. The 'High' projection shows a small increase in the population between 2006 and 2016

Table 31. Population and labour force projections

	Statistics NZ Medium Projection		Statistics NZ Medium Projection (no net migration)	
Year	Population	Labour Force	Population	Labour Force
2007	93,000	51,800	93,000	51,800
2008	92,850	52,100	93,500	52,500
2009	92,700	52,300	94,000	53,100
2010	92,550	52,600	94,500	53,800
2011	92,400	52,800	94,900	54,600
2012	92,160	52,800	95,300	54,700
2013	91,920	52,800	95,700	54,800
2014	91,680	52,800	96,100	54,800
2015	91,440	52,800	96,500	54,700
2016	91,200	52,800	96,800	54,600
Growth 07-16	-0.2%	0.2%	0.4%	0.6%

Source: Infometrics estimates

The future balance between supply and demand for labour

This section draws together the analysis on the future demand for labour and the supply of labour in Southland. Table 32 shows that the labour force is expected to grow by about 300 people per year in the absence of net migration. In the base scenario total job openings could be about 1,400 each year on average leaving a shortfall of about 1,100. This shortfall could rise to 1,300 in the positive scenario and 1,600 in the optimistic scenario. The 1,700 existing job vacancies at the beginning of the forecast period also need to be factored into the analysis. For instance after five years the total shortfall in the Base Scenario could be 7,200 (ie 1,700 + 5 x 1,100).

Table 32. Future balance between labour demand and supply

	Base Scenario	**Positive Scenario**	**Optimistic Scenario**
Annual labour force growth ex. net migration (2008-2016)	300	300	300
Annual total job openings (2008-2016)	1,400	1,600	1,900
Annual shortfall	-1,100	-1,300	-1,600
+ Existing Vacancies in 2007	-1,700	-1,700	-1,700

Source: Infometrics estimates

Clearly this disequilibrium situation is not achievable and a number of outcomes are possible. These include:

- Southland makes up the labour shortfall by attracting migrants from other regions of New Zealand and other parts of the world.
- Southland Employers strive for higher productivity growth (for instance by deepening capital intensity) than is embodied in these scenarios. The baseline scenario estimates productivity growth of 0.9%pa, the positive scenario 1.4%pa and the optimistic scenario 1.6%pa. These growth rates are somewhat higher than productivity growth of only 0.2%pa achieved in Southland over the past ten years.
- The economy is constrained by the labour shortfall and does not achieve its growth potential as articulated in the scenarios.
- A mix of the above.

Table 33, below, presents the nine year labour market and population implications of the three scenarios assuming that the majority of the adjustment is through attracting migrants to Southland. The number of new positions that will potentially be generated in Southland over the next nine years range from 5,100 to 9,500, depending on the scenario used. When one takes into account the 1,700 existing vacancies in 2007 and the likely need to replace 7,200 retiring or departing workers over the nine-year period, the new workers required by Southland ranges from 14,000 to 18,400, depending on the scenario used.

With labour supply growth from the local population expected to increase by only 2,700 the scenarios imply a potential labour shortfall in 2016 of between 11,300 and 15,700. Meeting this shortfall through migration will require in the vicinity of between 15,000 and 25,000 net inward migration into Southland, depending on the scenario and the number of dependents each migrant worker brings with them. The migration numbers in Table 33, assume a labour market participation rate of 70% for migrants. These numbers imply ***net*** inward migration of between 1,800 and 2,500 per year. If this occurred, the population of Southland would range from 110,000 to 116,000 in 2016.

Table 33. Nine-year labour market and population implications of scenarios (2007-2016)

	Base Scenario	Positive Scenario	Optimistic Scenario
Existing vacancies in 2007	1,700	1,700	1,700
Replacement demand	7,200	7,200	7,200
Number of new positions	5,100	7,300	9,500
Required new workers	14,000	16,200	18,400
Labour supply growth (no migration)	2,700	2,700	2,700
Implied labour shortfall	11,300	13,500	15,700
Migration required to meet shortfall	16,100	19,300	22,400
Implied Southland population in 2016	109,800	113,000	116,100

Southland's ability to achieve higher productivity in many industries is limited by the size of the economy. The small economy requires companies to use a multidisciplinary approach to jobs and restricts their ability to become specialised and increase automation. This has the implication that the region will depend heavily on a growing pool of skills to grow its economy.

Appendix A. Statistical Appendix

	Occupation	Employ-ment 2002	Employ-ment 2007	Annual job openings due to replacement, 2007-2016	Annual job openings due to new demand, 2007-2016, Baseline Scenario	Annual job openings due to new demand, 2007-2016, Positive Scenario	Total annual job openings, Base scenario	Total annual job openings, Positive scenario
1	Legislators and Administrators	294	407	2	12	14	13	16
2	Corporate Managers	4974	6012	67	126	161	193	228
3	Physicists, Chemists and Related Professionals	34	39	1	1	2	2	3
4	Computing Professionals	272	342	2	10	12	12	13
5	Architects and Resource Management Professionals	51	80	0	2	2	2	2
6	Civil Engineers	125	127	3	0	3	3	5
7	Electrical Engineers	35	44	1	2	2	3	3
8	Electronic and Telecommunications Engineers	20	21	0	1	1	1	1
9	Mechanical Engineers	141	162	4	2	3	6	7
10	Chemical, mining and related engineers	26	28	1	1	1	2	2
11	Cartographers and Surveyors	31	31	0	0	0	0	0
12	Biologists, Botanists, Zoologists and Related Professionals	51	55	1	2	3	3	4
13	Microbiologists and Related Professionals	22	46	1	3	3	5	5
14	Agricultural and Natural Resource Scientists	67	65	1	0	1	1	1
15	Medical Doctors	227	269	6	7	7	13	13
16	Dentists	32	33	0	0	0	1	1
17	Veterinarians	49	51	1	0	0	1	2
18	Pharmacists	73	92	2	3	3	5	5
19	Other Health Professionals (Except Nursing)	17	23	1	1	1	2	2
20	Nursing professionals	833	978	12	24	24	36	37
21	Midwife	62	71	1	1	1	3	3
22	Tertiary Teaching Professionals	232	279	1	8	9	9	10
23	Secondary Teaching Professionals	525	561	10	7	8	17	18
24	Primary Teaching Professionals	756	738	17	11	11	28	28
25	Early Childhood Teaching Professionals	181	307	2	10	10	11	12
26	Special Education Teaching Professionals	76	75	2	0	1	2	2
27	Other education professionals	28	44	0	2	2	2	3
28	Accountants	501	573	5	7	9	11	14
29	Human Resources Professionals	135	184	1	7	7	8	8
30	Other Business Professionals	251	288	5	5	7	10	12
31	Legal Professionals	193	188	3	4	5	7	8
32	Archivists, Librarians and Related Information Professionals	101	104	1	1	2	3	3
33	Social and Related Science Professionals	193	227	3	6	6	9	9
34	Religious Professionals	33	57	0	0	1	0	1
35	Physical Science Technicians	74	64	2	1	1	3	3
36	Civil Engineering Technicians	49	60	2	1	2	3	3
37	Electrical Engineering Technicians	28	37	0	1	2	1	2
38	Electronic Engineering Technicians	114	111	2	1	2	4	4
39	Mechanical Engineering Technicians	21	20	1	0	0	1	1
40	Chemical Engineering Technicians	14	12	0	0	1	1	1
41	Draughting Technicians	56	57	1	0	0	1	1
42	Other Engineering Technicians	21	50	0	3	5	3	5
43	Computer Equipment Controllers	132	110	2	0	1	2	3
44	Optical and Electronic Equipment Controllers	134	171	3	7	9	10	11
45	Ship and Aircraft Controllers and	97	104	2	1	3	4	5

	Technicians							
46	Safety and Health Inspectors	148	207	2	6	7	8	9
47	Life Science Technicians and Related Workers	114	153	3	4	6	8	9
48	Other Health Associate Professionals	64	81	1	3	3	4	4
49	Dental Assistants	23	26	0	1	1	1	1
50	Physiotherapists	119	157	3	4	5	8	8
51	Veterinary Assistants	47	39	2	0	0	1	2
52	Pharmaceutical Assistants	25	3	0	0	0	0	0
53	Other Health Associate Professionals	0	0	0	0	0	0	0
54	Nursing Associate Professionals	65	61	1	0	0	1	1
55	Securities and Finance Dealers and Brokers	75	108	0	3	3	3	3
56	Insurance Representative	59	59	1	0	0	2	2
57	Real Estate Agents	107	155	2	1	1	3	3
58	Travel Consultants and Organisers	42	26	0	0	0	0	0
59	Sales Representatives	669	1063	5	27	34	32	39
60	Buyers	130	132	4	2	2	6	6
61	Other Finance and Sales Associate Professionals	31	46	1	0	0	1	2
62	Administrative Associate Professionals	378	497	5	15	19	20	25
63	Government Associate Professionals	26	28	0	1	1	1	1
64	Social Work Associate Professionals	559	644	10	13	13	22	23
65	Careers and Employment Advisers	17	23	0	1	1	1	1
66	Authors, Journalists and Other Writers	106	69	2	1	3	2	4
67	Sculptors, Painters and Related Artists	32	45	0	2	2	2	2
68	Decorators and Designers	91	121	2	4	4	5	6
69	Musicians, actors and related occupations	115	116	3	3	4	5	7
70	Sportspersons and Related Workers	139	172	3	6	6	9	9
71	Non-Ordained Religious Associate Professionals	9	15	0	0	0	0	0
72	Environmental Protection Associate Professionals	18	24	0	1	1	1	1
73	Secretaries and Keyboard Operating Clerks	788	566	3	-15	-13	-12	-10
74	Numerical Clerks	518	542	7	2	4	10	12
75	Office Clerks	2084	2113	25	1	11	27	36
76	Cashiers, Tellers and Related Clerks	696	757	43	12	15	56	58
77	Receptionists and Information Clerks	576	655	12	11	13	22	25
78	Telephone Switchboard Operators	65	61	2	0	1	3	3
79	Travel Attendants and Guides	79	91	2	1	3	3	5
80	Housekeepers	144	127	2	1	1	3	3
81	Chefs and cooks	491	569	7	11	12	18	19
82	Waiters and Bartenders	1177	1291	81	17	21	97	102
83	Personal Care Workers	1052	1215	4	30	31	34	36
84	Hairdressers, Beauty Therapists and Related Workers	275	311	6	9	10	15	16
85	Child Care Workers	111	147	6	3	3	9	9
86	Protective Services Workers	531	472	5	14	16	19	20
87	Salespersons, Demonstrators and Models	2416	2495	63	23	32	86	95
88	Crop farmers and growers	753	608	4	0	2	4	6
89	Dairy Farmers and Workers	1342	1531	28	40	52	68	80
90	Sheep farmers and workers	1583	1135	0	-35	-34	-35	-34
91	Other animal farmers and workers	3099	2636	49	-9	-4	40	45
92	Other Agriculture Workers	1201	1054	33	18	19	51	52
93	Forestry Workers and Loggers	146	76	1	-2	-2	-1	-1
94	Fishery Workers	128	134	0	-1	1	-1	2
95	Aquatic Life Cultivation Workers	27	33	1	1	1	1	1
96	Hunters and Trappers	20	19	0	0	0	1	1
97	Animal Welfare Workers	43	54	0	2	2	2	3
98	Bricklayers and Stonemasons	62	79	0	1	2	1	2
99	Carpenters and Joiners	712	1006	7	15	19	22	26

100	Plasterers	24	66	1	0	1	2	2
101	Glaziers	58	55	1	0	0	0	1
102	Plumbers	105	129	2	0	0	2	2
103	Painters and Paperhangers	250	278	4	-1	0	3	4
104	Electricians	397	424	6	1	4	7	10
105	Metal Moulders	13	16	0	0	0	0	0
106	Sheet-Metal Workers	520	504	8	-3	-2	4	5
107	Blacksmiths, Toolmakers and Related Workers	36	40	0	1	1	1	1
108	Fitters and Turners	95	77	0	-2	-1	-1	-1
109	Saw Doctors	15	15	0	0	0	0	0
110	Machinery Mechanics and Fitters	764	829	11	5	11	16	22
111	Electrical Mechanics and Fitters	27	31	1	1	1	1	2
112	Electronics Fitters and Servicers	21	17	0	0	0	0	1
113	Radio and Television Servicers	11	12	0	0	0	0	0
114	Precision Instrument Makers and Repairers	18	16	0	0	0	1	1
115	Precision Instrument Makers and Repairers	0	0	0	0	0	0	0
116	Jewellery and Precious Metal Trades Workers	17	14	0	0	0	0	0
117	Printing Trades Workers	84	101	1	2	2	2	3
118	Binding Trades Workers	13	17	1	0	0	1	1
119	Printing Engravers and Etchers	6	6	0	0	0	0	0
120	Butchers	277	287	6	-3	-2	4	4
121	Bakers	89	105	3	2	2	5	5
122	Cabinet Makers and Related Workers	58	55	1	0	1	1	2
123	Tailors and Dressmakers	18	17	0	0	0	0	0
124	Upholsterers and Related Workers	19	22	1	1	1	1	1
125	Floor Covering Layers	51	54	1	0	1	1	2
126	Mining and Mineral Processing Plant Operators	61	59	1	0	12	1	13
127	Metal-Processing Plant Operators	259	273	3	3	4	6	7
128	Glass and Ceramics Kiln and Related Plant Operators	35	26	0	0	0	0	0
129	Wood-Processing and Papermaking Plant Operators	169	220	3	4	5	7	8
130	Chemical Processing Plant Operators	34	34	1	1	1	2	2
131	Power Generating and Related Plant Operators	50	37	1	0	1	1	1
132	Metal and Mineral Products Processing Machine Operators	273	326	2	13	19	14	20
133	Chemical Products Machine Operators	36	25	1	0	0	1	1
134	Rubber and Plastics Products Machine Operators	48	51	2	1	1	3	3
135	Wood Products Machine Operators	65	71	2	1	1	2	3
136	Paper Products Machine Operators	11	10	0	0	0	0	0
137	Textile Products Machine Operators	357	298	5	2	3	7	7
138	Slaughterer and other food Processing workers	2913	2693	49	-44	-37	6	12
139	Leather and Related Products Processors	87	44	0	-1	-1	0	0
140	Assemblers	203	203	3	5	6	8	9
141	Railway Engine Drivers and Related Workers	14	14	0	0	1	1	1
142	Motor Vehicle Drivers	1350	1373	4	8	27	12	31
143	Agricultural and Earthmoving Equipment Operators	564	593	8	7	15	14	23
144	Ships' Deck Crews and Related Workers	70	64	2	-2	-1	0	1
145	Building and Related Workers	192	235	5	0	1	5	5
146	Labourers and Related Elementary Service Workers	3238	3581	42	32	58	74	100

Appendix B. Methodology

Historical employment estimates

This study draws heavily on Infometrics' Regional Industry Employment Model (RIEM). This model provides more robust and up-to-date information than Business Demography statistics, the source used by most economic analysts for estimates of regional employment. The RIEM draws on the industry and geographical detail of the Business Demography statistics, the statistical robustness of the Linked Employer-Employee Data (LEED) and the currency of the Quarterly Employment Survey. The RIEM provides estimates of the number of people employed in 480 industries in each region and territorial authority for each quarter since March 1997.

Data from the RIEM has the following advantages over data from Business Demography.

- The RIEM includes self-employment whereas it is excluded from Business Demography. The exclusion of self employment leads to a significant undercount of employment in certain industries such as agriculture and construction. Infometrics utilises LEED and census to provide estimates of self employment by industry.
- The RIEM is benchmarked on industry employment totals from LEED, which is statistically more robust than Business Demography. LEED is designed to measure employment whereas Business Demography is designed to measure the number of establishments etc. and only measures employment as a spin off.
- The RIEM measures employment in each quarter of the year whereas Business Demography provides only a single snapshot (February) each year. Providing only a single snapshot is inadequate for industries such as horticulture and hospitality which are highly seasonal.
- The RIEM is significantly more up-to-date than Business Demography. The latest data available from the Business Demography is from February 2006 whereas the RIEM has data up to the September quarter in 2007. The RIEM uses the QES to provide up-to-date employment estimates.

Historical GDP estimates

Infometrics follows a top down approach in estimating regional GDP. National industrial production (sourced from production based GDP measures) is broken down to regional level using the following sources.

- Estimates of the number of people employed in each industry in each region from the Regional Infometrics Industry Employment Model.
- Estimates of hours worked per employed person in each industry in each region from the Quarterly Employment Survey.

- Estimates of value added per employed person in each industry in each region from historical regional GDP estimates from Statistics New Zealand.
- Historical regional GDP estimates from Statistics New Zealand provide a benchmark for the period 2000-2003.

Estimating existing job vacancies

As New Zealand does not have a robust measure of the total number of ready-to-fill vacancies we need to utilise a number of data sources and some relationships measured in Australia to arrive at an estimate of total ready-to-fill vacancies. The following steps were followed:

1. The relationship between newspaper vacancies and total vacancies was estimated by comparing the total number of job vacancies in Australia as measured in the Australian Bureau of Statistics Job Vacancy Survey and the ANZ Job Ad Series.
2. The total number of job vacancies in New Zealand was measured by multiplying the ratio measured above by the number of newspaper vacancies measured in New Zealand by the ANZ job ad series.
3. The ratio between total job vacancies and vacancies measured in the Department of Labour's Job Vacancy Monitor (JVM) was estimated by dividing total vacancies measured above by the total number of vacancies measured in the JVM.
4. The total number of vacancies in Southland was estimated by applying the ratio measured in point 3 above to the total number of vacancies measured by the JVM in Southland.
5. Total vacancies were distributed across occupations according to the distribution measured in the JVM.

Comparing growth in demand for qualifications with education provision

This section separately describes the method in estimating growth in demand for qualifications, the supply of new skills through education and training and a comparison of the two over the period 2003-2006 in Southland.

Education and Training

1. Data on the number of persons enrolled for courses funded by Student Component Funding was obtained from the Single Data Returns (SDR) dataset housed at TEC. This data contained information on the number of individuals, broad field of study (NZSCED), NQF level and year of enrolment. Adult Community Education courses and Short Awards (any qualification under 40 credits) were filtered from the data. These courses (which for example could include first aid and poison handling courses) were removed as they do not materially contribute to the skills base of

the population but are numerically large in the data set and would consequently skew the analysis.

2. Data on the number of persons enrolled for courses funded by the Industry Training Fund (including Modern Apprentices) was obtained from the Industry Liaison Unit dataset housed at TEC. This data contained information on the number of individuals, industry training organisation (ITO), programme name, level and year of enrolment. Infometrics classified each programme to a broad field of study to ensure the industry training data was comparable with the SDR data.

3. SDR data was combined with the industry training data to produce a single dataset of the number of enrolments by level and broad field of study for the period 2003 – 2006.

Growth in demand for qualifications

1. The number of positions that opened by occupation in Southland between 2003 and 2006 was calculated by adding growth in employment to replacement demand. Details on methods used to measure occupational employment growth and replacement are presented earlier in this methodology Appendix.

2. The growth in demand for occupations between 2003 and 2006 was converted into growth in demand by qualification using the occupation-qualification matrix obtained from the 2006 population census. The matrix shows the distribution of qualifications (by level and field of study) within each occupation.

Comparing demand and supply

A number of adjustments were made to the education and training data in an attempt to make it comparable to the demand data:

1. The data shows the total stock of enrolments over the time period 2003-2006. It would be expected that students enrolled for longer duration courses would be counted in the data for each year they are enrolled (for instance, a student that started a three year bachelors degree in 2003 is likely to be counted three times in the data set). It is therefore necessary to adjust for time to complete qualifications. Adjustments were made using data from the Ministry of Education which show the mean number of years to complete various qualification levels. [Source: Scott D (2005) How Long Do People Spend In Tertiary Education? Ministry Of Education]

2. Completion rates differ across qualifications and our data on enrolments by qualification needs to take this into account. The data was adjusted using completion rates published by the Ministry of Education. [Source: Scott D (2005) [Source: Scott D (2005) Retention, Completion & Progression in Tertiary Education in New Zealand].

3. There is some overlap between the SDR and ILU datasets – according to a Ministry of Education official between 10% and 15% of individuals included in the ILU data are also included in the

SDR. For this reason the number of enrolments recorded in the ILU data was deflated by a compromise 12%.

Regional economic forecasts

In a process sense, regional economic forecasts are developed in the following practical steps:

1. Infometrics undertakes its economy-wide forecasts
2. Industrial production is forecast at the national level (ie how much of GDP will come from agriculture, fishing, forestry etc) using a principle components approach.
3. The regional share of each industry's production is forecast, ie $\frac{VA_{i,j}}{\sum_i VA_{i,j}}$ the proportion of all regions value added in the *j*-the industry produced in the *i*-th region.
4. Forecasts of regional GDP are then calculated as the sum of the of industrial production in the region, ie

$$GDP_i = \sum_j \frac{VA_{i,j}}{\sum_i VA_{i,j}} \cdot VA_j$$

GDP in region *i* equals the sum of value added in all *j* industries and the region's value added in each industry is calculated as the region's share times the national value added.

5. The output per hour in each industry is forecast, applying these forecasts to the industrial production expected in each region allows an estimation of labour requirements in each region, from which one can also forecast employment prospects.

Methodology for projecting growth in employment by occupation

Projected employment in each industry is converted to occupational employment utilising the relationship between industry and occupational employment observed in successive Population Censuses. The Population Census measures the occupational composition of employment in each industry and how this changes over time. In our method there are two effects influencing the growth or decline in employment in each occupation. The first is the *industry effect* which is the effect of growth in employment in which an occupation is concentrated. For instance, most carpenters work in the residential construction industry so growth in this industry results in growth in demand for carpenters. The second effect is the *occupational effect* which is the effect of the changing composition of employment in each industry. For instance, the number of carpenters used relative to other occupations in the residential construction industry may be declining because of the increasing use of kit set houses which require fewer

skilled carpenters and more less-skilled hammer-hands to construct than conventional construction methods.

Forecasts of employment by occupation are based on the following steps:

1. Estimate employment by industry to the target year
2. Estimate the occupational shares of employment in each industry in the base year. This is estimated from the Population Census.
3. Estimate the occupational shares of employment in each industry in the target year. This is estimated using the change in occupational shares observed between the 2001 and 2006 Population Censuses.
4. The occupational shares in each industry in the base year are multiplied by estimated employment in each industry to arrive at occupational employment in each industry. Occupational employment is summed across industries to arrive at total employment by occupation in the base year.
5. The same done for the target year to arrive at total employment by occupation in the target year.

Methodology for estimating net demand replacement

Infometrics have used the cohort-component method used by Shah and Burke[10]. The cohort-component method uses estimates of employment by occupation and age category at two different points in time, to establish the inflows and the outflows in each occupation in each age-cohort. Shah and Burke used annual data, however due to the lack of availability of this type of data for New Zealand, data from the 2001 and 2006 Census was used in this study.

The net flow from an occupation was estimated as the sum of the change in the size of each age cohorts between 2001 and 2006. If the size of the cohort decreased then there has been an outflow, whereas if the cohort increased the net outflow is equal to zero. This is true if the number of people employed in an occupation is expanding, however if employment is decreasing then the net outflow is equal to sum of outflows less the size of the employment decline. Total net outflow from an occupation is estimated by summing the net outflow from each age cohort. The five year net demand replacement rate is estimated by dividing the total net outflow by employment in the occupation in 2001. This rate is converted to an annual rate.

The net demand replacement rates that were estimated using census data for Southland region (overall rate = 2.4%) were considerably higher than those estimated at the national level (overall rate = 1.2%). Much of the difference is due to net migration as Southland has historically lost population to other regions in the country, and has received a smaller

10 Shah C and Burke G. 2001. 'Occupational replacement demand in Australia'. *International Journal of Manpower*, Vol. 22, No. 7, pp. 648-663. Centre for the Economics of Education and Training, Monash University.

share of net migratory inflows relative to its share of population. Southland's slightly older population would explain part of the difference.

Our analysis of replacement demand tries to strip out the effect of net migration as the latter is dealt with as a separate supply force and is one of the policy levers to deal with skill and labour shortages. Our approach to removing migratory flows from our analysis is to estimate net replacement rates for Southland as a weighted average of Southland rates and national level rates. Southland's weight was half that of the national weight. The final estimated net demand replacement rate for Southland was 1.5%.

The above method provides historical estimates of net replacement demand rates for each occupation in Southland. In order to estimate the total number of job openings in the next five years we assume that the historical net replacement rates continue into the future. They are likely to differ slightly in the future due to the changing age structure and changing age-specific participation rates. However, without considerable more research into these issues it would be difficult to estimate the future changes. For the purposes of this study a continuation of historical trends in the net replacement rate is adequate.

Appendix C. Attendants at Venture Southland-Infometrics workshop on Southland economic prospects

Representative	Organisation
Leanne Samuel	Southland District Health Board
Richard Hay	Chamber of commerce
William Hope	Southland Building Society
Isabel Radka	Southern District Health Board
Randal Bell	Southern District Health Board
Dylan Adams	PPCS
Trish Lindsay	Southern Institute of Technology
Barry Simmonds	New Zealand Aluminium Smelter
Dave McKissock	Southern Directionz
Ray McLellan	Calder Stewart
Paul Casson	MSD
Glenys McKenzie	Southern Group
Kerry Stevens	Alliance group
James Neylon	Alliance group
Michael Weuston	Acumen applied
David Rose	Federated Farmers
Paul Crack	Department of Labour