

Service IQ

SMARTER PEOPLE FOR
SMARTER BUSINESSES

A PROFILE OF THE
**RETAIL
SECTOR**
IN NEW ZEALAND

2014

This report is one of 11 Sector Profile Reports that ServiceIQ has developed about the 11 sectors in our gazetted coverage area. These reports aim to give an overview of each sector with a focus on economic contribution, characteristics of the workforce, skills and training, opportunities and challenges facing the sector and projections of economic contribution and employment over the next five years. They will be used to inform ServiceIQ's industry and sector advisory groups and as an input into ServiceIQ's Service Sector Workforce Development Plan.

The Sector Profile Reports were prepared by Infometrics using data from official sources including the 2006 and 2013 Census, Business Demography, and GDP and modelling based on Infometrics' Regional Industry Occupation Model. These data sources were supplemented with desk research and qualitative information where available.

These reports should be considered alongside other pieces of work including detailed research on an individual sector, government strategies, and in-depth sector knowledge.

ServiceIQ anticipates updating these profiles on an annual basis and would like to include an increasing amount of sector-specific information as we become aware of it and as more is available.

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Executive summary

Key highlights

Approximately 259,000 people (or 206,000 FTEs) were employed in 2012 in the Retail sector as defined in this study. This was down from a peak of 267,000 in 2008, a decline of 3%. The sector was harder hit by the recession following the Global Financial Crisis than the rest of the New Zealand economy as households cut discretionary expenditure. Employment in the national economy increased by 0.6% between 2008 and 2012.

The retail sector had nearly 49,000 business units in 2013, up from about 40,000 10 years ago. Business growth was slightly higher than in the national economy.

The retail sector contributed \$16,039 million (in 2010 prices) to New Zealand's gross domestic product (GDP) in 2012. This amounted to 8% of national GDP. Over the 10 years to 2012 GDP in the sector increased by 3.5% per annum compared with 2.3% in the national economy. The sector considerably outpaced the rest of the economy due to the massive credit-fuelled growth in consumption during the early and mid-2000s. In 2012, GDP per FTE in the sector was less than three-quarters of GDP per FTE in the national economy.

Table 1. Summary indicators for Retail sector

		Retail	New Zealand
Jobs	Number in 2012	258,730	2,199,074
	% growth 2002-2012	1.3%	1.3%
FTEs	Number in 2012	206,008	1,871,104
	% growth 2002-2012	1.4%	1.3%
Businesses	Number in 2013	48,766	507,908
	% growth 2003-2013	1.9%	1.8%
GDP (\$ million)	Number in 2012	\$16,039	\$199,966
	% growth 2002-2012	3.5%	2.3%
GDP per FTE	Number in 2012	\$77,855	\$106,871
	% growth 2002-2012	2.0%	0.9%

Source: Statistics NZ and Infometrics

Unique characteristics

The sector has a much higher proportion of very young (15-19 year-old) workers than the national economy (15.8% versus 10.6%). The opposite is the case for older workers over 55 years.

Female workers predominate in the sector, accounting for nearly 54% of workers. In the national economy, females account for 47% of workers. The female share has declined slightly over the past seven years.

Asians have a considerably higher representation in the sector than in the national economy. They account for 15.2% of workers in retail compared with 11.1% in the national economy. Māori are under-represented with 10.1% of workers, as are Pasifika with 4.7%.

The sector employs relatively fewer New Zealand-born workers compared to the national economy. Overseas-born workers accounted for 29.4% of employees in retail compared with 28.3% in the national economy.

The sector has a large number of part-time roles and 29.4% of workers are employed part-time. This is much higher than the equivalent rate of 21.1% in the national economy.

55.7% of employees in the retail sector had no post-school qualifications in 2013. This was a significantly higher proportion than in the national economy (43.4%). The number of workers with a degree or higher increased from 11.9% to 16% over the seven-year period.

Training

ServiceIQ had 7,726 Retail sector trainees at some point in 2013, which accounted for 35.8% of all ServiceIQ trainees.

The majority (88.6%) of trainees in the sector are studying towards Level 2 qualifications. By contrast, 63.1% of trainees across the whole of ServiceIQ are studying for Level 2 qualifications. Only 3.9% of trainees in the sector are studying at Level 4 and above.

Māori comprise 10.1% and Pasifika 6.9% of trainees in the sector.

Sector outlook

Employment in the sector is expected to rise moderately over the coming five years. By 2017, we forecast Retail sector employment to have risen to more than 275,000, up from 259,000 employees in 2012.

With the labour market and confidence improving, households will become more willing to increase the amount they spend. We predict a 5.2% lift in consumer spending in the 2014 calendar year, followed by a 5.4% increase in 2015.

Although these figures represent a significant acceleration in the value of consumer spending, they do not signify a return to the prolific spending and borrowing of the 2002-2007 period. As a result, employment growth in the Retail sector will be more sluggish than that seen before the 2008 recession.

Furthermore, the outlook for sector employment will also be affected by the rising prevalence of online retailing. As online retailing's share of total retail sales continues to increase, there will be divergence in the composition of employment growth in the sector. Demand for managers, particularly sales and marketing managers, will rise by an average of 1.8%pa over the five years to 2017, while the number of sales workers will increase by a more sluggish 0.9%pa over the same period.

1. INTRODUCTION

This report presents a profile of the Retail sector. It describes trends in employment, the basic characteristics of the sector and its employees, and the characteristics of its trainees and learners. It also provides an insight into the future and presents forecasts of employment growth.

Unless otherwise stated this report presents data for calendar years.

Defining the retail sector

Official employment data sources are typically divided by either industry or occupation, but by themselves, neither is satisfactory for defining the ServiceIQ sectors. For example, if we defined the aviation sector purely in terms of aviation-related industries such as air transport services we may not capture pilots who work in the agricultural support services doing aerial spraying. We have consequently used a combination of industries and occupations to define each of the ServiceIQ sectors.

Further details of this approach are provided in the appendix.

In this study we have defined the Retail sector as follows:

1. Persons employed in *all occupations* in the retail industry excluding the motor retailing industries. The following industries are included:

Code	Description
G400000	Fuel Retailing
G411000	Supermarket and Grocery Stores
G412100	Fresh Meat, Fish and Poultry Retailing
G412200	Fruit and Vegetable Retailing
G412300	Liquor Retailing
G412900	Other Specialised Food Retailing
G421100	Furniture Retailing
G421200	Floor Coverings Retailing
G421300	Houseware Retailing
G421400	Manchester and Other Textile Goods Retailing
G422100	Electrical, Electronic and Gas Appliance Retailing
G422200	Computer and Computer Peripherals Retailing
G422900	Other Electrical and Electronic Goods Retailing
G423100	Hardware and Building Supplies Retailing
G423200	Garden Supplies Retailing
G424100	Sport and Camping Equipment Retailing
G424200	Entertainment Media Retailing
G424300	Toy and Game Retailing
G424400	Newspaper and Book Retailing
G424500	Marine Equipment Retailing
G425100	Clothing Retailing
G425200	Footwear Retailing
G425300	Watch and Jewellery Retailing
G425900	Other Personal Accessories Retailing
G426000	Department Stores
G427100	Pharmaceutical, Cosmetic and Toiletry Goods Retailing
G427200	Stationery Goods Retailing
G427300	Antique and Used Goods Retailing

G427400	Flower Retailing
G427900	Other Store-Based Retailing n.e.c
G431000	Non-Store Retailing
G432000	Retail Commission Based Buying and/or Selling

2. Persons employed in *all industries* in the following occupations:

Code	Description
131112	Sales and Marketing Manager
142111	Retail Manager (General)
611399	Sales Representatives n.e.c
621111	Sales Assistant (General)
621511	Retail Supervisor
621611	Service Station Attendant
631111	Checkout Operator
891211	Shelf Filler

Definitions of these occupations and industries are provided in the Appendix.

This definition has been chosen as it is the group of industries and occupations that most closely align with the ServiceIQ gazetted coverage of the Retail sector. The gazetted coverage of the sector includes: “the operation of all forms of consumer-based sales of goods and services including store-based, online, national and regional chains, franchises and independent outlets”.

Similar sector profiles have been prepared for the other 10 sectors in ServiceIQ’s gazetted coverage area. There are interactions between the Retail sector and each of these other sectors. Most notably, there are strong links between the Retail and Wholesale sectors. These sectors are becoming increasingly inter-related through changes to technology and business practice. Therefore, people who are interested in a wider sector view should consider the Wholesale Sector Profile report alongside this report.

2. SECTOR PROFILE

Employment trends to 2012

Approximately 259,000 people were employed in the Retail sector in 2012. This was down from a peak of 267,000 in 2008, a decline of 3%. The sector has been harder hit by the recession following the Global Financial Crisis than the rest of the New Zealand economy as individuals cut discretionary expenditure. Employment in the national economy increased by 0.6% between 2008 and 2012. An outlook for the sector is provided in the section *Outlook for the Retail Sector* on page 16.

Table 2. Total employment in the Retail sector, 2001-2012

Year	Retail			New Zealand	
	FTEs	Jobs	Change	Jobs	Change
2001	172,372	219,159		1,862,895	
2002	178,514	226,701	3.4%	1,923,798	3.3%
2003	185,715	235,537	3.9%	1,979,437	2.9%
2004	192,861	244,234	3.7%	2,039,390	3.0%
2005	201,176	254,325	4.1%	2,108,155	3.4%
2006	205,938	260,195	2.3%	2,142,486	1.6%
2007	210,584	265,719	2.1%	2,184,802	2.0%
2008	212,079	267,444	0.6%	2,219,403	1.6%
2009	206,288	260,207	-2.7%	2,167,989	-2.3%
2010	204,439	257,521	-1.0%	2,160,647	-0.3%
2011	204,333	256,980	-0.2%	2,180,241	0.9%
2012	206,008	258,730	0.7%	2,199,074	0.9%
2002-2012			1.3%		1.3%

Source: Statistics NZ and Infometrics

Figure 1. Total employment in the Retail sector, 2001 to 2012



Source: Statistics NZ and Infometrics

Occupations

This section examines the growth in occupations in the sector. By drawing on data from the population census it is possible to split out employment in the sector to approximately 1,000 detailed occupational categories. In this section we report on an aggregation of those categories into eight broad categories, as well as the numerically largest detailed occupations.

Table 3 shows employment by broad occupation. Sales workers and managers are the largest occupational categories in the sector, accounting for 52% and 26% of employment in 2012. Over the 10 years to 2012, a net 1,465 positions for managers and 1,210 for sales workers were created each year. There was a decline in the number of positions for labourers.

Table 3. Employment by broad occupation¹

Occupation	Employment		Change 2002 - 2012 pa		% of total 2012
	2002	2012	Jobs	%	
Managers	52,410	67,061	1,465	2.5%	25.9%
Professionals	5,966	10,370	440	5.7%	4.0%
Technicians & Trades Workers	12,130	12,441	31	0.3%	4.8%
Community & Personal Service Workers	2,731	3,938	121	3.7%	1.5%
Clerical & Administrative Workers	11,332	12,004	67	0.6%	4.6%
Sales Workers	123,289	135,393	1,210	0.9%	52.3%
Machinery Operators & Drivers	5,603	5,743	14	0.2%	2.2%
Labourers	13,240	11,780	-146	-1.2%	4.6%
Total	226,701	258,730	3,203	1.3%	100.0%

Source: Statistics NZ and Infometrics

Figure 2. Employment by broad occupation, 2002 and 2012



Source: Statistics NZ and Infometrics

¹ This table shows change in employment between 2002 and 2012. Change is measured in per annum terms. The change in the number of jobs per annum between 2002 and 2012 is equal to the difference between the value in 2012 and 2002 divided by 10.

Table 4 shows employment in the 20 numerically largest occupations in the sector. The largest occupations are sales assistant (general) and retail manager (general) which account for 28.2% and 10.9% of employment in the sector, respectively. Collectively the top 20 occupations account for 71.8% of total employment in the sector.

Table 4. Employment of top 20 occupations in the Retail sector

Occupation	Employment		% of total employment, 2012	Change 2002 - 2012 pa	
	2002	2012		Number	%
Sales Assistant (General)	73,075	77,994	28.2%	492	0.7%
Retail Manager (General)	28,255	30,942	10.9%	269	0.9%
Sales Representatives nec	21,328	32,844	8.2%	1,152	4.4%
Sales and Marketing Manager	13,135	21,706	5.1%	857	5.2%
Checkout Operator	11,548	11,991	4.5%	44	0.4%
Service Station Attendant	6,080	2,341	2.3%	-374	-9.1%
Pharmacy Sales Assistant	3,985	1,513	1.5%	-247	-9.2%
General Clerk	3,685	2,672	1.4%	-101	-3.2%
Shelf Filler	3,427	3,543	1.3%	12	0.3%
Chief Executive or Managing Director	3,254	3,692	1.3%	44	1.3%
Storeperson	2,707	3,107	1.0%	40	1.4%
Retail Supervisor	2,686	3,347	1.0%	66	2.2%
Corporate General Manager	2,409	3,015	0.9%	61	2.3%
Butcher or Smallgoods Maker	2,344	1,921	0.9%	-42	-2.0%
Retail Pharmacist	1,625	2,135	0.6%	51	2.8%
Office Cashier	1,554	1,919	0.6%	37	2.1%
Florist	1,310	970	0.5%	-34	-3.0%
Office Manager	1,147	2,030	0.4%	88	5.9%
Baker	1,105	1,276	0.4%	17	1.4%
Sales Demonstrator	1,094	1,421	0.4%	33	2.7%
Top 20 occupations	185,752	210,380	71.8%	2,463	1.3%

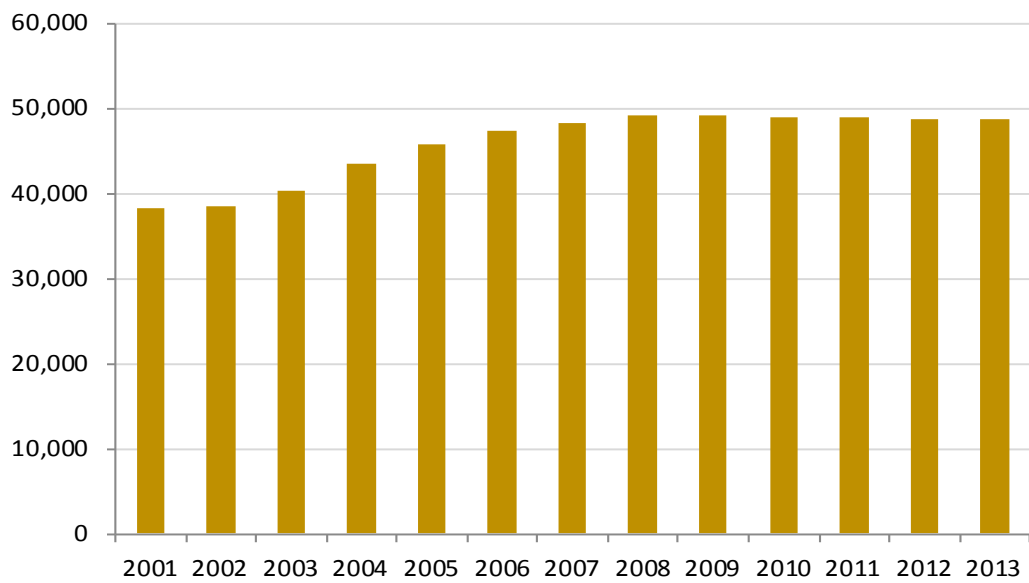
Source: Statistics NZ and Infometrics

Business units

There were almost 49,000 business units in the Retail sector in 2012. Figure 2 shows that the number of business units grew rapidly between 2001 and 2008 and then stagnated. The number grew slightly faster (1.9%) over the 10 years to 2013 than in the national economy (1.8%).

During tough economic times there is usually a consolidation of businesses as those struggling get absorbed by stronger businesses. As the economy gains momentum over the next few years we expect new enterprises to emerge in the sector as individuals are prepared to make new investments in a recovering industry.

Figure 3. Number of business units in the Retail sector, 2000-2013



Source: Statistics NZ

Table 5. Number of business units (as at February)

	2003	2013	Change 02-12 pa	
			Number	%
Retail	40,264	48,766	850	1.9%
New Zealand	426,829	507,908	8,108	1.8%

Source: Statistics NZ

Size of businesses

On average, business units in the sector are slightly larger than in the national economy. Just over 10% of units in the sector had 10 or more employees in 2013, compared with less than 8% in the national economy. While large retail outlets would account for the higher prevalence of large businesses, small retail enterprises are nevertheless important with businesses employing fewer than 10 people, accounting for over 90% of the business units and 30% of employment in the sector.

Table 6. Number of business units by number of employees

	Number		% of total		Employment
	Retail	New Zealand	Retail	New Zealand	Retail
0-5	39,236	442,363	80.5%	87.1%	47,083
6 to 9	4,525	26,403	9.3%	5.2%	31,678
10 to 19	3,128	21,254	6.4%	4.2%	37,537
20 to 49	1,053	11,832	2.2%	2.3%	26,321
50 to 99	454	3,657	0.9%	0.7%	24,982
100 and Over	369	2,399	0.8%	0.5%	91,129
Total	48,766	507,908	100.0%	100.0%	258,730

Source: Statistics NZ

Geography

Auckland is the region with the highest number of employees, accounting for 34.2% of employment in the retail sector in 2012. This was followed by Canterbury (13.2%) and Wellington (11.8%). Over the 10 years to 2012 fastest growth was measured in Tasman/Nelson/Marlborough (2.0%), Auckland (1.7%), and Otago (1.4%).

Table 7. Number of employees by region

Region	Number		% of total	FTE	Change 2002-2012 pa	
	2002	2012	2012	2012	Number	%
Auckland	75,005	88,514	34.2%	70,477	1,351	1.7%
Canterbury	30,235	34,177	13.2%	27,212	394	1.2%
Wellington	27,763	30,652	11.8%	24,406	289	1.0%
Waikato	19,041	21,855	8.4%	17,401	281	1.4%
Bay of Plenty	13,824	15,495	6.0%	12,338	167	1.1%
Otago	11,690	13,422	5.2%	10,687	173	1.4%
Manawatu-Wanganui	12,070	12,901	5.0%	10,272	83	0.7%
Gis-Hawke's Bay	9,950	10,803	4.2%	8,602	85	0.8%
Tas-Nel-Marl	7,522	9,191	3.6%	7,318	167	2.0%
Northland	7,062	7,795	3.0%	6,207	73	1.0%
Taranaki	5,733	6,253	2.4%	4,979	52	0.9%
Southland	5,080	5,731	2.2%	4,563	65	1.2%
West Coast	1,725	1,940	0.7%	1,545	21	1.2%
New Zealand	226,701	258,730	100.0%	206,008	3,203	1.3%

Source: Statistics NZ and Infometrics

Economic contribution

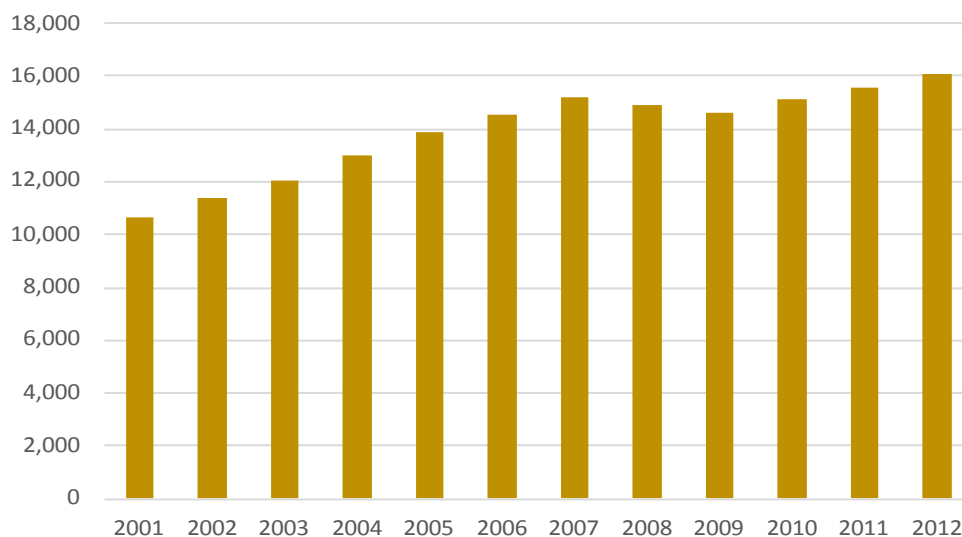
The retail sector contributed \$16,039 million (\$16 billion) to the New Zealand economy in 2012 (measured in 2010 prices²). This level was up from the previous peak of \$15,200 million in 2007, an increase of 5.7%. Over the 10 years to 2012 gross domestic product (GDP) in the retail sector grew by 3.5% pa compared with 2.3% in the economy as a whole. The sector accounted for 8% of national GDP in 2012.

Table 8. Contribution to GDP by the Retail sector (2001-2013)

Year	Retail		New Zealand	
	\$ million	Change	\$ million	Change
2001	10,617		152,045	
2002	11,386	7.2%	159,473	4.9%
2003	12,033	5.7%	166,488	4.4%
2004	13,023	8.2%	173,781	4.4%
2005	13,856	6.4%	178,428	2.7%
2006	14,548	5.0%	182,439	2.2%
2007	15,177	4.3%	188,639	3.4%
2008	14,898	-1.8%	187,362	-0.7%
2009	14,623	-1.8%	188,588	0.7%
2010	15,094	3.2%	192,015	1.8%
2011	15,552	3.0%	194,322	1.2%
2012	16,039	3.1%	199,966	2.9%
2002-2012		3.5%		2.3%

Source: Statistics NZ and Infometrics

Figure 4. Retail sector GDP (\$m)



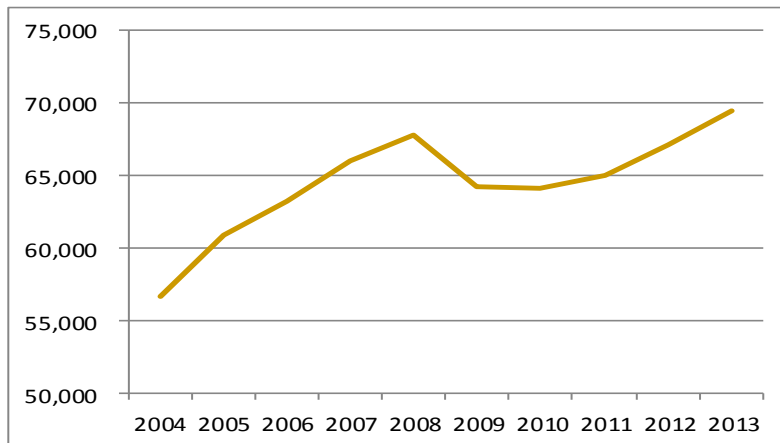
Source: Statistics NZ and Infometrics

² In this profile, we present all GDP estimates in constant 2010 prices. GDP presented in constant prices is sometimes referred to as real GDP. By using constant prices we remove the distracting effect of inflation. It enables us to meaningfully compare GDP from one year to the next. Our GDP estimates differ from those published by Statistics New Zealand which are at 1995/6 prices.

Other indicators: Retail sales

Retail sales increased steadily up until 2008, but fell significantly following the domestic recession and Global Financial Crisis. As can be seen in the following graphs, since 2011, retail sales have started to lift as the labour market recovered and consumer confidence is restored.

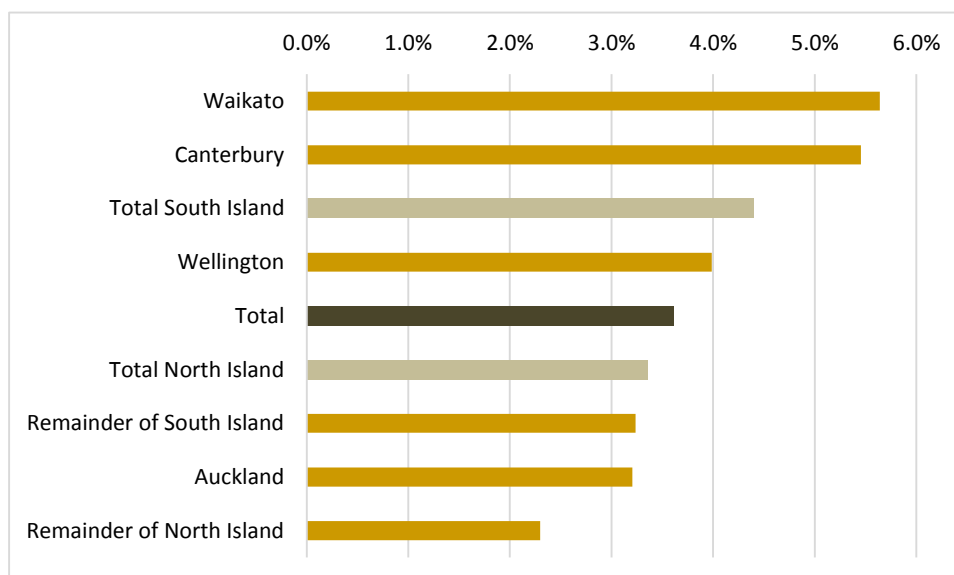
Figure 5. Retail sales, deflated prices (\$ million, annual)



Source: Statistics New Zealand

Retail sales have differed significantly across regions as a result of demographic and economic growth variations. The Waikato region has outperformed all other regions, which is likely to be explained by the performance of its dairy industry and the opening of new retail space such as the Base. Canterbury also performed well as households replaced items damaged in the earthquake. Although Auckland appears to have performed poorly, the region has recovered significantly since 2010.

Figure 6. Annual % change in retail sales 2005-2013, current prices

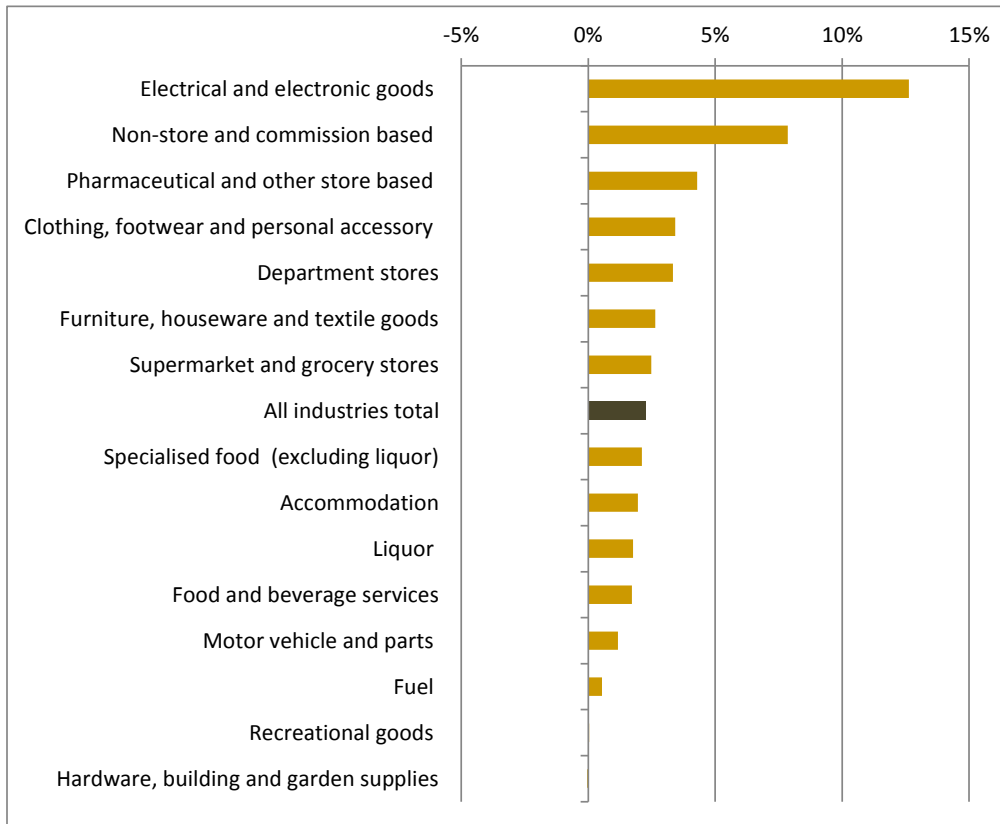


Source: Statistics New Zealand

Sales for the main retail sectors are shown in the next figure. Retail sales in electronics top the chart. This is related to changes in consumer preferences, new products being offered and lower relative prices of electronic goods. Non-store based retail sales can be attributed to the rise in online retailing. The rise of the

latter is at the cost of conventional retailing and may explain the relatively low growth in Clothing and Footwear, Department and Recreational retailing.

Figure 7. Annual % change in sales by industry in constant³ prices (2004-2013)



Source: Statistics New Zealand

The relatively poor performance of hardware is likely to be due to the stagnation of the housing market following the 2008 recession and new regulations which constrain DIY and associated retail sales. Stagnant fuel retailing is linked to greater fuel efficiency as well as more frugal motor vehicle usage in response to poor economic conditions and elevated fuel prices.

In more recent developments, total household spending growth has picked up pace in the past year, after stalling in mid-2012. The volume of consumer spending for the year to September 2013 rose 3% from a year earlier. However, price growth has been very weak, as cost pressures have been restrained and retailers have avoided increasing margins. Consequently, the value of spending increased by only 3.5% during this period.

³ Constant prices take out the distracting effect of inflation. Growth measured in constant prices captures the change in volume of goods sold.

3. INDUSTRY OUTLOOK

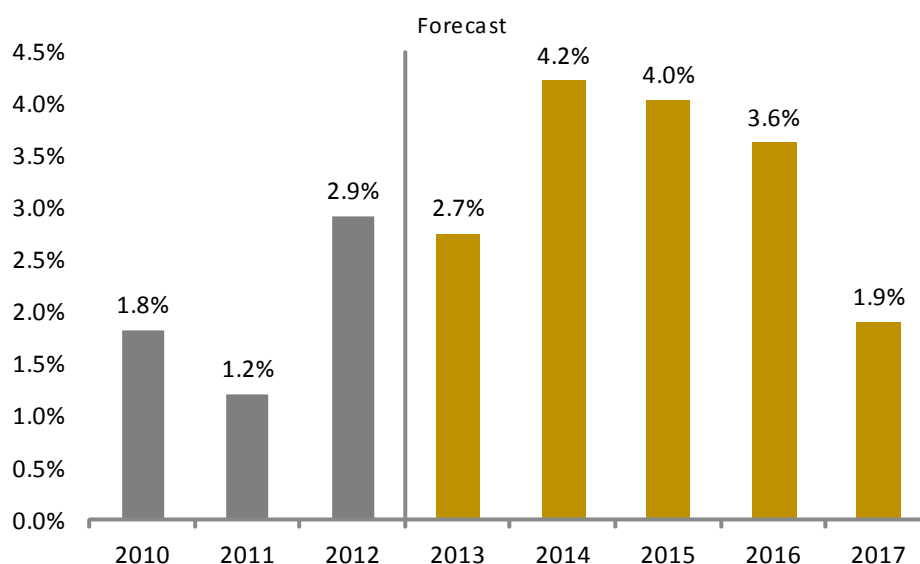
Outlook for the New Zealand economy

Economic growth in New Zealand is forecast to average 4.2% per annum (pa) over the two years to March 2016, as activity is supported by strong export incomes, rising construction activity, and healthy domestic confidence. Chinese and Australian economic growth rates are moderating, but demand for our primary exports will remain strong as household spending continues to grow in China. New Zealand's strong economic performance over the next two-three years will be accompanied by:

- higher net migration – climbing above 30,000pa by mid-2014 and remaining over 20,000pa as we head into 2015
- good employment growth, driving the unemployment rate down to 5% by the end of 2015
- accelerating wage growth, lifting to 3.5%pa by March 2016
- rising interest rates, with the official cash rate reaching 5% by the beginning of 2016
- the return of inflation over 2%pa, due to the strengthening domestic economy, costs associated with the Christchurch rebuild, and a gradual lift in import prices.

Economic growth is forecast to peak at 4.4%pa in March 2015, with growth moderating over the following two years as the stimulus from high export incomes fades, rebuilding activity in Canterbury reaches its peak, and growth in the housing market and domestic economy slow in response to the rise in interest rates that has taken place.

Figure 8. New Zealand GDP growth forecast to 2017



Source: Statistics NZ and Infometrics

Outlook for the Retail sector

Sector outlook

Employment in the sector is expected to rise moderately over the coming five years. By 2017, we forecast retail sector employment to have risen to nearly 276,000 up from 259,000 employees in 2012.

With the labour market improving, households will become more willing to increase the amount they spend. We predict a 5.2% lift in consumer spending in the 2014 calendar year, followed by a 5.4% lift in 2015.

Although these figures represent a significant acceleration in the value of consumer spending, they do not signify a return to the prolific spending and borrowing of the 2002-2007 period. As a result, employment growth in the sector will be more sluggish than that seen before the 2008 recession.

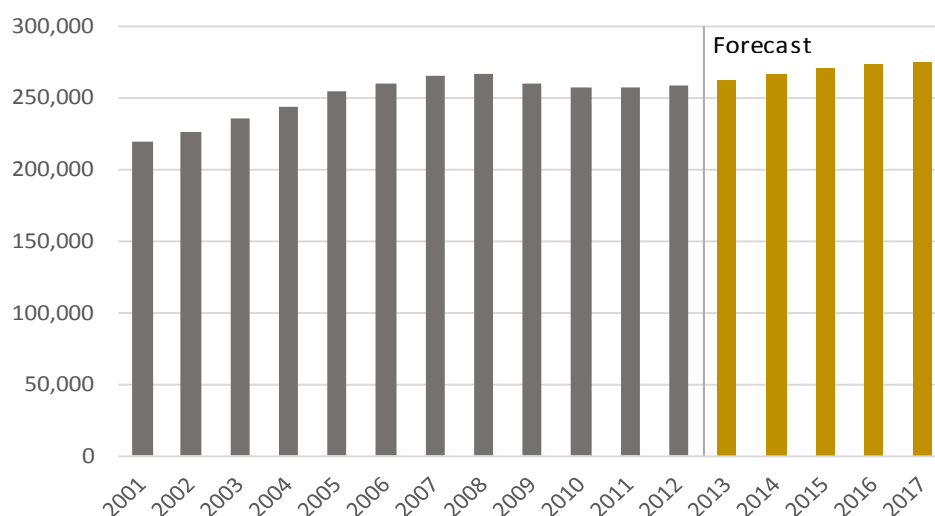
Furthermore, the outlook for sector employment will also be affected by the rise of online retailing. As online retailing's share of total retail sales continues to increase, there will be divergence in the composition of employment growth in the sector. Demand for managers, particularly sales and marketing managers, will rise by an average of 1.8%pa over the five years to 2017, while the number of sales workers will increase by a more sluggish 0.9%pa over the same period.

Table 9. Total employment in the Retail sector, 2012-2017

Year	Retail	
	Level	Change pa
2012	258,730	0.7%
2013	262,648	1.5%
2014	267,121	1.7%
2015	270,602	1.3%
2016	274,069	1.3%
2017	275,663	0.6%
2012-2017		1.3%

Source: Statistics NZ and Infometrics

Figure 9. Total employment in the Retail sector, 2001-2017



Source: Statistics NZ and Infometrics

Occupation outlook

The tables below show forecasts of employment by broad occupation and the 20 numerically largest detailed occupations in the sector. In addition to new positions being created, positions will need filling due to replacement of existing staff as they enter and leave occupations. The table shows new jobs opening due to growth in employment, net positions opening due to replacement and total positions opening.

Net replacement demand is a method for estimating job openings by occupation arising from individuals leaving an occupation net of jobs taken by individuals re-entering the occupation. By netting out individuals re-entering an occupation, net replacement rates measures are a subset of more commonly cited labour turnover rates. Net replacement demand is the relevant measure for providing advice on education and training needs. Details about the method used to measure future net replacement demand are provided in the Appendix.

Table 10. Forecast of employment by broad occupation, 2012-2017

Occupation	Employment		Change 2012 - 2017 pa		Replace-ment pa	Total positions
	2012	2017	New jobs	%		
Managers	67,061	73,244	1,237	1.8%	1,934	3,171
Professionals	10,370	11,666	259	2.4%	393	652
Technicians & Trades Workers	12,441	13,664	244	1.9%	264	509
Community & Personal Service Workers	3,938	4,281	69	1.7%	135	204
Clerical & Administrative Workers	12,004	12,850	169	1.4%	206	375
Sales Workers	135,393	141,811	1,284	0.9%	11,602	12,885
Machinery Operators & Drivers	5,743	6,151	81	1.4%	272	353
Labourers	11,780	11,997	43	0.4%	422	465
Total	258,730	275,663	3,387	1.3%	15,227	18,614

Source: Statistics NZ and Infometrics

Table 11. Forecast of employment for top 20 occupations

Occupation	Employment		Change 2012 - 2017 pa		Net replacement pa	Total net positions opening pa
	2012	2017	Jobs	%		
Sales Assistant (General)	73,075	81,944	1,774	2.3%	6,782	8,555
Retail Manager (General)	28,255	32,881	925	3.1%	1,081	2,006
Sales Representatives nec	21,328	35,522	2,839	10.7%	21	2,860
Sales and Marketing Manager	13,135	24,424	2,258	13.2%	499	2,757
Checkout Operator	11,548	12,074	105	0.9%	3,396	3,501
Service Station Attendant	6,080	1,736	-869	-22.2%	254	-615
Pharmacy Sales Assistant	3,985	1,327	-532	-19.7%	146	-386
General Clerk	3,685	2,324	-272	-8.8%	43	-229
Shelf Filler	3,427	3,633	41	1.2%	117	158
Chief Executive or Managing Director	3,254	3,881	125	3.6%	81	206
Storeperson	2,707	3,370	133	4.5%	130	263
Retail Supervisor	2,686	3,725	208	6.8%	746	954
Corporate General Manager	2,409	3,371	192	6.9%	69	261
Butcher or Smallgoods Maker	2,344	1,939	-81	-3.7%	46	-35
Retail Pharmacist	1,625	1,848	45	2.6%	125	170
Office Cashier	1,554	1,902	70	4.1%	66	135
Florist	1,310	923	-78	-6.8%	15	-63
Office Manager	1,147	2,483	267	16.7%	22	289
Baker	1,105	1,400	59	4.8%	23	82
Sales Demonstrator	1,094	1,452	72	5.8%	70	142

Source: Statistics NZ and Infometrics

The occupations with the largest number of positions opening over the five years to 2017 are sales assistant (general) (8,555 per year), checkout operator (3,501 per year), and sales representatives n.e.c. (2,860 per year).

4. OPPORTUNITIES AND CHALLENGES

Issues facing the whole sector

Overview of outlook and background

Improving domestic economic conditions will push up demand for retail goods. However, the industry will face challenges over the coming decade from rising import prices for Chinese goods and increases to online retailing's share of the total retail market. Nevertheless, online retailing also poses opportunities for savvy operators.

Opportunities for increasing margins

With the domestic economy rapidly improving, income levels and willingness to spend are expected to rise significantly over the coming years. In this environment, retailers' ability to restore profit margins will improve. Nevertheless, retailers remain vulnerable to the risk of depreciation to the New Zealand dollar over the coming years which would push up the cost of imported goods.

Chinese rebalancing to push up medium-term import prices

A key risk to importers of retail goods over the medium-term is the issue of economic rebalancing in China. Rebalancing means that the Chinese Government is promoting policies push up consumption's share of economic activity instead of overly relying on investment and export-led economic growth. Chinese authorities want to rein in a shadow banking system that has formerly supported excessive and risky investment, while liberalising exchange rates will remove an implicit subsidy for exporters and help Chinese consumers get access to cheaper imports.

The flipside for New Zealand, however, is that increases to the Chinese currency and reduced investment, particularly into manufacturing capacity, are likely to mean that the era of cut-price Chinese goods on New Zealand shelves will slowly draw to a close. This conclusion was reflected in comments by the vice president of the Canton Trade Fair, Wang Yanhua, who when visiting Auckland recently said that the policy shifts in China will no longer support manufacturing of cheap mass-produced goods.

Online retailing – the elephant in the room

Online retailing to continue growing

Online retail sales have grown rapidly over recent years, with a report by BNZ showing that annual growth rates have been well into the double-digits since 2010. BNZ estimates that annual online retail sales are around \$2.8 billion or about 6.2% of New Zealanders' total retail expenditure. Furthermore, the actual level of online retail spending may be even higher as BNZ estimates inadequately capture items that do not always require credit/debit card use such as TradeMe.

The penetration of online retailing differs between different types of goods, with some goods lending themselves to an online retailing framework while others, such as petrol, are only readily sold through traditional avenues. Data provided to the New Zealand Retailers Association by PWC/Frost & Sullivan shows that around 24% of all purchases of electronic items are made online, while clothing/footwear (22%),

recreational goods (13%), books/magazines (12%), furniture/houseware (8%), and food/groceries (6%) also had elevated online retailing penetration ratios.

The level of online retail spending by New Zealanders is similar to that of Australians, but lags significantly behind consumers in the US and the UK. Current estimates of online retail expenditure as a percentage of retail sales in Australia range from about 4.9-6%, whereas in the US and the UK they range from 7-9% and 12-16% respectively. It is not unreasonable to expect that online retail sales in New Zealand will eventually reach similar activity levels to those experienced overseas.

Recent comments by analysts have placed online retailing's saturation point at between 15-20% of total retail expenditure. Although we agree that a point of saturation must necessarily exist, it is likely to be towards the top end of this range, if not higher. This view stems from the fact that estimates of online retailing in the UK already place online spending as high as 16% of total retail expenditure and, with the sector in the UK still recording double-digit growth, it is likely to still be some way from reaching a saturation point. It is hard to imagine that the New Zealand market is so different that online retailing could not reach a similar market share to that which exists in the UK.

In fact, given the small size of the New Zealand market, domestic retailers do not have the scale of large overseas retailers. This lack of scale implies that the online market could, at its saturation point, make up a greater proportion of retail spending in New Zealand than it does in larger countries.

How traditional retailers need to respond

Many existing retailers will find that their traditional customer base is whittled away as more and more consumers shop online. For some retailers, this trend could mark the end of the road for them unless they are able to tailor their shopping experience to fit the changing retail environment.

Although some retailers will focus solely on online retailing, the majority will sell online as well as maintaining a smaller "bricks and mortar" presence. Some customers will still value visiting a real store because of the social interaction it brings and the chance it gives them to see the goods or try on clothing if needed. Some of these customers may still buy online as well – it is just that they also value having the option to visit the store from time to time. The main point is that retailers will have to adopt a more flexible sales strategy than previously.

If existing retailers do downsize their "bricks and mortar" presence, it will negatively affect commercial property owners who will face lower demand for retail space in urban areas. This trend could lead to a consolidation of inner-city shopping districts. However, offsetting this downward trend may be the rise of more specialty retailers that offer products that cannot easily be duplicated online, such as regional specialities. These types of retailers will focus on delivering a shopping experience with a level of service that gives them a comparative advantage over pure online retailers.

Distribution is key for online retailers

For those who sell their goods online, distribution is a key consideration. Some smaller retailers have the ability to distribute from their existing location, but shops that have a larger online presence will need to consider warehousing outside city centres and closer to transport routes. This growth will place extra demand on industrial warehousing in certain areas and upward pressure on rent prices for some warehouse owners.

Online retailing opens up foreign markets

It is undeniable that online retailing is changing the face of retailing in New Zealand and around the world. Although this change brings with it many risks, there are significant opportunities for retailers who take a proactive approach to their online strategy. An online presence not only opens the door to New Zealand consumers, but it may also give retailers the opportunity to sell abroad more easily.

5. DEMOGRAPHICS

This chapter describes the demographic characteristics of employees in the Retail sector. It draws heavily on the 2006 and 2013 population census.

Age

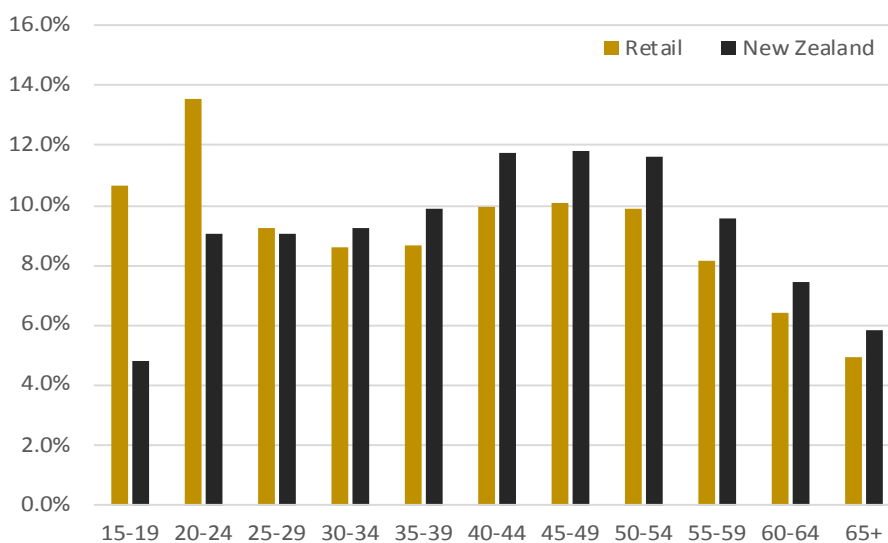
The Retail sector has a much higher proportion of very young (15–19-year-old) workers than the national economy (15.8% versus 10.6%). The number of relatively low-skilled, part-time jobs in the retail sector is attractive to young workers who are able to fit their jobs around study. The physical nature of such jobs make them less attractive to older workers, with 15% of the workforce over the age of 55 in the Retail sector compared to almost 20% for all industries.

Table 12. Employment by 5-year age group in the Retail sector

Age Group	Employment		% of Total		NZ % of Total
	2006	2013	2006	2013	2013
15-19	40,295	27,615	15.8%	10.6%	4.8%
20-24	32,206	35,169	12.6%	13.5%	9.1%
25-29	22,856	24,048	9.0%	9.3%	9.1%
30-34	23,735	22,333	9.3%	8.6%	9.2%
35-39	25,106	22,469	9.8%	8.7%	9.9%
40-44	26,875	25,754	10.5%	9.9%	11.7%
45-49	25,343	26,082	9.9%	10.0%	11.8%
50-54	21,482	25,647	8.4%	9.9%	11.6%
55-59	19,054	21,074	7.5%	8.1%	9.5%
60-64	11,498	16,715	4.5%	6.4%	7.4%
65+	6,912	12,779	2.7%	4.9%	5.9%
Total	255,360	259,685	100.0%	100.0%	100.0%

Source: Statistics NZ and Infometrics

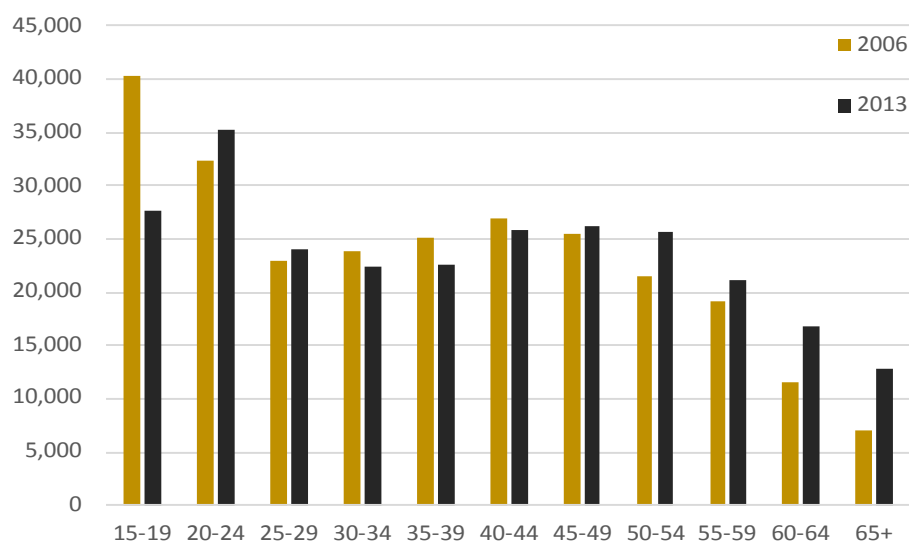
Figure 10. Proportion of total employment by 5-year age group



Source: Statistics NZ and Infometrics

The number of young employees aged between 15 and 19 declined substantially between 2006 and 2013 although the number of workers in the 20-24 age bracket increased somewhat. This indicates that the sector took in fewer young recruits during the harder economic years between the censuses. On the other hand, the number of older workers increased, suggesting that they managed to hold onto their jobs for longer and/or took later retirement.

Figure 11. Employment by 5-year age group in the Retail sector



Source: Statistics NZ and Infometrics

Gender

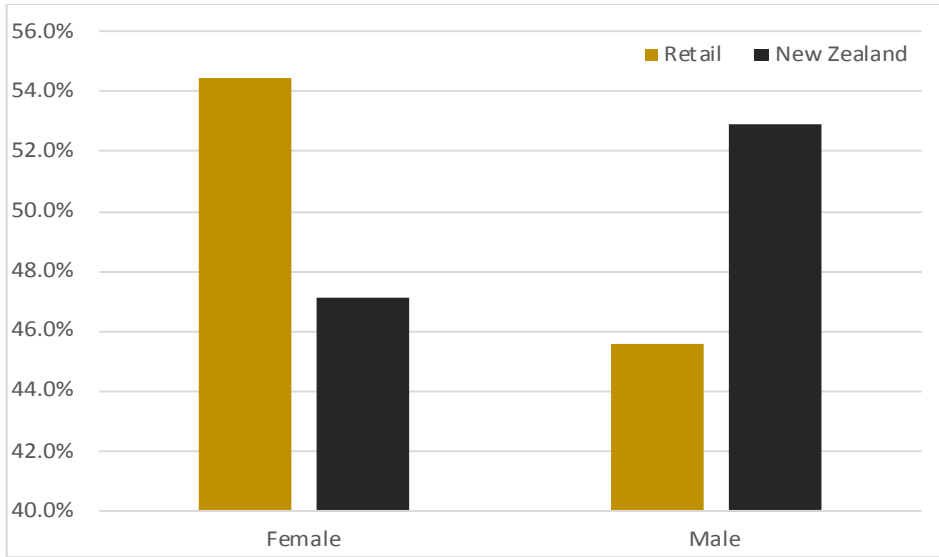
There were more female than male workers in the Retail sector in 2013. Females accounted for 54.4% of total employment. The share of female workers decreased from 55.2% to 54.4% between March 2006 and March 2013. This may be related to the different experience between females and males during the recession following the Global Financial Crisis. Males were more adversely affected in the wider economy due to job losses in industries in which males are concentrated, such as construction and manufacturing. The relative increase in availability of males may have increased the relative number of males to females applying for jobs in the Retail sector.

Table 13. Employment by gender in the Retail sector

Gender	Employment		% of Total		NZ% of Total
	2006	2013	2006	2013	
Female	140,992	141,332	55.2%	54.4%	47.1%
Male	114,368	118,356	44.8%	45.6%	52.9%
Total	255,360	259,687	100.0%	100.0%	100.0%

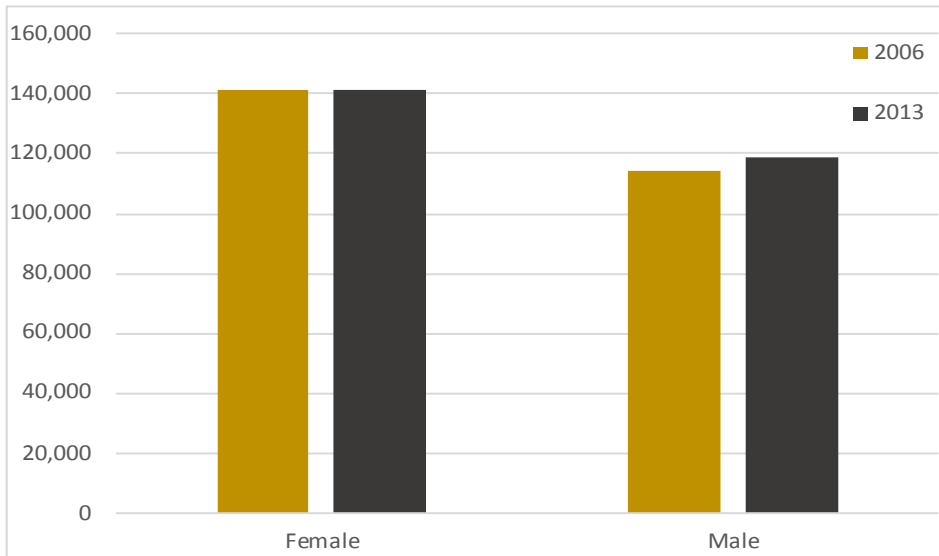
Source: Statistics NZ and Infometrics

Figure 12. Proportion of total employment by gender, 2013



Source: Statistics NZ and Infometrics

Figure 13. Employment by gender, 2006 and 2013



Source: Statistics NZ and Infometrics

Highest qualification

Just under 60% of employees in the sector had no post-school qualifications in 2013. This was a significantly higher proportion than in the national economy (43.4%).

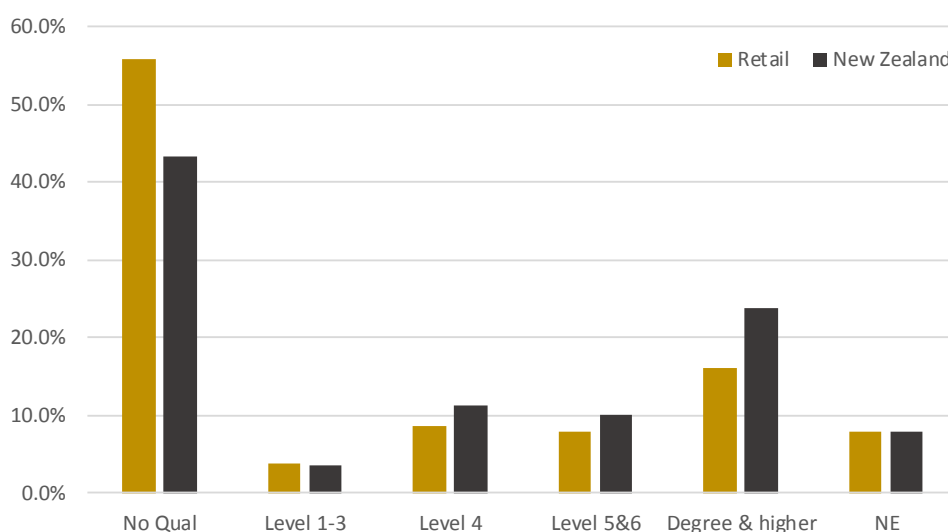
Average training levels increased between 2006 and 2013 with the number of workers without a qualification falling from 64.6% to 55.7%. At the other end of the spectrum the number of workers with a degree or higher increased from 11.9% to 16% over the seven-year period, although this is still lower than the national average of almost 24%. The increase in employment of graduates may be related to the relative availability of graduates who were not able to find employment during the recession in higher-skilled jobs.

Table 14. Employment by highest qualification in the Retail sector

Highest qualification	Employment		% of Total		NZ% of Total
	2006	2013	2006	2013	2013
No Post-school Qualification	164,858	144,755	64.6%	55.7%	43.4%
Level 1, 2 or 3 Certificate	12,639	10,046	4.9%	3.9%	3.5%
Level 4 Certificate	21,903	22,434	8.6%	8.6%	11.2%
Level 5 and 6 diploma	17,616	20,661	6.9%	8.0%	10.0%
Degrees, level 7 quals and higher	30,313	41,573	11.9%	16.0%	23.9%
Not Elsewhere Included	8,033	20,218	3.1%	7.8%	7.9%
Total	255,360	259,687	100.0%	100.0%	100.0%

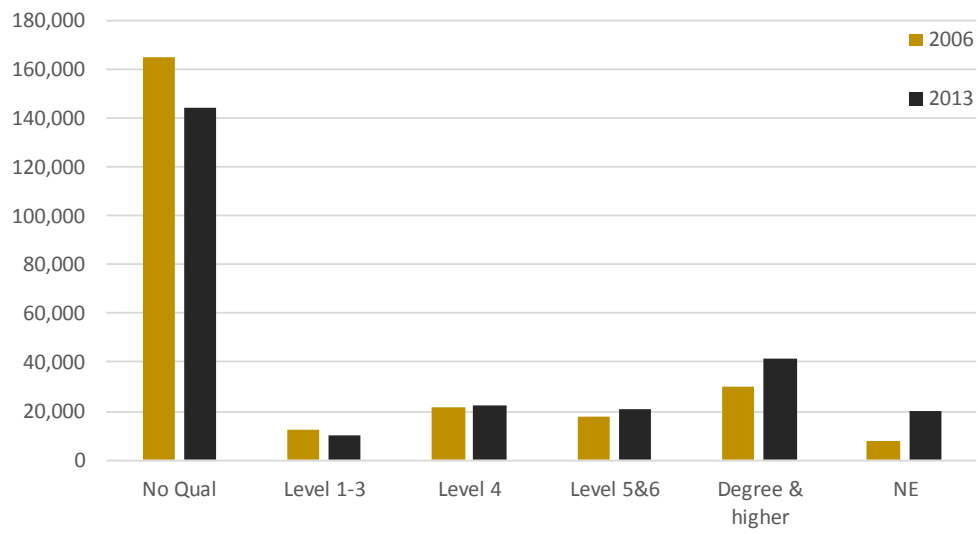
Source: Statistics NZ and Infometrics

Figure 14. Employment by highest qualification, 2013



Source: Statistics NZ and Infometrics

Figure 15. Employment by highest qualification in the Retail sector



Source: Statistics NZ and Infometrics

Ethnicity

The majority (75%) of employees in the Retail sector in 2013 were of European ethnicity. This was up from 70.1% in 2006. The second-largest ethnic group was Asian, who accounted for 15.2% of employment in 2013, up from 11.4% in 2006. Māori accounted for 10.1% of employees in 2013, similar to the 9.9% in 2006, with Pasifika at 4.7%, similar to 4.2% in 2006.

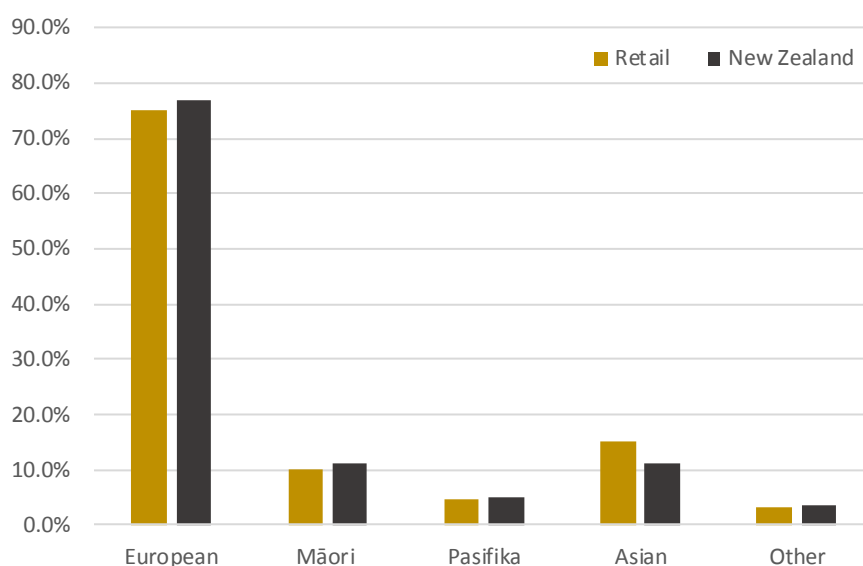
The decrease in employment of workers in the ‘Other’ category would have been influenced by the substantial decrease in the number of individuals who identified themselves as ‘New Zealanders’ in the 2013 census compared with the 2006 census.

Table 15. Employment by ethnicity, 2006 and 2013

Ethnic	Employment		% of Total		NZ% of Total
	2006	2013	2006	2013	2013
European	179,097	194,826	70.1%	75.0%	77.0%
Māori	25,330	26,190	9.9%	10.1%	11.2%
Pasifika	11,761	12,303	4.6%	4.7%	5.0%
Asian	29,207	39,496	11.4%	15.2%	11.1%
Other	34,070	8,035	13.3%	3.1%	3.4%
Total	255,360	259,687	109.4%	108.1%	107.6%

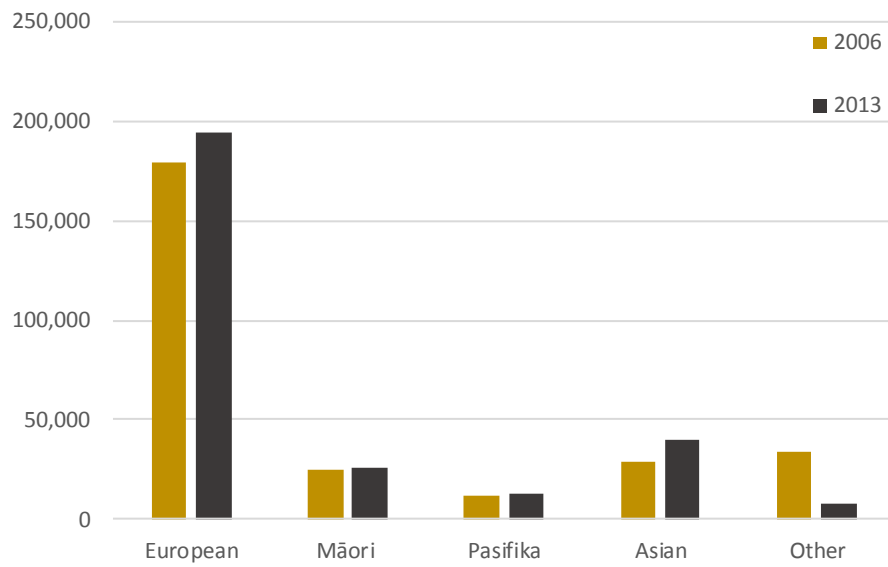
Source: Statistics NZ and Infometrics

Figure 16. Employment by ethnicity, Retail sector and New Zealand, 2013



Source: Statistics NZ and Infometrics

Figure 17. Employment by ethnicity, 2006 and 2013



Source: Statistics NZ and Infometrics

Country of birth

In 2013, New Zealand-born workers represented 70.6% of the workforce in the Retail sector. This is 4.6% less than in 2006. The share of workers born in Asia increased by 3.2% to 11.6% over the same period while the share of workers born in Europe increased by 0.6% to 7.9%.

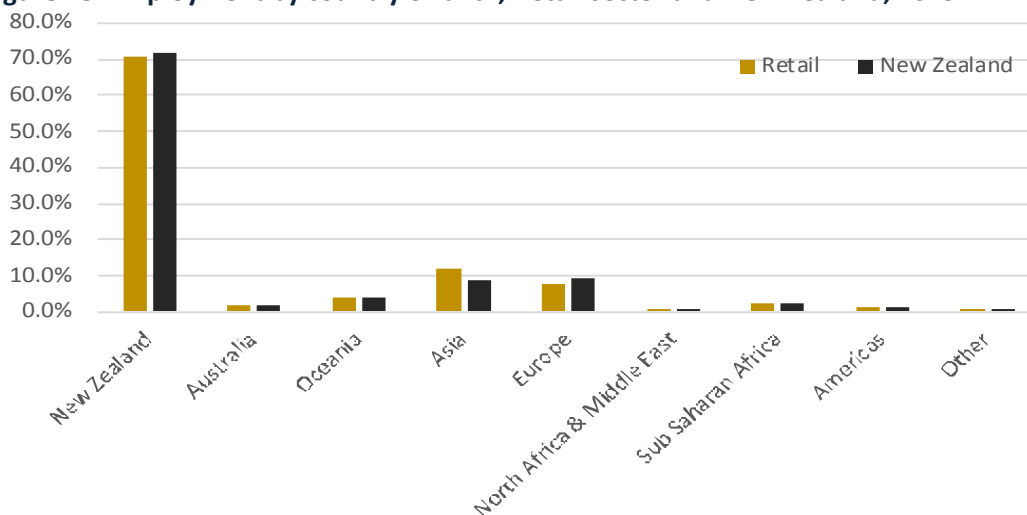
The sector employed relatively fewer New Zealand-born workers compared to all industries in 2013. These workers comprised 71.7% of all workers in all industries while they represented 70.6% in the sector. There are relatively more workers born in Asia working in the sector than in all industries.

Table 16. Employment by country of birth, 2006 and 2013

Country of Birth	Employment		% of Total		NZ% of Total
	2006	2013	2006	2013	2013
New Zealand	192,004	183,357	75.2%	70.6%	71.7%
Australia	4,534	4,252	1.8%	1.6%	1.6%
Oceania	9,013	9,681	3.5%	3.7%	3.8%
Asia	21,433	30,229	8.4%	11.6%	8.6%
Europe	18,623	20,443	7.3%	7.9%	9.4%
North Africa & Middle East	1,162	1,212	0.5%	0.5%	0.4%
Sub Saharan Africa	4,539	5,549	1.8%	2.1%	2.3%
Americas	2,082	2,699	0.8%	1.0%	1.3%
Other	1,971	2,265	0.8%	0.9%	0.9%
Total	255,360	259,687	100.0%	100.0%	100.0%

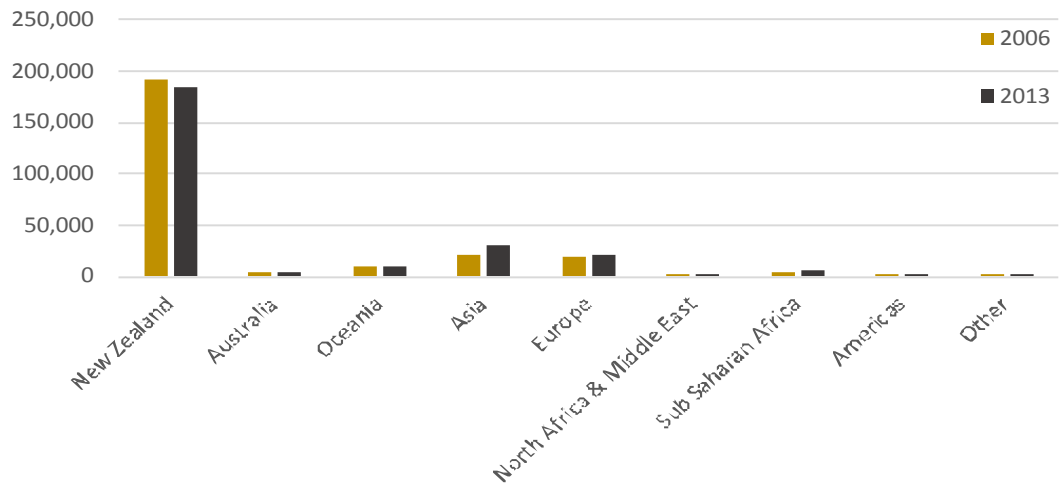
Source: Statistics NZ and Infometrics

Figure 18. Employment by country of birth, Retail sector and New Zealand, 2013



Source: Statistics NZ and Infometrics

Figure 19. Employment by country of birth in the Retail sector, 2006 and 2013



Source: Statistics NZ and Infometrics

Hours worked

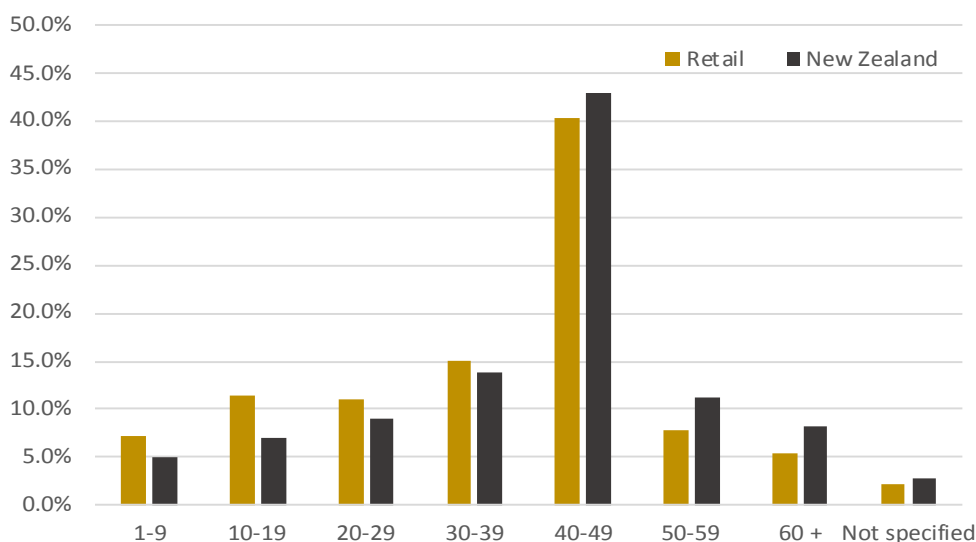
Those working 40-49 hours per week accounted for the highest share (40.2%) of employees in the sector in 2013. This share has increased since 2006 by 2.4%. Workers doing less than 30 hours represented 29.4% of the sector which dropped from 29.7% in 2006. The share of very high hours worked (50 and more) decreased from 15.5% in 2006 to 13.1% in 2013.

Table 17. Employment by hours worked, 2006 and 2013

Hours Worked	Employment		% of Total		NZ % of Total
	2006	2013	2006	2013	2013
1-9	17,778	18,467	7.0%	7.1%	5.0%
10-19	32,585	29,581	12.8%	11.4%	7.0%
20-29	25,468	28,276	10.0%	10.9%	9.1%
30-39	31,352	39,216	12.3%	15.1%	13.8%
40-49	96,624	104,484	37.8%	40.2%	43.0%
50-59	22,138	20,203	8.7%	7.8%	11.1%
60 +	17,417	13,938	6.8%	5.4%	8.2%
Not specified	11,999	5,523	4.7%	2.1%	2.8%
Total	255,360	259,687	100.0%	100.0%	100.0%

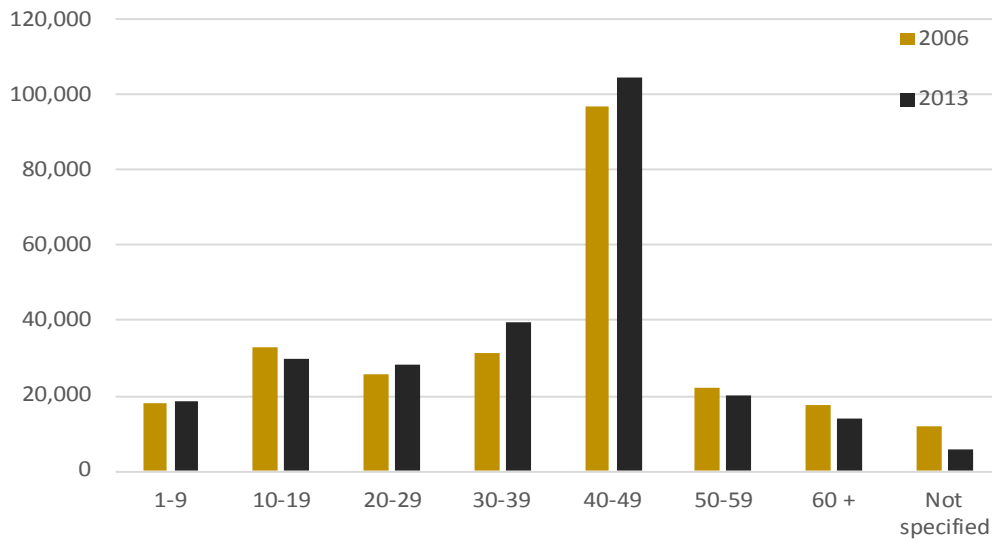
Compared to all industries, the Retail sector in 2013 employed more part-time (less than 30 hours) workers. In all industries the share was 21.1% compared to 29.4% in retail. The share of very high hours worked (more than 50) was 13.1% which was 6.2% lower in the sector compared to all industries. This is probably due to the nature of many managerial roles in the sector which require availability during extended opening hours.

Figure 20. Employment by number of hours worked, Retail sector and New Zealand, 2013



Source: Statistics NZ and Infometrics

Figure 21. Employment by number of hours worked per week, 2006 and 2013



Source: Statistics NZ and Infometrics

6. TRAINING

This chapter describes the characteristics of individuals being trained by ServiceIQ in 2013. The data includes all individuals who were registered at some point during 2013. The last section in the chapter describes enrolments and completions in provider-based qualifications of relevance to the retail sector.

Retail sector trainees accounted for 43.9% of total ServiceIQ trainees.

Age

Table 18. Number of trainees by 5-year age group

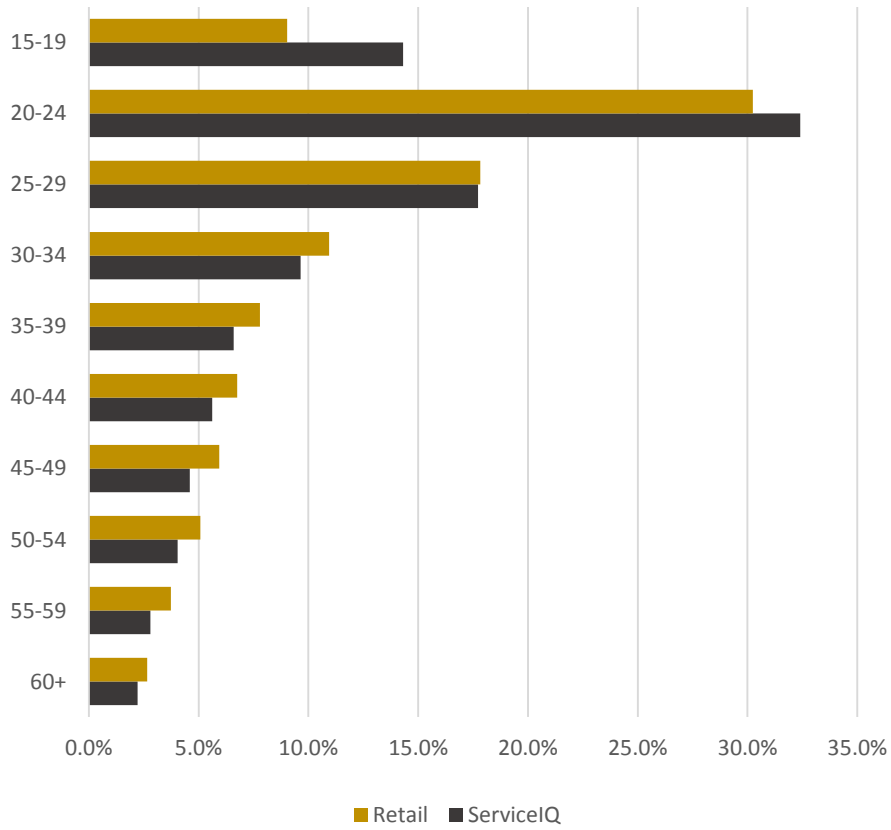
Age group	Number of trainees		% of total		Employment
	Retail	ServiceIQ	Retail	ServiceIQ	Retail
15-19	698	3,091	9.0%	14.3%	10.6%
20-24	2,337	6,997	30.2%	32.4%	13.5%
25-29	1,377	3,827	17.8%	17.7%	9.3%
30-34	845	2,084	10.9%	9.7%	8.6%
35-39	602	1,425	7.8%	6.6%	8.7%
40-44	522	1,214	6.8%	5.6%	9.9%
45-49	459	993	5.9%	4.6%	10.0%
50-54	392	873	5.1%	4.0%	9.9%
55-59	289	606	3.7%	2.8%	8.1%
60+	205	479	2.7%	2.2%	11.4%
Total	7,726	21,589	100.0%	100.0%	100.0%

Source: ServiceIQ

With an average age of 33, trainees in the sector are, on average, older than in the ServiceIQ sector as a whole. The average age of all trainees in the ServiceIQ sector is 27. Approximately 60.7% of retail trainees are 25 and over, compared with 53.3% in the ServiceIQ sector as a whole.

There are significant differences between the age profile of Retail sector trainees and those employed in the sector. While 57% of trainees are under 30, only 33% of employees in the sector are accounted for by this age group.

Figure 22. Proportion of trainees by 5-year age group



Gender

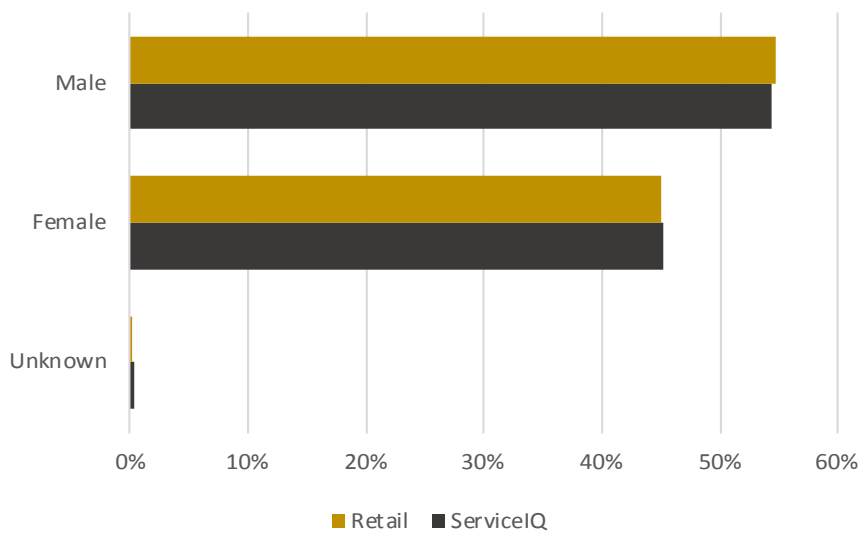
Females account for a higher proportion of trainees in the sector than males. Approximately 51.9% of sector trainees are female, compared with 53.5% in the ServiceIQ sector as a whole.

The gender profile of trainees in the sector is quite similar to the employment profile with females accounting for 54.4% of employees and 51.9% of trainees.

Table 19. Number of trainees by gender

Gender	Number of trainees		% of total		Employment
	Retail	ServiceIQ	Retail	ServiceIQ	Retail
Female	4,013	11,560	51.9%	53.5%	54.4%
Male	3,710	9,984	48.0%	46.2%	45.6%
Unknown	3	45	0.0%	0.2%	
Total	7,726	21,589	100%	100%	100%

Figure 23. Proportion of trainees by gender



Source: ServiceIQ

Ethnicity

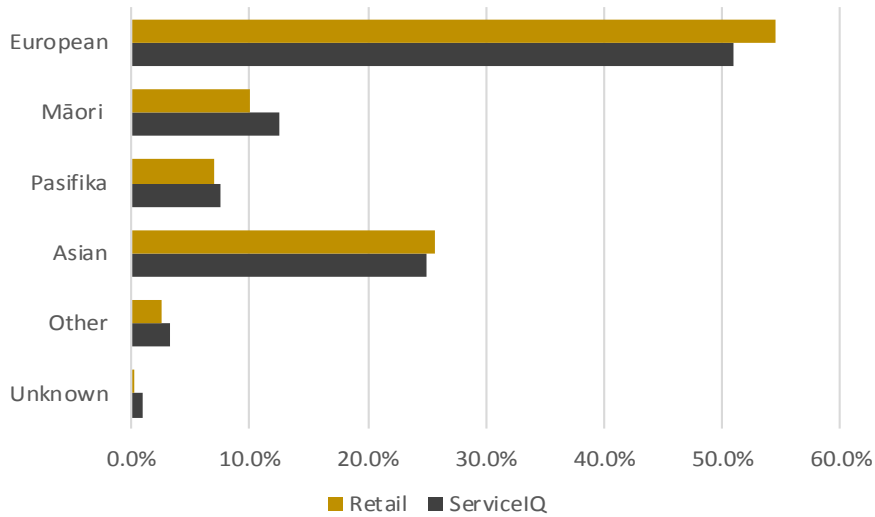
European is the largest ethnic group among trainees in the sector, accounting for 54.5% of trainees. This is a higher percentage than in ServiceIQ as a whole, in which they account for 50.9% of trainees. Within the sector the Asian group accounts for 25.7% of trainees and Māori, 10.1%.

Table 20. Number of trainees by ethnicity

Ethnicity	Number of trainees		% of total	
	Retail	ServiceIQ	Retail	ServiceIQ
European	4,209	10,991	54.5%	50.9%
Māori	779	2,716	10.1%	12.6%
Pasifika	536	1,629	6.9%	7.5%
Asian	1,989	5,381	25.7%	24.9%
Other	192	687	2.5%	3.2%
Unknown	21	185	0.3%	0.9%
Total	7,726	21,589	100.0%	100.0%

Source: ServiceIQ

Figure 24. Proportion of trainees by ethnicity



Source: ServiceIQ

Level of study

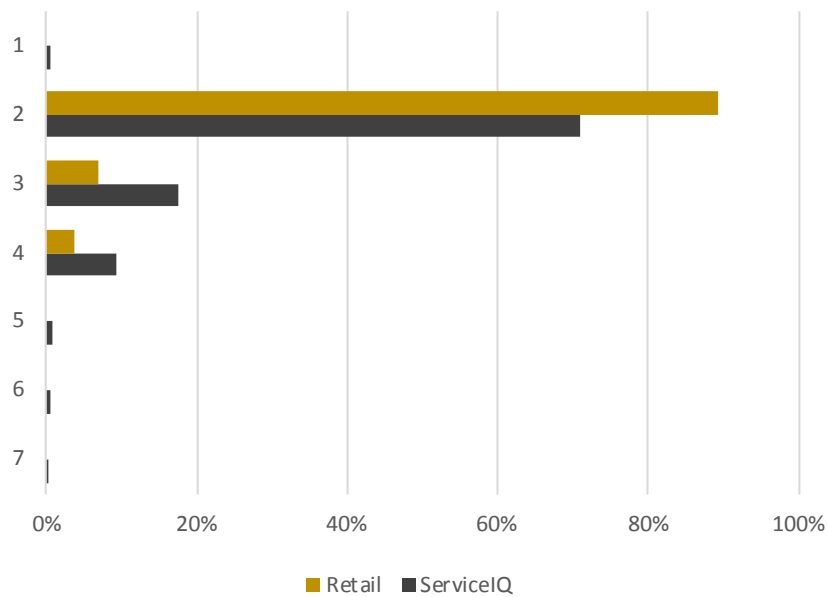
The majority (88.6%) of trainees in the sector are studying towards Level 2 qualifications. By contrast, 63.1% of trainees across the whole of ServiceIQ are studying for Level 2 qualifications. Only 3.9% of trainees in the sector are studying at Level 4 and above. One of Government’s Better Public Service targets is to get 55% of 25-34-year-olds with Level 4 qualifications and above by 2017.

Table 21. Number of trainees by level of study

Level	Number of trainees		% of total	
	Retail	ServiceIQ	Retail	ServiceIQ
1	0	102	0.0%	0.6%
2	6,261	11,350	89.2%	71.0%
3	492	2,808	7.0%	17.6%
4	265	1,482	3.8%	9.3%
5	0	117	0.0%	0.7%
6	0	106	0.0%	0.7%
7	0	25	0.0%	0.2%
Total	7,018	15,990	100.0%	100.0%

Source: ServiceIQ

Figure 25. Proportion of trainees by level of study



Source: ServiceIQ

Region

The majority of training occurs in the major population centres. A high proportion of Retail sector trainees are located in Auckland (32.6%) which compares with 40.5% for all ServiceIQ trainees. The next-highest concentrations are in Wellington (12.3%) and Canterbury (12.3%) respectively.

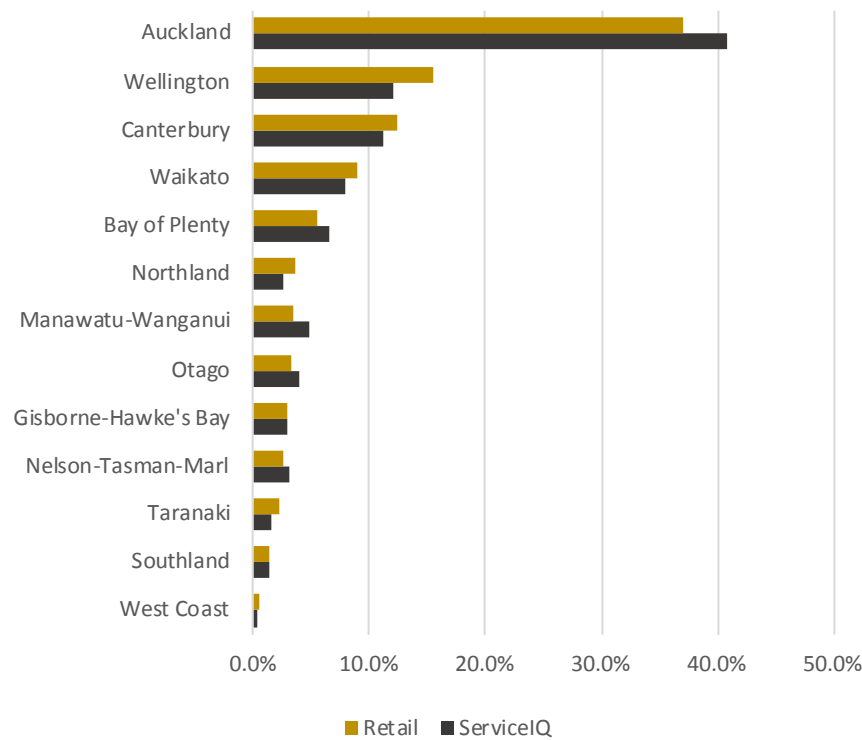
The share of retail trainees in Auckland is similar to the share of retail employment in the region. Nearly one-third of all trainees are located in Auckland. Most regions have a similar share of trainees and employees.

Table 22. Number of trainees by region

Region	Number of trainees		% of total		Employment
	Retail	ServiceIQ	Retail	ServiceIQ	Retail
Northland	318	628	4.1%	2.9%	3.0%
Auckland	2,517	8,748	32.6%	40.5%	34.2%
Waikato	795	1,719	10.3%	8.0%	8.4%
Bay of Plenty	559	1,548	7.2%	7.2%	6.0%
Gisborne-Hawke's Bay	279	743	3.6%	3.4%	4.2%
Taranaki	243	415	3.1%	1.9%	2.4%
Manawatu-Wanganui	372	1,077	4.8%	5.0%	5.0%
Wellington	952	1,990	12.3%	9.2%	11.8%
West Coast	44	104	0.6%	0.5%	0.7%
Canterbury	952	2,306	12.3%	10.7%	13.2%
Otago	346	963	4.5%	4.5%	5.2%
Southland	125	341	1.6%	1.6%	2.2%
Nelson-Tasman-Marl	224	1,007	2.9%	4.7%	3.6%
Total	7,726	21,589	100%	100%	100%

Source: ServiceIQ

Figure 26. Proportion of trainees by region



Source: ServiceIQ

Domain

Domain is the lowest order of classification within the NZ Qualifications Framework and represents a cohesive cluster of similar unit standards.

The highest proportion of the retail sector's trainees is studying for qualifications in the non-funded domain (98.0%). The next highest concentrations are in the business (1.6%) and hospitality (0.2%) domains.

Table 23. Number of trainees by domain

Domain	Number of trainees	% of total
Non-Funded	7,572	98.0%
Business	124	1.6%
Hospitality	18	0.2%
Distribution	9	0.1%
Food and Beverage Service	2	0.0%
Total	7,726	100.0%

Source: ServiceIQ

Provider-based training

This section shows enrolments and completions in provider-based qualifications of relevance to the sector. It includes all fields of studies of relevance to the sector. This means that some fields may be of relevance to other ServiceIQ sectors and are included in the statistics provided for those sectors.

Fields of study included in the above statistics are: Sales

Table 24 shows that the number of learners enrolled for provider-based qualifications considerably outnumbers completions for retail.

Table 24. Enrolments and completions in provider-based training, 2012

Qualification	Enrolments	Completions
Certificates 1-3	3,700	550
Certificates 4	710	90
Diplomas	230	0
Bachelors degrees and higher	460	0

Source: Ministry of Education

7. APPENDIX A. METHODOLOGY

Definitions of key industries and occupations

Industries

Code	Description	Detailed description
G400000	Fuel Retailing	This class consists of units mainly engaged in retailing fuels, including petrol, LPG or lubricating oils.
G411000	Supermarket and Grocery Stores	This class consists of units mainly engaged in retailing groceries or non-specialised food lines (including convenience stores), whether or not the selling is organised on a self-service basis.
G412100	Fresh Meat, Fish and Poultry Retailing	This class consists of units mainly engaged in retailing fresh meat, fish or poultry.
G412200	Fruit and Vegetable Retailing	This class consists of units mainly engaged in retailing fresh fruit or vegetables.
G412300	Liquor Retailing	This class consists of units mainly engaged in retailing beer, wine or spirits for consumption off the premises only.
G412900	Other Specialised Food Retailing	This class consists of units mainly engaged in retailing specialised food lines, such as confectionery or smallgoods or bread and cakes (not manufactured on the same premises).
G421100	Furniture Retailing	This class consists of units mainly engaged in retailing furniture, blinds or awnings.
G421200	Floor Coverings	This class consists of units mainly engaged in retailing floor coverings (except ceramic floor tiles).
G421300	Houseware Retailing	This class consists of units mainly engaged in retailing kitchenware, china, glassware, silverware or other houseware goods.
G421400	Manchester and Other Textile Goods Retailing	This class consists of units mainly engaged in retailing fabrics, curtains or household textiles.
G422100	Electrical, Electronic and Gas Appliance Retailing	This class consists of units mainly engaged in retailing electrical, electronic or gas appliances (except computers and computer peripherals).
G422200	Computer and Computer Peripherals Retailing	This class consists of units mainly engaged in retailing computers or computer peripheral equipment.
G422900	Other Electrical and Electronic Goods	This class consists of units mainly engaged in retailing electrical and electronic goods not elsewhere classified.
G423100	Hardware and Building Supplies Retailing	This class consists of units mainly engaged in retailing hardware or building supplies.
G423200	Garden Supplies Retailing	This class consists of units mainly engaged in retailing garden supplies or nursery goods.
G424100	Sport and Camping Equipment Retailing	This class consists of units mainly engaged in retailing sporting goods, camping equipment or bicycles.
G424200	Entertainment Media Retailing	This class consists of units mainly engaged in retailing audio tapes, compact discs, computer games, digital versatile discs or video cassettes.
G424300	Toy and Game Retailing	This class consists of units mainly engaged in retailing toys or games (except computer games).
G424400	Newspaper and Book Retailing	This class consists of units mainly engaged in retailing books, periodicals and newspapers.
G424500	Marine Equipment Retailing	This class consists of units mainly engaged in retailing new or used boats or boat accessories.
G425100	Clothing Retailing	This class consists of units mainly engaged in retailing clothing or clothing accessories.
G425200	Footwear Retailing	This class consists of units mainly engaged in retailing boots, shoes or other footwear.
G425300	Watch and Jewellery	This class consists of units mainly engaged in retailing new watches and jewellery (except clocks and silverware).
G425900	Other Personal Accessories Retailing	This class consists of units mainly engaged in retailing other personal accessories, including new handbags, sunglasses, leather goods, luggage and other personal accessories not elsewhere classified.
G426000	Department Stores	This class consists of units engaged in retailing a wide variety of goods, other than food or groceries, but the variety is such that no predominant activity can be determined.
G427100	Pharmaceutical, Cosmetic and Toiletry Goods Retailing	This class consists of units mainly engaged in retailing prescription drugs or patent medicines, cosmetics or toiletries.

G427200	Stationery Goods Retailing	This class consists of units mainly engaged in retailing stationery goods and writing materials.
G427300	Antique and Used Goods Retailing	This class consists of units mainly engaged in retailing antiques or second-hand goods (except motor vehicles or motor cycles and parts).
G427400	Flower Retailing	This class consists of units mainly engaged in retailing cut flowers or display foliage.
G427900	Other Store-Based Retailing n.e.c	This class consists of units mainly engaged in retailing goods not elsewhere classified from store-based premises.
G431000	Non-Store Retailing	This class consists of units mainly engaged in retailing goods without the use of a shopfront or physical store presence, including milk vendors, sole e-commerce retailers and direct shopping units.
G432000	Retail CommissionBased Buying and/or Selling	This class consists of units mainly engaged in buying and/or selling goods to the general public on a fee or commission basis. These activities include units who arrange the sale of goods on behalf of a principal, but do not take title to the goods themselves.

Occupations

Code	Description	Detailed description
131112	Sales and Marketing Manager	Plans, organises, directs, controls and coordinates the sales and marketing activities within an organisation.
142111	Retail Manager (General)	Organises and controls the operations of a retail trading establishment.
611399	Sales Representatives nec	This occupation group covers Sales Representatives not elsewhere classified.
621111	Sales Assistant (General)	Sells goods and services, such as food, clothing, hardware, household appliances, office supplies and cosmetics, in a retail or wholesale establishment.
621511	Retail Supervisor	Supervises and coordinates the activities of retail sales workers.
621611	Service Station Attendant	Sells fuel, lubricants and other automotive accessories, and performs minor maintenance on motor vehicles at a service station.
631111	Checkout Operator	Operates cash registers and receives payments for goods purchased by customers.
891211	Shelf Filler	Fills up shelves and display areas in a store or supermarket.

Measuring employment in the Retail sector

Infometrics uses a time series of industry-occupation employment matrices for New Zealand to define and measure total employment in the ServiceIQ sectors. Table 25 shows a hypothetical industry-occupation employment matrix. A total of 216 people are employed in this hypothetical economy. The matrix divides those people across four industries and five occupations. For example, 59 people are employed in Industry 1 and 6 of those 59 people are employed in occupation A.

Table 25. Hypothetical industry-occupation employment matrix

	Industry 1	Industry 2	Industry 3	Industry 4	Total
Occupation A	6	12	16	10	44
Occupation B	13	14	6	3	36
Occupation C	19	5	17	2	43
Occupation D	5	2	12	10	29
Occupation E	16	17	19	12	64
Total	59	50	70	37	216

In the above example we have defined a hypothetical ITO sector (the shaded cells) as consisting of Industry 2 and Occupations C and D. Total employment in the sector is calculated as $50+43+29=122$. Total employment in each of the ServiceIQ sectors is calculated using actual industry-occupation matrices for New Zealand.

Infometrics has compiled a time series (2000-2013) of industry-occupation matrices for the New Zealand economy using 490 industries (level 5 industries of the

ANZSIC06 industrial classification) and 1000 occupations (level 5 of the ANZSCO occupational classification) which were used for the estimation of employment in the ServiceIQ sectors.

The following data sources were used to construct the matrices:

- Infometrics Industry Occupation Model. This model provides a quarterly time series of total employment in 500 industries by region and territorial authority. The model provides more comprehensive, up-to-date and statistically robust estimates of employment than other data sources such as Business Demography. The model draws heavily on LEED quarterly data series which is the most robust source of industry employment data. The quarterly LEED series only measures employees. To account for the self-employed it is adjusted upwards using industry specific self-employment rates from the annual LEED series.
- Population census 1996, 2001, 2006, 2013. These censuses provide a time series of changes in the occupational composition of employment in each industry over time as well as a benchmark of total employment in each occupation in the census years.
- Various industry studies conducted by Infometrics. New information obtained in industry studies regarding the occupational composition of employment in industries and how that changed over time is incorporated into our industry-occupation matrices.

Measuring demographic characteristics of sectors

Employment in the retail sector is defined in terms of both industry and occupations using an industry-occupation employment matrix. After defining the sector on the matrix we sum employment across all occupations in each industry to arrive at employment by 500 industries. We can measure the demographic characteristics of employees in these industries using data from the 2006 and 2013 population census and aggregate across industries to arrive at an estimate for the sector as a whole.

Methodology for estimating net demand replacement

The cohort-component method developed by Shah and Burke⁴ has been used to estimate net replacement rates. 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 annual data for New Zealand, data from the 2001 and 2006 census was used in this study, together with national level forecasts from the Department of Labour.

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

⁴ 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.

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 the 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 above method provides historical estimates of net replacement demand rates for each occupation between 2001 and 2006. To estimate the total number of job openings in future we have drawn on trends in national level forecasts estimated by the Department of Labour.

Infometrics Regional Industry Employment Model

This study draws heavily on the Infometrics Regional Industry Occupation Model (RIOM) which provides more robust and up-to-date information than Business Demography statistics, the source used by many economic analysts for estimates of industry and regional employment. The RIOM is built on quarterly and annual LEED data extracted by special request from Statistics New Zealand at the territorial authority level. Quarterly LEED provides the number of employees in each industry for each quarter. Annual LEED provides the number of self-employed in each industry which are quarterised and added to the number of employees to arrive at total employment. The occupational dimension is added to the model using industry-occupation employment share matrices developed from successive population censuses.

The model estimates employment in recent quarters for which LEED is not available by using time-series analysis. The model draws on the relationships between industry performance at the territorial authority level and national level and recent trends in industry performance.

The RIOM provides estimates of the number of people employed in 480 industries in each region and territorial authority for each quarter since March 1999.

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

- The RIOM 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 annual LEED to provide estimates of self-employment by industry.
- The RIOM 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 RIOM 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.

Output and employment forecasts by industry

The Infometrics Industry Model produces forecasts of output and employment for 54 industries using a mix of principle component and regression techniques to link macroeconomic key indicators (e.g., inflation, interest rates, unemployment, the exchange rate, business profitability etc.) to prospects for each industry. A key aspect of this approach is that it produces an outlook for an industry that takes into account the recent performance of that industry and the impact of key influencers on business performance in that industry. It is also constrained to ensure that the sum of production in all industries equals our forecasts of overall economic activity. That is, an industry can only grow faster than overall economic growth if past industrial performance and business conditions indicate that it will increase its share of national output.

The main applications of principle component or factor analytic techniques are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is to classify variables. Therefore, factor analysis is applied as a data reduction or structure detection method.

In the current context, principle component analysis is used to separate a panel of data into its principal cross-sectional components and their associated time domain components. For example, one might have a panel of quarterly industrial production data that has been converted into measures of each industry's share of GDP, i.e. the share for the i -th industry in quarter t can be presented as:

$$q_{i,t} = \frac{Q_{i,t}}{\sum Q_{i,t}}.$$

Thus, one can forecast industrial production ($Q_{i,t}$) by applying forecasts of industrial shares ($q_{i,t}$) to forecasts of total GDP ($\sum Q_{i,t}$). The question then becomes one of forecasting the $q_{i,t}$'s. Principle component approaches are about reducing the scope of the forecast problem from forecasting, say, 20 inter-dependent $q_{i,t}$'s to one of diagnosing the interrelationship between each of the $q_{i,t}$'s and forecasting three or four independent time components.

Without going into the detailed mathematics, the aim of the approach is to use Eigen Values and Eigen Vectors to decompose the matrix of $q_{i,t}$'s into independent (orthogonal) cross-sectional (1×1) factor vectors ($\phi_i(q)$) each with an associated ($1 \times T$) time-varying parameter-vector $\{\beta_{t,j}\}$. If $f_t(q)$ is the original ($1 \times T$) matrix of data, one can reproduce the matrix by simple matrix multiplication:

$$f_t(q) = \mu(q) + \sum \beta_{t,i} \phi_i(q)$$

The critical issues here are that each of the factor vectors $\phi_i(q)$ are orthogonal and that one can often explain most of the variation in the matrix with a small subset of the factor vectors, e.g. greater than 90% of the variation might be explained by 3-4 of the factor vectors. This means that once we have undertaken the principle component analysis we can obtain reasonable forecasts by concentrating on just the 3-4 key factors and conducting independent forecasts of their associated time-varying parameter-vectors $\{\beta_{t,j}\}$.



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