

Changes in regional incomes 2013-2018

Whiringa-ā-rangi 2020

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Making sense of the numbers

In this report the following research question is explored:

“How have the average income levels changed for employed people between 2013 and 2018 in New Zealand?”

To undertake this research we acquired the total employment counts and total personal incomes values by industry/sector for the last two Censuses 2013 and 2018, at both a national and regional level. This enabled us to determine the change in employment, along with the average income per industry/sector and region, and explore how average incomes by industry/sector have changed over the five year period between the Censuses.

Prior to this research, it was expected that Auckland, Wellington and Canterbury would lead the way with the largest raises in average incomes. Other regions would then be grouped together in a second tier of regions with smaller rises, with potentially one or two regions straggling behind. This was expected because the big urban regions (Auckland, Wellington and Canterbury) have large shares of employment in high skill sectors, such as the business and other services, and public service sector. These two sectors were expected to see the largest rises in income across the five years.

In addition, it was expected that average incomes in these big urban regions would rise quicker, in order to compensate for the higher cost of living. The cost of living is measured using the Consumers Price Index (CPI). This increased by 5.6 percent across the five year period. At the same time, it was expected that rural regions would see smaller rises in average incomes, as these rural incomes would be driven by increases in incomes in the smaller primary and manufacturing sectors.

The results of this research showed that, between 2013 and 2018, the average income per region increased by between eight and 11 percent for most regions, or between \$3,200 and \$5,000 in absolute terms, across the five years between 2013 and 2018. Overall, Tasman/Nelson/Marlborough had the largest increase in average income, at \$5,000 or 11 percent. The West Coast and Taranaki regions had the smallest increases of \$400 and \$2,400, respectively. These results were somewhat surprising given, as already mentioned, that larger variance in average income increases were expected prior to the research being carried out.

Regionally, there have been some differences in the increase in average incomes of employed people in different sectors. These though are not large, with around a \$3,000 to \$5,000 difference between the smallest and largest increases within a sector across the regions. Within regional sectors the main drivers have typically been in the largest employment industries. At the same time smaller employment industries have been more volatile, with some experiencing very large increases in average incomes, while others have seen average incomes decline.

This lack of the expected variance in the rise of incomes across the regions could be due to the small relative size of New Zealand regions, and therefore the ease of employees to move between regions, in order to seize better opportunities. Such movement across regions would help explain the even rise in incomes across the regions.

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1 Introduction

This report is part of a Business and Economic Research Limited (BERL) research series exploring the Census 2018 data. The research question that we explored was “How have average income levels changed for employed people between 2013 and 2018 in New Zealand?”

This evidence based research can assist Local Government to consider the impact of the differences in incomes across regions. Differences in incomes on a regional level can impact on the ability of local industries to attract and retain employees.

The report begins by defining the scope of the research question and the approach undertaken. The main results are summarised in sections two, three, four and five, followed by conclusions from the analysis. The conclusions include some suggestions for future research.

1.1 Approach

This research utilised a top down approach. Under this approach we looked first at the average incomes for the last two Censuses 2013 and 2018, at national and regional level, and how these changed over the five year period. This initial top level analysis was then broadened to examine six broad industry sectors, again at both the national and regional level, to show how average incomes in each sector changed between 2013 and 2018. Finally, based on the results of our broad industry sector analysis, we selected a small number of regions and more disaggregated industries within them to examine which industries were driving the change in incomes.

This approach can be summarised into the following three steps:

1. Determining and comparing national and regional total average incomes in 2013 and 2018
2. Determining and comparing national and regional industry sector average incomes in 2013 and 2018
3. Examining a small number of regional industries in depth, in terms of average income changes between 2013 and 2018.

1.1.1 Data and assumptions

The analysis for the report used the following data:

- 2018 Census from Statistics New Zealand
- 2013 Census from Statistics New Zealand.

The analysis report made the following assumptions:

- That an individual’s Census data total income variable (which is the only Census individual income variable) equals an individual’s wages and salaries. Although we assumed these are the same for this analysis, this will not always be true. This is because included in the Census total income variable is all income from any other source, including benefits, interests and dividend income.
- The method used to calculate average income was to use the midpoints of each Statistics New Zealand income band and assume a normal distribution within each income band
- Median income numbers were calculated by Statistics New Zealand and provided to BERL.

1.1.2 Definitions

For this report industries have been grouped into the following six sectors:

- Primary – comprising agriculture, fishing, forestry; and mining
- Manufacturing
- Trade and accommodation – comprising wholesale and retail trade; along with accommodation; and food and beverage services
- Transport and construction
- Business and other services - comprising electricity and waste services; communications; financial and insurance services; rental and real estate services; professional and technical services; administrative services; arts and recreation services; and other services
- Public services – comprising public administration; education; and health services.

2 National and regional employment

Focussing on the change in average income for employed people in both 2013 and 2018, it is important to understand how employment numbers changed both nationally and regionally in this period. The changes in the number of people working have an impact on the overall average income of all employed people. As shown in Table 2.1, New Zealand's overall employment numbers rose from 1,874,400 in 2013 to 2,443,300 in 2018. This was an increase of 568,900 people or an increase of 30 percent.

Table 2.1 Census employment counts, national and regional, 2013 and 2018

Regions	2013	2018	Change in employment	Percentage change
Northland	56,800	81,500	24,700	43.5
Auckland	614,100	824,500	210,400	34.3
Waikato	174,000	229,100	55,100	31.7
Bay of Plenty	110,300	153,100	42,800	38.8
Hawkes Bay/Gisborne	81,400	106,100	24,700	30.3
Taranaki	49,500	59,000	9,500	19.2
Manawatu-Whanganui	78,500	116,100	37,600	47.9
Wellington	226,000	275,700	49,700	22.0
Tasman/Nelson/Marlborough	64,600	79,800	15,200	23.5
West Coast	15,200	16,600	1,400	9.2
Canterbury	262,300	324,900	62,600	23.9
Otago	96,200	123,800	27,600	28.7
Southland	45,500	53,100	7,600	16.7
New Zealand	1,874,400	2,443,300	568,900	30.4

Between 2013 and 2018, all regions in New Zealand had an increase in the number of people employed, with the largest absolute regional increase in Auckland with 210,400, followed by Canterbury with 62,600, Waikato with 55,100, and Wellington with 49,700. Of course these four regions are the most populated areas in New Zealand, so it makes sense that the largest absolute change in employment would occur here.

If we look at percentage change, then the largest increase in employment was seen in Manawatu-Whanganui with 48 percent, followed by Northland with 43 percent, and then Bay of Plenty with 39 percent. At the other end of the scale, the West Coast had the smallest increase with nine percent, while Southland saw a 17 percent increase, and Taranaki a 19 percent increase.

Given the change in employment nationally and regionally, we now need to look at where the additional 569,000 people are working in terms of industry sector. Table 2.2 shows at the national level, how each of the six broad employment sectors have changed in terms of employment between 2013 and 2018. From the table we can see the absolute largest changes in terms of numbers were in the business and other services sector, with 158,200 more workers, and the public services sector with 122,700 more workers.

Table 2.2 Census employment counts, national sectors, 2013 and 2018

Sectors	2013	2018	Change in employment	Percentage change
Primary	130,900	149,000	18,100	13.8
Manufacturing	182,000	238,100	56,100	30.8
Trade and accommodation	387,500	498,800	111,300	28.7
Transport and construction	228,300	330,900	102,600	44.9
Business and other services	506,200	664,400	158,200	31.3
Public services	439,500	562,200	122,700	27.9

In terms of percentage change, the transport and construction sector had the largest increase, with 45 percent growth in employment across the five year period. At the other end of the scale, the primary sector had both the smallest absolute increase and the smallest percentage increase in employment, with an 18,100 increase in employment or a 14 percent increase.

The change in employment by region and sector, can then be combined to provide us with Table 2.3, which shows the change in employment between 2013 and 2018. As expected, the table shows us that the Auckland region had the largest increase in every sector, except the primary sector, which occurred in the Hawkes Bay/Gisborne region.

Table 2.3 Census employment counts, regional sectors, change between 2013 and 2018

Region	Primary	Manufacturing	Trade and accommodation	Transport and construction	Business and other services	Public services
Northland	1,500	2,400	4,800	4,600	5,200	6,100
Auckland	1,100	18,200	43,500	42,000	64,400	41,100
Waikato	1,800	7,800	9,500	9,800	14,200	11,900
Bay of Plenty	2,900	4,200	7,800	7,800	12,100	8,000
Hawkes Bay/Gisborne	3,700	2,800	4,200	3,400	7,200	3,600
Taranaki	200	1,600	1,600	1,800	1,800	2,400
Manawatu-Wanganui	2,000	5,000	6,700	5,100	7,400	11,400
Wellington	600	2,900	8,400	7,800	14,500	15,500
Tasman/Nelson/Marlborough	1,500	2,000	2,900	2,600	3,600	2,800
West Coast	-700	300	700	200	400	400
Canterbury	1,800	6,400	12,800	10,700	19,300	11,700
Otago	1,200	1,500	6,100	5,700	6,600	6,400
Southland	400	1,000	2,300	1,100	1,400	1,400
New Zealand	18,000	56,100	111,300	102,600	158,100	122,700

The table also shows that, for most regions, the largest increase in employment was either the business and other services sector, or the public services sector. The only exceptions to this were the West Coast and Southland regions, which both had the largest increase in the trade and accommodation sector.

3 National and regional average income

The estimated average total income for employed people in New Zealand in 2013 was \$50,900. By 2018, this estimated average had increased by \$4,100, or eight percent, to \$55,000. Estimated regional average total incomes for 2013 and 2018 are shown in Table 3.1 and Figure 3.1 below.

The region with the highest estimated average in 2018 was Wellington, with employed residents earning \$62,300 on average. The region with the second highest average was Auckland with \$58,700, and then Canterbury with \$54,300 (which was just below the national average in 2018). While Wellington and Auckland also had the top two highest average incomes in 2013, the third highest was Taranaki, rather than Canterbury.

At the opposite end of the scale, the region with the lowest estimated average income in 2018 was the West Coast, with \$46,200. This was \$16,100 below the estimated average income in Wellington. Just ahead of them were Hawke's Bay/Gisborne, and Northland, both with \$47,700.

Table 3.1 Census average income, national and regional, 2013 and 2018

Regions	2013 (\$)	2018 (\$)	Change in income (\$)	Percentage change
Northland	44,000	47,700	3,700	8.4
Auckland	54,800	58,700	3,900	7.1
Waikato	48,500	52,500	4,000	8.2
Bay of Plenty	46,900	51,200	4,300	9.2
Hawkes Bay/Gisborne	44,500	47,700	3,200	7.2
Taranaki	50,400	52,800	2,400	4.8
Manawatu-Whanganui	44,900	48,600	3,700	8.2
Wellington	57,700	62,300	4,600	8.0
Tasman/Nelson/Marlborough	44,100	49,100	5,000	11.3
West Coast	45,800	46,200	400	0.9
Canterbury	49,600	54,300	4,700	9.5
Otago	45,800	50,400	4,600	10.0
Southland	46,700	49,900	3,200	6.9
New Zealand	50,900	55,000	4,100	8.1

As shown in the table, all regions had an increase in their average income. While national average incomes increased by \$4,100, regions have seen increases varying between \$400, or one percent, for West Coast, and \$5,000, or 11 percent, for Tasman/Nelson/Marlborough. Over the last five years, the increase in average incomes has been affected in part by the following changes:

- Minimum wage increasing from \$13.50 in March 2013 to \$15.75 in March 2018
- Living wage increasing from \$18.40 in 2013 to \$20.20 in March 2018
- The cost of living, as measured using the Consumer Price Index, rose 5.6 percent between 2013 and 2018
- An increase in the workforce of 568,900 people
- High net migration with 300,000 people migrating to New Zealand over the five years
- And falling unemployment.

At the same time, Gross Domestic Product (GDP), or value added, in New Zealand increased by 18 percent, or 3.3 percent per annum. This is relevant, because one of the three methods for

calculating GDP is the income method. According to this method, national GDP can be determined by adding together the sum total of compensation of employees and businesses' operating surpluses.

Because of this relationship between income of employees and GDP, comparing how income and GDP are moving over a set period is, therefore, interesting and potentially informative. While across the last five years GDP has grown at more than twice the rate of average income, it does not necessarily mean that a larger share of GDP is falling into businesses operating surplus. This is because total, not average, compensation is used, and the addition of close to 570,000 workers into the workforce will see total compensation increase even if the average income does not move.

What we can conclude from the comparison of GDP growth to average income growth is that New Zealand's GDP could have grown even faster, if as a country we could realise higher incomes for our workers. Of course this needs to occur without decreasing the value of businesses operating surpluses, otherwise it would be possible to increase one, by decreasing the other, when the aim would be to increase the overall total.

Figure 3.1 Change in average income, regional, 2018



4 Income by sector

The estimated average income of employed people increased by eight percent at national level, and by between one and 11 percent at the regional level. In this section we examine the industries in six broad sectors to determine the level of increase in each sector both nationally and regionally, and to consider if particular sectors are driving the increase in average incomes.

4.1 National results

As shown in Table 4.1, average income changes across the six broad sectors were varied, with the primary sector seeing the smallest absolute average increase of \$2,500, or five percent, while transport and construction had the largest absolute average increase of \$6,400, or 12 percent.

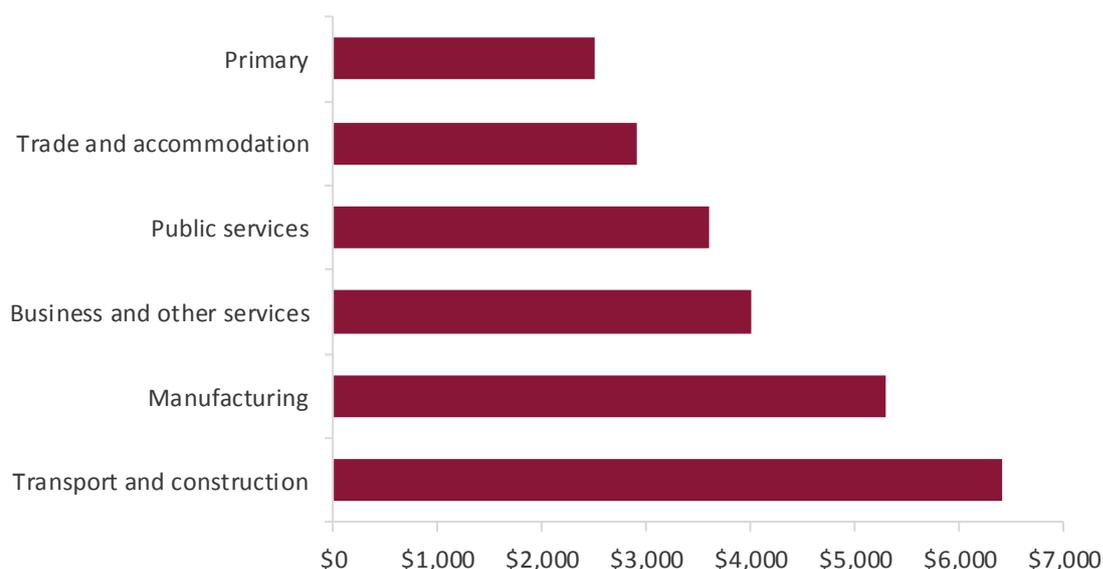
Table 4.1 Census average income, national industry, 2013 and 2018

Sectors	2013 (\$)	2018 (\$)	Change in income (\$)	Percentage change
Primary	47,100	49,600	2,500	5.3
Manufacturing	52,000	57,300	5,300	10.2
Trade and accommodation	37,600	40,500	2,900	7.7
Transport and construction	51,900	58,300	6,400	12.3
Business and other services	58,900	62,900	4,000	6.8
Public services	53,400	57,000	3,600	6.7

In 2018, there was a \$22,400 difference in average incomes between the lowest income sector, trade and accommodation, and the highest income sector, business and other services. The fact that there was a substantial difference between these two sectors is not surprising, given that a large percentage of workers in trade and accommodation were employed part-time.

The Household Labour Force Survey (HLFS) showed that around 30 percent of workers in the trade and accommodation sector were part-time employed, as at the March 2018 quarter. In addition, most of the jobs in this sector are considered low skill employment, which makes it more likely that employees will be on the minimum wage, or close to it. By contrast, the business and other services sector is considered a high skill employment sector, whose workers are generally in shorter supply, able to generate significant revenues for their employer, and therefore able to command higher incomes for their skills. In addition, only 18 percent of this sector's workforce were part time employed in 2018, which given that generally full-time workers will earn more in absolute terms in a year than part-time workers, adds to the higher average income in this sector.

Figure 4.1 Change in average incomes between 2013 and 2018, at national level



Interestingly, over the five year period between 2013 and 2018 the difference between the highest and lowest average income sectors only widened by \$1,100. This equates to around a \$200 a year increase in the gap.

What we can conclude from this overview analysis, is that, firstly, over the five years between 2013 and 2018, average incomes in all six broad sectors increased by at least five percent. Secondly, those sectors comprising industries of higher skilled or in-demand workers increased by the most across the period. This is evidenced by the \$4,000 increase in average income in the business and other services sector which has a large number of high skill workers, and the \$6,400 increase in average income in the transport and construction sector, which has seen the largest percentage increase in employment between 2013 and 2018. Much of the increase in employment in the transport and construction sector over the five year period (2013-2018) was due to high demand for workers to undertake the Christchurch rebuild and the increased demand for residential and civil construction workers around New Zealand for housing and infrastructure projects (for example the Auckland City Rail Link).

4.2 Regional results

As shown in Table 4.2, across the thirteen regions shown, average income changes varied from an \$8,100 decline in primary sector average incomes on the West Coast, to a \$7,300 increase in primary sector average incomes in Tasman/Nelson/Marlborough. For the West Coast the decline in primary sector average incomes was driven by a large decline in mining industry income, along with a small decline in agriculture industry income. For the Tasman/Nelson/Marlborough region, the increase was driven by a large increase in agriculture industry income, which includes their fruit, fishing, wine, forestry, dairy and meat industries.

Table 4.2 Change in census average income, regional industry, 2013 and 2018

Region	Primary	Manufacturing	Trade and accommodation	Transport and construction	Business and other services	Public services
Northland	\$4,100	\$3,400	\$3,000	\$6,000	\$3,700	\$2,500
Auckland	\$900	\$5,200	\$2,700	\$6,400	\$4,300	\$2,400
Waikato	\$1,800	\$5,800	\$2,800	\$5,700	\$5,000	\$2,800
Bay of Plenty	\$3,500	\$4,900	\$4,000	\$6,500	\$3,600	\$3,700
Hawkes Bay/Gisborne	\$2,000	\$3,100	\$2,800	\$5,400	\$3,200	\$3,300
Taranaki	\$400	\$5,700	\$2,300	\$4,100	\$400	\$3,200
Manawatu-Whanganui	\$3,700	\$2,400	\$3,600	\$5,600	\$3,100	\$3,000
Wellington	\$3,800	\$4,000	\$1,900	\$6,500	\$4,200	\$6,100
Tasman/Nelson/Marlborough	\$7,300	\$6,400	\$2,800	\$6,400	\$4,400	\$4,500
West Coast	-\$8,100	\$3,200	\$1,100	\$1,300	\$4,700	\$3,700
Canterbury	\$2,800	\$7,300	\$2,800	\$7,100	\$4,600	\$3,800
Otago	\$4,500	\$5,600	\$2,600	\$7,100	\$4,600	\$4,300
Southland	\$2,100	\$2,100	\$3,200	\$6,700	\$3,900	\$3,400
New Zealand	\$2,500	\$5,300	\$2,900	\$6,400	\$4,000	\$3,600

Other large increases in average incomes were seen in the Canterbury manufacturing sector, up \$7,300, the Canterbury transport and construction sector up \$7,100, and the Otago transport and construction sector up \$7,100.

Overall, only the West Coast primary sector saw a decline in average incomes, while outside of this sector the increases in absolute average incomes were similar across the regions. For the primary sector the average incomes was more varied across the regions, influenced by the different make-up of the sector in each region.

As shown in Table 4.3, average incomes across the regions in 2018, varied between a low of \$32,400 in the West Coast trade and accommodation sector, to a high of \$73,300 in the Wellington business and other services sector.

Across the regions, the manufacturing, trade and accommodation, and transport and construction sectors had the smallest variance in average incomes, ranging between \$10,000 and \$13,000, while the three remaining sectors had a variance in average incomes of between \$18,000 and \$27,000.

Table 4.3 Census average income, regional industry, 2018

Region	Primary	Manufacturing	Trade and accommodation	Transport and construction	Business and other services	Public services
Northland	\$46,100	\$55,200	\$35,100	\$51,400	\$50,300	\$50,800
Auckland	\$45,500	\$60,200	\$44,700	\$60,700	\$67,900	\$57,600
Waikato	\$53,300	\$59,000	\$38,600	\$56,100	\$57,100	\$53,900
Bay of Plenty	\$49,000	\$58,200	\$38,900	\$57,000	\$53,900	\$53,400
Hawkes Bay/Gisborne	\$42,100	\$49,700	\$37,500	\$53,600	\$51,000	\$51,800
Taranaki	\$60,300	\$62,500	\$36,300	\$55,100	\$55,600	\$50,700
Manawatu-Whanganui	\$46,000	\$49,800	\$37,300	\$51,900	\$50,200	\$54,100
Wellington	\$49,500	\$53,300	\$37,900	\$57,900	\$73,300	\$68,500
Tasman/Nelson/Marlborough	\$49,300	\$53,900	\$35,700	\$55,900	\$52,100	\$52,300
West Coast	\$49,300	\$55,500	\$32,400	\$53,300	\$46,400	\$50,300
Canterbury	\$50,500	\$58,300	\$40,200	\$61,300	\$60,100	\$55,100
Otago	\$51,100	\$52,100	\$36,500	\$57,500	\$54,700	\$55,000
Southland	\$52,400	\$55,000	\$38,200	\$56,000	\$51,800	\$51,000
New Zealand	\$49,600	\$57,300	\$40,500	\$58,300	\$62,900	\$57,000
Difference in average incomes	\$18,200	\$12,800	\$12,300	\$9,900	\$26,900	\$18,200

5 Incomes within selected regional sectors

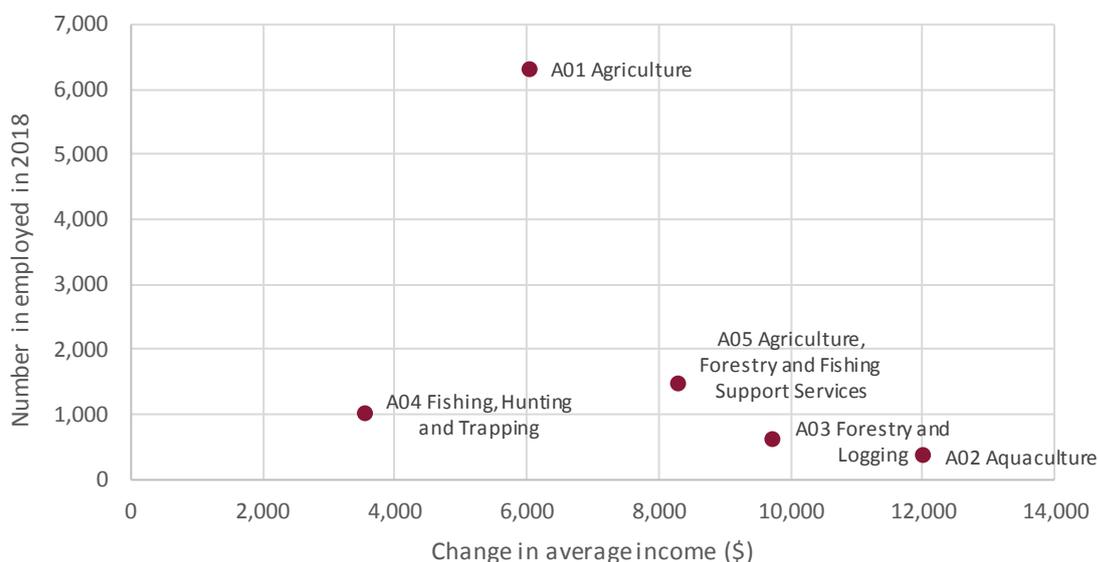
In this section we drill down from the six industry sector overview, to a small number of selected regional sectors. This enables us to investigate if the changes at the sector level are reflected across all the lower level industries, or if a small number of industries are driving the change. For this investigation we looked at the six regional sectors which have seen the largest increase in average income. The following six regional sectors were investigated:

- Tasman/Nelson/Marlborough primary sector
- Canterbury manufacturing sector
- Bay of Plenty trade and accommodation sector
- Otago transport and construction sector
- Waikato business and other services sector
- Wellington public services sector.

5.1 Tasman/Nelson/Marlborough primary sector

The primary sector comprises 10 second level industries. Of these 10 industries, two industries contributed 75 percent of the impact on the change in average incomes between 2013 and 2018. These two industries were the agriculture industry (57 percent), with average income up \$6,000, and the agriculture, forestry and fishing support services industry (18 percent), with average income up \$8,300, as shown in Figure 5.1.

Figure 5.1 Primary sector by change average income and total employment



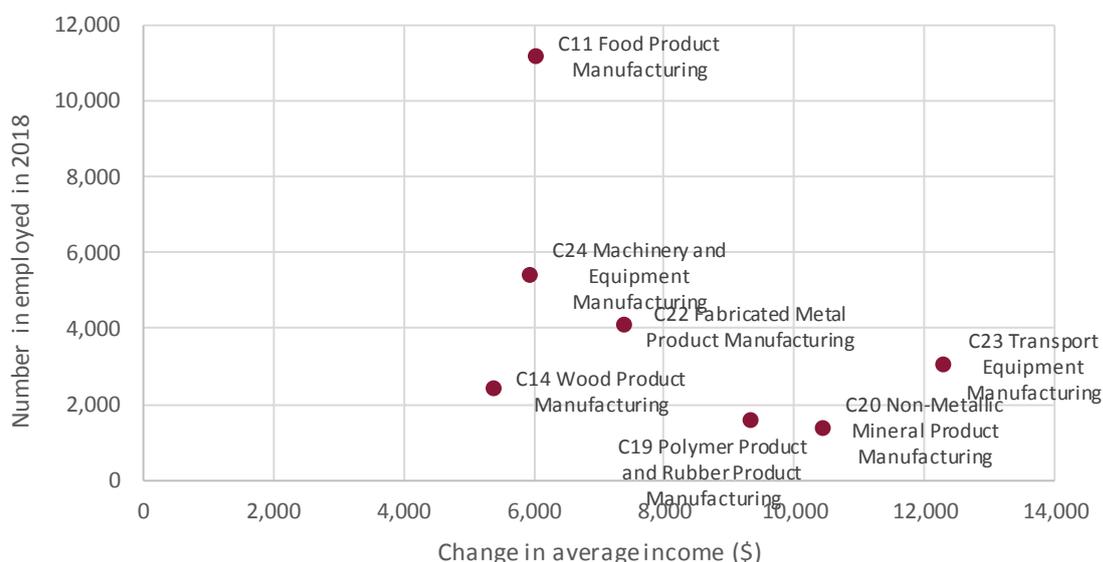
As shown in the figure, the agriculture industry employed just over 6,000 people, or almost two-thirds of all workers in the primary sector, while agriculture, forestry and fishing support services employed 1,450 people or 15 percent. Therefore, it is not surprising that agriculture had the largest impact on the overall change in average income in the sector.

Some of the other industries in the region had much larger increases in average income, such as the aquaculture (up \$12,000); and forestry and logging (up \$9,740) industries, but they both have small workforces in the region, and therefore contributed less to the overall change in average income.

5.2 Canterbury manufacturing sector

Within the manufacturing sector, there are 15 industries at the second level. Of these 15 industries, four industries contributed almost 70 percent of the impact on the change in average incomes between 2013 and 2018. These four industries were the food product manufacturing (27 percent) with average income up \$6,000; transport equipment manufacturing (15 percent) with average income up \$12,300; machinery and equipment manufacturing (13 percent) with average income up \$6,000; and fabricated metal product manufacturing (12 percent) with average income up \$7,400, as shown in Figure 5.2.

Figure 5.2 Manufacturing sector by change average income and total employment



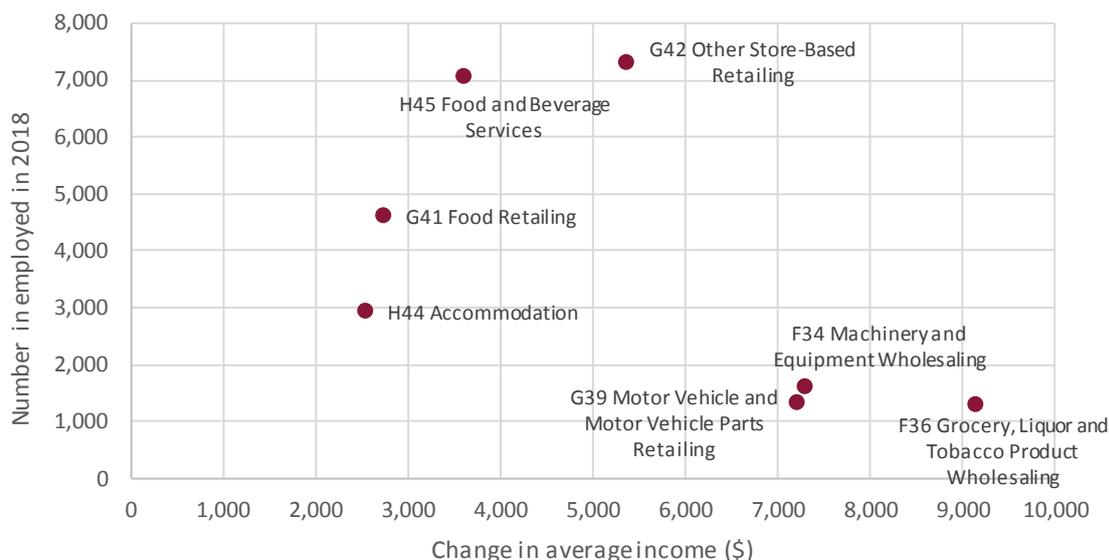
As shown in the figure, the food product manufacturing industry employed 11,200 people, or 31 percent of the manufacturing sector workforce in Canterbury. The transport equipment manufacturing industry employed 3,020 people or eight percent; the machinery and equipment manufacturing industry employed 5,400 people or 15 percent; and the fabricated metal product manufacturing industry employed 4,070 people or 11 percent of the manufacturing sector workforce. Overall these four industries employed two-thirds of the total workforce in 2018.

Apart from the food product manufacturing industry, which is connected to the agriculture sector, the three other manufacturing industries can all be linked to the Christchurch earthquake rebuild. Overall, for the Manufacturing sector, the industries driving the change in average income can be linked to industries undergoing strong demand for their services, either domestically or internationally.

5.3 Bay of Plenty trade and accommodation sector

For the trade and accommodation sector, there are 13 industries at the second level. Of these 13 industries, two industries contributed almost 50 percent of the impact on the change in average incomes between 2013 and 2018. These two industries were the other store-based retailing industry (29 percent) with average income up \$5,400; and the food and beverage services industry (29 percent) with average income up \$3,600, as shown in Figure 5.3.

Figure 5.3 Trade and accommodation sector by change average income and total employment



As shown in the figure, the other store-based retailing industry employed 7,320 people or 24 percent of the 2018 trade and accommodation sector workforce. In addition the food and beverage services industry employed 7,060 people or 23 percent of the total workforce in 2018.

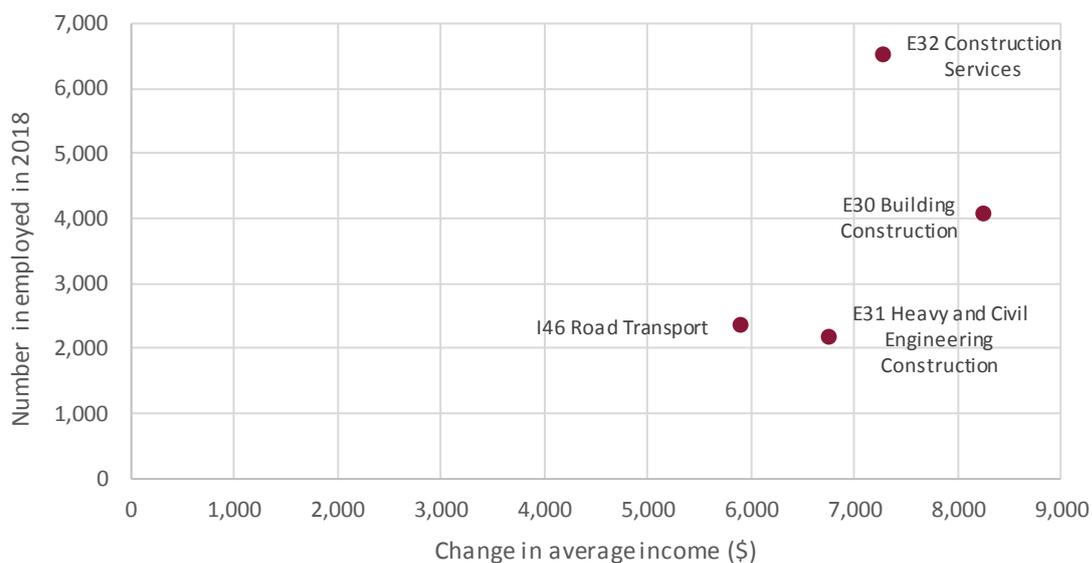
Given that the two industries employed almost half of all workers in the trade and accommodation sector, it is not surprising that it had a large impact on the overall change in average income in the sector. But with the other 11 industries employing the other half of the sector’s employees, there are a number of industries which have seen only small increases in their average incomes. This includes the third largest employment industry, food retailing which only saw an increase of \$2,700 to reach \$29,500 in 2018.

Overall, because of the low average income level in this sector the average income increase seen between 2013 and 2018 was substantial when compared to other sectors. This sector at the national level saw a larger percentage increase than the business and other services, and public services sector, though the actual dollar was still lower than these sectors.

5.4 Otago transport and construction sector

For the transport and construction sector, there was 11 industries at the second level. Of these 11 industries, two industries contributed almost 70 percent of the impact on the change in average incomes between 2013 and 2018. These two industries were construction services (40 percent) with average income up \$7,300; and building construction (28 percent) with average income up \$8,300, as shown in Figure 5.4.

Figure 5.4 Transport and construction sector by change average income and total employment



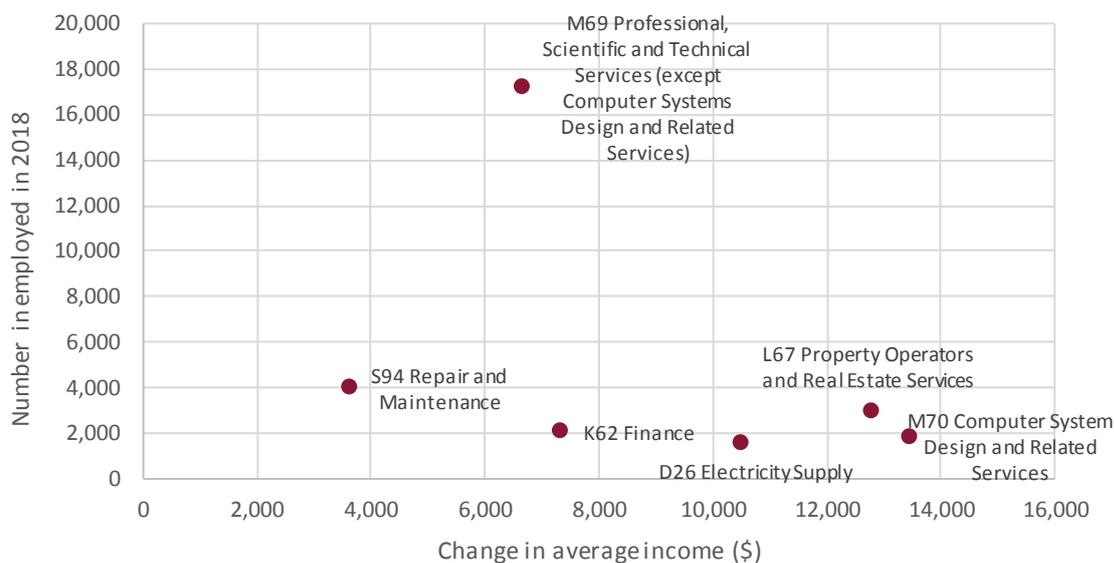
As shown in the figure, the construction services industry employed 6,500 people or 37 percent of the transport and construction sector workforce in 2018. The building construction industry employed 4,070 people or 23 percent of the 2018 sector workforce. At the same time the third of the construction industries, heavy and civil engineering construction, which employs 2,160 people, saw a rise of \$6,770 in average income. The best performing of the transport industries road transport saw a rise of \$5,900 in average income for the 2,340 people employed in the industry.

Between 2013 and 2018, it has been the construction industries driving the increase in incomes, rather than the transport industries. In particular, the driving force behind the increase in the constructions industries in the Otago region, has been the residential and industrial building occurring around Queenstown and Dunedin.

5.5 Waikato business and other services sector

For the business and other services sector, there are 27 industries at the second level. Of these 27 industries, two industries contributed 60 percent of the impact on the change in average incomes between 2013 and 2018. At the same time one industry had a substantial fall in average income. The top two industries moving upwards were the professional, scientific and technical industry (45 percent) with average income up \$6,700, and the property operators and real estate services industry (15 percent) with average income up \$12,800, as shown in Figure 5.5. At the same time the administrative services industry declined with average incomes down \$7,000 (contributing a 13 percent decline in the sectors average income level).

Figure 5.5 Business and other services sector by change average income and total employment



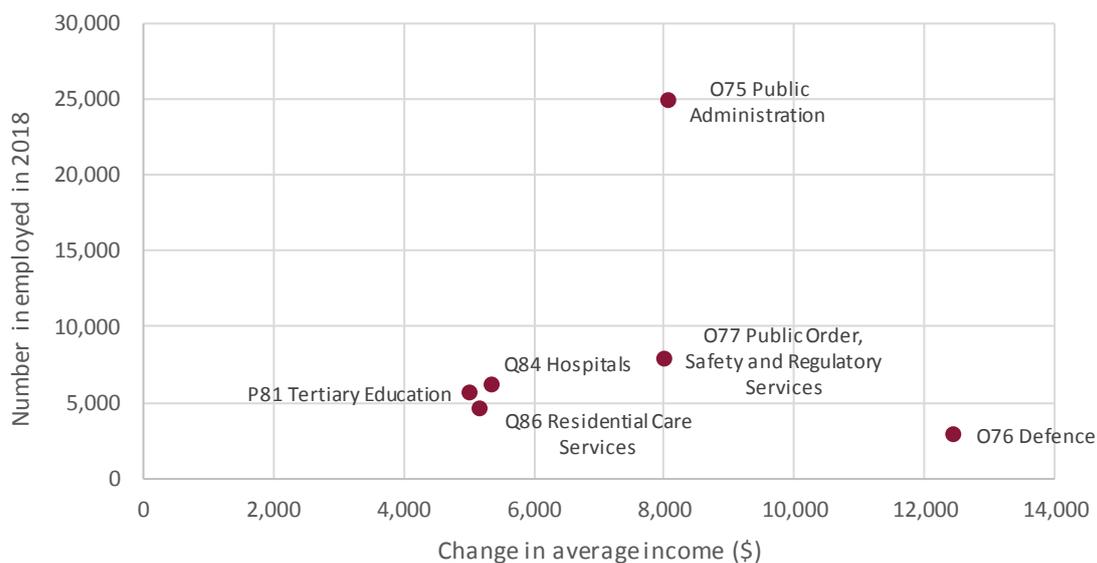
As shown in the figure, the professional, scientific and technical industry employed 17,180 people or 32 percent of the 2018 business and other services sector workforce. At the same time the property operators and real estate services industry employed 2,950 people or six percent of the sectors workforce. The administrative services industry at the other end of the scale, employed 4,650 people or nine percent of the workforce.

Overall, the industry drivers within this sector are those comprising higher skilled employees, or those taking advantage of the strong demand in the residential and commercial property rental markets seen between 2013 and 2018. By contrast, lower skilled industries are declining or seeing only small increases in their average income.

5.6 Wellington public services sector

The public services sector comprises 10 industries at the second level. Of these 10 industries, two industries contributed 60 percent of the impact on the change in average incomes between 2013 and 2018. These two industries were public administration (46 percent) with average income up \$8,100; and public order, safety and regulatory services (14 percent) with average income up \$8,000, as shown in Figure 5.6.

Figure 5.6 Public services sector by change average income and total employment



As shown in the figure, the public administration industry employed 24,850 people or 30 percent of the public services sector workforce in 2018. At the same time, the public order, safety and regulatory services industry employed 7,780 people or nine percent of the sectors workforce. Therefore, combined these two industries employ almost 40 percent of the sectors workforce in 2018.

Overall, the industry drivers within this sector are those comprising of higher skilled employees employed by local and central government. The education, health and social assistance industries, which employ 60 percent of the sector workforce, have seen smaller increases.

6 Conclusions

Overall average incomes for employed people over the five years between 2013 and 2018 increased by eight percent, or 1.6 percent per year. This increase meant that average incomes increased only slightly faster than the cost of living as measured by the CPI (which was up 5.6 percent across the five years). At the same time, New Zealand's GDP (our current measure of value added) increased by 18 percent or 3.3 percent per annum. This means that average incomes across New Zealand have increased by less than half of that of GDP.

As shown in section two of this report, there has been a large expansion of New Zealand's workforce across the five year period, which has been fuelled by high net migration. This no doubt will have reduced upward pressure on incomes, as businesses would likely have had a larger supply of workers to draw from.

Nationally, the largest percentage and absolute largest increase in average incomes was in the transport and construction sector, driven by the large increases in income for people employed in the construction industries. Apart from the West Coast and Taranaki regions, the average income per region increased at around the same pace as one another (eight to 11 percent, or between \$3,200 and \$5,000 in absolute terms). This is despite likely faster increase in costs of living in larger urban regions, such as Auckland, Wellington and Canterbury. Regionally, there have been some differences in the increase in average incomes of employed people in different sectors, but these have not been large, with around a \$3,000 to \$5,000 difference in the smallest and largest increases within a sector across the regions.

Within regional sectors the main drivers have been typically the largest employment industries, while smaller employment industries have been more volatile, with some experiencing very large increases in average incomes, while other have seen average incomes decline.

7 Further research topics

In undertaking this research it has become apparent that there is several avenues for further research. Two of the most important are:

- Investigating the impact of increasing numbers of employees with higher level qualifications on incomes
- Investigating the influence of changes in occupational make-up within industries on average incomes.