Exploring our Economy Series

Volume 1: Exploring the Christchurch Industries

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Abstract

This paper assesses the employment and productivity changes for the Christchurch economy over time. Understanding the current economy, underpinned by structural changes, allows for growth industries to be identified.

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Contents

Executive Summary

- The economy has undergone structural changes over the past 18 years with changes in productivity and employment for most industries.

- The effect of the financial crisis and the 2011 earthquakes has had the biggest impact on industry economic activity.

- Employment levels have rebounded from the lows in 2012 and are at an all-time high in 2018.

- On an industry level, the historically strong manufacturing industry has lower employment, the health industry remains a large employer with continued new employment opportunities supported by the health precinct, while employment in construction is lower in 2018 than the highs of 2015 and returning to normal levels.

- Christchurch's manufacturing and professional, scientific and technical services have seen outstanding productivity growth, not only in the local context but also in comparison to urban peers in New Zealand.

- The analysis provided an indication of valuable industries that will likely be the economic drivers for the coming years. The a) accommodation and food services, b) health care, c) retail trade and d) professional, scientific and technical services industries all show growth in productivity, employment and future global demand and are considered as valuable economic -driving industries for Christchurch.

Introduction

The Christchurch city economy has been able to pull-ahead and grow even when faced with trying circumstances brought about by the 2010 and 2011 earthquakes. These events influenced the economy and steered it in a direction that is now the 'new normal'. The city has historically been a strong manufacturing hub and tourism destination with the retail and accommodation industries being the main beneficiaries. Similarly, it was further supported by a strong regional health service that caters for the South Island.

After the earthquakes, a new driver in the economy has emerged, the construction sector. This sector, driven by large investment and related funding to rebuild the city and particularly the central city, has contributed significantly to the economy. However, by 2016, the economy started to shift away from an economy driven by construction and is gradually relying on other sectors to provide the direction for new growth and development of which the construction sector will play a supporting role.

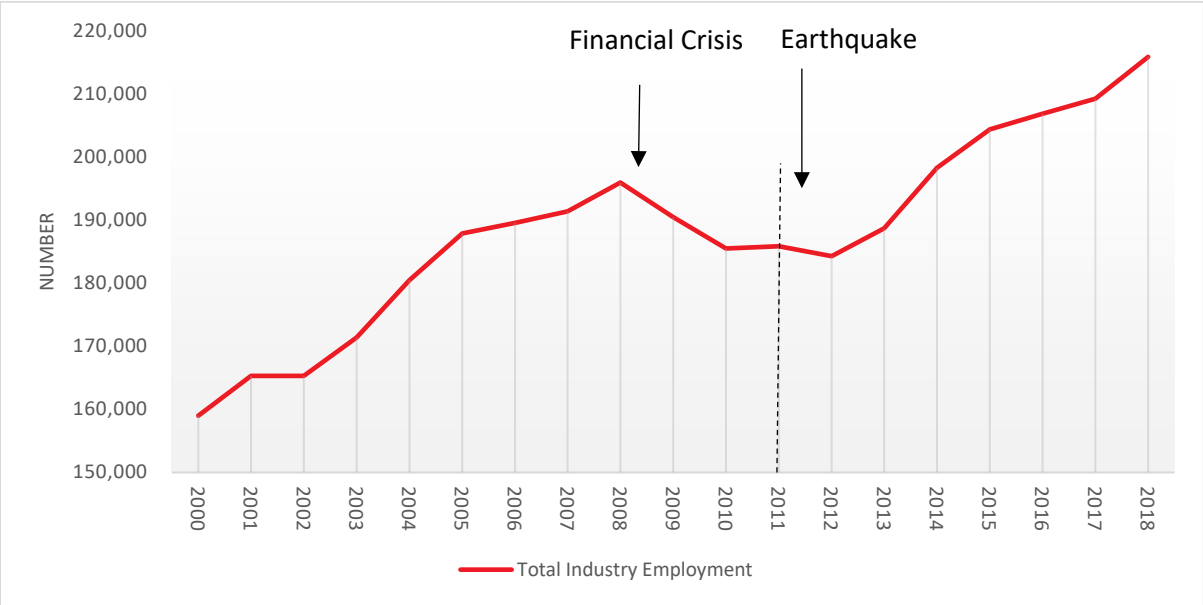
The aim of this series of reports is to assess the Christchurch economy and understand the role and significance of the various industries within the economy. The assessment will further provide insight in the growth potential of industries and identify industry competitive advantage within New Zealand.

The series consists of several stand-alone reports, each with a specific focus. The focus of **VOLUME 1: Exploring the Christchurch Industries**, is to provide an **assessment of employment and productivity** change over time and the possible implications on future growth for the city.

New direction

Any analysis of Christchurch, be it of the economy, the people or social character, is divided into two periods: pre-2011 and post-2011. This is due to the significant change that took place as a result of the earthquake damage and Figure 1 illustrates this. The figure shows the number of people employed within the city's economy between 2000 and 2018.

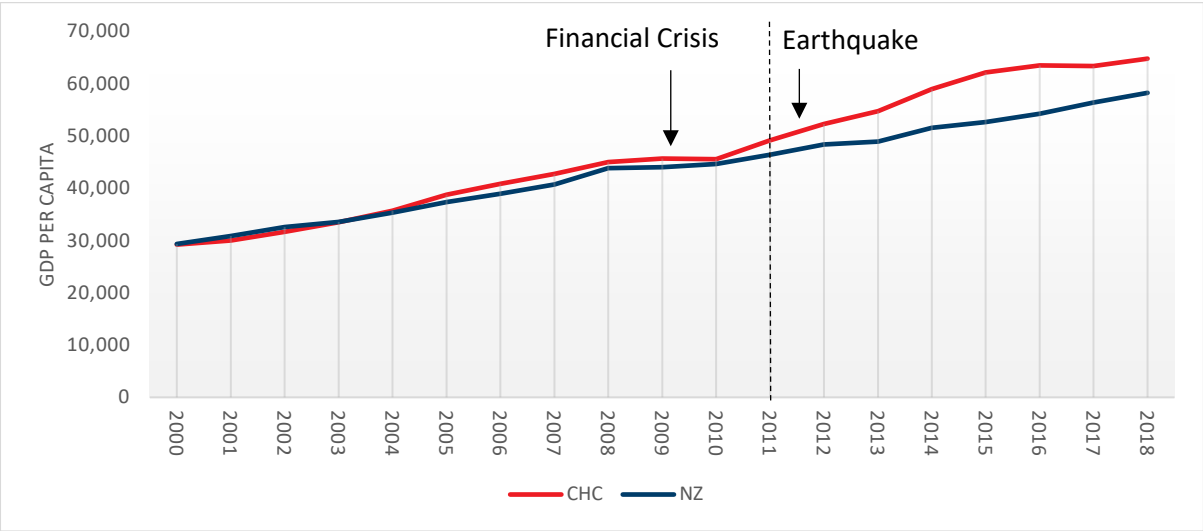
Figure 1: Total employment, 2000-2018



Source: StatsNZ, 2019

The effect of the 2008/9 financial crisis coupled with the 2011 earthquake had a significant negative effect on employment levels in Christchurch. The financial crisis, an international shock, had an impact on the world economy and rippled through to Christchurch, while the 2011 Christchurch earthquake caused a local shock that hampered initial growth after the financial crisis. The GDP per capita in Figure 2 shows a similar decrease during the financial crises but a shift away from and above the national GDP per capita in the following years.

Figure 2: GDP per Capita, 2000-2018



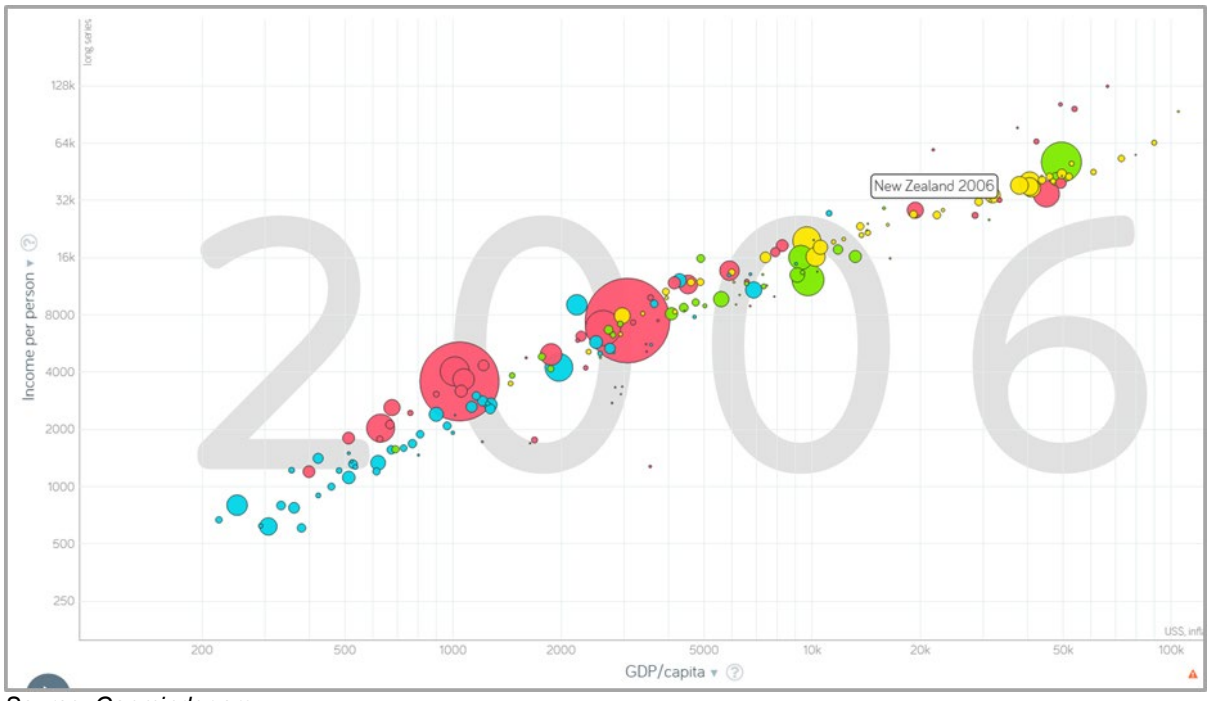
Source: StatsNZ, 2019

The question that arise is whether the local shock changed the structure of the economy, and if so, in what way? Likewise, it is important to determine if changes occurred in the growth structure of industries. To address these, the Christchurch economy is assessed, over time, in productivity and employment.

Productivity

The interdependence between income and productivity has long been recognised (see, for instance, Hazlitt, 1943). Essentially, increasing labour productivity is a prerequisite to increasing incomes. Figure 3 shows the relationship between purchasing power parity adjusted incomes and GDP per capita (a crude measure of national productivity) at the country level.

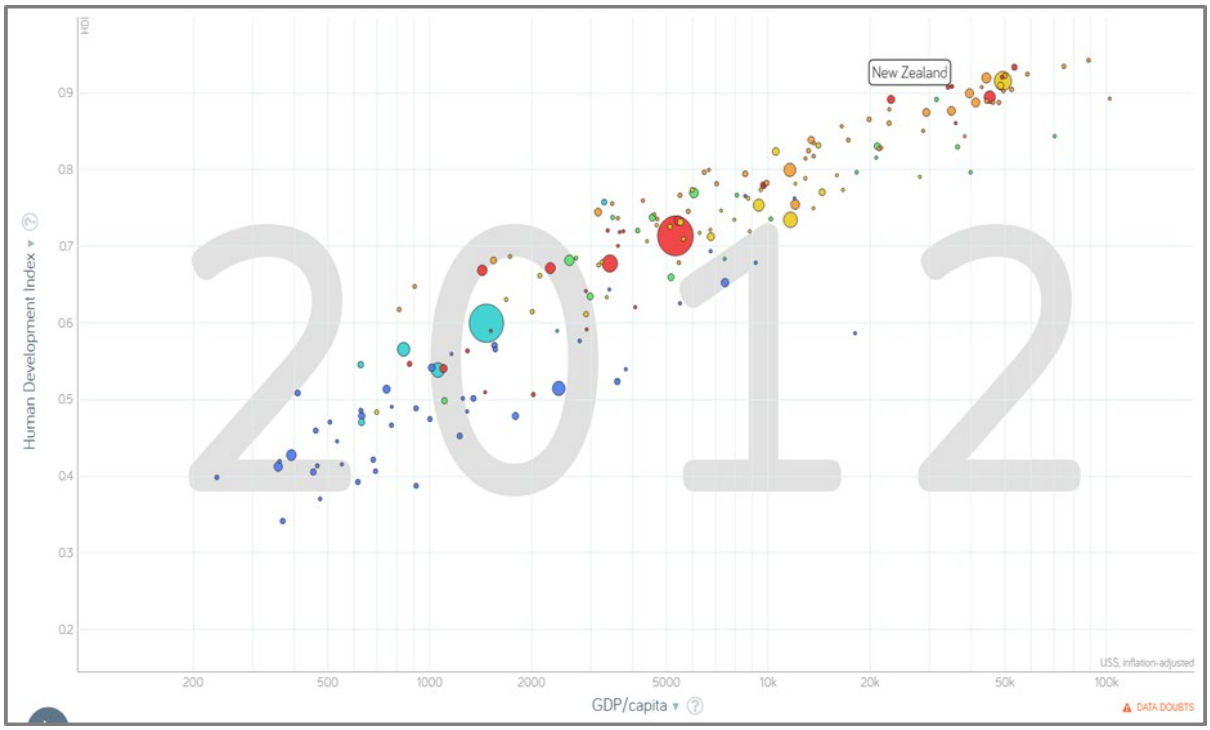
Figure 3: Relationship between income per person and GDP per capita, 2006



Source: Gapminder.org

It is clear that there are no countries with low productivity which score high on personal incomes. Likewise, all high-income countries also perform highly on productivity. But the impact of productivity on economic outputs does not end here. A number of other measures of human progress are strongly related to productivity. These include, but are not limited to, life expectancy, health outcomes, education measures and living standards. To encapsulate these measures the United Nations have developed the Human Development Index. The graph displayed in Figure 4 demonstrates that this composite measure of human prosperity is strongly related to productivity.

Figure 4: Relationship between Human Development Index and GDP per capita, 2012



Source: Gapminder.org

It can thus be postulated that raising productivity is an essential precondition for increasing prosperity. Conceptually, the success in the quest for productivity growth is determined by the ability of an industry (or firm or other decision-making unit) to increase outputs while holding inputs constant or hold outputs constant while decreasing inputs (or any combination of these) (Farrell, 1957). Achieving high productivity levels is not only related to better social and economic outcomes but is also necessary to achieve and retain local and international competitiveness.

Total productivity is generally defined as a composite of two constituent measures, labour productivity and capital productivity. Labour productivity defines the relationship of the amount of labour input to produce an economic output, whereas capital productivity elucidates the relationship between capital input (assets, investments, etc) and economic output.

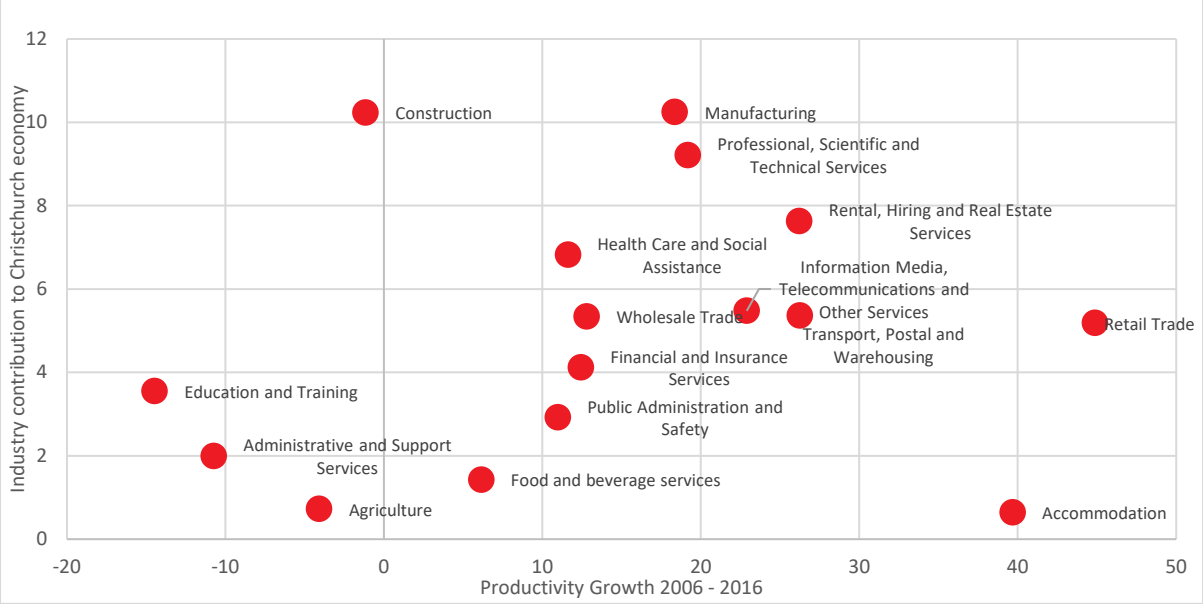
In this analysis we are concerned primarily with labour productivity, which we measure as industry-based GDP produced per working hour. Data was obtained from annual Territorial Authority (TA) real GDP estimates provided by the Ministry for Business, Innovation, and Enterprise (MBIE), whereas the annual industry workforce by TA and the average weekly working hours by industry were obtained from Statistics New Zealand.

Findings

The first graph (Figure 5) represents 10-year industry-based productivity growth versus the contribution of that industry to Christchurch GDP in 2016. We omitted showing the raw productivity figures in this graph as productivity differs substantially between industries, due to differences in labour intensiveness. In line with stated efforts to maximise Christchurch's prosperity, the aim for the

shown scenario must be to have as many industries as possible in the upper right quadrant or, at least, to aim for a constellation where large industries display significant growth in productivity. In Christchurch, this seems to be the case for manufacturing and professional, scientific, and technical services industries.

Figure 5: Productivity growth vs. industry contribution to economy Christchurch



Source: MBIE, StatsNZ & ChristchurchNZ, 2019

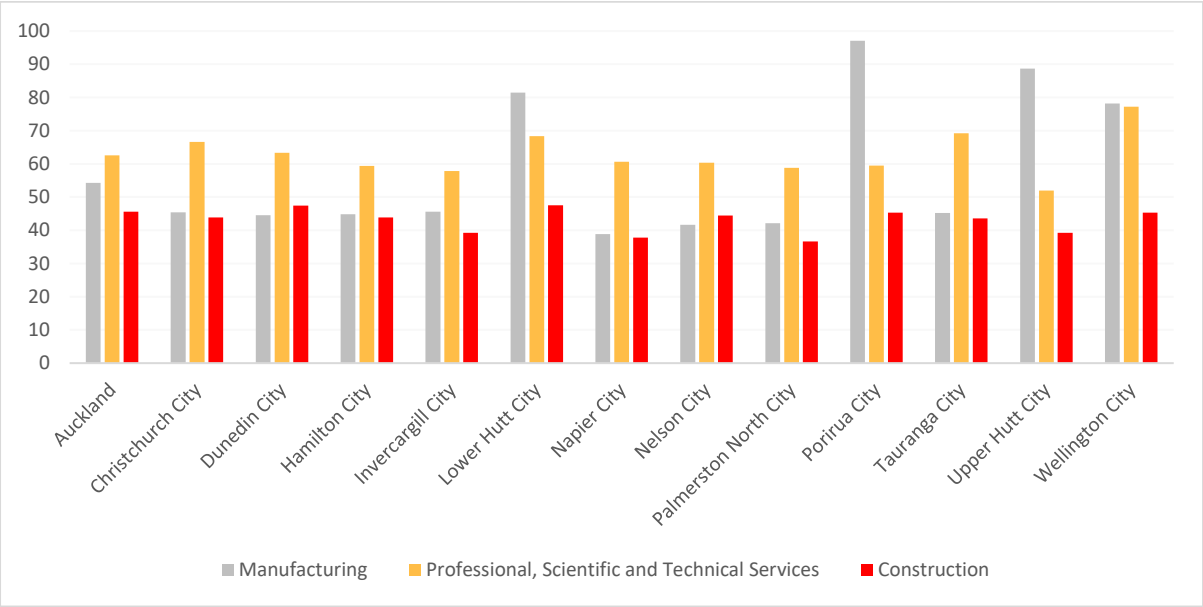
The other large industry, construction, had, while contributing around 10-11% to local GDP, negative productivity growth over the 10-year period from 2006 to 2016. This is somewhat surprising as it would have been reasonable to expect labour shortages in the post-earthquake environment to translate into higher labour productivity.

With the expected decline in earthquake related construction, it appears paramount to focus on further productivity gains in the manufacturing and professional, scientific, and technical services industries to enhance prosperity for Christchurch.

The strongest growth in labour productivity occurred in the retail and accommodation sectors. This is a very welcome development as these two industries are strongly related to tourism, an industry that has been identified as a persistently weak performer with regard to productivity (Smeral, 2007). Tourism can thus be seen as a key element in growth strategies for Christchurch.

How does the productivity of Christchurch's main industries compare to other urban centres? Figure 6 shows this comparison of the manufacturing, construction, and professional, scientific and technical services industry by urban centre.

Figure 6: Comparative average productivity in 2014-2016



Source: MBIE, StatsNZ & ChristchurchNZ, 2019

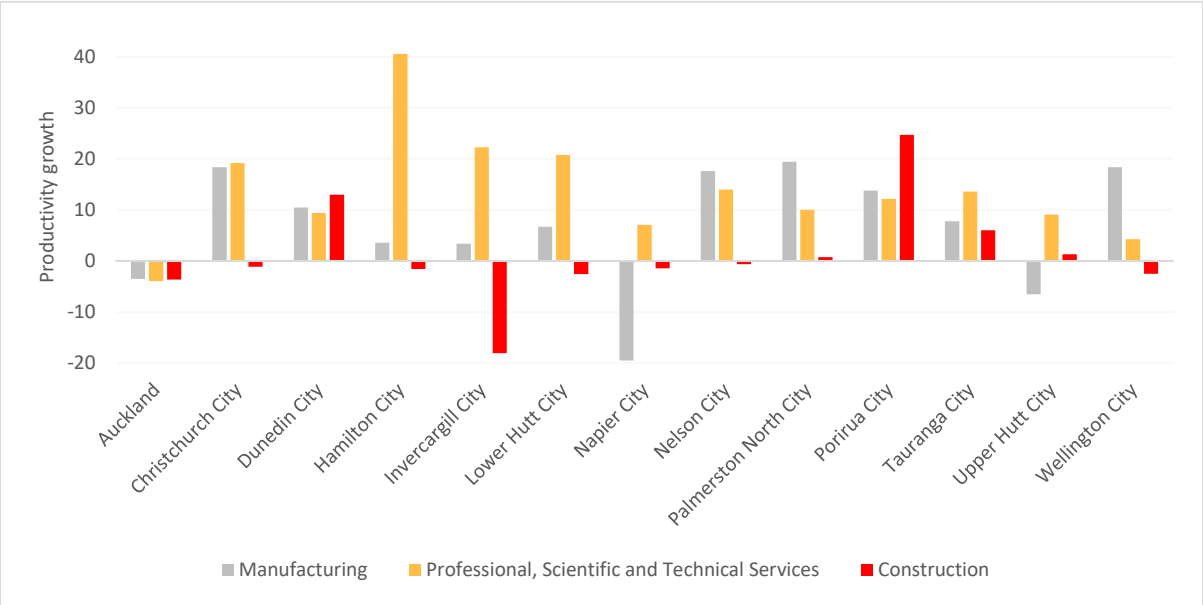
Labour productivity in the manufacturing industry is surprisingly consistent across New Zealand's urban centres, however, all four Wellington related localities exhibit exceptionally high productivity compared to their peers. Analysing these figures, it needs to be kept in mind that productivities vary based on sub-industry profiles and will often be higher in less labour-intensive industries.

The Christchurch professional, scientific and technical services industry displays slightly above average labour productivity, which may be partly due to its industry profile and prominent positioning in this industry in the South Island.

Productivity in the Christchurch construction sector is slightly above the national urban average. However, this must be seen in context to the unique post-earthquake environment the Christchurch construction industry finds itself in.

As the goal is to increase the general prosperity of Christchurch and the region, growth in productivity is essentially more imperative than baseline productivity. We utilised data from the previous analysis and estimated 10-year productivity growth in addition to productivity. The result can be seen in Figure 7.

Figure 7: Comparative 10-year urban productivity growth in Christchurch's 3 main industries



Source: MBIE, StatsNZ & ChristchurchNZ, 2019

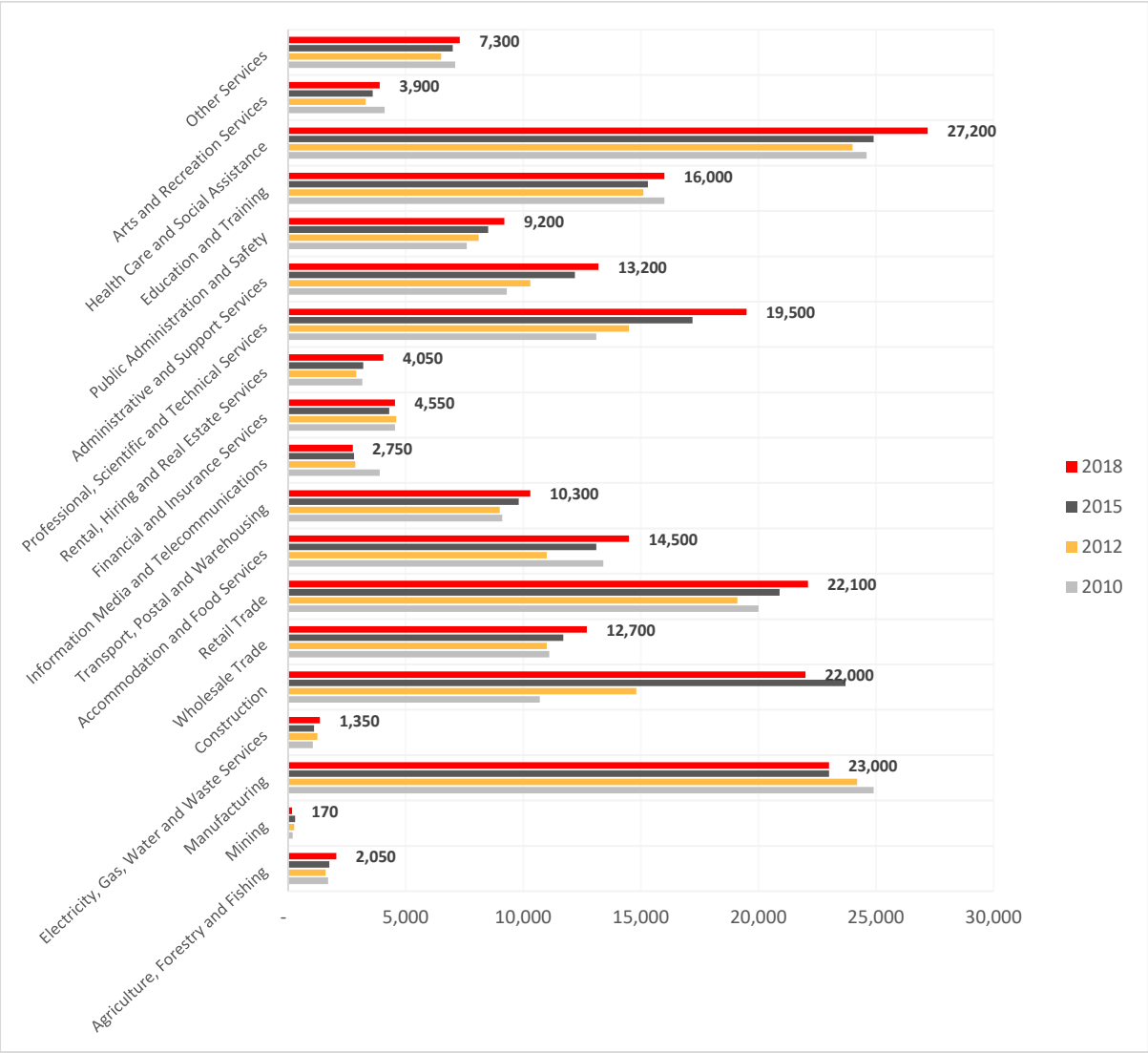
This graph solidifies the assessment that Christchurch's manufacturing and professional, scientific and technical services have seen outstanding productivity growth, not only in the local context but also in comparison to urban peers in New Zealand. Christchurch's manufacturing sector shows the second highest productivity growth over the 10-year period under consideration, compared with its urban peer in New Zealand, whereas the professional services sector's productivity growth is 4th highest. As these two industries contribute disproportionately to Christchurch's economic output, and also exhibit above average productivity gains, they warrant specific and targeted strategic and policy support to stimulate growth and prosperity in Christchurch.

Employment

Employment represents the demand for individual skills utilised in the production process. As economies transform, the level of employment adjusts accordingly, driven by demand and supply dynamics. The data for this analysis is sourced from the business demography statistics of Statistics New Zealand.

The employment levels for the Christchurch economy are illustrated in Figure 8, with data being provided for specific time periods. This distribution is chosen to show the change in industry employment over time. The 2000 data represents the initial economic structure, while 2010 shows the state of the economy prior the earthquakes, 2015 shows employment at the height of the rebuild process and 2018 shows the current state of the economy.

Figure 8: The employment per industry, 2010-2018

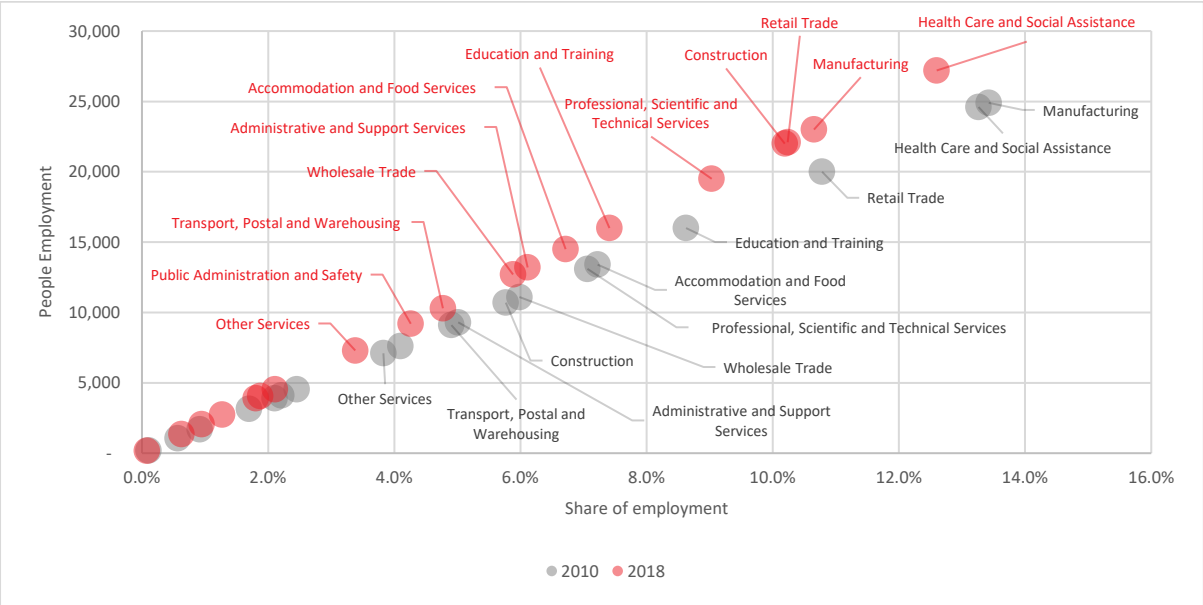


Source: StatsNZ, 2019

In 2010, the largest employment drivers in the economy were manufacturing, health care and retail trade. When compared to the 2018 data, the picture looks quite different. Within the space of two years (2012) and after the earthquake of 2011, employment in several industries was lower, while significant increases in employment for industries related to the rebuild process (construction, professional, scientific and technical services, administrative and support services and public administration) were evident. Since then, the economy has continued to grow, and by 2018 employment in the city looks notably different to the economy in 2012.

Figure 9 shows the change in industry employment between 2010 to 2018.

Figure 9: Employment Change, 2010 to 2018



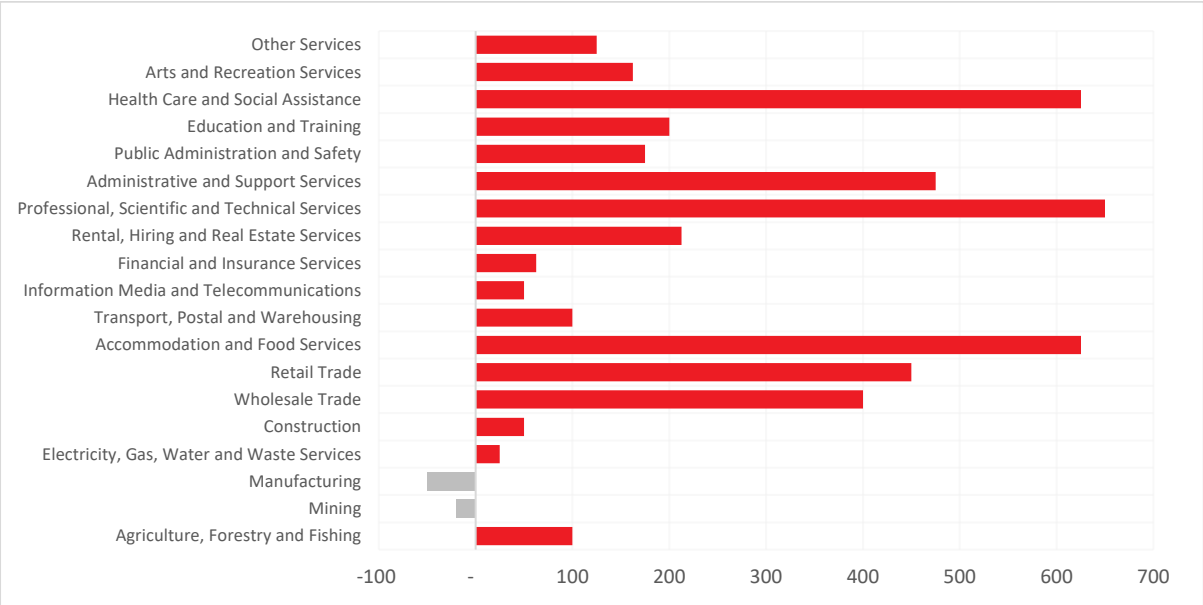
Source: ChristchurchNZ & StatsNZ, 2019

By 2018, most industries with the exception of manufacturing and ICT, have increased the level of employment since 2012. The industries with the largest employment include the health care industry, followed by manufacturing, retail trade and construction.

Employment after the rebuild

Figure 10 shows the average annual employment change between 2014 and 2018 per industry. The timeframe chosen depicts the changes prior to and after the peak of the rebuild employment in construction and related activity. This period is chosen to identify the employment growth that can be expected once the rebuild activity returns to normal levels.

Figure 10: Annual employment creation/loss: 2014-2018



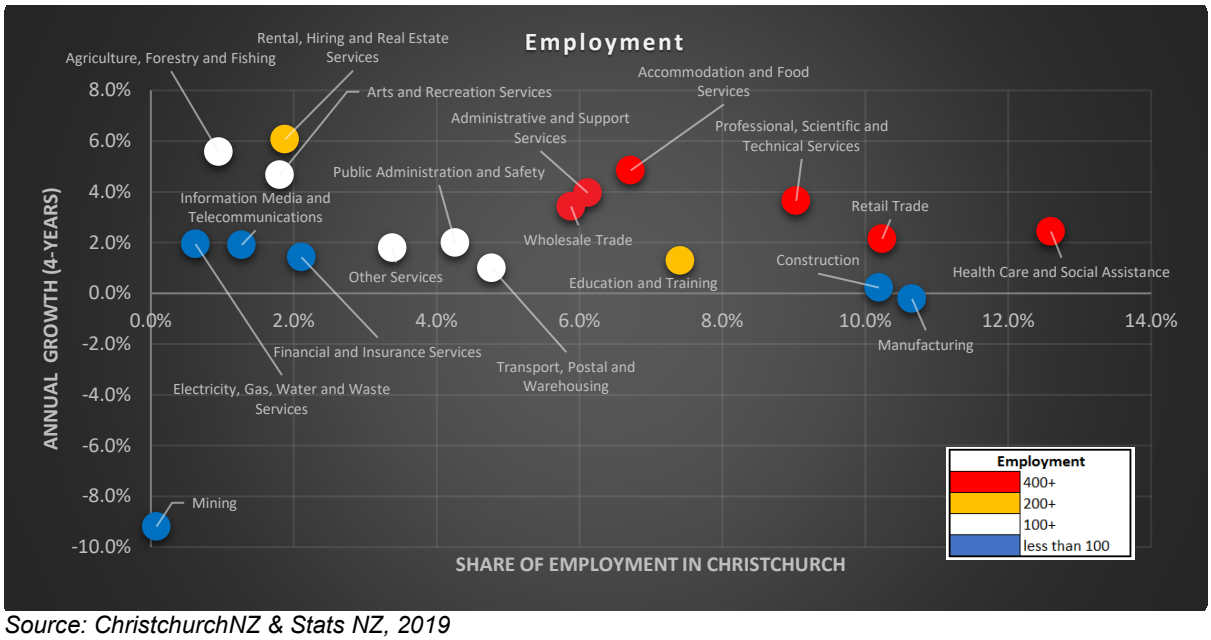
Source: ChristchurchNZ & Stats NZ, 2019

Since 2014, new employment opportunities have been driven by an expanding accommodation and food services industry, which is evident in the city owing to new hotels opening and an expanded Airbnb offering. The growth in professional, scientific and technical services is driven by architectural and engineering services employment which is related to the construction industry.

The health care industry, supported by the Christchurch health precinct, continues to create new employment with slightly over 600 new jobs added per year since 2014.

Figure 11 summarises the results for employment creation per industry over the past four years (2014 to 2018). The figure shows that employment growth is not only driven by the large employing local sectors, but that smaller industries, such as accommodation and food services and wholesale trade have also contributed to employment creation over the past four years.

Figure 11: Key Employment Industries



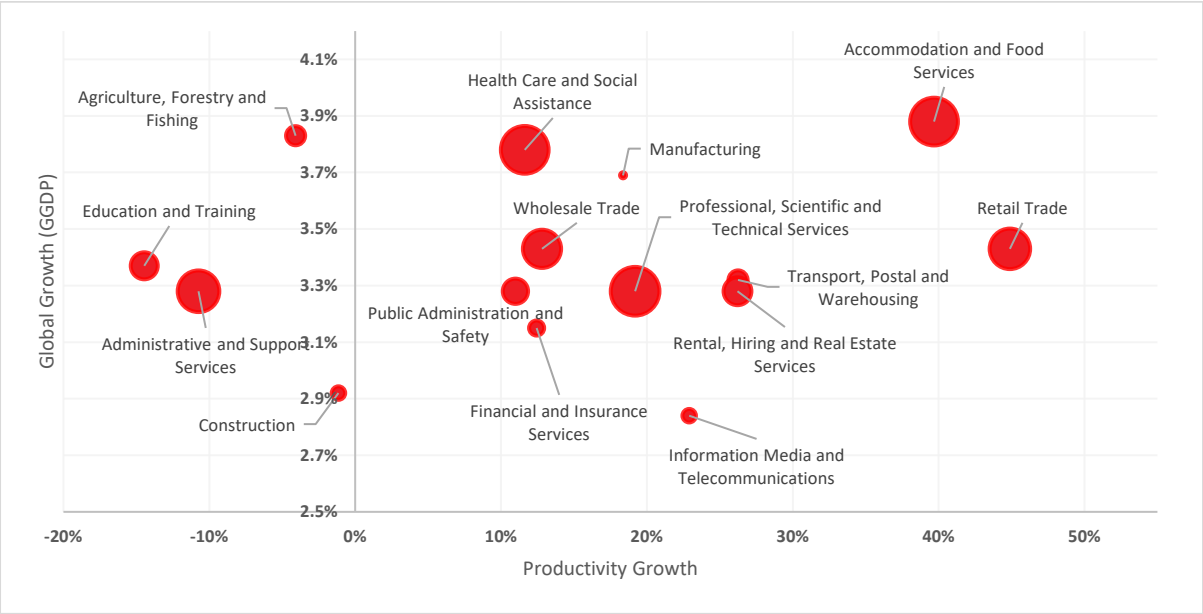
Source: ChristchurchNZ & Stats NZ, 2019

Linking trends with opportunity

Industry opportunity for Christchurch is obtained by combining the results from the productivity and employment analysis while also including future growth prospects of industries in the world economy. Deloitte recently published a report titled 'Shaping our slice of heaven' that identify the New Zealand industries that are set to experience growth, based on international growth trends. The results of their analysis are combined with the findings of the employment and productivity results of this report to highlight the high-level opportunities to align future employment opportunities with the international economic trends. Figure 12 combines the results for employment and the international growth in economic activity.

The y-axis value shows the expected future growth of the industry in the international economy, while the x-axis shows the productivity growth within Christchurch and the bubble size displays the average number of new jobs created in Christchurch since 2014 i.e. bigger is better. Opportunity for growth will be highest for those industries to the right while aiming to get those industries on the left to move in the opposite direction.

Figure 12: Target industries



Source: ChristchurchNZ & Deloitte, 2019

An industry that shows (labour-) productivity growth combined with the ability to create jobs constitutes a **valued industry**. Aligning value industries with international growth expectation, reveal target industries that will drive the economy forward. Several value industries in the Christchurch economy align with high expected future international growth, namely: a) accommodation and food services, b) retail trade, c) health care and d) professional, scientific and technical services. It is likely that these industries will continue to be the **drivers of the economy** for the short to medium term.

Conclusion

The effect of the 2008/9 financial crisis coupled with the 2011 earthquake had a significant effect on structure of the Christchurch economy. These affected the growth structure of industries and this report highlighted some of these changes in employment and productivity over-time.

By 2018 employment levels have increased substantially, since the lows of 2012, to an all-time high for the economy driven by health care services, manufacturing, professional services, retail, accommodation and construction employment. Changes in productivity were particularly evident in the manufacturing and professional, scientific and technical services, even outpacing urban peers in New Zealand.

This analysis identified that the driving industries for Christchurch are likely to be a) accommodation and food services, b) health care, c) retail trade and d) professional, scientific and technical services. These industries show growth in productivity, employment and align with high future global demand. Christchurch's manufacturing industry continues to be a pillar of economic strength due to its large contribution to the local economy, as well as significant productivity gains compared to its urban peers in New Zealand.

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