Kerikeri-Waipapa economic and social wellbeing evidence base

for Far North District Council

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Infometrics

Economics put simply

Authorship

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Introduction

This economic and social wellbeing evidence base has been produced for Far North District Council to inform the spatial planning process for the Kerikeri-Waipapa area. Kerikeri-Waipapa is the largest and fastest growing centre in Far North District, and is characterized by a strong horticulture industry and strongly ageing population. Kerikeri-Waipapa is a relatively young urban area compared to other parts of the Far North, and with strong growth to come, the spatial planning process represents a unique opportunity to influence the area's future. This evidence base looks at the Kerikeri-Waipapa economy and community through six distinct analyses, drawing the analyses together in the challenges and opportunities section.

Challenges and opportunities

This section draws out key challenges and opportunities for the Kerikeri-Waipapa spatial plan from the six report sections.

Horticulture

Kerikeri-Waipapa's greatest comparative advantage is in horticulture, with the area accounting for 26% of Northland's employment in horticulture compared to 11% of overall employment in the region. Kerikeri-Waipapa has further comparative advantage in wholesaling and administrative and support services (including pack houses) which relates to horticulture. This comparative advantage stems from having suitable soils and climate for horticulture, a large cluster of workers to service orchards, and a critical mass of supporting industries.

Maintaining and growing the horticulture industry is important to maintaining Kerikeri-Waipapa's prosperity. Accelerated adoption of automation technology may adversely affect employment in horticulture and supplying industries, but it will improve the productivity of remaining jobs, meaning that the industry would grow its contribution to the area's economy with automation. Automation is forecast to enable growth in highly-skilled roles such as tradespersons, professionals and managers. Growth in highly-skilled roles is driven both by the direct need for workers to implement and maintain automation technology, but also indirect shifts throughout the economy that come from automation. Workers in lower-skilled occupations, particularly horticulture, may be displaced by the changes, so it's important to consider how this group can be supported with local options for upskilling.

Ageing population

Kerikeri-Waipapa has a well-established reputation as a retirement destination and this is apparent in the structure of the population, with Kerikeri-Waipapa being older and ageing faster than the Far North overall. This demographic trend creates significant challenges in the labour market, with labour market exits substantially outnumbering labour market entrants, rendering the area highly reliant on migration to maintain and grow the labour force. Looking through another lens, the area has a high and rising dependency ratio, with the working age population notionally carrying an outsized youth and older persons population. Kerikeri-Waipapa has a relatively low unemployment rate overall, which suggests there is limited spare labour locally. However, local Māori face a higher unemployment rate, suggesting that there is an opportunity to support unemployed Māori to enter employment and meet local labour demand. It is of heightened importance that the area attracts working age migrants (from New Zealand or overseas) to maintain the economy and provision of services locally. Kerikeri-Waipapa presents well in commercial amenity benchmarking, although there is room to improve in terms of cafes, bars, restaurants, and takeaways which may help in migrant attraction.

Kerikeri-Waipapa's outsized share of the Far North's older population is in stark contrast to the areas undersized share of the District's health care and social assistance industry

employment. Kerikeri-Waipapa is the Far North's largest population centre, home to 23% of the Far North's population in 2021 and 28% of the Far North's over-65-year-old population. Despite this, Kerikeri-Waipapa accommodates only 25% of the district's health care and social assistance employment compared to 34% of the district's total employment.

Strong economy and prosperous households

A key strength to Kerikeri-Waipapa is its strong economy and prosperous households, which leads to sustainable employment opportunities throughout the community. Kerikeri-Waipapa is distinguished from the Far North overall with higher household incomes, lower benefit dependency, lower unemployment, and lower socioeconomic deprivation. Kerikeri-Waipapa has a higher ratio of jobs to working age population and stronger business growth than the Far North overall.

Kerikeri-Waipapa's relative prosperity is evident in the comparative advantage and commercial amenity analysis. The area has an outsized share of the Far North's professional services, retail, and arts and recreation services employment, with these industries benefiting from spending by locals. Compared to comparable centres, Kerikeri-Waipapa has a high level of commercial amenity in home, garden and hobby retail, and health and fitness centres and gyms. Kerikeri-Waipapa has a moderate level of cafes, restaurants, bars, and takeaways; clothing, footwear, jewellery, accessory, and department store retail; and hairdressers, barbers, and beauty – with room for improvement across these three areas. Commercial amenity is a key plank of migrant attraction and an opportunity to create employment for all sectors of society.

Kerikeri-Waipapa's prosperity is apparent in its unemployment rate – around half of the Far North average in 2018. However, there remains considerable disparity between ethnic groups in Kerikeri-Waipapa. The unemployment rate for Māori and Pacific Peoples was more than double the overall unemployment rate in Kerikeri-Waipapa. Economic development in Kerikeri-Waipapa should ideally capitalise on and grow Kerikeri-Waipapa's prosperity while creating employment that helps address socioeconomic disparities.

Enabling growth while playing to strengths

Development of Kerikeri-Waipapa needs to meet local needs as well as growing the area's industries of comparative advantage. Kerikeri-Waipapa is going through a period of sustained growth, leading population growth for the Far North District. This growth means that local service industries such as retail, construction, health care, and education need to be able to function and expand for the area to maintain and grow commercial amenity. At the same time, Kerikeri-Waipapa has a regionally significant comparative advantage in horticulture, administrative and support services (packhouses), wholesale trade, professional services, and arts and recreation services. Growing these regionally significant industries in Kerikeri-Waipapa is an important pathway to prosperity in Kerikeri-Waipapa and Far North District in general. These various needs may compete with each other, particularly in terms of land and labour force, but both need to be supported for Kerikeri-Waipapa to prosper.

Community wellbeing assessment

We have compiled and analysed community wellbeing data sources to identify strengths and weaknesses in the Kerikeri-Waipapa community. This draws upon Infometrics wellbeing framework and Far North wellbeing framework, with comparisons to the rest of the Far North, Northland Region and New Zealand. Our analysis is structured into seven domains – civic engagement, demographics, economic quality, household prosperity, skills and labour force, social connections and health. The indicators are described in further detail in Appendix 1 - Wellbeing indicator metadata.

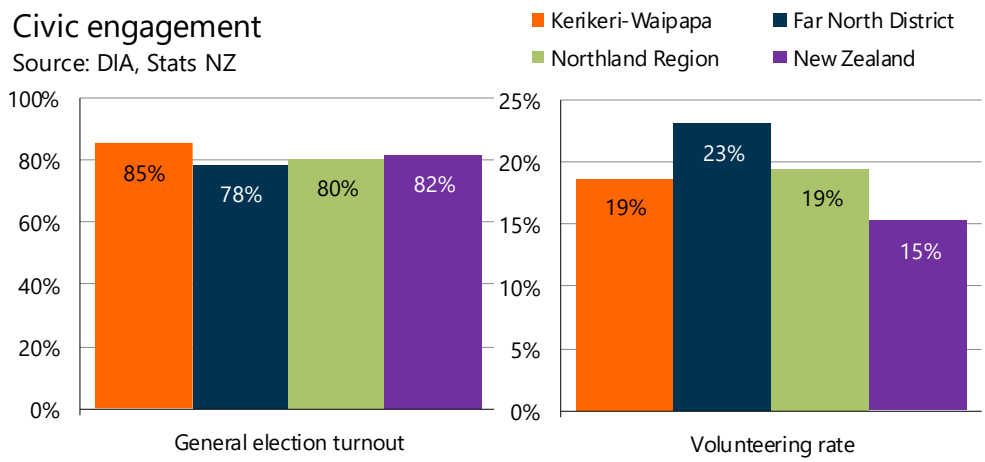
Kerikeri-Waipapa is strong across most of the seven economic and social wellbeing domains. The area is strong in health, social connections, skills and labour force with higher scores than the Far North overall and in many cases Northland and New Zealand. Household prosperity, economic quality, and civic engagement are generally strong, although there is weakness with higher rents, lower knowledge-intensive employment, and lower volunteering than the rest of the Far North. Demographics is a notable weak point, with an already high dependency ratio projected to rise further in the coming decade. This is unfortunately paired with a low health care sector rate, reflecting the lack of local provision of services for an ageing population.

Civic engagement

Kerikeri-Waipapa has strong civic engagement, with general election turnout and volunteering higher than the national average.

In Kerikeri-Waipapa, 85% of eligible voters voted at the 2019 General Election, compared to 78% across Far North District, 80% across Northland Region, and 82% nationally (Graph 1). Kerikeri-Waipapa reports a lower rate of volunteering (19%) than the Far North overall (23%), but level with the Northland Region (19%) and ahead of the national average (15%).

Graph 1

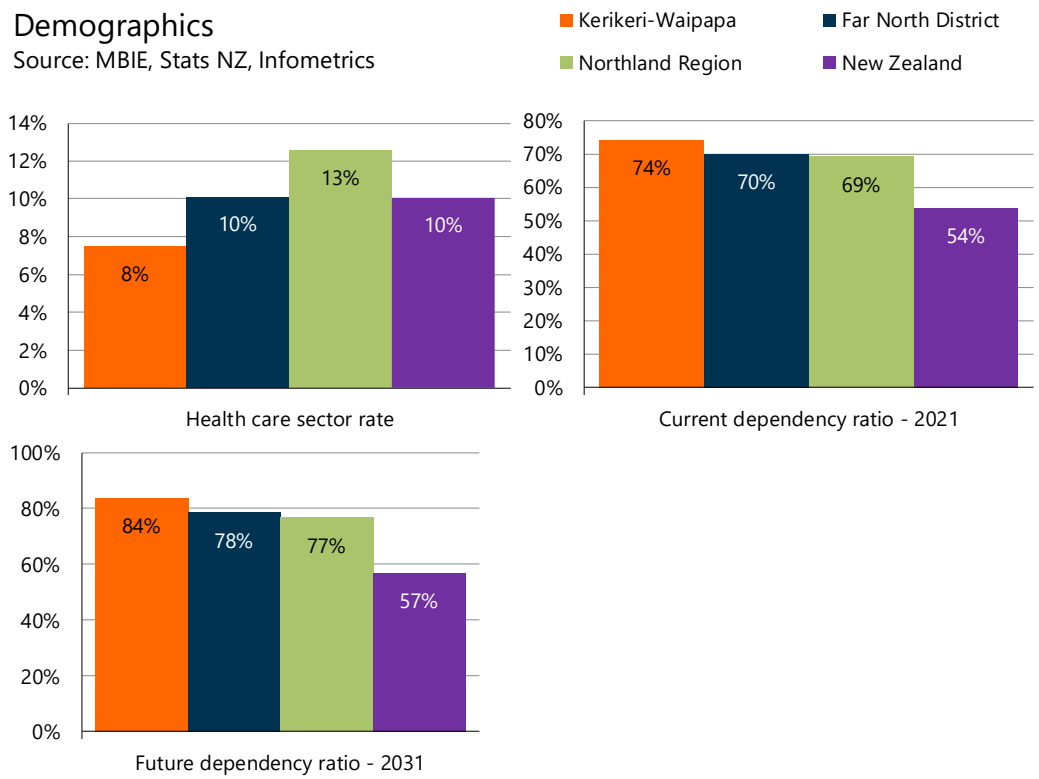


Demography

Kerikeri-Waipapa is relatively weak in the demography domain. Kerikeri-Waipapa has a high current and future dependency ratio, but a low health care sector rate (Graph 2).

Kerikeri-Waipapa has a high dependency ratio of 74%, which expresses the population under the age of 15 and 65 years or older, relative to the 15-64-year-old ("working age") population. The area is well ahead of the Far North (70%), Northland (69%), and New Zealand (54%). Kerikeri-Waipapa's dependency ratio is projected to deteriorate, reaching 84% by 2031, pushing further ahead of Far North, Northland, and New Zealand. This reflects that Kerikeri-Waipapa has attracted older migrants in the past, which has contributed to an older population age structure.

Graph 2



Despite a high dependency ratio, Kerikeri-Waipapa has a low health care sector rate, which expresses the number of workers in the health care and social assistance sector relative to the overall workforce. Kerikeri-Waipapa has a health care sector rate of 8%, behind the Far North District (10%), Northland (13%) and New Zealand (10%). This may reflect that the nearest hospital is located in Kaikohe for historic reasons, despite Kerikeri-Waipapa having the larger population. This may present challenges for providing healthcare in the future as the area's population continues to age.

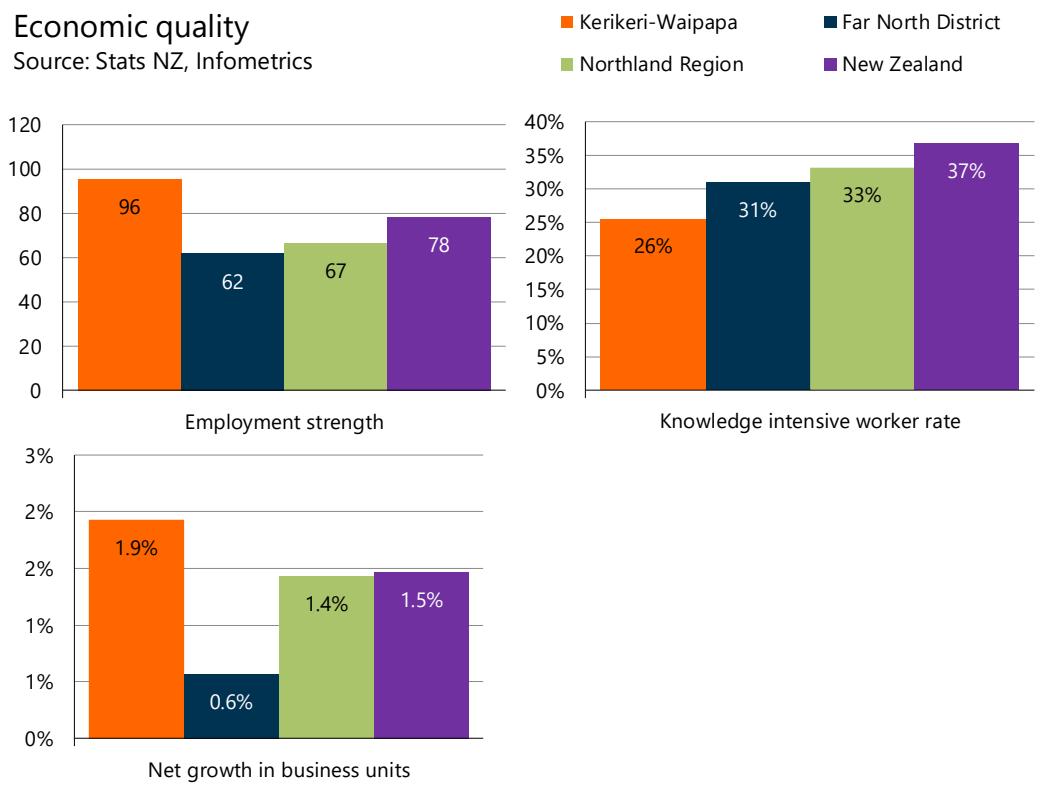
Economic quality

Economic quality indicators for Kerikeri-Waipapa are positive in terms of economic strength and business unit growth, but show a lower rate of workers in knowledge intensive industries (Graph 3).

Economic strength is measured by the ratio of filled jobs to the working age population, with Kerikeri-Waipapa reporting a very strong 96, ahead of the Far North (62), Northland (67) and New Zealand (78). Kerikeri-Waipapa has also reported a strong increase in business units (the number of businesses) over 2019-2021, rising 1.9% compared to the Far North (0.6%), Northland (1.4%) and New Zealand (1.5%).

However, Kerikeri-Waipapa has a low knowledge intensive worker rate, with only 26% of workers in knowledge intensive industries, compared to the Far North (31%), Northland (33%) and New Zealand (37%). Knowledge intensive industries have at least 25% of the workforce qualified to degree level and at least 30% of the workforce in professional, managerial, scientific or technical occupations.

Graph 3



The knowledge intensive worker rate varies throughout Kerikeri-Waipapa, with a high rate in Kerikeri Central and lower rates in other parts of the area.

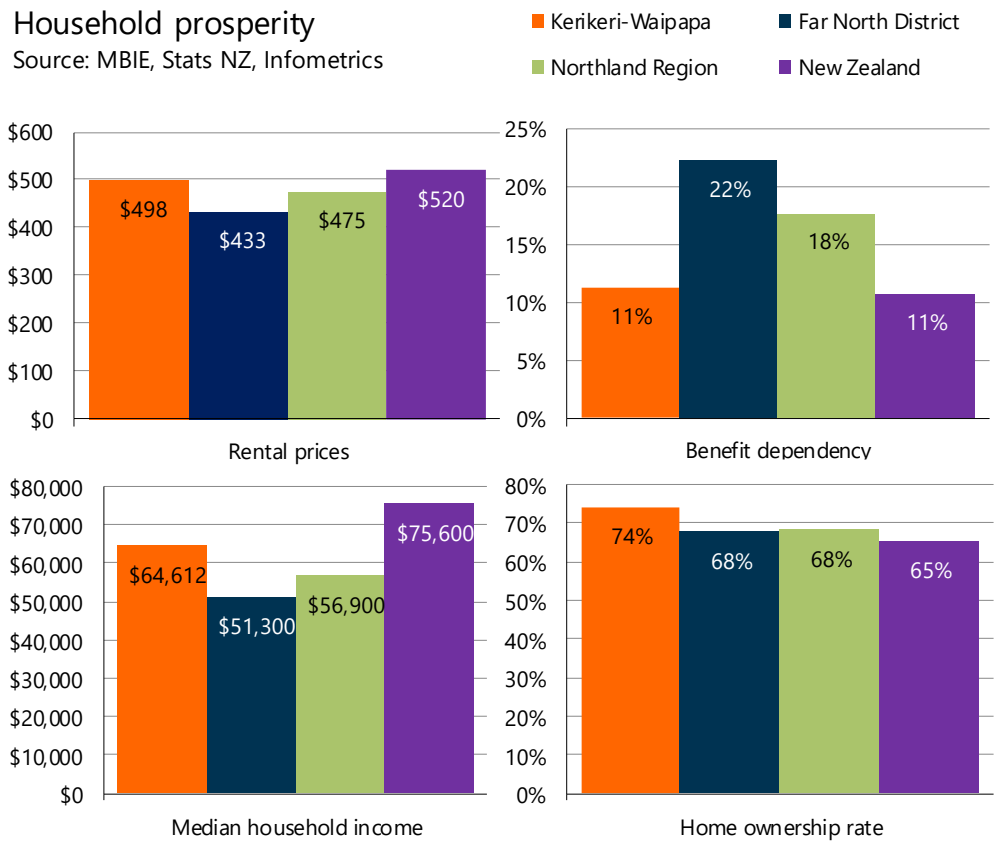
Household prosperity

Kerikeri-Waipapa is strong in the household prosperity domain with a leading score in three of the four indicators (Graph 4).

Kerikeri-Waipapa has a low rate of benefit dependency (11%) compared to the Far North (22%), Northland (18%) and equals the national average of 11%. Kerikeri-Waipapa has a relatively high median household income ($64,612 in 2018) compared to the Far North ($51,300) and ($56,900) across Northland, but behind the national average ($75,600). Kerikeri-Waipapa has a high home ownership rate, with 74% of households living in a dwelling owned or partly owned by occupants, or in a family trust. This is well ahead of the Far North and Northland (68%) and New Zealand (65%).

Kerikeri-Waipapa has higher rents ($498) than the Far North ($433), although Kerikeri-Waipapa rents are comparable to the Northland average ($475) and lower than New Zealand ($520). This is more than compensated by higher household incomes in Kerikeri-Waipapa, meaning that the average household spends a lower share of their income in rent in Kerikeri-Waipapa than the Far North overall.

Graph 4

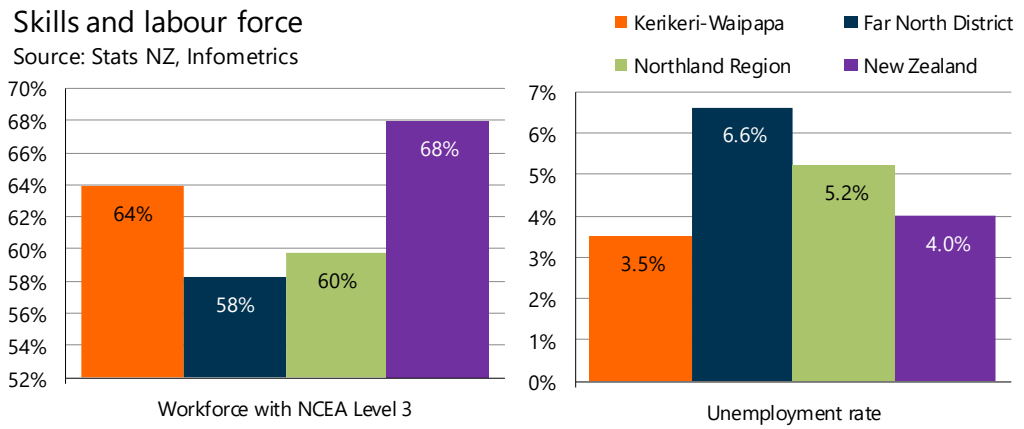


Skills and labour force

Kerikeri-Waipapa is strong in the skills and labour force domain (Graph 5).

In Kerikeri-Waipapa, 64% of the workforce has achieved at least NCEA Level 3 or an equivalent overseas qualification, ahead of the Far North (58%) and Northland (60%), but behind the national average (68%). Kerikeri-Waipapa also had a low unemployment rate of 3.5% at the 2018 Census, nearly half the Far North rate (6.6%), below Northland (5.2%), and New Zealand (4.0%).

Graph 5

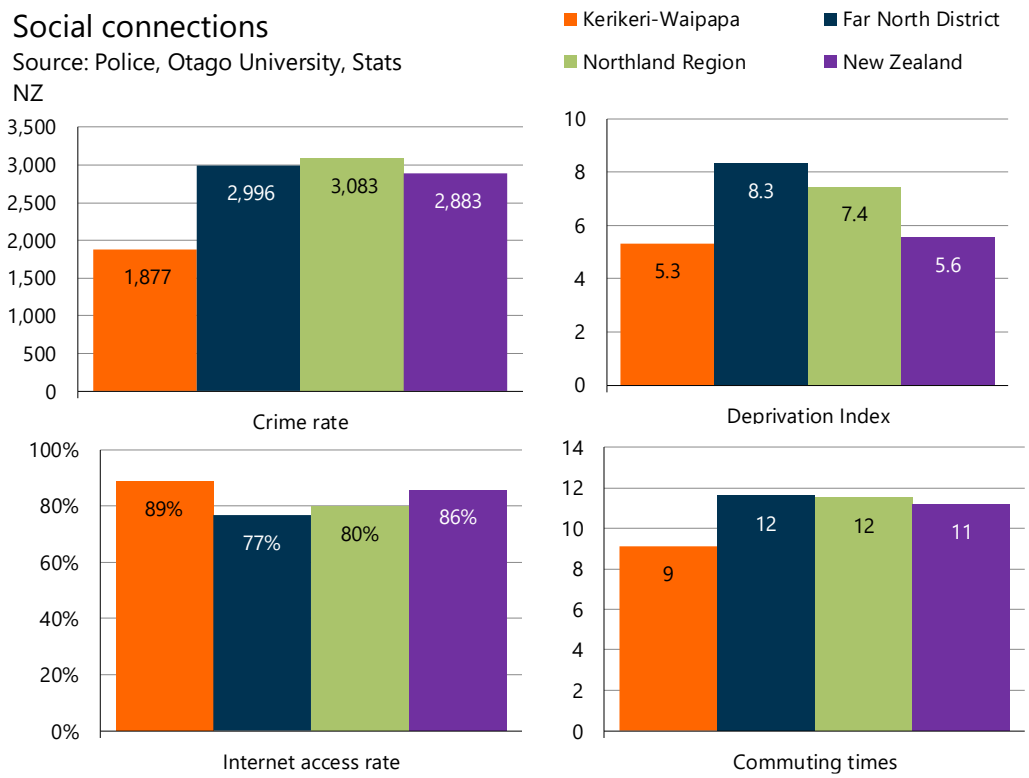


Social connections

Kerikeri-Waipapa is strong across the social connections domain (Graph 6).

Kerikeri-Waipapa has a low crime rate of 1,877 victimisations per 1,000 residents, far lower than the Far North (2,996), Northland (3,083) and New Zealand (2,883). Kerikeri-Waipapa has a lower level of socioeconomic deprivation too, with a deprivation index score of 5.3, compared to 8.3 across the Far North, 7.4 across Northland, and 5.6 across New Zealand. Kerikeri-Waipapa has a higher rate of internet access, with 89% of households having home internet access compared to 77% across the Far North, 80% across Northland and 86% nationally. Kerikeri-Waipapa also reports lower commuting times, with an average commute time of 9 minutes compared to Far North (12 minutes), Northland (12 minutes) and New Zealand (11 minutes).

Graph 6

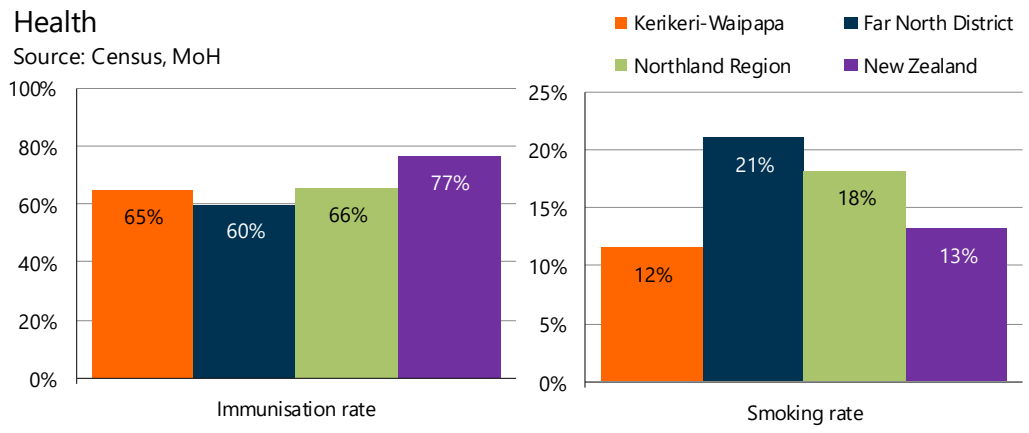


Health

Kerikeri-Waipapa is strong in the health domain (Graph 7).

Kerikeri-Waipapa has a higher rate of immunised infants (65%) than the Far North overall (60%), although this is slightly behind Northland (66%), and New Zealand (77%). Kerikeri-Waipapa has a much lower smoking rate (12%) than Far North (21%), Northland (18%), and lower than New Zealand (13%).

Graph 7



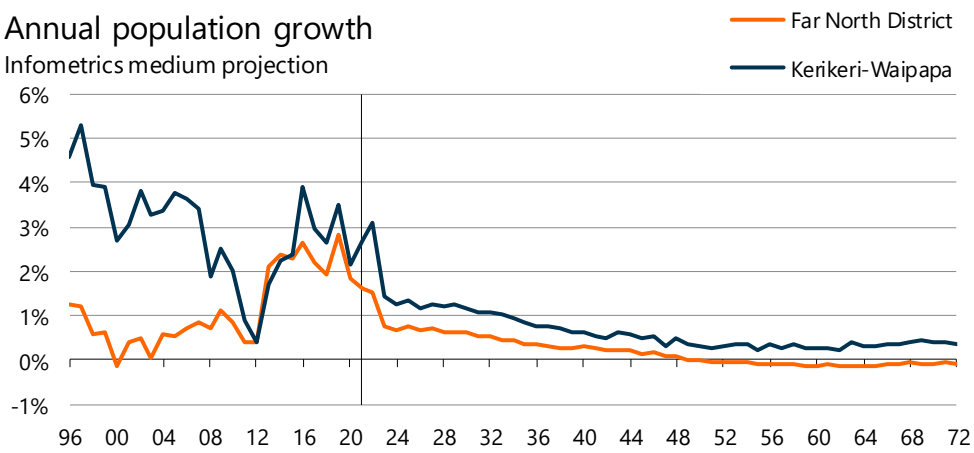
Demographic analysis

Kerikeri-Waipapa has led population growth in the Far North in the past 25 years and is projected to continue doing so for the next 50 years, with an increasing emphasis on urban growth. The area has a notably older population, and this means the population overall will continue to age

Population growth outpaces district

Kerikeri-Waipapa's population growth has substantially outpaced the Far North District over the past 25 years[1]. Kerikeri-Waipapa grew by an average of 3.0%pa between 1996 and 2021, compared to 1.2%pa for Far North District overall (Graph 8). Kerikeri-Waipapa is projected to grow faster than the district in future, although the margin is expected to be narrower, reflecting that growth across the rest of the district has picked up in the past decade.

Graph 8



Between 2021 and 2031, Kerikeri-Waipapa is projected to grow by 1.6%pa, compared to 0.9% for the Far North district overall. Kerikeri-Waipapa accounted for nearly all of the district's growth over 2001-2011, falling to 27% over 2011-2021. This share is projected to rise again, with Kerikeri-Waipapa projected to account for 43% of districtwide growth over 2021-2031, 54% over 2031-2041 and 93% over 2041-2051. This growth is projected to take Kerikeri-Waipapa from a population of 16,510 in 2021 to 19,320 in 2031, 21,000 in 2041, and 22,020 in 2051.

The Kerikeri-Waipapa structure plan area is a subset of the Kerikeri-Waipapa area, accounting for 13,620 or 83% of Kerikeri-Waipapa's population in 2021. The structure

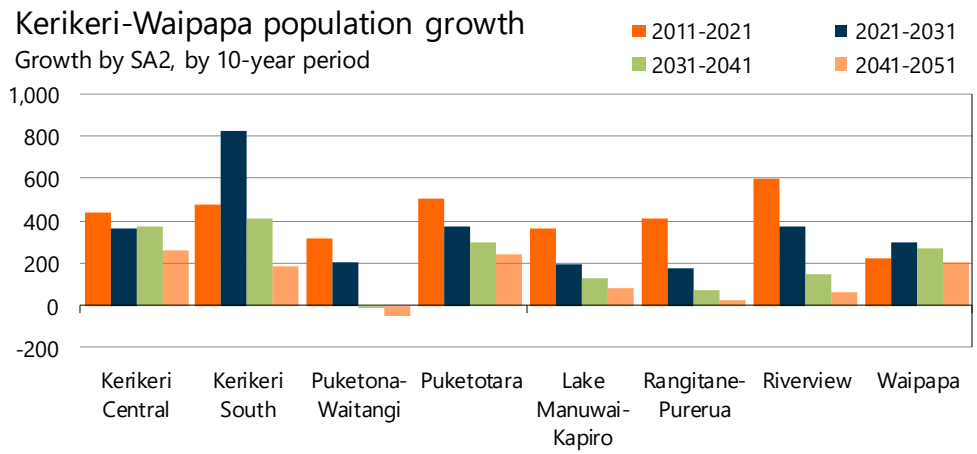
[1] For this report, we have defined Kerikeri-Waipapa based on eight Statistical Area 2 (SA2) areas, in turn defined by Stats NZ. These are Kerikeri Central, Kerikeri South, Riverview, Waipapa, Lake Manuwai-Kapiro, Puketona-Waitangi, Puketotara, Rangitane-Purerua. This area is slightly larger than the Kerkeri-Waipapa structure plan area, but reflects the broader housing and labour market of the area.

plan area is projected to grow at the same rate as Kerikeri-Waipapa, to 16,060 in 2031, 17,610 in 2041, and 18,570 in 2051.

More urban growth on the cards

Over the 2011-2021 period, population growth was spread around the Kerikeri-Waipapa area, reflecting the popularity of peri-urban development and infrastructure constraints which limited the potential for more intensive urban development (Graph 9). Over 2021-2031, growth is expected to be more urban in nature, as indicated by a number of planned developments for Kerikeri Central and Kerikeri South, and enabled by the new wastewater treatment plant. Peri-urban growth is projected to continue in Puketotara, Riverview and Waipapa, but will be constrained by the expansion of horticultural land zoning. Over 2031-2041, growth is projected to be more concentrated in Kerikeri Central and Kerikeri South, again reflecting enablement of urban growth and constraints on peri-urban growth.

Graph 9

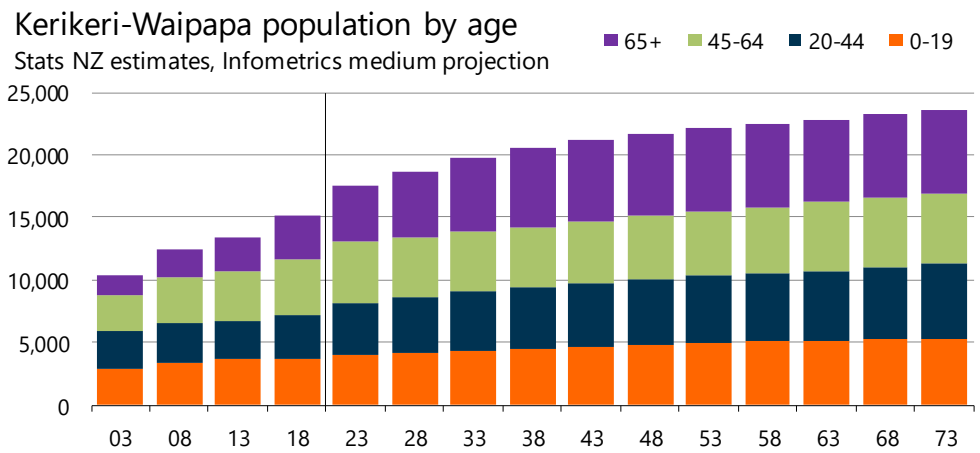


Kerikeri-Waipapa older, and ageing

Kerikeri-Waipapa has an older population than the rest of the Far North, with an average age of 43 years in 2018, compared to 41 across the Far North District. Kerikeri-Waipapa's average age is projected to grow to 46 years by 2033, compared to the Far North which takes until 2038 to reach that level. Thereafter, the average age is expected to plateau in Kerikeri-Waipapa and the Far North.

The 45-64-year-old age group is the largest age group in Kerikeri-Waipapa with 4,490 in 2018 (Graph 10). However, this is quickly changing as those aged 45-64 shift into the 65 years and older age group, including a large part of the 'baby boomer' generation. By 2028, the 65-years-and-older age group will be the largest, with 5,230. The 65-years-and-older age group will continue growing strongly until 2043, holding steady at around 6,500 thereafter. The 45-64-year-old age group is projected to grow modestly over the long term, maintaining its size even after the 'baby boomers' have moved on as the population overall has aged.

Graph 10

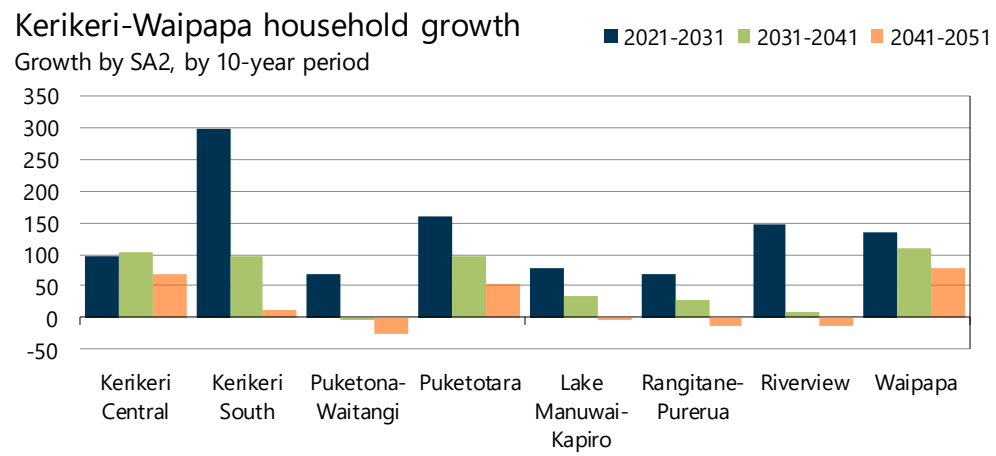


The two younger age groups – 0-19 and 20-44 years of age are projected to grow modestly over the projection period.

Household growth

The distribution of household growth across the Kerikeri-Waipapa area largely follows the distribution of population – with the most prominent increase in households in Kerikeri South over 2021-2031, reflecting resource consents and development intentions to date (Graph 11).

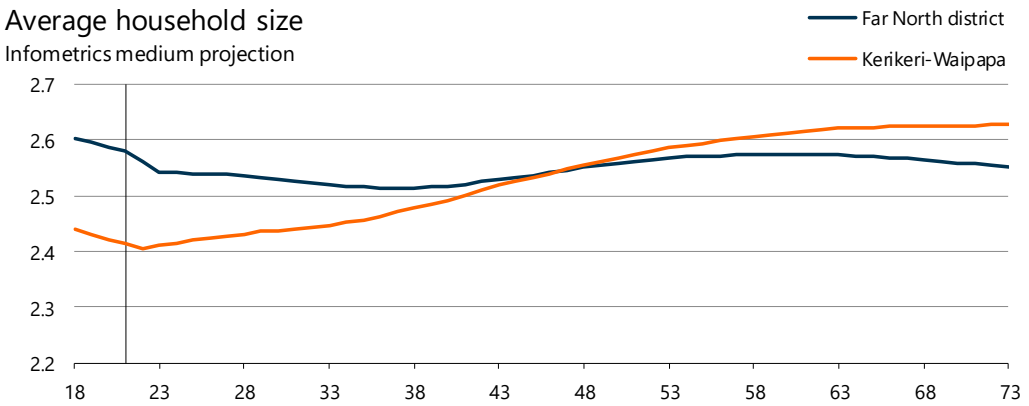
Graph 11



Smaller households in Kerikeri-Waipapa

Households in Kerikeri-Waipapa currently consist of an average of 2.4 occupants, compared to 2.6 for the Far North District overall (Graph 12). This reflects Kerikeri-Waipapa's older population – with older people more likely to form smaller households such as couple without children or one person living alone. Younger populations tend to form larger households as there is a higher prevalence of households with children.

Graph 12



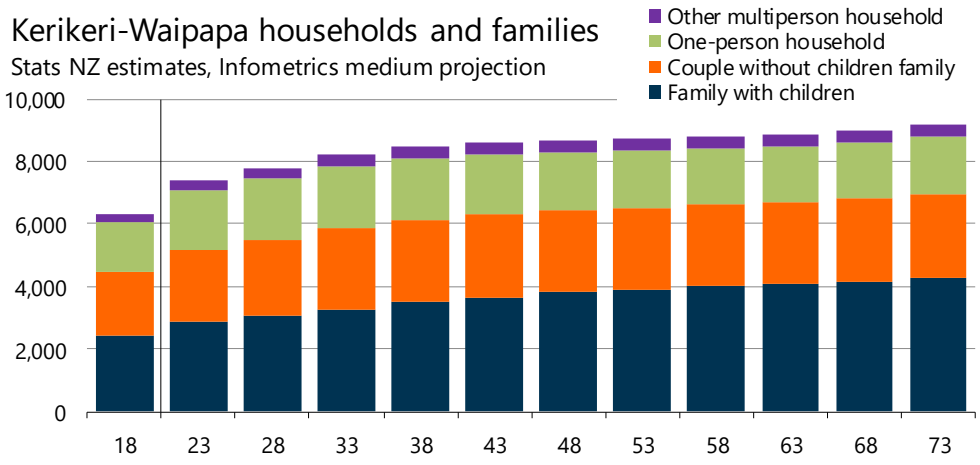
The Far North's average household size is set to decline slightly as the population ages. By contrast, Kerikeri-Waipapa's average household size is expected to rise as the area grows quickly, pulling in migrants which tend to be younger – either coming with children or approaching childbearing age.

Families with children lead household growth

Families with children are the most common household type in Kerikeri-Waipapa and are projected to grow most strongly, increasing by 43% between 2018 and 2038 (Graph 13). Couple without children and one-person households are projected to grow solidly, increasing by 29% and 24% respectively, largely driving by an ageing population with older couples or widowers often forming these types of households. Other multi-person households – typically referred to as 'flatting' – represent a small proportion of all households, but are growing quickly, projected to increase by 42%.

Please note that some households consist of multiple families – for example, an elderly couple living with their children's family. In that example, the elderly couple would count as one family (couple without children), and the children's family would count as another family (family with children), but they would form a single household together. For this reason, the number of households is slightly less than the number of families.

Graph 13



Household projections are theoretical

Households and average household size are estimated based on projected changes in the sex and age structure of the population (such as a growing older-age population) and trends in household formation (such as women deferring childbirth). This provides a theoretical estimate of the number of households, however, the actual number of households will depend on a sufficient number of dwellings being available. If fewer dwellings are made available, for example due to lower levels of new dwelling construction, then fewer households will be able to form, and the average household size may be higher. As a practical example, we might expect a couple with one child to form their own single-family household, consisting of three occupants. However, if the couple is unable to obtain a suitable dwelling, they may move in with one of their sets of parents, forming a multi-family household with five occupants.

Labour Market analysis

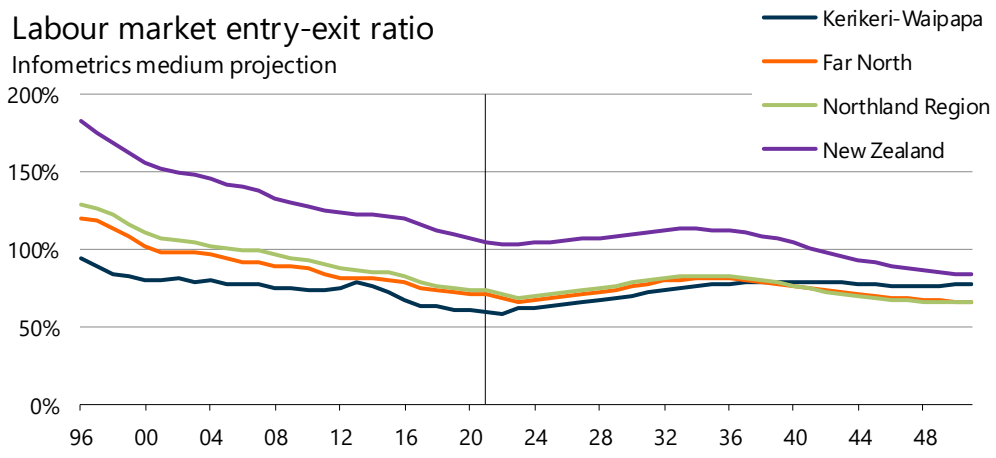
Kerikeri-Waipapa has held a tight labour market for some time, as a result of attracting older migrants and losing younger migrants. This labour market tightness has contributed to a relatively low unemployment rate and high participation rate in Kerikeri-Waipapa, relative to the Far North District overall. Labour force participation is similar across ethnicities, but there remain considerable differences in unemployment. Bringing down unemployment across non-European ethnic groups represents a considerable opportunity to grow labour supply.

Labour market entry-exit ratio

The effect of an ageing population is neatly encapsulated in the labour market entry-exit ratio (LMEE). This ratio expresses the number of people aged 15-24 years (labour market entrants) to those aged 55-64 (labour market exits). Ideally, the number of 15-24-year-olds would exceed the number of 55-64-year-olds – a ratio well above one. A ratio above one means that there are enough young people entering the workforce to fully replace all retiring workers and allow for a little growth. Net migration can then provide a further top-up for stronger growth.

In the case of Kerikeri-Waipapa, the LMEE has sat below one for the past 25 years, a consequence of the area strongly attracting pre-retirees and retirees at the same time as consistent net migration outflows of young people. Kerikeri-Waipapa's ratio has trended down over the past decade, reaching 0.60 in 2021. The LMEE for Far North District has tracked the Northland average closely, sitting well below one for the past decade and reaching 0.71 in 2021. Nationally, the LMEE has held above one for the past 25 years, and is projected to reach its lowest point at 1.03 in 2023, slowly recovering thereafter.

Graph 14



Labour market to get tighter

Across New Zealand, Kerikeri-Waipapa included, the LMEE is reaching its lowest point due to the numerous baby boomer generation working through the 55-64-year-old age

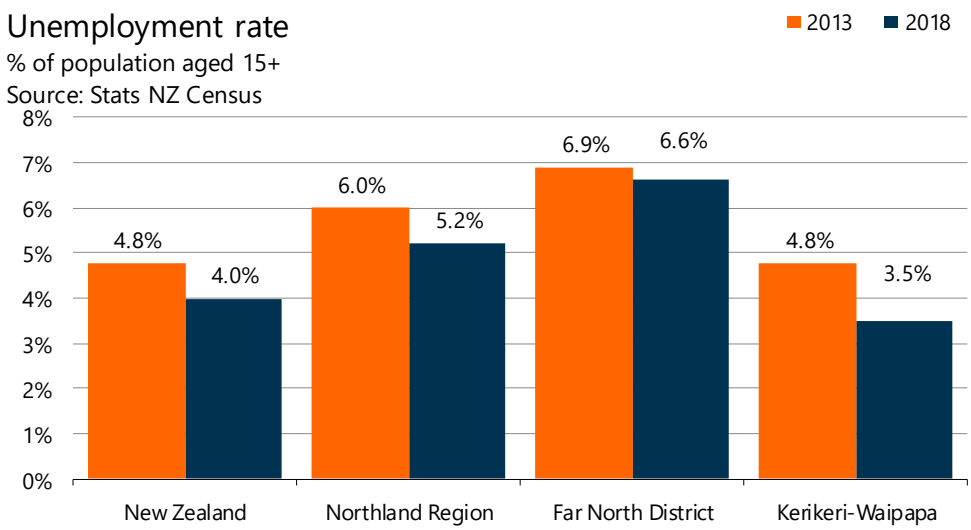
group at present. This will begin to improve over the coming decade as the baby boomers turn 65 years and older, and as we bring in younger migrants by necessity to fill workforce shortfalls. This means that workforce shortfalls will get worse before they get better.

Kerikeri-Waipapa's labour market will remain tighter than the rest of the Far North for the next twenty years, but after around 2040 this relationship changes as the numerous baby boomer generation moves on and Kerikeri-Waipapa's overall population growth is projected to significantly outpace the rest of the district.

Low unemployment rate in Kerikeri-Waipapa

Kerikeri-Waipapa's unemployment rate of 3.5% in 2018 was substantially lower than 6.5% for Far North overall and 6.0% for Northland Region (Graph 15). Kerikeri-Waipapa's unemployment rate fell sharply between 2013 and 2018, taking it below the national rate of 4.0% in 2018.

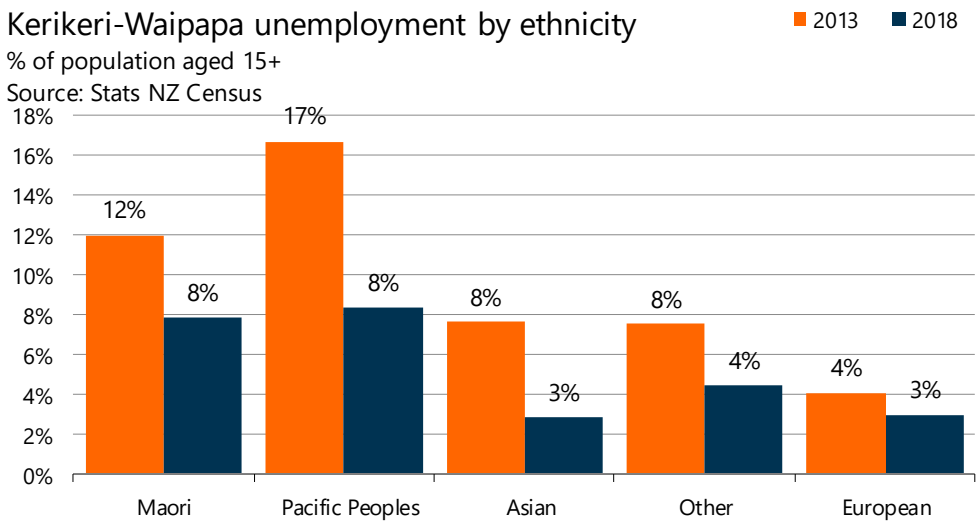
Graph 15



Significant ethnic disparity in unemployment

Despite a low and falling unemployment rate overall, there is still significant ethnic disparity in unemployment in Kerikeri-Waipapa. As of 2018, the unemployment rate for Māori and Pacific Peoples in Kerikeri-Waipapa was 8%, compared to 3% for European and Asian ethnic groups (Graph 16). However, these rates have shown significant improvement since 2013.

Graph 16

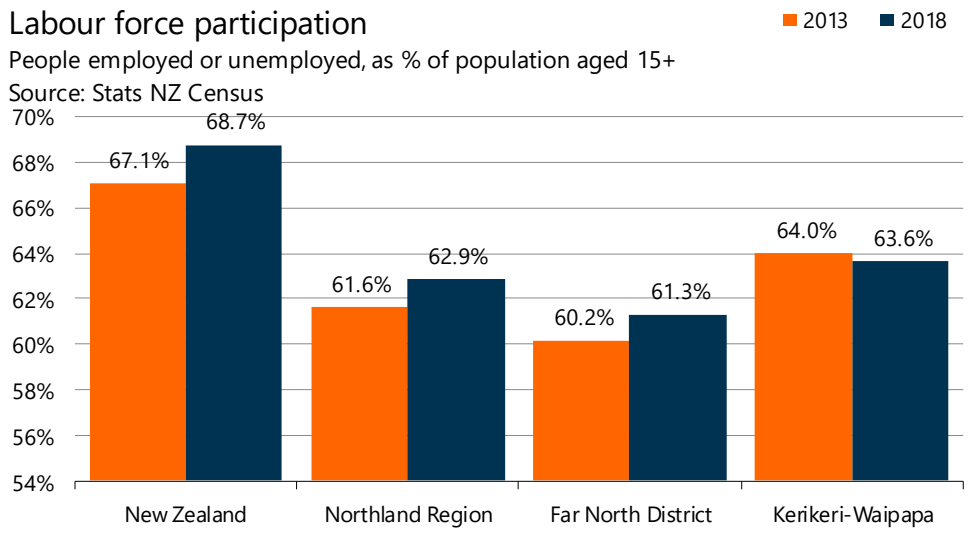


Lower labour force participation

The labour force participation rate reflects the proportion of the population aged 15 years or older which is either employed or looking for employment (unemployed).

Kerikeri-Waipapa's labour force participation rate of 63.6% in 2018 is lower than the national average (68.7%), but higher than the Far North (61.3%) and Northland (62.9%) (Graph 17). Kerikeri-Waipapa bucked the district, regional and national trend by reporting a decline in participation between 2013 and 2018. This appears to be due to Kerikeri-Waipapa's ageing population, with a fall in participation of those aged 65 years and older counteracting a rise in participation in the 15-64-year-old age group.

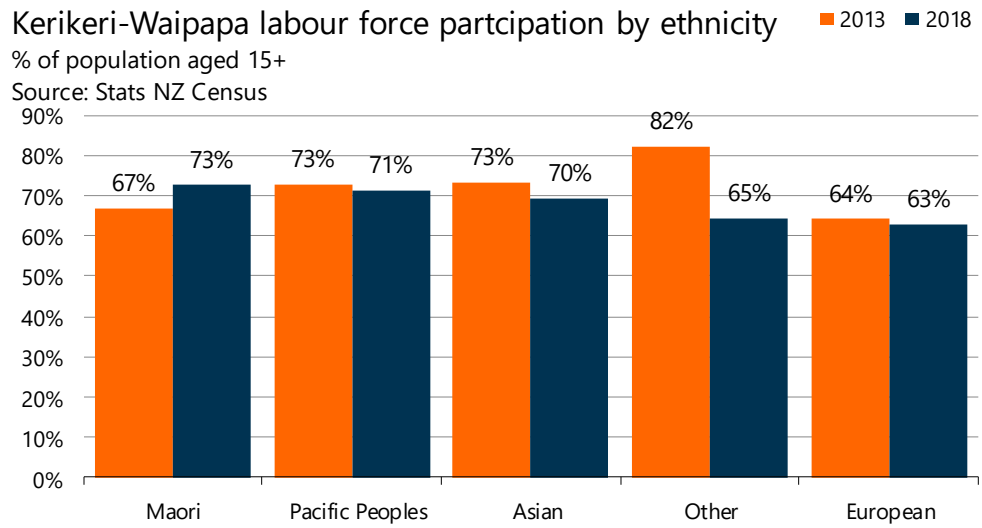
Graph 17



Māori participation rising, other groups falling

Between 2013 and 2018, Māori were the only ethnic group to report a rise in labour force participation in Kerikeri-Waipapa, with modest falls across all other groups (Graph 18). Māori participation rose to 73%, compared to European participation which fell to 63%. This difference will in part reflect differences in age structure and life expectancy, with Europeans making up a greater share of the older, retired population.

Graph 18



Growth in nearly every industry

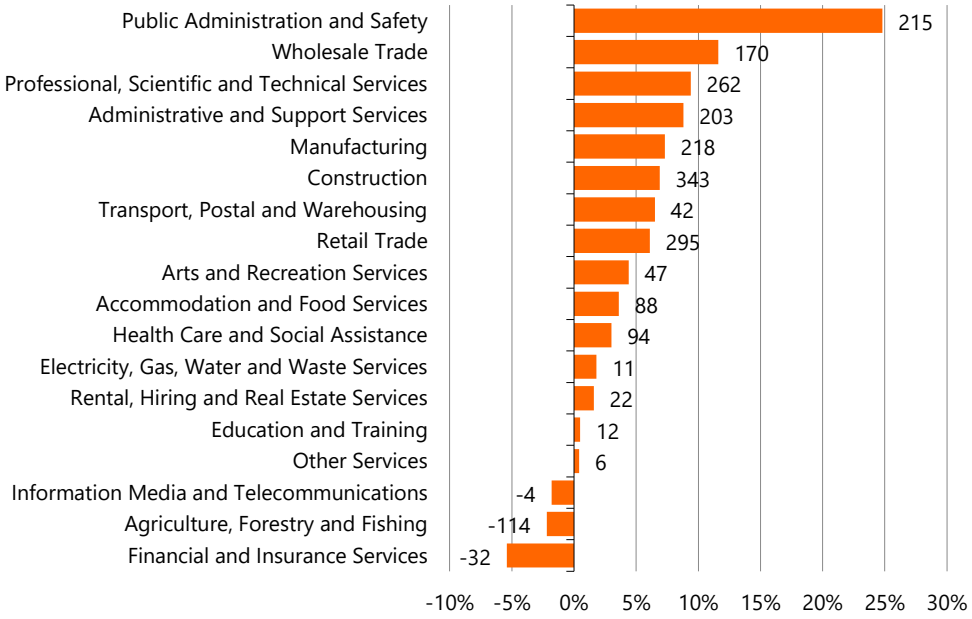
Kerikeri-Waipapa has experienced broad-based growth over the past five years (2016-2021), filled jobs in 15 out of 18 industries growing (Graph 19). This creates growth pressure across a broad range of industries and occupations. Much of this growth has been across industries which require skilled, rather than unskilled labour, such as public administration, professional services and construction.

Graph 19

Industry growth pressures

Kerikeri-Waipapa employment growth 2016-21

Source: Infometrics



Automation susceptibility analysis

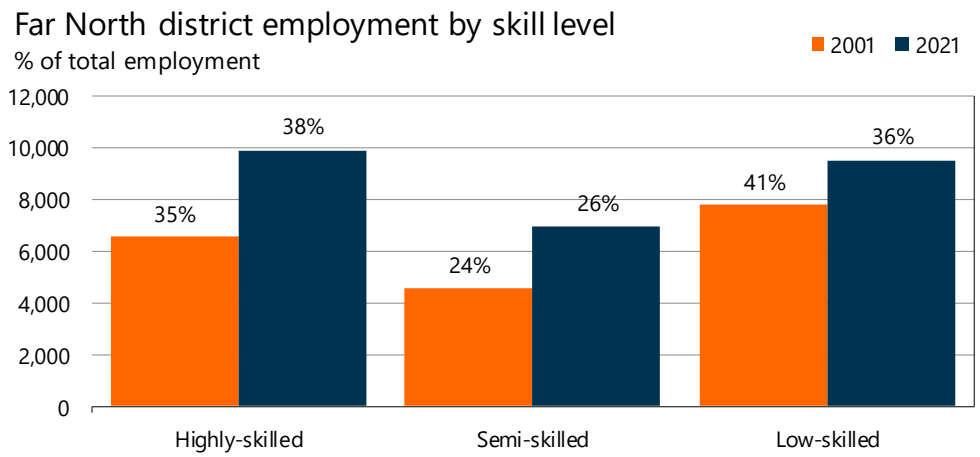
Technology has been a constant force for change in the workplace, but adoption of automation technology has accelerated the rate of change in recent years. We have forecast the effect of automation on the Far North's occupations and industries, and extended this to Kerikeri-Waipapa. This highlights that Kerikeri-Waipapa is slightly more vulnerable to automation than the Far North District overall.

Technological change isn't new

Technological change has been a constant force throughout history and, despite often being perceived as a threat to workers at the time, has generally been positive in terms of economic outcomes. With the aid of technology, the workforce has shifted from manual labour in the primary sector, to semi-skilled work in the secondary sectors, and latterly into services, both low and highly skilled.

The skills-shift is evident in the Far North, with highly-skilled occupations, such as managers and professionals, growing from 35% of all jobs in 2001 to 38% in 2021 (Graph 20). Semi-skilled occupations, such as tradespersons, have grown from 24% to 26%. Employment in low-skilled occupations has grown slightly as overall employment has grown, but the share of total employment has eased from 41% to 36%.

Graph 20



Future change is just like the past, mostly

Automation technology isn't particularly unique in the context of historical technological change, although there are a couple of differences to bear in mind. Firstly, upcoming technological change will affect roles in the services sector, even highly-skilled ones, an area that has traditionally been highly dependent on labour and less capital-intensive than other parts of the economy.

Secondly, the pace of change might increase, especially in digitally enabled applications that can leverage previous technology adoption. For example, personal computers (PCs)

became commercially available in 1975 and took 16 years to reach 25% of the US population. However, after the internet was introduced in 1991, it only took seven years to achieve the same level of penetration, because it leveraged the prior adoption of PCs.

Change is complex

Although technological change undoubtedly displaces jobs, the net effect of technology tends to be positive. Implementation of technology can reduce the cost of products, spurring additional demand and growing employment in higher-value areas. For example, the introduction of computer programs freed up accountants from manual preparation of journals and ledgers and enabled more time to be spent doing detailed financial analysis. Shifting workers onto higher-value tasks can lead to higher incomes and different patterns of consumption. Through complex feedback mechanisms, technological change in one industry can spur demand in seemingly unrelated industries.

Modelling the complexity

Infometrics developed a modelling approach to understand the complexity of technological change. We draw upon the work of Frey and Osborne, which looked at 702 distinct occupations to assess their susceptibility to automation, considering the ability for current technology to perform tasks within each occupation. We have applied this to our forecasts of regional employment in New Zealand with our general equilibrium (ESSAM) model, which models interdependencies in the economy, such as the way that price changes in one industry flow through to others. This process tells us how employment by industry and occupation might change under business-as-usual (BAU) adoption of technology. We then repeat the exercise, considering the effects of accelerated adoption of automation technology. We model under the assumption that total employment will not change, however, differing adopting of automation will affect how different occupations and industries grow or decline.

In our analysis here, we focus on the effect of accelerated adoption of automation technology. Automation has been a consistent force throughout history, and BAU automation is intermingled with underlying economic trends of growth and decline. Therefore, we focus on understanding where is most vulnerable to accelerated adoption of automation technology. While accelerated automation may not happen, it provides a good indication of where BAU automation may happen regardless. In other words, occupations and industries which are vulnerable to accelerated automation are likely to be affected by BAU automation too.

Lower-skilled roles hit hardest

Accelerated automation is expected to hit lower-skilled roles hardest (Graph 21). Employment under accelerated automation is projected to be 6% lower in labouring occupations compared to BAU, 9% lower in machinery operator and driving occupations, and 8% lower in clerical and administrative occupations. Employment in professional roles is projected to be 7% higher than BAU under accelerated automation, and 6% higher in managerial roles.

Graph 21

Effect of accelerated employment by occupation skill level
Far North District employment, 2031, compared to BAU automation

The effect of accelerated automation by skill level becomes clear when looking at specific occupations. Table 1 shows the top 10 and bottom 10 most affected occupations of 998 occupations in the Australian and New Zealand Standard Classification of Occupations (ANZSCO) system. The ten occupations with the largest growth under accelerated automation are predominantly managers and professionals, led by primary school teachers with 65 more jobs under accelerated automation compared with BAU. The bottom 10 occupations which are most affected are predominantly labouring and clerical, with a forecast for 57 fewer general clerks under accelerated automation compared with BAU.

Table 1

Top and bottom 10 occupations affected by accelerated automation

Far North District

Forecast difference between accelerated automation and BAU in 2031

Top 10 occupations	Change	% change	Bottom 10 occupations	Change	% change
Primary School Teacher	65	7.9%	General Clerk	-57	-20.3%
Secondary School Teacher	56	10.0%	Sales Assistant	-54	-5.0%
Chief Executive or Managing Director	42	9.1%	Accountant	-40	-14.0%
Early Childhood Teacher	42	8.2%	Receptionist	-40	-16.3%
Corporate General Manager	38	9.1%	Mixed Crop/Livestock Farm Worker	-39	-9.7%
Office Manager	37	9.8%	Accounts Clerk	-34	-15.7%
Registered Nurse	37	10.1%	Labourers	-31	-7.0%
Project Builder	36	8.0%	Waiter	-27	-14.8%
Retail Manager	35	8.1%	Teachers' Aide	-18	-5.1%
Sales and Marketing Manager	24	8.1%	Hotel Service Manager	-17	-16.0%

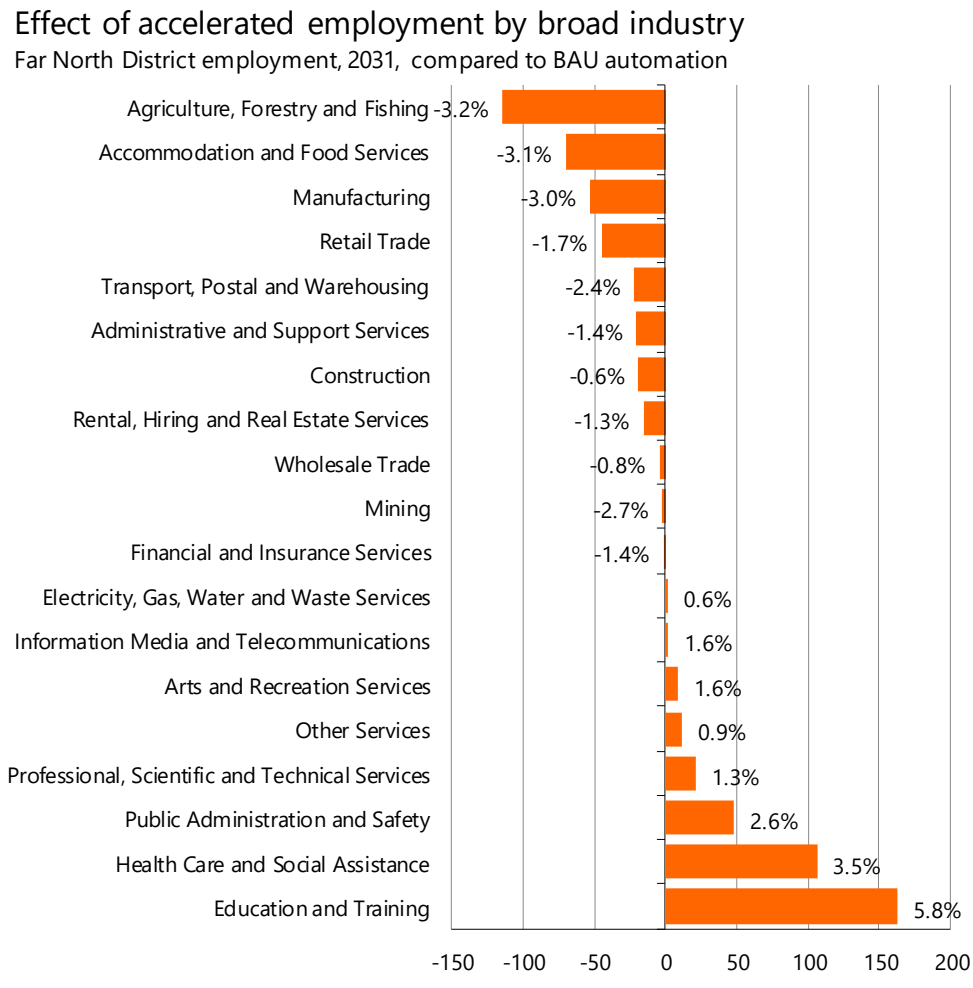
The disparity between the top and bottom ten reflects that tasks performed by lower skilled roles are generally more susceptible to automation. Conversely, the tasks

performed by higher skilled occupations are typically less susceptible to automation, and face higher demand as society's incomes increase as a result of the higher productivity enabled by automation. Accountants are a notable exception – classified as professional occupation, yet facing lower employment under accelerated automation, as accounting tasks can be automated to a degree.

Automation grows knowledge-based services

Accelerated automation is forecast to drive faster growth in knowledge-based services compared to BAU (Graph 22). These knowledge-based service industries include education and training (5.8% higher in 2031), health care and social assistance (3.5%), and public administration and safety (2.6%). This growth comes at the expense of a range of industries, notably agriculture, forestry and fishing (-3.2%), accommodation and food services (-3.1%), manufacturing (-3.0%), and retail trade (-1.7%).

Graph 22



Looking at detailed industries, Table 2 shows that the largest employment gains under accelerated automation are in education, with primary (59 more jobs), secondary (41) and pre-school (34) education gaining the most jobs. Other top ten industries include large government involvement such as hospitals (32) and corrections (19), and also house construction (20). The ten industries with the largest job losses under accelerated

automation are varied. Cafés and restaurants (-33) and accommodation (-19) reflect increased automation displacing jobs in the tourism sector. Likewise, automation drives declines in employment across agriculture and forestry, and related manufacturing. However, horticulture is less affected reflecting the challenge of automating horticultural tasks.

Table 2

Top and bottom 10 industries affected by accelerated automation

Far North District

Forecast difference between accelerated automation and BAU in 2031

Top 10 industries	Change	% change	Bottom 10 industries	Change	% change
Primary Education	59	4.9%	Cafes and Restaurants	-33	-4.2%
Secondary Education	41	7.4%	Supermarket and Grocery Stores	-26	-2.9%
Preschool Education	34	6.3%	Accounting Services	-24	-9.9%
Hospitals	32	6.0%	Accommodation	-19	-1.8%
Other Allied Health Services	28	4.5%	Meat Processing	-18	-6.8%
House Construction	20	2.7%	Other Agriculture and Fishing Support	-15	-4.2%
Correctional and Detention Services	19	3.8%	Dairy Cattle Farming	-15	-2.5%
Other Social Assistance Services	16	3.7%	Beef Cattle Farming	-14	-2.9%
Central Government Administration	16	2.9%	Site Preparation Services	-13	-5.3%
Child Care Services	14	6.9%	Logging	-12	-6.6%

Effect on Kerikeri-Waipapa

We can further understand the effect of accelerated automation on Kerikeri-Waipapa by looking at the area's share of districtwide employment in each industry, and the effect of accelerated automation at a districtwide industry level. Table 3 shows that under accelerated automation, a total of 48 fewer jobs in Kerikeri-Waipapa are expected. While we have assumed that automation will have a net-zero effect at a districtwide level, Kerikeri-Waipapa has a larger share of industries forecast to decline under accelerated automation, and conversely a smaller share of industries forecast to grow. For example, Kerikeri-Waipapa accounts for 33% of districtwide employment in 2021 and 49% of districtwide employment in horticulture. However, horticulture is expected to be slightly harder hit by accelerated automation than the rest of the agriculture, forestry and fishing industry, contributing to a larger hit on Kerikeri-Waipapa. Kerikeri-Waipapa accounts for 53% of districtwide employment in administrative and support services (including horticulture pack houses), another industry forecast to have employment reduced under accelerated automation.

Table 3

Accelerated automation in Kerikeri-Waipapa

Forecast difference between accelerated automation and BAU in 2031

Assumes automation effect is spread on pro-rated basis across district

Industry	Share of district employment 2021	Change
Agriculture, Forestry and Fishing	31%	-37
Mining	4%	0
Manufacturing	40%	-19
Electricity, Gas, Water and Waste Services	44%	1
Construction	41%	-9
Wholesale Trade	70%	-3
Retail Trade	41%	-19
Accommodation and Food Services	26%	-20
Transport, Postal and Warehousing	20%	-4
Information Media and Telecommunications	25%	0
Financial and Insurance Services	47%	-1
Rental, Hiring and Real Estate Services	34%	-5
Professional, Scientific and Technical Services	56%	16
Administrative and Support Services	53%	-13
Public Administration and Safety	24%	9
Education and Training	18%	31
Health Care and Social Assistance	25%	17
Arts and Recreation Services	54%	5
Other Services	29%	3
Total	**33%**	**-48**

The approach of Table 3 provides a good starting point, but we also need to consider differences potential for adoption of automation technology, and differences in location of unrelated industries which grow under accelerated automation.

For example, when it comes to adoption of automation, businesses which are proximate to large centres may be a better place to adopt automation due to their larger scale, and they might find it easier to access the technical support required for adoption.

Unrelated industries which benefit from accelerated automation through broader economic shifts, such as education and healthcare, have different reasons for their spatial distribution. Healthcare employment in the Far North is clustered in Kaikohe, and to a lesser extent Kaitaia, due to historic hospital locations. Growth in hospital-based care would disproportionately benefit these centres to the detriment of Kerikeri-Waipapa. Conversely, growth in community-level care would likely benefit Kerikeri-Waipapa, as the home of a larger older population. Professional services have clustered in Kerikeri-Waipapa to date, and may become more concentrated under accelerated automation.

Beyond 2031

Technology will continue to evolve. Current and imminent automation technology seems likely to be limited to structured environments, augmenting rather than replacing humans. By 2031, we can expect technology that is more fully autonomous and can be applied in more unstructured environments. As an example, an autonomous forklift in a warehouse is an example of a structured environment, whereas an autonomous car operating on public roads would be an example of a more unstructured environment. Of relevance to Kerikeri-Waipapa, we are already seeing automation in pack houses to sort and pack fruit, and the accelerated automation scenario reflects more of this happening in the next decade. In future, technology may evolve to enable automation in orchards to pick fruit.

Comparative advantage

In this section we identify industries in Kerikeri-Waipapa that have a comparative advantage. Simply put, a comparative advantage is something that an area is best at compared to other areas. Supporting and growing industries with comparative advantage is an important pathway to grow the economy and raising living standards.

A comparative advantage means that an area can produce goods or services at a lower cost than other areas. Comparative advantage can come about from natural advantages such as fertile land; having a cluster of relevant industries; or having a critical mass of population as workers or consumers.

We measure comparative advantage in terms of employment shares; if an industry in Kerikeri-Waipapa has a share of total employment larger than that industry's share in Far North District or Northland we region we conclude that the industry has a comparative advantage in Kerikeri-Waipapa. We also look at comparative advantage in a demographic sense.

Kerikeri-Waipapa has a comparative advantage in horticulture as well as horticultural-related industries within wholesale and support services. The area also has strength in professional services and arts and recreation services. Kerikeri-Waipapa has a lack of comparative advantage in public administration, tertiary education and health care, which may reflect that these services are provided in historic locations which don't reflect Kerikeri-Waipapa's recent strong population growth.

Districtwide comparative advantage

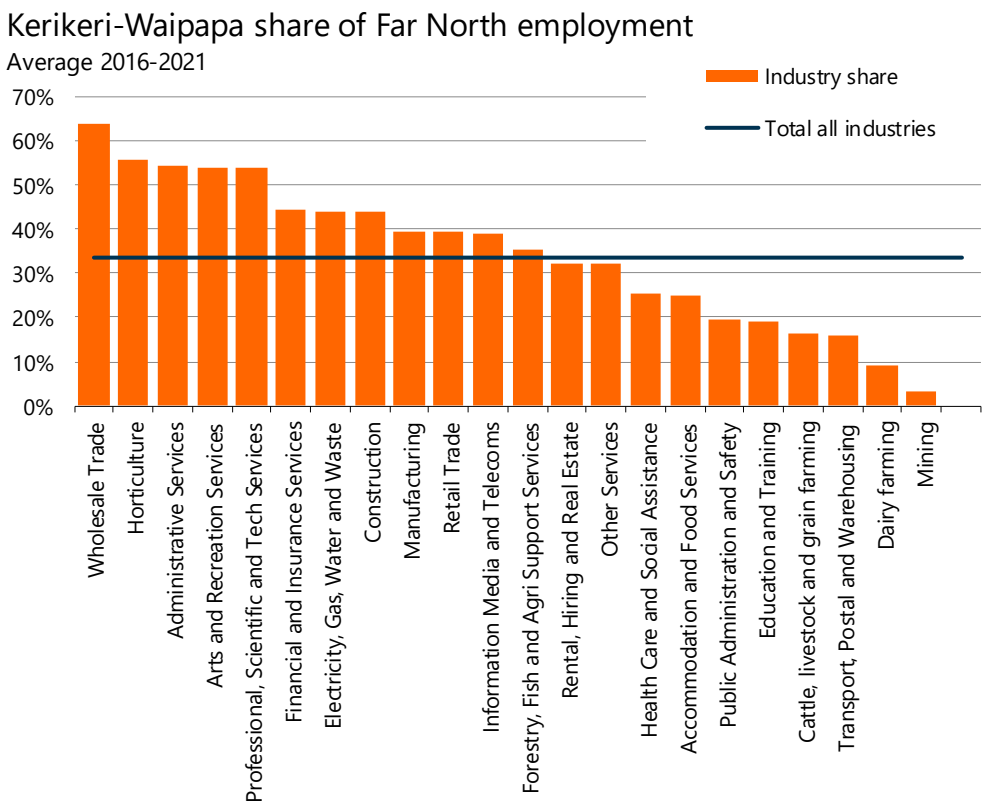
Kerikeri-Waipapa accommodates 34% of all employment in the Far North District, based on average filled jobs over 2016 to 2021. Kerikeri-Waipapa has an over-sized share of the district's employment in industries with orange bars above the horizontal blue line, which reflects the all industry average (Graph 23). In five out of 22 industries, more than half the Far North's employment is located in Kerikeri-Waipapa, which is indicative of Kerikeri-Waipapa having a strong comparative advantage in these industries. The industries are wholesale trade, horticulture, administrative services, arts and recreation services, and professional services.

In the case of professional services and arts and recreation services, Kerikeri-Waipapa's comparative advantage may be due to having pockets of wealth and the district's largest population and business base close by.

Kerikeri-Waipapa's natural advantages in horticulture coupled with a large population of potential workers are reflected in their concentration of the district's horticulture employment, as well as administrative services (pack houses) and wholesale services (dominated by horticulture-related wholesaling). Manufacturing exhibits a weak comparative advantage in Kerikeri-Waipapa, in part reflecting a highly diverse mix of

smaller sub-industries within manufacturing. Kerikeri-Waipapa's weak comparative advantage in manufacturing may come from having a relatively large group of potential workers and an ecosystem of businesses and suppliers.

Graph 23



Conversely, industries with orange bars underneath the blue line in Graph 23 reflect a lack of competitive advantage in Kerikeri-Waipapa. In some cases, this may be for historic reasons, for example, public administration offices, hospitals and tertiary education facilities being located in other Far North towns when Kerikeri-Waipapa had a smaller population. Kerikeri-Waipapa's low concentration of education and training employment may also reflect that the area has a relatively old population and therefore relatively less need for education services. Kerikeri-Waipapa's under-representation in dairy farming, and cattle, livestock and grain farming may reflect high land values at the urban periphery which make extensive land uses uneconomic. It is not apparent why Kerikeri-Waipapa has such an under-sized share of the district's transport, postal and warehousing industry, particularly given that Bay of Islands airport is located in the Kerikeri-Waipapa area.

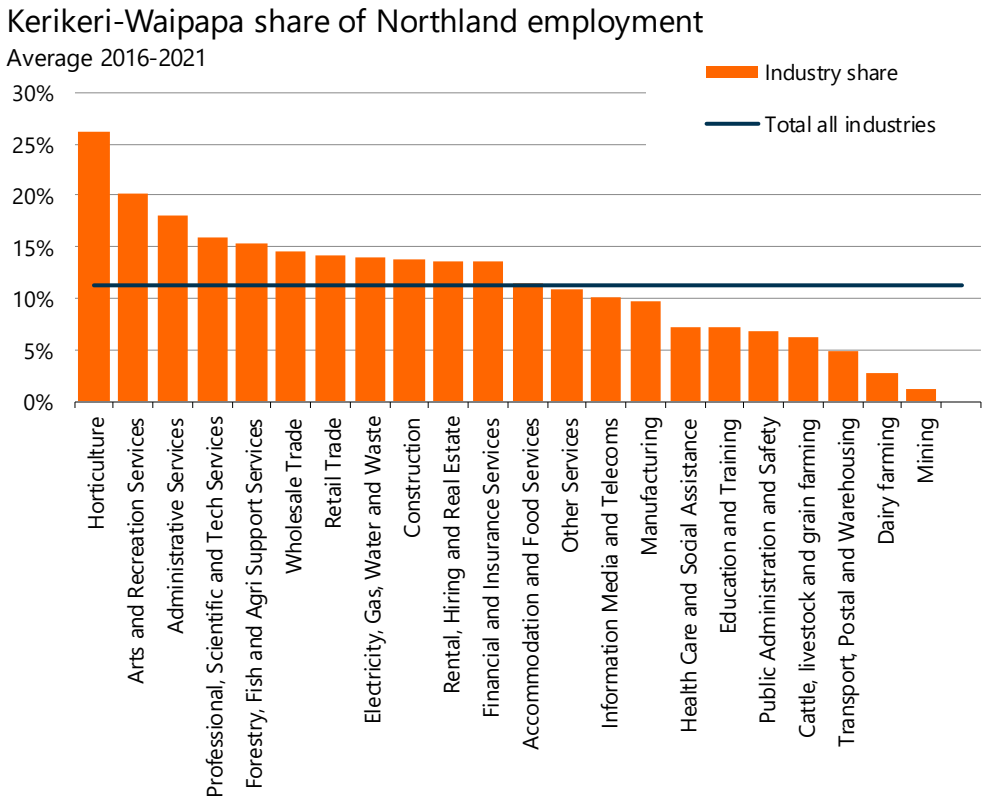
Regional comparative advantage

Looking at Kerikeri-Waipapa's share of Northland employment reveals where Kerikeri-Waipapa has a regionally significant comparative advantage. Kerikeri-Waipapa is home to 11% of all employment in the Northland Region, represented by the blue line in Graph 24. Kerikeri-Waipapa is home to an impressive 26% of all regional employment in horticulture, and 18% of regional employment in administrative services (including

horticultural pack houses). This makes it clear that Kerikeri-Waipapa has a comparative advantage in both the horticulture and the support services surrounding it.

Kerikeri-Waipapa's concentration of regional employment in arts and recreation services, and professional services, reflects the area's pockets of wealth and comparative advantage which stems from having a large cluster of population and businesses that demand those services.

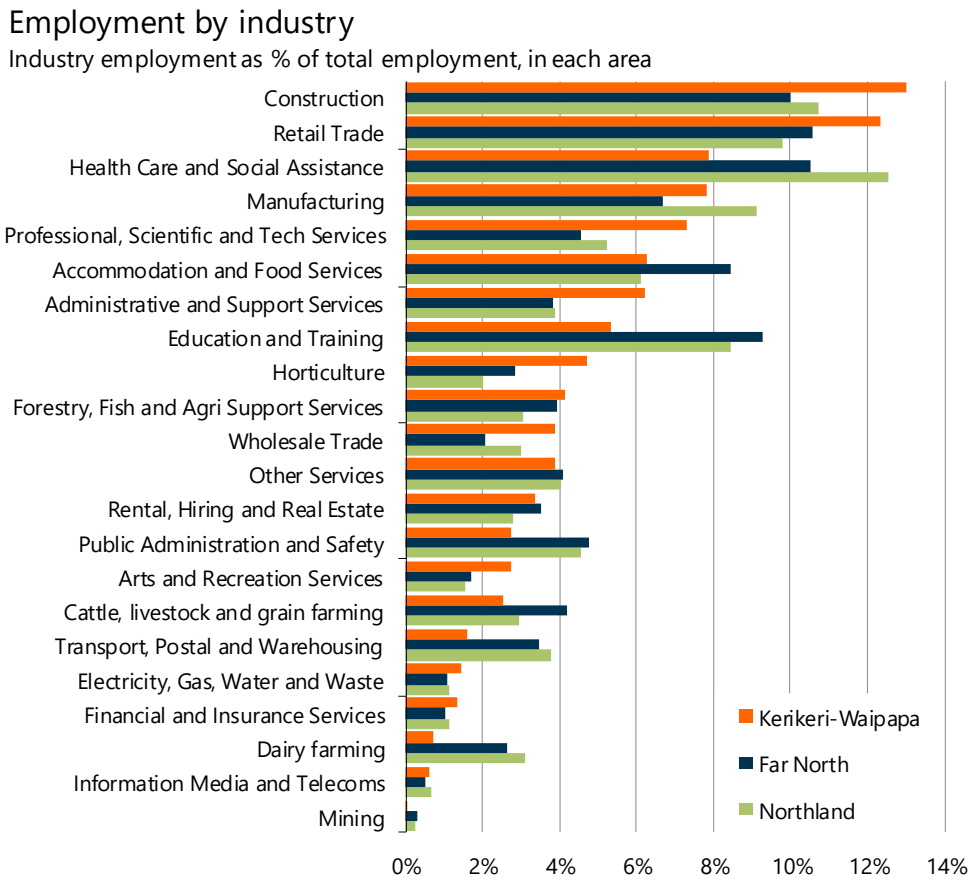
Graph 24



Industry composition

Looking at employment by industry, effectively the economic composition of an area, shows a slightly different perspective the to the comparative advantages revealed in the previous sections (Graph 25). Construction and retail are the largest industries in Kerikeri-Waipapa, accounting for 13% and 12% of the area's employment respectively. Kerikeri-Waipapa only has a weak competitive advantage in these industries, so their large size is reflective of demand from a large population base. Horticulture and administrative services account for a relatively modest share of Kerikeri-Waipapa employment, at 5% and 6% respectively, despite having a strong comparative advantage.

Graph 25



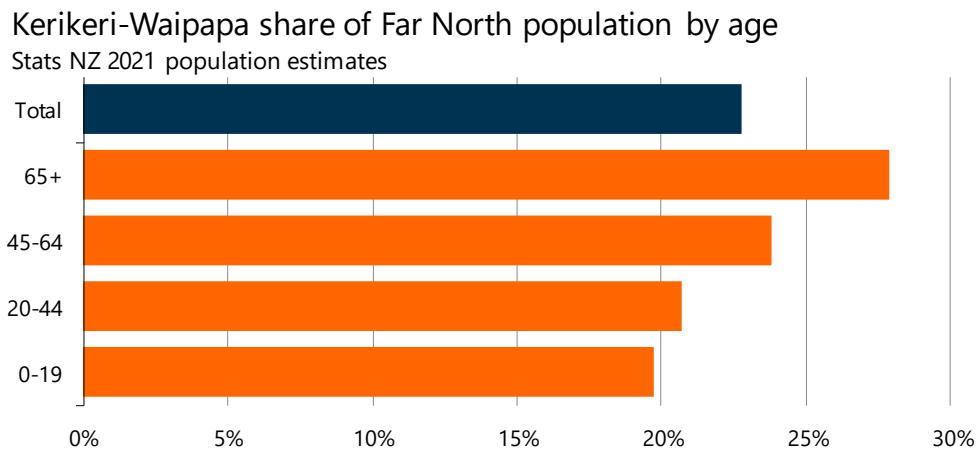
Look after own needs, then look further afield

A large population centre like Kerikeri-Waipapa needs to provide services to meet the needs of its own population, including the obvious such as construction and retail, as well as less visible support industries such as professional services, transport, and wholesale trade. It's important that these industries are able to grow in tandem with population and employment. Beyond meeting local needs, Kerikeri-Waipapa should look to grow industries with a comparative advantage. This represents an opportunity to grow the economy and raise living standards, by focusing on what the area is best at and using that advantage to meet the needs of other areas. For example, growing and packing Kiwifruit for export to other parts of New Zealand or overseas.

Strong over-44 population in Kerikeri-Waipapa

Kerikeri-Waipapa has an out-sized share of the Far North's over-44-year old population. Kerikeri-Waipapa was home to 23% of the Far North's total population 2021, compared to 24% of the district's 45-64-year-olds and 28% of over-65-year-olds (Graph 26). Conversely, the district has an under-sized share of under-45-year-olds, with 21% of the district's 20-44-year-olds and 20% of 0-19-year-olds.

Graph 26



Kerikeri-Waipapa is an attractive destination for retirees and pre-retirees which means it has attracted people in those specific age groups more so than other age groups. Despite having an out-sized share of the older population, Kerikeri-Waipapa has an under-sized share of the Far North's healthcare, with only 25% of the district's health care jobs located in Kerikeri-Waipapa, compared to 34% of all employment. This likely reflects the continued operation of the district's primary hospital at the district's historic main centre of Kaikohe. This suggests that there is an opportunity to grow healthcare services in the Kerikeri-Waipapa community.

Commercial amenity analysis

Commercial amenity considers the various aspects of a local economy which contribute to amenity or quality of life in an area – including amenity like shops, cafes and activities. We have benchmarked commercial amenity in Kerikeri-Waipapa in relation to similar sized centres to identify Kerikeri-Waipapa's strengths and weaknesses.

Overall, this analysis indicates that Kerikeri-Waipapa has a solid commercial amenity offering, although cafés, restaurants, takeaways and bars could be improved. Even in areas of strength, these industries will need to grow as the population grows, in order to maintain the current level of amenity.

Making a relevant comparison

In order to a make a relevant comparison with Kerikeri-Waipapa, we have identified eight centres which are broadly comparable in terms of size and nature (Table 4). Guided by Stats NZ's Functional Urban Area classification[2], we identified eight comparable centres with a similar urban function – being of a scale to be somewhat self-sufficient and supporting smaller neighbouring areas, as well as being serviced by a nearby regional centre. This reflects the regional role of Kerikeri-Waipapa – it is largely self-sufficient for its own needs; it supports smaller nearby centres such a Kaikohe, Paihia and Kawakawa; however, it still relies on Whangarei for more specialist services.

Table 4

Comparator centres for Kerikeri-Waipapa

Source: Infometrics, Stats NZ

Territorial authority	Centre	Population (2021)	Employment (2021)
Tasman District	Motueka	8,280	4,340
Matamata-Piako District	Morrinsville	8,410	3,816
Far North District	Kaitaia	14,850	5,979
Hastings District	Havelock North	15,140	5,439
Far North District	***Kerikeri-Waipapa***	***16,470***	***8,808***
Waimakariri District	Rangiora-Kaiapoi	21,390	9,407
Waipa District	Cambridge	26,490	11,571
Ashburton District	Ashburton	26,560	14,809
Whanganui District	Whanganui	45,770	19,912

[2] Stats NZ classifies Functional Urban Areas based on SA1 areas – we have slightly enlarged these areas to follow SA2 boundaries, which allows use of a richer set of data.

Identifying commercial amenity

We have identified commercial amenity by looking at industries which predominantly service the needs of the public and contribute towards quality of life. The industries have been grouped into five groupings to accommodate overlaps between industries. For example, a sit-down meal could be purchased from a café, restaurant or bar so these have been grouped together. Similarly, clothing can be purchased from a specialist clothing store or a generalist department store.

We considered including performing arts (artists and venues) and amusement/recreation activities (e.g. gaming arcades or bowling alleys), however employment in these areas varied too widely to draw robust comparison between centres.

Comparing commercial amenity

We have assessed commercial amenity by looking at employment per capita in each of the five industry groupings. Using a per capita basis enables a valid comparison across centres with varying populations. This approach assumes that higher employment per capita in each of the five industries represents a higher level of commercial amenity – for example, that more restaurant staff means more restaurants with a wider range of venues and cuisines.

Differences in commercial amenity can arise through a number of reasons, including availability of suitable zoned commercial land, local preferences, income levels or historic legacies. Ideally, the spatial planning process will identify any unmet need for suitable zoned commercial land. Local preferences may explain some differences in commercial amenity, for example a preference for outdoor activities rather than indoor gyms. However, relative shortfalls in commercial amenity may affect the ability to attract migrants and tourists into the area, particularly if they have different preferences.

Cafes, restaurants, takeaways and bars

There are 20.2 filled jobs in cafés, restaurants, takeaways and bars per 1,000 residents in Kerikeri-Waipapa, well ahead of Kaitaia and Morrinsville, and behind Rangiora-Kaiapoi, Cambridge, Ashburton and Whanganui (Table 5). Havelock North has 50% more staff per capita than Kerikeri-Waipapa, suggesting a particular strength in hospitality offering in Havelock North.

Home, garden and hobby retail

Kerikeri-Waipapa has the highest number of jobs per capita in home, garden and hobby retail out of the nine centres, with a wide range through the remainder of the pack. Kaitaia and Havelock North have less than half the per capita filled jobs as Kerikeri-Waipapa. Rangiora-Kaiapoi has a similar level of per capita jobs to Kerikeri-Waipapa, and the remaining centres have notably fewer jobs per capita.

Clothing, footwear, jewellery, accessory and department store retail

The level of clothing, footwear, jewellery, accessory and department store filled jobs in Kerikeri-Waipapa is comparable to most of the nine centres, with 8.7 filled jobs per 1,000 residents. Motueka and Morrinsville are particularly strong in this field, and Havelock North and Kaitaia have a notably weaker offering.

Health and fitness centres and gyms

There is a wide range in health and fitness centres and gym offerings between the nine centres, with Rangiora-Kaiapoi and Kerikeri-Waipapa out in front with 2.2 and 2.0 filled jobs per 1,000 residents respectively. Whanganui is notable, for despite having a significantly larger population than the rest of the nine centres, has a weak per-capita health and fitness industry, at a similar level to Kaitaia and Havelock North.

Hairdressers, barbers and beauty

Most centres have around four to five hairdresser, barber and beauty filled jobs per 1,000 residents, including Kerikeri-Waipapa with 4.3. Morrinsville has a notably stronger offering with 7.7 filled jobs per 1,000 residents, and Kaitaia much lower with 1.6 jobs per 1,000 residents.

Table 5

Commercial amenity per capita

Employment (filled jobs) per 1,000 residents

Source: Infometrics, Stats NZ

Centre	Cafes, restaurants, takeaways and bars	Home, garden and hobby retail	Clothing, footwear, jewellery, accessory and department store retail	Health and fitness centres and gyms	Hairdressers, barbers and beauty
Motueka	37.7	14.7	10.1	1.7	5.0
Morrinsville	17.6	13.7	10.4	0.1	7.7
Kaitaia	11.7	8.7	6.1	0.6	1.6
Havelock North	30.6	7.5	2.3	0.7	5.6
Kerikeri-Waipapa	***20.2***	***20.3***	***8.7***	***2.0***	***4.3***
Rangiora-Kaiapoi	22.6	19.0	9.7	2.2	5.4
Cambridge	25.2	12.8	6.4	1.1	4.9
Ashburton	25.5	13.9	8.9	1.0	4.2
Whanganui	20.9	11.1	6.7	0.7	3.2

Kerikeri-Waipapa middle of the pack

Table 6 shows the centres ranked by their per capita commercial amenity across the five industry groupings, with Kerikeri-Waipapa highlighted as being in the middle of the pack overall. Kerikeri-Waipapa is leading in terms of home, garden and hobby retail (first); and health and fitness centres and gyms (second). Conversely, it shows that Kerikeri-Waipapa has a middle-ranking for cafes, restaurants, takeaways and bars (seventh); clothing, footwear, jewellery, accessory and department store retail (fifth); and hairdressers, barbers and beauty (sixth). Overall, this indicates that Kerikeri-Waipapa has a solid commercial amenity offering, although cafes, restaurants, takeaways and bars could be improved. Even in areas of strength, these industries will need to grow as the population grows, in order to maintain the level of amenity.

Table 6

Commercial amenity per capita ranking

Employment (filled jobs) per 1,000 residents

Source: Infometrics, Stats NZ

	Cafes, restaurants, takeaways and bars	Home, garden and hobby retail	Clothing, footwear, jewellery, accessory and department store retail	Health and fitness centres and gyms	Hairdressers, barbers and beauty
Highest	Motueka	***Kerikeri-Waipapa***	Morrinsville	Rangiora-Kaiapoi	Morrinsville
	Havelock North	Rangiora-Kaiapoi	Motueka	***Kerikeri-Waipapa***	Havelock North
	Ashburton	Motueka	Rangiora-Kaiapoi	Motueka	Rangiora-Kaiapoi
	Cambridge	Ashburton	Ashburton	Cambridge	Motueka
	Rangiora-Kaiapoi	Morrinsville	***Kerikeri-Waipapa***	Ashburton	Cambridge
	Whanganui	Cambridge	Whanganui	Whanganui	***Kerikeri-Waipapa***
	Kerikeri-Waipapa	Whanganui	Cambridge	Havelock North	Ashburton
	Morrinsville	Kaitaia	Kaitaia	Kaitaia	Whanganui
Lowest	Kaitaia	Havelock North	Havelock North	Morrinsville	Kaitaia

Kaitaia ranks quite lowly across the five commercial amenity industries, which may reflect the area's relatively low population compared to the comparator centres, meaning that it may lack critical mass to support some types of commercial amenity. This may also reflect lower incomes in the area which in turn affects demand for commercial amenities. Put another way, the fact that Kerikeri-Waipapa has only a slightly larger population than Kaitaia yet has a significantly strong commercial amenity offering highlights Kerikeri-Waipapa's significant role as a hub for commercial amenity in the district.

Appendix 1 - Wellbeing indicator metadata

General election turnout

The average turnout for the most recent general election. Currently this is the 2021 general election. Turnout is calculated as the percentage of enrolled electors who cast a vote in the local area, by area of residence. Data sourced from the Electoral Commission.

Volunteering Rate

The number of people who reported to be undertaking "Other Helping or Voluntary Work for or Through Any Organisation, Group or Marae" as an unpaid activity in the four weeks prior to the Census, as a proportion of the total stated in each area. Data sourced from the 2018 Census.

Health care sector rate

The number of workers employed in the health care sector (ANZSIC Division Q, Health Care and Social Assistance) as a proportion of total workers in an area. Data is sourced from Infometrics for the year to March 2021.

Current dependency ratio – 2021

Calculated for 2018. The dependency ratio is the number of under 15-year olds and over 65-year olds as a ratio of the rest of the population (working age). Population data is sourced from Statistics New Zealand, and is for June years.

Future dependency ratio – 2031

Calculated for 2028. The dependency ratio is the number of under 15-year olds and over 65-year olds as a ratio of the rest of the population (working age). Population data is sourced from Infometrics medium population projection for FNDC.

Employment strength

The number of jobs in the area, measured over the year to March 2021, as a proportion of the estimated resident population aged 15-64 as at June, multiplied by 100. Data is sourced from Infometrics and Statistics New Zealand.

Knowledge intensive worker rate

Knowledge-intensive industries are industries that satisfy two criteria: at least 25 per cent of the workforce must be qualified to degree level and at least 30 per cent of the workforce must be employed in professional, managerial, as well as scientific and technical occupations. Data is sourced from Infometrics for the year to March 2021.

Net growth in business units

Growth in the number of geographic units over the 2019-2021 period. Data sourced from Business Demography, Statistics New Zealand.

Rental prices

The annual average mean rent for an area, over the year to March 2022, for all private rented properties, sourced from the Ministry of Business, Innovation, and Employment's (MBIE) rental bond database.

Median household income

Annual median incomes of households in occupied private dwelling. Data sourced from the 2018 Census.

Home ownership rate

Total households in dwellings owned or partly owned as well as total households in dwellings held in a family trust as a percentage of total households stated. Data sourced from the 2018 Census.

Workforce with NCEA Level 3

The percentage of the working age population (15-64 years) with a NCEA level 3 qualification or above. Data sourced from the 2018 Census.

Unemployment rate

The number of people who were unemployed as a proportion of the total number of people employed and unemployed. Data sourced from the 2018 Census.

Crime rate

The crude crime rate is calculated as the number of crimes committed and recorded (victimisations) in an area per 100,000 residents. Data sourced from the New Zealand Police and Statistics New Zealand for the year to March 2022.

Deprivation Index

The average relative index of deprivation for an area, based on the New Zealand Index of Deprivation for small areas compiled by the University of Otago. The Index measures relative social deprivation across New Zealand, related to their relative access or level of communication, income, employment, qualifications, home ownership, support, living space, and transport. The Index ranges between 0 and 10, with 0 representing the lowest levels of relative deprivation in an area, and 10 representing the highest levels of relative deprivation in an area. Data sourced from the University of Otago and based on the 2018 Census.

Internet access rate

The percentage of households with internet access at home. Data sourced from the 2018 Census.

Commuting times

The average commute time to work, in minutes by road. The place of work (SA2) and place of residence (SA2) of each employed person was identified using 2018 Census data. Using Google Maps the commute time of each person was measured (from the centroid of the residence SA2 to the centroid of the workplace SA2). People who identified as working from home in the 2018 Census are effectively treated as having a zero-minute commute, so a high number of residents working from home brings down the average. Working from home includes the modern concept of performing office-based jobs remotely, but also those whose residence and work is collocated such as living at home on a farm or a bed and breakfast.

Smoking Rate

The number of people who were recorded as regular smokers as a proportion of the total people stated in an area. Data sourced from the 2018 Census.

Immunisation Rate

The number of eligible children in the area who were fully immunised at 6 months of age. Data sourced from the Ministry of Health. Data was provided by Health Domicile code and then estimated at a SA2 level, averaged over 2014-2018.