# Regional analysis and forecasting for long-term planning

## for Buller District Council

January 2021

Infometrics

Economics put simply

## Authorship

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# Executive Summary

Infometrics produced this report to support Buller District Council with their long-term planning process in 2021. The report includes analysis of the regulatory environment, Infometrics forecasts of the macroeconomy, analysis of historic economic and social data, as well as projections of the next 30 years.

## Three waters and RMA reform will bring big changes

Local government in New Zealand faces some large regulatory changes in the areas of three waters and the Resource Management Act (RMA). Three waters reform is likely to transfer operation of council's three waters assets to larger regional bodies. RMA reform aims to streamline planning process through two new separate regulatory systems – for natural and built environments, and strategic planning.

## COVID-19 leads to double dip recession

The effect of COVID-19 has varied widely across New Zealand, with regions reliant on international tourists taking the greatest hit, and regions with large food-based primary sectors faring comparatively better. Nationally, job losses to date have been far less than initially expected, with the wage subsidy enabling businesses to maintain their workforce through lockdown and recover quickly. Looking ahead, we expect to see the second half of a double-dip recession in late 2021, as the baggage from a post-lockdown period of exuberance catches up with us, and the realities of a global recession start to hit. Nonetheless, we are expecting a much smaller hit than initially expected, and a resumption of steady growth from 2022 onwards.

## West Coast buoyed by primary sector; tourism struggles

The West Coast is expected to be relatively resilient through COVID-19, with its recovery resting on its reliance on the key industries of agriculture, mining and tourism. Agriculture and food processing have performed well, with New Zealand's food export volumes holding up, and only slight softness in prices. Mining has performed well on the back of solid coal prices, and will likely continue to benefit from the Australia-China trade standoff. Tourism is a different story, however, with a protracted recovery in international visitor arrivals expected. Tourism businesses will have tough time adapting to serve the smaller domestic market until foreign visitors start returning. This will weigh particularly heavily on South Westland.

## Buller's employment has declined, but fall has been arrested

Buller District has been through a period of strong employment decline since 2013, with a 26% drop in employment due to significant job losses in coal mining and cement manufacturing. While this fall has largely been arrested, we expect to see further job losses over the next two years due to broader effects of COVID-19. Over the long term, we forecast minimal employment growth in the District, with employment in 2051 slightly higher than the level today. A combination of higher carbon prices, stronger freshwater regulation and ongoing decarbonization are expected to adversely affect Buller's primary sector industries.

## Stable outlook for population over next decade

Buller's population growth has been volatile over the past 25 years, with growth and decline associated with boom and bust in coal mining. Buller's population was 9,610 in 2020, which is the District's lowest population in over 25 years, and approximately 1,000 fewer residents than at the previous peak in 2012. Infometrics population forecasts indicate a stable outlook for the coming decade; however, we expect weak population decline in 2030s and beyond, on the back of a weak outlook for employment. A strong housing market may provide a small boost to the population in the short term. A strong offering of lifestyle-type properties may underpin the District's offering over the longer term.

## Crime trends are stable

Analysis of Police crime data for Buller doesn't reveal any particular trend or pattern. Victimisations, which reflect the location of victim-based crimes, have been declining a after a spike in 2018 and 2019. Proceedings, which reflect the location of apprehensions for victim-based and 'victimless' crimes, have been steady over the past five years.

## Dairy and coal mining lead Buller's primary sector

The economic performance of Buller's primary sector as a whole has been highly sensitive to coal prices. Coal mining accounts for a third of primary sector employment in Buller, and dairy cattle farming accounts for a further third. Buller's dairy sector has been in decline over the past decade, despite strong growth nationally, although productivity has continued to improve. Buller's mining sector is predominantly involved in coal mining, and has experienced decline since coal prices fell in 2013.

## Strong connection between land and economy

The West Coast is a region with a strong connection between its economy and its land through its key industries– agriculture, mining and tourism. With the exception of tourism, these industries are expected to largely carry on throughout the COVID-19 economic crisis as the world continues to demand our food and energy exports. The region is also enjoying a construction boom, with projects across infrastructure, mining, tourism set to create short- and long-term employment opportunities. Looking out into the long term, the Region faces two interrelated challenges – employment and population decline. The Region's reliance on land-based industries makes employment vulnerable to the introduction of environmentally-focused regulations on several fronts, although there is potential for a short term employment boost as new regimes are implemented.

# Introduction

Buller District Council commissioned this report to provide a detailed evidence base for their long-term planning processes in 2021. This report provides historical analysis and forecasts in the areas of demography, ethnicity, employment, the macroeconomy and crime. It also includes a particular focus on the performance of the primary sector in Buller and an overarching narrative for the West Coast Region.

# Environmental scan

We have conducted an environmental scan of key areas of regulatory change which are of relevance to Buller District Council. These include three waters reform, Resource Management Act reform, climate change/emissions regulation, housing regulation, tourism support and other potential policy shifts.

## Three Waters Reform

The Three Waters Reform Programme appears to be the most significant policy reform process currently underway in New Zealand. Initiated in July 2020, this Programme involves a three-year process of reforming local government water delivery mechanisms and arrangements.

At present, responsibility for the delivery of drinking water, wastewater and stormwater services lies with 67 different councils or council-owned entities across the country. These entities face a range of challenges including increasing demand for water services, funding of infrastructure deficits, compliance with environmental and health safety standards and resilience to climate change, natural hazards and natural disasters. They also possess highly varying levels of financial and institutional resources to address these challenges.

In order to address this situation, government intends to reform the current 67 water services entities into a far smaller number of publicly-owned, multi-regional entities. The organisational structures, funding mechanisms and geographic coverage of these entities is yet to be determined.

An initial step in the reform process was the establishment in July 2020 of a new Water Services Regulator, Taumata Arowai, operating as a Crown Agent. Once fully functionally, the role of Taumata Arowai will be to:

- administer an expanded and strengthened drinking-water regulatory system (from approximately mid-2021 onward); and
- provide national oversight of the environmental performance of wastewater and stormwater networks. (although regional councils will remain the primary regulators of wastewater and stormwater management).

Also in July 2020, government announced a $761m funding package for the maintenance and improvement of water infrastructure, as part of its financial stimulus response to the COVID-19 pandemic. An amount of $15.25m was allocated to the West Coast Region.

At this point, the implications of the Three Waters Reform process for local councils are not particularly clear. In the short term, the proposed rationalisation of the 67 existing local water authorities into a smaller number of regional entities, appears to imply considerable risk of cross-subsidisation on the part of those entities that are well-resourced or that have invested effectively in their local water management infrastructure, of entities with a funding or infrastructure deficit. In the longer term, the benefits of standardised approaches to water management, and economies of scale

arising from the larger asset bases and operational footprints of fewer water authorities, might offset or recoup these initial costs.

Apart from the Three Waters Reform Programme, various other pieces of water-related legislation and/or regulation appear to hold some significant implications for the economic development activities of local Councils, and for various industries operating across the country. As an example, the mining and quarrying sector has expressed significant concern that in their current form, the National Environmental Standard and National Policy Statement for Freshwater, which came into effect on 3 September 2020, may severely inhibit both the establishment of new mining and quarrying sites, and the expansion of existing operations. Should these regulations not be amended, they are likely to be subject to ongoing litigation by the industry.

## Resource Management Act Reform

A further significant change to the regulatory system in New Zealand over the next several years, and to the accompanying responsibilities and cost structures of local councils, is the likely reform of the RMA.

A review of the RMA was conducted by an independent Resource Management Review Panel, chaired by the retired Court of Appeal Judge, Hon Tony Randerson, QC. This review was completed and submitted to government in July 2020.

In addition to reviewing the RMA itself, the review considered the relationship between the RMA and other relevant legislation, including the Local Government Act 2002, the Land Transport Management Act 2003 and the Climate Change Response Act 2002 (which is to be amended by the Zero Carbon Amendment Bill).

The principal recommendation of the review is the repeal of the RMA and the creation of two new pieces of interrelated legislation:

- A Natural and Built Environments Act, aimed at enhancing environmental quality and positive wellbeing outcomes; and
- A Strategic Planning Act, which will set long-term strategic goals and facilitate the integration of legislative functions across the resource management system.

If successfully implemented, these recommendations might streamline the regulatory responsibilities of councils, particularly as these relate to resource consent processes. Currently, no uniformity exists in these processes across regional and district councils in New Zealand. This situation results in high levels of variability in the time and costs associated with issuing or renewing consents.

A streamlining of resource consent processes is likely to hold positive implications for residential development activities, and for industries such as mining and agriculture, forestry and fishing.

# Climate Change / Emissions Legislation and Regulation

The Climate Change Response (Zero Carbon) Amendment Act 2019 is the principal piece of legislation governing New Zealand's responses to climate change and efforts to reduce greenhouse gas emissions. The Act was introduced as an amendment to the Climate Change Response Act 2002, to ensure that all relevant climate legislation is contained in a single Act.

The Act is intended to provide a framework by which New Zealand can develop climate change-related policies that firstly contribute to international efforts under the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement to limit global average temperature increase to 1.5° Celsius above pre-industrial levels, and secondly allow New Zealand to prepare for, and adapt to, the effects of climate change.

The Act contains four principal elements:

1. A new domestic greenhouse gas emissions reduction target for New Zealand of:
    a. Net zero emissions of all greenhouse gases (except biogenic methane) by 2050
    b. A reduction in biogenic methane to 24–47 percent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030.
2. The establishment of a series of emissions budgets or emissions reduction plans to achieve these long-term targets.
3. The requirement for government to develop and implement policies for climate change adaptation and mitigation.
4. The establishment of an independent Climate Change Commission, to provide expert advice and monitoring that assists successive governments in achieving the country's long-term goals.

The Zero Carbon Act is supplemented by the Climate Change Response (Emissions Trading Reform) Amendment Act 2020. This Act provides a legislative framework for the reform of the New Zealand Emissions Trading Scheme (ETS) and the development of regulation which governs the operational detail and settings for the Scheme. While the government has made a number of policy decisions related to the ETS, various regulations through which these policy decisions will be enacted remain under development.

A key element of the ETS reform process is the development of emissions budgets. The government has developed a provisional emissions budget for the period 2021-2025. Further emissions budgets will be recommended by the Climate Change Commission and set by the government by the end of 2021.

The ETS reform process holds significant implications for a number of industry sectors including forestry, agriculture and the manufacturing sector. As an example, the proposed phaseout of free allocations of emissions credits to industrial processes from 2021 onward, is likely to increase cost pressures for emissions-intensive manufacturing industries.

# Housing Regulation

The issue of housing is a highly topical one, particularly as residential property prices continue to rise sharply in spite of the contraction in the New Zealand economy caused by the COVID-19 pandemic.

The government has over the past several years introduced a number of policies and regulatory mechanisms aimed at more effectively managing the New Zealand housing sector. In 2018, the Ministry of Housing Urban Development (MHUD) was created through a merger of relevant elements of the Ministry of Business, Innovation and Employment (MBIE), Treasury and the ministry of Social Development (MSD). In 2019, the Housing New Zealand Corporation, Homes Land Community (HLC) and the Kiwibuild programme were merged to create Kāinga Ora – Homes and Communities, an integrated housing and urban development authority.

MHUD and Kāinga Ora hold complementary roles in housing and urban development. The Ministry is responsible for policy development, monitoring and providing advice to the Government on strategic direction. Kāinga Ora is focused on the provision of public housing, housing-related financial assistance, urban development and the delivery of certain aspects of the government's Build Programme.

Most recently, the Government has in January 2021 released its Public Housing Plan 2021-2024, which outlines the intended locations of the 8,000 additional public and transitional housing units announced in the 2020 Budget.

Despite these institutional initiatives, the most urgent imperative remains to substantially increase the supply of housing in New Zealand, particularly for low-income segments of the population. Achieving such an increase in the shortest possible timeframe will require meaningful action on the part of both central and local government, and effective collaboration between the two levels of government. Critical aspects will include the RMA reform process mentioned above, infrastructure funding, appropriate measures (at both national and local level) to incentivise private sector residential development, and further increases in the supply of public housing.

# Tourism Support

New Zealand's tourism industry has been particularly hard hit by COVID-19, and the resulting border closure and Level 3 and 4 lockdowns in 2020. Infometrics' estimates are for international tourism's contribution to GDP to shrink by 91% in the year to March 2021, and domestic tourism by 21%.

In response, the government in its 2020 Budget announced a $400m Tourism Recovery Fund to support the industry through the COVID-19 recession. Support measures included thus far include the Strategic Tourism Assets Protection Programme (STAP), which provided financial support for 126 businesses representing around 3,000 jobs, support for the country's 31 Regional Tourism Organisations (RTOs), a loan scheme for inbound tour operators, a Regional Events Fund and the Tourism Transitions Programme, which will support up to 3,000 small and medium tourism businesses through the Regional Business Partners (RBP) network.

These industry-specific support measures were in addition to the more widespread economic support provided by the government, such as the wage subsidy and

mortgage holiday schemes, that were available to tourism operators. In addition, the government and various tourism stakeholders have undertaken extensive domestic tourism campaigns, which are likely to continue as long as the country's borders remain closed to international tourists.

Under the prevailing conditions, the government is unlikely to undertake any major policy reforms that might negatively impact the tourism industry. However in the longer term, the government has signalled its intention to re-examine New Zealand's international tourism proposition, and to investigate the feasibility of shifting to higher-value and lower-volume activities.

Over the next several years, all regions in New Zealand will be competing for a limited pool of domestic tourism spending. It will therefore be imperative for councils to continue providing effective support to their local RTOs and tourism operators, in order to minimise revenue and job losses, and negative flow-on effects in their local economies.

## Other potential policy shifts

Apart from the areas discussed above, the government has expressed some interest in a broad review and potential overhaul of the relationship between central and local government, and in the manner in which local councils operate and are funded. However no further detail regarding such a review have been released. It is also unclear whether any concrete action in this area is feasible, given the immediate imperative to deal with and recover from the effects of COVID-19.

# Macroeconomic overview

## A rocky path through 2020

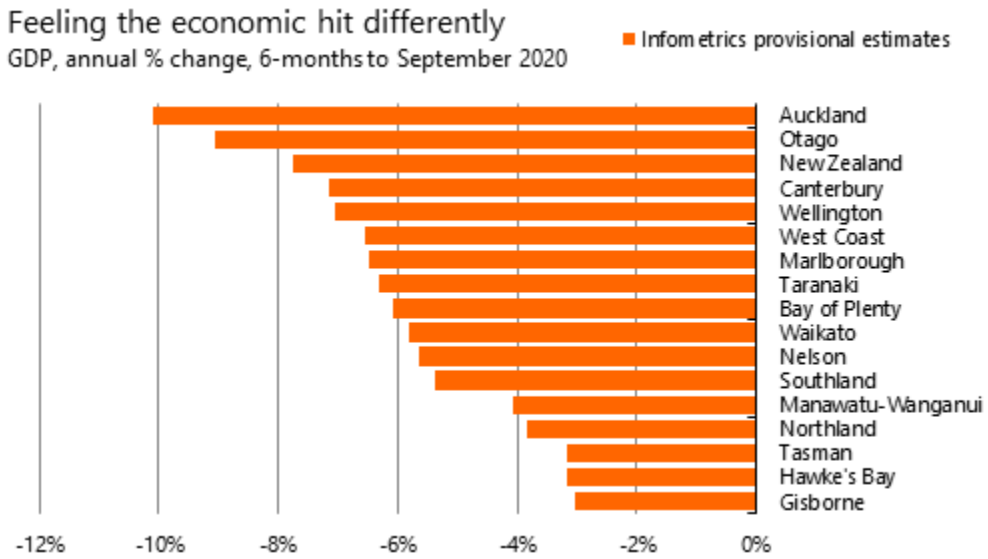
### Economic activity crashed and rebounded

GDP figures for the June 2020 quarter confirm that the COVID-19 pandemic brought about the sharpest decline in economic activity in history. Nationally, GDP declined by 12.4% from the June 2019 quarter.

The previous largest quarterly fall in economic activity experienced in the New Zealand economy took place following the Global Financial Crisis of 2008. In the March 2009 quarter, GDP declined by 2.8% compared to the March 2008 quarter.

As expected, this downturn in economic activity was unevenly spread across New Zealand's regions. Districts with a high reliance on international tourism, such as Queenstown-Lakes and Westland, experienced contractions of more than 20% compared to the June 2019 quarter. By contrast, districts with large food-based primary sectors fared much better – GDP in the Wairoa, Tararua and Carterton Districts declined by less than 5% compared to June 2019.

**Chart 1**




Economic activity rebounded in the September 2020 quarter, as the national lockdown ended, and the country returned to more normal levels of activity. GDP for the quarter was 3.2% lower than in the September 2019 quarter.

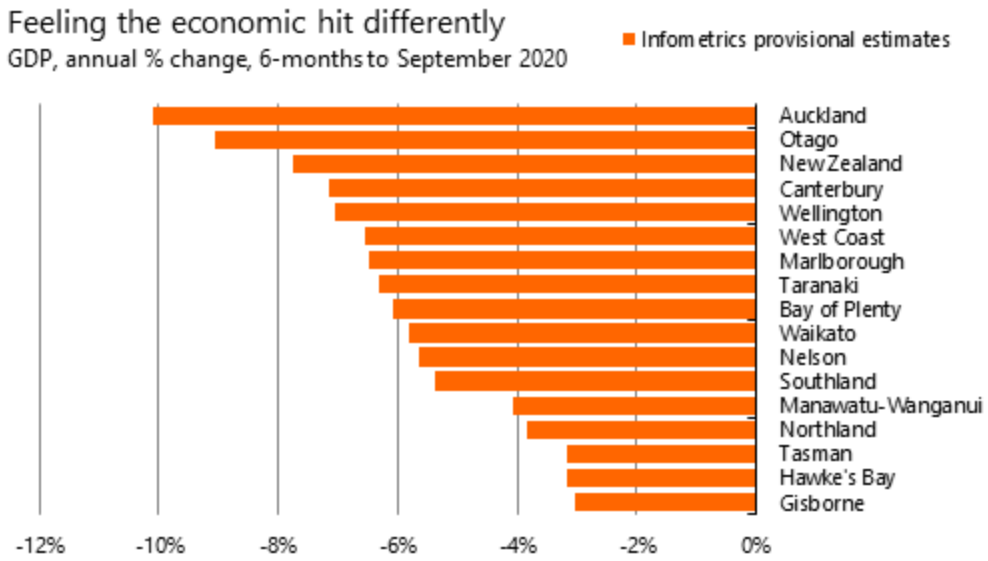
Over the year to September 2020, activity across the national economy declined by 3.3%.

## Jobs have been lost – although fewer than initially feared

The recession has understandably had a negative effect on employment. Our estimate is that in September 2020, over the year to September 2020, the monthly total number of employment-related benefit recipients (Jobseeker Work Ready+ COVID-19 Income Relief Payment) has increased by more than 74,000 individuals.

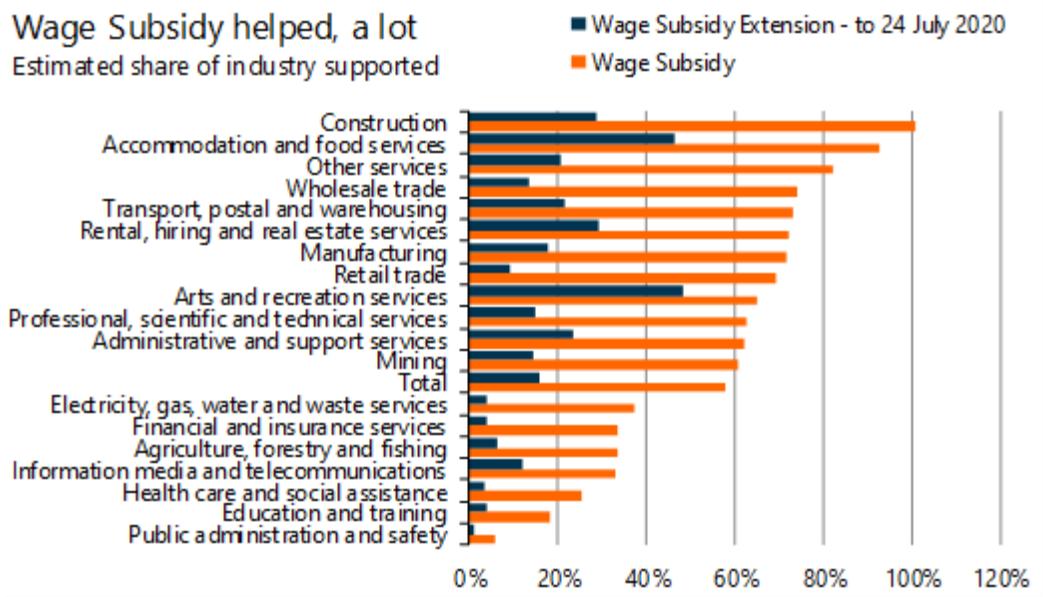
On a percentage basis, these job losses have been concentrated in the transport, postal and warehousing (for the most part Air New Zealand), mining, and administrative and support services industries. In absolute terms, the largest numbers of jobs have been shed in the following industries – transport, postal and warehousing, accommodation and food services, administrative and support services, and arts and recreation services.

**Graph 24**




While the effects of these job losses will ripple through New Zealand's communities over the next several years, the level of job losses is likely to be well below the figure of 120,000 initially forecast for the year to March 2021. The various financial measures implemented by the government, most notably the wage subsidy and small business loan scheme, have had the intended outcome of reducing immediate job losses and allowing employers to recover from lockdown.

Graph 25




A number of industries have also begun to create jobs, as the economy recovers from the shock of lockdown and activity resumes (see Graph 2 above). In particular, the public administration and safety, construction, health care and social assistance and professional, scientific and technical services have each created several thousand jobs over the past year. Our estimate is that approximately 20,000 jobs have been created or re-established, mainly in the September 2020 quarter.

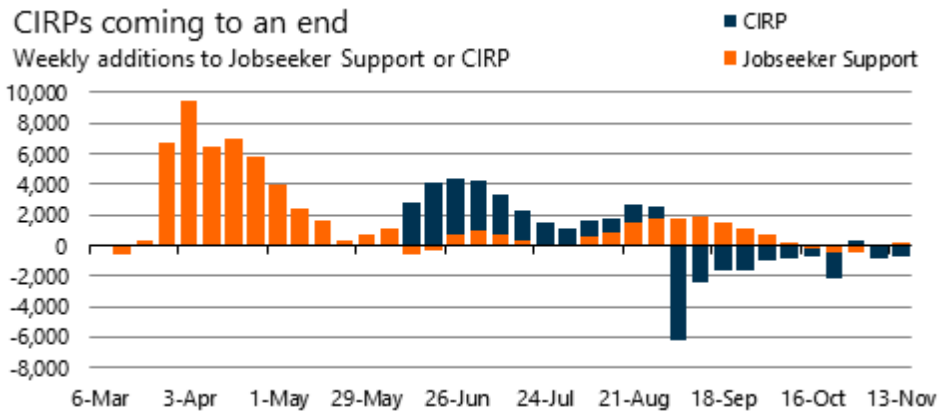
Preliminary data indicates that while job losses at the scale initially feared have been avoided, the nature of some employment has changed. In many instances, employees have been compelled to accept pay cuts, or have seen their working hours reduced, as employers seek to reduce costs and maintain the financial viability of their businesses. This trend seems to be particularly prevalent in tourism-dependent industries such as accommodation and food services, and in service-based sector such as arts and recreation, and administrative and support services.

## Government support has helped

The 12-week COVID-19 Income Relief Payment (CIRP) helped to stabilise the economy during and immediately after the lockdown period. At the height of its uptake, in August 2020, the CIRP was supporting close to 25,000 individuals in total.

Interestingly, as CIRP recipients have reached the end of their eligibility period, we have not yet seen a corresponding increase in the number of Jobseeker Support recipients. At the same time, the rates of job creation or job re-establishment in the economy do not appear sufficient to accommodate all these previous CIRP recipients. This suggest that unemployment might be higher than the official unemployment rate suggests, or that the decline in the labour participation rate in the economy might be larger than estimated.

**Graph 26**




## The housing market is heating up

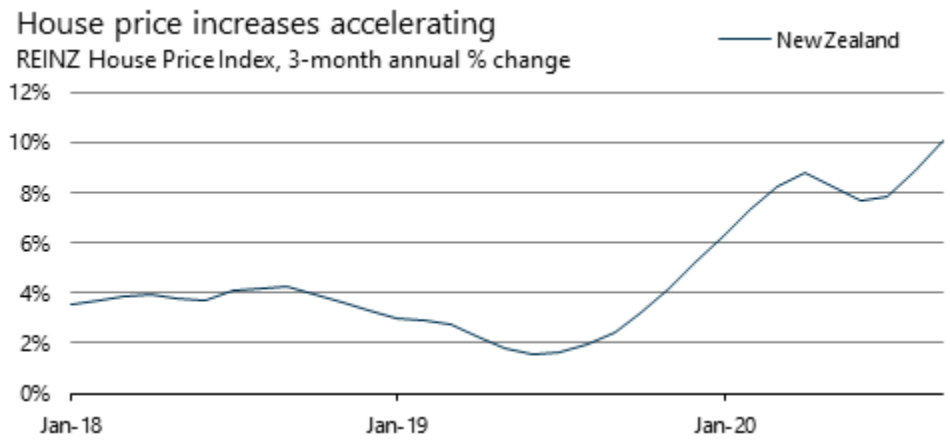
Another significant intervention in the economy during the June 2020 quarter, involved the negotiation between government and the commercial banking sector of six-month mortgage holiday scheme. This scheme was designed to prevent homeowners from being forced to sell their homes in the event of losing their jobs as a result of COVID-19.

One of the potential unintended consequences of this measure has been an increase in consumer spending, as funds that might normally be used to service a mortgage became available for other uses. Another outcome appears to have been a reduction in short-term household debt, as consumers have become somewhat less confident of their job security and future employment prospects.

The COVID-19 lockdown, along with the mortgage holiday and subsequent uncertainty amongst homeowners, resulted in a reduction in the stock of existing houses available for sale. This, along with historically low interest rates and the removal of loan-to-value restrictions, has contributed to an unanticipated boom in house prices over the September 2020 quarter.

Following a decline between April and June 2020, the Real Estate Institute of New Zealand's (REINZ) House Price Index, which tracks annual percentage changes in house prices over a rolling three-month period, turned positive in July, before accelerating sharply in August and September. Over the three months to September 2020, house prices across the country were more than 10% higher than in the corresponding period of 2019.

Graph 27



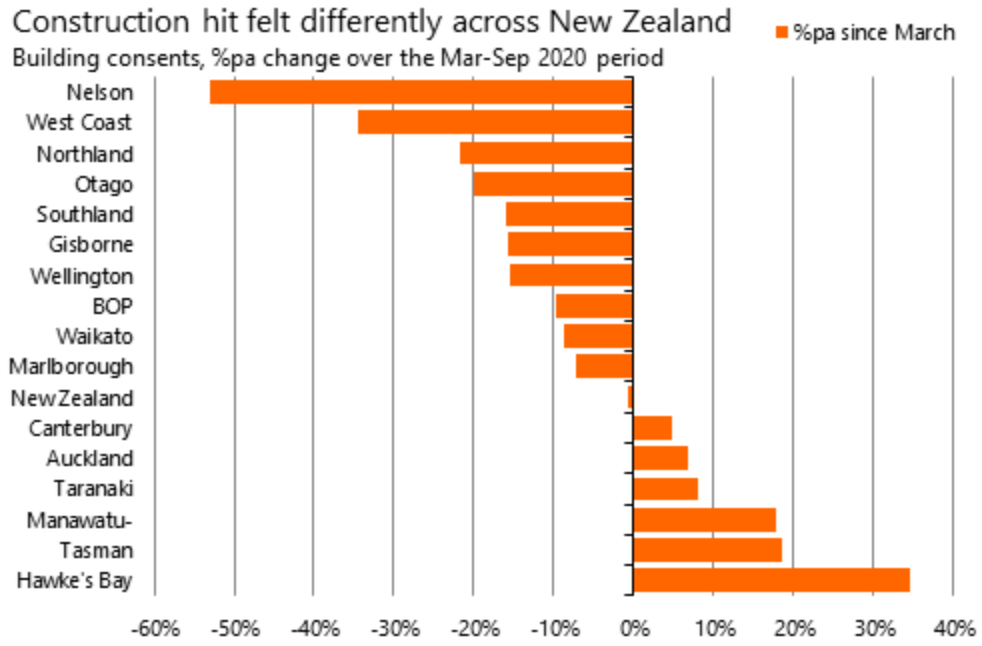

## Construction is a mixed bag

Construction activity across the country has also not declined to the extent that we initially anticipated. One possible reason for this appears to be the delays caused by the Level 3 and 4 lockdowns to construction projects that were already underway. The long lead times that exist in some regions, due to capacity constraints in the local industry, are also helping to keep activity going.

Many councils across the country were able to continue issuing building consents during lockdown. It is therefore perhaps not surprising that the number of residential consents issued nationally increased by 8% over the year to June 2020, and by 3.5% for the year to September.

By contrast, the value of non-residential consents declined by 8.6% over the year to June 2020 and by 7.6% for the September year. This appears to be consistent with the sharp reduction in business confidence during and immediately after lockdown.

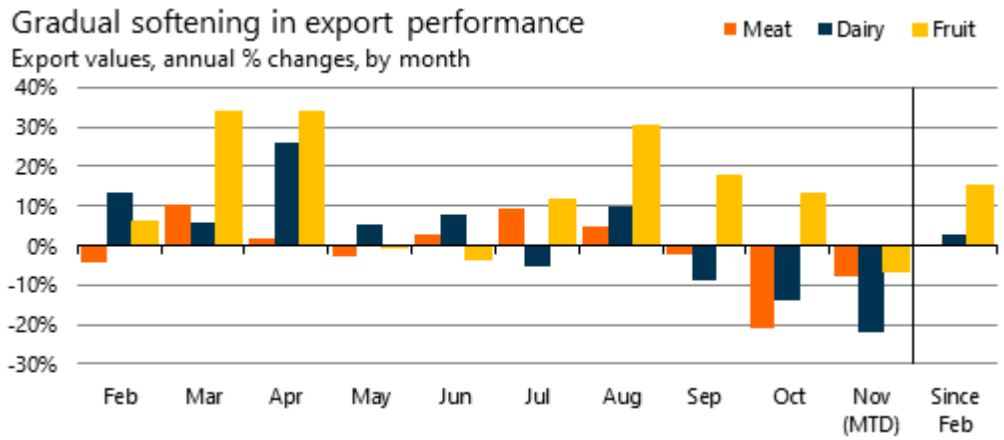
Graph 28



## Exports keep going

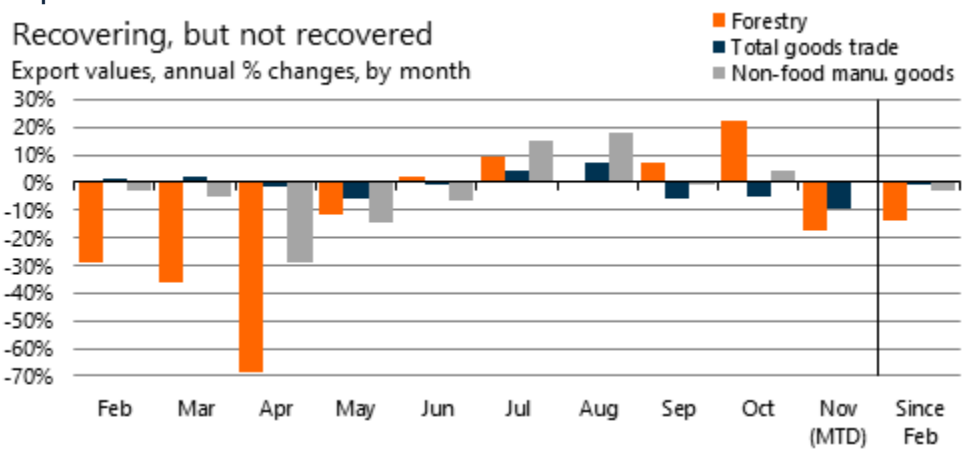
Food-based primary exports have performed well, as foreign consumers have been increasingly attracted to New Zealand's produce due to its reputation for high quality and food safety standards. However, over the past two months, export values have begun to decline, as international supply chains and shipping routes remain disrupted, and COVID-19 infection rates have again begun to climb sharply in Europe and the USA.

**Graph 29**




The picture is similar for non-food primary and manufactured exports. In the case of wood and forestry products, New Zealand has been faced with a global oversupply and a Chinese processing sector that has been somewhat slow in getting back to pre-lockdown activity levels. A lack of overseas processing activity has also reduced demand for some local mining outputs.

**Graph 30**



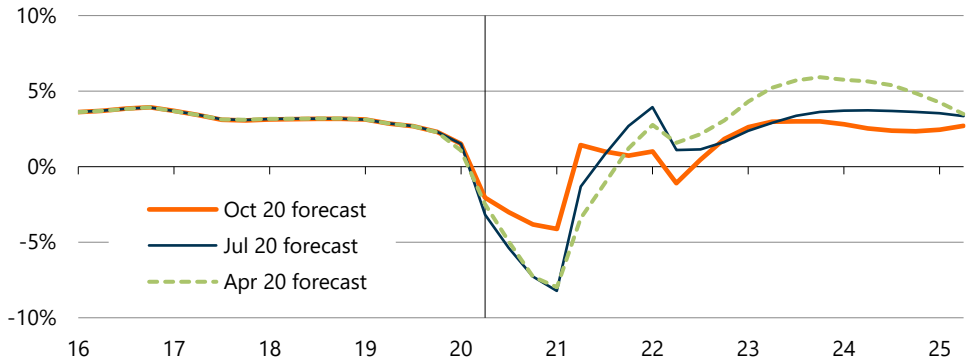
# But is the worst yet to come?

The latest Infometrics macro-economic forecast, released in October 2020, confirms that the economy's immediate bounce back from the initial COVID-19 lockdown has been better than expected. Labour market indicators, the housing market, construction activity, and household spending have all defied expectations of an immediate and sharp downturn. Despite this good news, we're worried that the worst is yet to come, and we now expect more fallout to hit the New Zealand economy next year. We are now forecasting the second half of a double-dip recession to occur in 2021.

**Graph 31**

Less pain now, but another downturn in 2021/22

GDP forecast comparison, year-ended % changes




## It all hangs on the labour market

Credit must be given to the government's wage subsidy for limiting the immediate rush of job losses from the border closures, lockdown, and collapse in business confidence. Weekly additions to the number of Jobseeker Support beneficiaries averaged 7,160 during April amid a wave of reactionary redundancies from businesses. But since tailing off in mid-May, additions to the jobseeker queue have stayed relatively low, averaging just 784 per week.[1]

We believe that we are now at a crossroads for the New Zealand economy. If we can somehow avoid another substantial wave of job losses, then the negative flow-on effects for other key pillars such as the housing market and spending activity will also be muted. Alternatively, if the government's wage subsidy and its various extensions have only delayed job losses, rather than prevented them, then we would expect to start seeing things unravel as businesses plan for the year ahead.

## Crunch time for employment

The next four months will be a crunch time for many businesses and their employees. Summer will be a key bellwether of fortunes. Retailers will be hoping that the post-lockdown buoyancy in spending can be sustained through into the Christmas period. For tourism operators, the absence of foreign tourists during the peak summer months

[1] Trends in Jobseeker Support numbers are muddied somewhat by the COVID-19 Income Relief Payment. However, there has been a relatively small number of people moving onto Jobseeker Support after their Relief Payment entitlement has run out, suggesting many of these people are not eligible for Jobseeker Support.

could have a negative effect on their revenue three times as large as it did during winter. And other businesses will be weighing up trading conditions in the lead-up to Christmas, deciding whether it is worthwhile retaining staff and having to pay them through the holiday period if demand is going to stay soft into 2021.

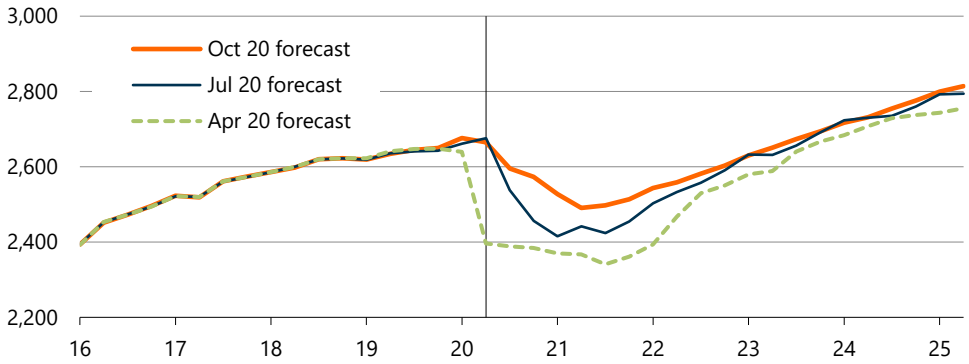
We are not confident that further job losses can be avoided. Our updated forecasts predict a 6.5% decline in employment over the year to June 2021, implying a total fall in job numbers of 6.9% from its March 2020 peak (see **Graph**).

Our forecast loss of 186,000 jobs from peak to trough is a significant improvement from the 253,000 decline we were predicting in July or the 307,000 we anticipated in April. As previously noted, the government's support has proven to be very important for the labour market, while job losses have also been limited by the New Zealand economy's successful elimination of COVID-19 and quick bounce back out of lockdown.

**Graph 32**

A slower and shallower hit to employment

Seasonally adjusted employment (000)




## Labour market squeeze to hit household spending

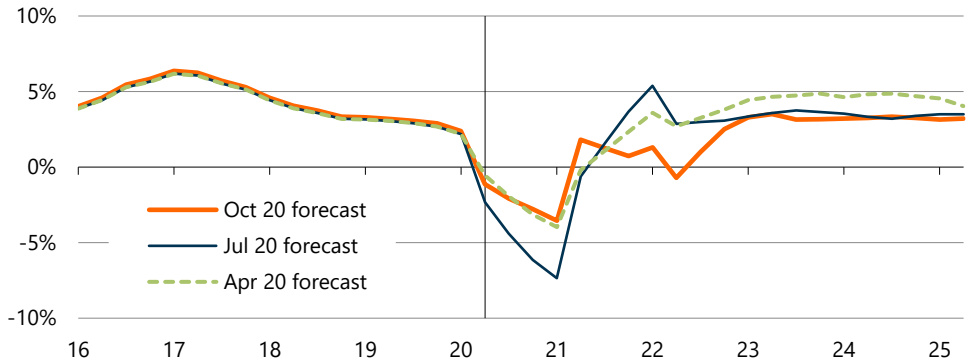
Declines in employment have a clear and dramatic effect on the spending power of consumers. But reductions in hours worked and a lack of wage inflation also have negative implications for household budgets.

Indicators to date suggest an immediate bounce back in household spending following lockdown, with private consumption in the September quarter likely to be similar to its pre-COVID level. However, **Graph 33** shows that we expect 2021 to be much less positive as the labour market's deterioration affects spending activity. We forecast a 3.2% fall in private consumption between December 2020 and September 2021, with household spending not surpassing its pre-COVID peak until the second half of 2022.

**Graph 33**

Household spending still vulnerable to job losses

Private consumption comparison, year-ended % changes




## The housing market's remarkable resilience

Alongside household spending, the other important facet of the economy being buoyed by the labour market's resilience is the housing market. Our previous forecasts of house price falls were premised on jobs being lost and people being unable to meet their mortgage payments, along with a collapse in population growth due to border closures.

Instead, we have so far been spared the worst of the job losses and, since our last forecasts were published in July, the government has extended its mortgage holiday scheme until March next year. No one is under pressure to sell their property, so the increasing pool of interested buyers is fighting over a limited number of houses available to purchase. House prices have defied expectations from six months ago and have actually gathered more upwards momentum.

It's worthwhile outlining the contributors to this pick-up in demand for housing to better understand how long it might continue.

- Population growth unexpectedly spiked in late 2019 and early 2020. The pandemic created a pool of foreigners that have stayed in New Zealand longer than originally intended, due to border closures, reduced air connectivity and visa extensions. There was also an influx of returning Kiwis in early 2020 who chose to come back to live in New Zealand as conditions deteriorated offshore. Even if they are not homeowners, many of these people have needed somewhere to live. Also, many of the working Kiwis returning at short notice from overseas will have been cashed up and keen to buy a house.

- Very low interest rates have proven effective in enticing buyers into the market. First-home buyers have been particularly active, with new lending over the three months to August up 31% from the same period in 2019. As well as the boost to demand from lower mortgage servicing costs, parents are more likely to be helping their adult children get onto the property ladder, given the lack of return on their term deposits.

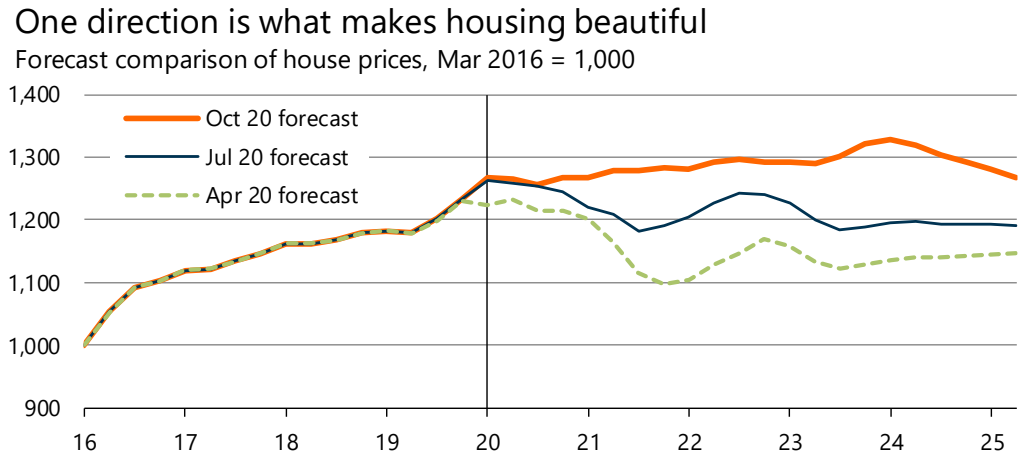
- Investor demand for property has picked up, with lending growth over the three months to August sitting at 25%pa. The removal of the Reserve Bank's loan-to-value restrictions effectively reduced the deposit requirement for investors from 30% to 20% (the latter requirement has generally been imposed by the banks

themselves since the pandemic began). The lack of returns available from other investments such as term deposits has also driven up investor demand for property and shares.

- Where job losses have occurred, those people affected are on average more likely to be renters than homeowners. This uneven nature of the downturn so far has limited the negative effects on the housing market.

Add in the fact that neither the Reserve Bank nor the government want to see house prices fall, and it is becoming increasingly difficult to envisage a decline in property values in the near term. We still expect house price growth to slow in coming quarters in response to lower net migration and a weakening labour market, in combination with the significant continuing supply of new residential building activity in the pipeline. However, house price inflation holding between 0% and 2%pa between March 2021 and March 2023 is a much "better" outcome than the falls of 11% we were predicting back in April at the height of lockdown (see **Graph 34**).

**Graph 34**




We still see scope for downward pressure on house prices over the longer term as interest rates start lifting from their record lows and the market absorbs the big increase in supply that is currently being constructed. We have factored in modest falls in house prices during 2024 and 2025.

## Uncertainty the enemy of growth

Auckland's community outbreak in August was an unwelcome reminder that COVID-19 and its associated restrictions on business activity and freedom of movement can reappear at any time. From both a business and household point of view, this incredible level of uncertainty makes it very difficult to make major decisions or commit to significant future plans. Although businesses have shown increasing flexibility and agility in how they operate, we expect uncertainty to remain a constraining factor on spending and investment throughout the next year.

The on-again, off-again nature of the possible Trans-Tasman and Pacific travel bubbles has also made it difficult to reliably assess prospects for the tourism industry. For this set of forecasts, we have maintained a conservative assumption that travel bubbles start to open up from the second quarter of 2021. However, the recent move to allow New

Zealand travellers into New South Wales and the Northern Territory without having to quarantine suggests that things might progress sooner.

Timelines for a COVID-19 vaccine also seem to be highly variable. Our forecasts have been prepared on the basis that a vaccine becomes readily available late next year. However, the roll-out of the vaccine will not necessarily be uniform around the world, and we can envisage some restrictions persisting throughout 2022 and limiting travel.

## The globe is a mess

COVID-19 is not going away any time soon. Global daily new case numbers reached an all-time high of 385,848 on October 9, almost four times the highest daily total recorded in April. However, it's important to note that this increase in case numbers reflects much more widespread testing than there was capacity for six months ago. Global deaths averaged 6,306 per day in April; the corresponding number for September was 5,406.

Lockdown fatigue means that countries are reluctant to continue or reimpose significant restrictions on economic activity and people's freedoms. But it is also clear that the ongoing threat of the virus is acting as a constraint on activity anyway. Even without lockdowns, people are more reluctant to venture out and about than they were pre-pandemic, and this hole in demand will have a lasting effect on economic outcomes. The latest Consensus forecasts show that by June 2022, Spain, Italy, the UK, Japan, and France are all likely to still have smaller GDPs than in the September 2019 quarter.

Aside from the prospects of prolonged weakness in the world economy, which could extend for longer than most forecasters are predicting, the pandemic is also affecting people's consumption patterns. Reduced spending on travel and associated goods and services is an obvious change, but our exporters are also being affected by lower levels of restaurant and hospitality activity that are hitting demand for higher-value foodstuffs. This trend is likely to show through in reduced incomes for meat and wine producers, for example, as they are forced to settle for lower prices from international consumers with a reduced willingness or ability to pay top dollar.

Concerns about international supply chains also remain on the radar. Imports of a range of manufactured products are well down from a year ago. Some of this decline reflects weaker demand, particularly related to business investment spending. But there are ongoing anecdotes about shortages of electronics and other manufactured consumer goods.

At this stage, we remain reluctant to predict a pick-up in domestic manufacturing activity on the back of these issues. However, supply chain disruptions have the potential to constrain economic growth if they persist or become more acute in coming months.

## An economy regaining momentum

It's undeniable that the New Zealand economy has regained momentum following the chaos of early 2020. The effects of the pandemic on the economy to date have been less severe than we originally feared. But this downturn is still the most severe in living memory, and the path ahead remains highly uncertain.

We still expect the ramifications for the economy of the lockdown and border closures to persist for an extended period. Caution remains a key feature of our forecast outlook. One of the biggest risks is that New Zealand's better-than-expected economic performance is not matched by a rebounding global economy.

# West Coast outlook

The outlook for the West Coast economy through the COVID-19 pandemic and economic recovery rests on the Region's reliance on its key industries of agriculture, mining and tourism.

Agriculture and food processing have performed relatively well through the COVID-19 pandemic so far, with New Zealand continuing to receive steady returns for our food exports. This is underpinned by our important role providing sustenance and nutrition to the world. We expect a degree of downside risk for food prices going forward, as a softer global economy affects how much people can afford to spend on our typically premium food exports. Furthermore, restaurant closures overseas adversely affect demand for our premium aquaculture and meat exports, with lower returns expected as these products are redirected to direct-to-consumer channels such as supermarkets. Overall, we expect the volume of production to remain steady, meaning that employment in agriculture and dairy processing on the West Coast is likely to hold steady, although returns to primary producers may be softer for a period.

The mining industry on the West Coast is a key employer both directly and indirectly through industries such as construction and professional services. Coal prices have performed well since COVID, with returns for New Zealand exporters no doubt helped by China's trade standoff with Australia, increasing their reliance on New Zealand's coal exports. China's manufacturing activity recovered strongly after their COVID-19 outbreak, leading to a quick recovery in their demand for raw inputs. This means that even if the China-Australia trade standoff is somehow resolved, demand and prices for New Zealand's coal exports should hold up relatively well.

The West Coast has been hit hard by the loss of international visitors since the onset of COVID-19. While tourism operators have tried to make the most of a surge in domestic tourism, many premium offerings for international visitors can't easily pivot to lower-priced domestic offerings. The introduction of a trans-Tasman travel bubble will help by bringing in more visitors, however Australia typically represents less than a fifth of international tourism spending in the region. Their return won't fundamentally change the challenging economics of internationally-focused tourism operators. Even once our borders are fully open, we expect a prolonged recovery for visitor arrivals as global recession affects household incomes, limiting the number of people able to afford long haul travel to New Zealand. Furthermore, the aviation sector will take years to recover to pre-COVID airline capacity. For these reasons, we expect a return to 80% of 2019 visitor arrivals by 2025. This creates an immense challenge for tourism operators with an internationally focused offering – pivoting to domestic visitors will be crucial to keep the lights on.

On the upside, a strong housing market spurred by low interest rates is pushing many out of the main centres, which may serve to raise the profile of the West Coast's affordable housing. Relatively affordable housing may encourage movement of new residents into the region and boost demand for the construction industry.

Overall, while the outlook for the tourism sector is relatively bleak, we expect it to be a case of 'steady as she goes' for the rest of the West Coast's key industries.

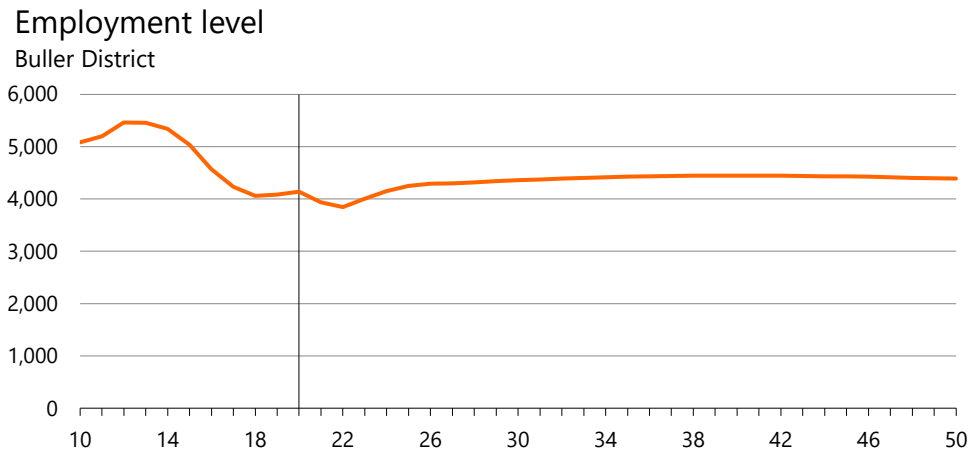
# Employment

In this section we describe our employment forecasts for the District. These are based on our macroeconomic forecast described previously, and our regional forecasting methodology described in Appendix 1.

## Employment fell sharply over the past decade

Employment in Buller fell sharply over the past decade due to redundancies in coal mining and cement manufacturing. Between 2013 and 2018, employment fell by 26% or 1,400 jobs in Buller, at a time when employment was growing strongly at the national level.

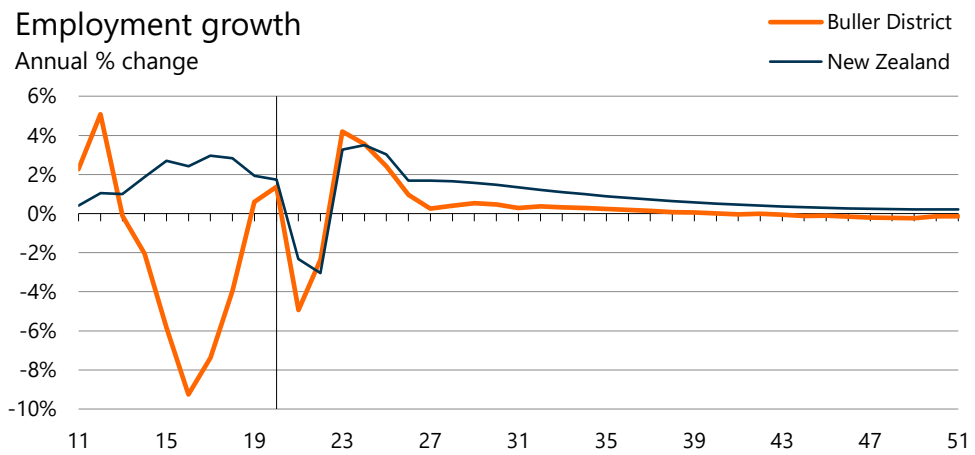
**Chart 2**




As the COVID-19 induced recession begins to bite, we expect to see job losses in 2021 and stretching into 2022. In Buller District, we forecast a decline of -4.9% in 2021 and -2.4% in 2022, followed by a bounce back of 4.2% in 2023. Nationally, we expect a slightly lesser decline of -2.3% in 2021 followed by -3.0% in 2022. This means that the fall in employment is expected to be slightly sharper than the national average, and likewise the recovery in Buller will be slightly stronger.

Over the long term, we expect minimal employment growth in Buller District, tipping into slight decline after 2040. This is underpinned by an assumption that higher carbon prices, stronger freshwater regulation, and ongoing decarbonization will adversely affect Buller's primary sector. Furthermore, an easing population reduces demand for services and adversely affects employment.

**Chart 3**



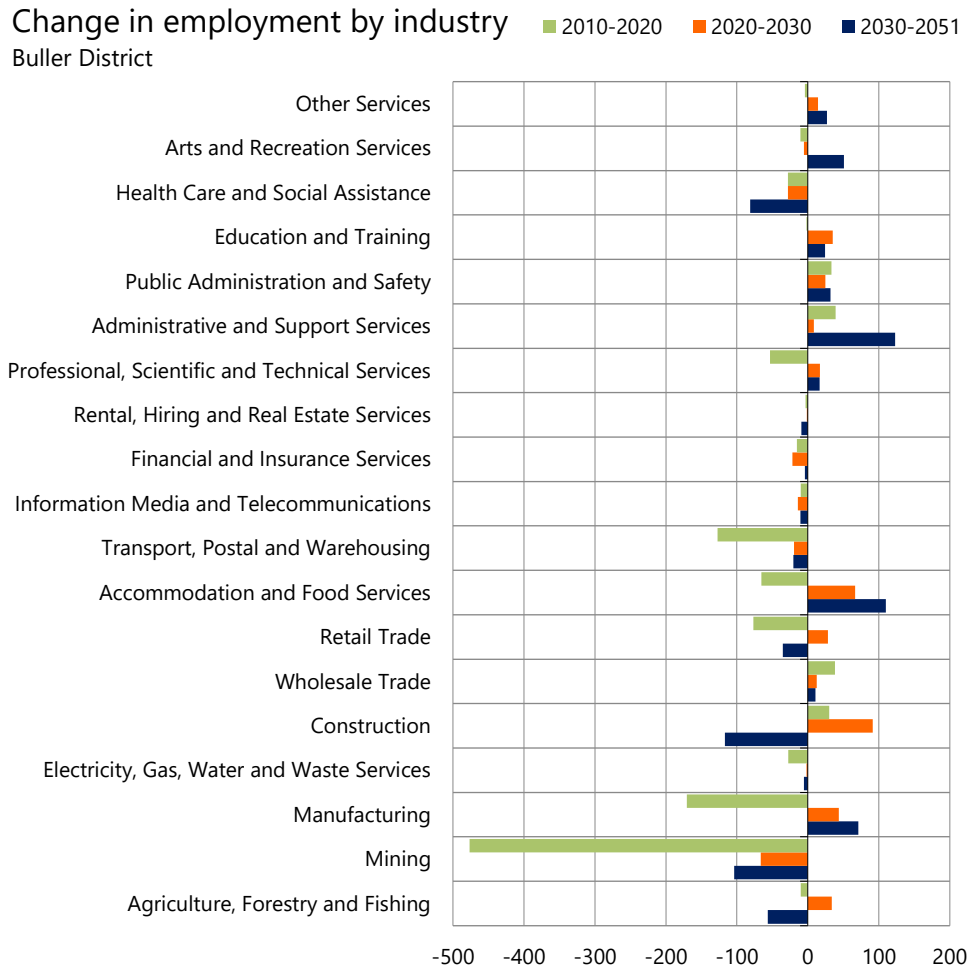

## Different industries lead growth

Over the past decade, employment growth in Buller has come from wholesale trade (+39 jobs), administrative and support services (+39), public administration and safety (+34) and construction (+31). Modest growth in those industries has been offset by job losses in other industries. The majority of job losses have come from mining (-477), manufacturing (-170), and transport, postal and warehousing (-127).

In the coming decade, the strongest job growth can be expected in accommodation and food services (+67) and construction (+92). Further job losses in the mining industry are expected in this period, with 66 jobs shed.

Looking into the long term, over 2030 to 2051, the strongest job growth is expected in administrative and support services (+123), accommodation and food services (+110), and manufacturing (+71). Further decline is expected in mining (-104), as well as declines in construction (-117), and health care and social assistance (-81). The declines in construction and health are expected to occur on the back of an easing population, as there will be a fewer people demanding those services.

**Chart 4**




## Industry composition will gradually change

Changes in employment by industry will gradually change the composition of Buller's economy. Agriculture, forestry and fishing is currently the largest industry, accounting for 16% of employment in the District in 2020. This is forecast to ease to 15% by 2051, and at this point will still be the District's largest industry. Construction is currently the second largest industry, with 11% of employment in 2020, and expected to ease to 10% by 2051. Accommodation and food services is forecast to grow from 10% of Buller's employment in 2020 to 14% in 2051, overtaking construction to become the second largest industry.

# Population

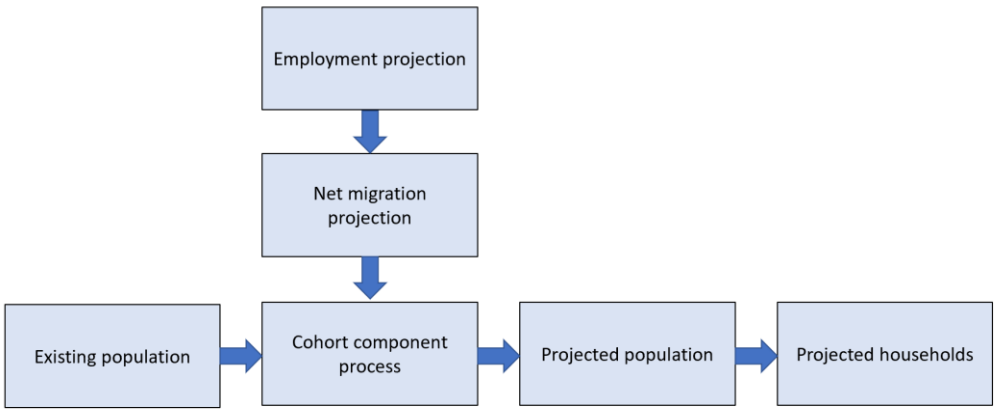
## Our approach

This section describes Infometrics demographic projection approach in broad terms. Infometrics takes a unique approach to projecting population, by firstly projecting employment growth, which in turn informs projected volumes of net migration. Consequently, these population projections are essentially informed by the economic prospects of a district.

Employment is forecast using our regional employment forecasting methodology, described in Appendix 1. Our demographic projection approach is described in greater detail for technical users in Appendix 2.

Having derived these employment and net migration projections, a conventional cohort component approach is employed to project population and household numbers. This process is summarised in Chart 5 below.

**Chart 5**



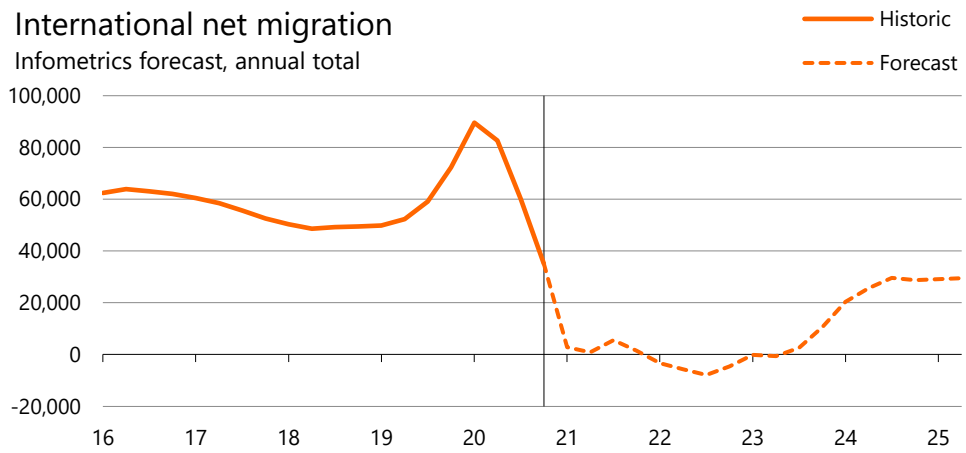

## International migration forecast

Long-term international net migration to New Zealand is forecast by considering a wide range of factors affecting the New Zealand and global economies.

In the near term, COVID-19 is the most significant influence on international net migration. We expect that heavily reduced international flight schedules, restrictions on international movements, and a general reluctance to migrate will drive net migration to negligible levels over 2021 to 2023. As global travel slowly resumes and the New Zealand economy recovers, net migration is expected to slowly return to our long term forecast level of 30,000 people per annum from 2025 onwards.

While recent historic inward net migration levels in excess of 60,000 people per annum are unlikely to be sustained in the long term, given projections of steady employment growth and an ageing population, we expect sustained positive net migration well into the future, particularly with the aid of favourable work visa conditions.

**Chart 6**




Migration is apportioned to territorial authorities using a mix of two approaches. Firstly, historic migration trends are applied to forecast the volume of non-employment-driven migration, such as people moving into the district for retirement or out of the district for study. Secondly, forecast labour market shortfalls are used to forecast the volume of employment-driven migration, such as people moving to take up employment opportunities. Employment-driven migration is also adjusted slightly to account for commuting patterns between districts. For both employment-driven and non-employment-driven migration, Stats NZ's projected age and sex profile of migrants to a particular district is assumed.

## Ethnicity data from Census requires caution

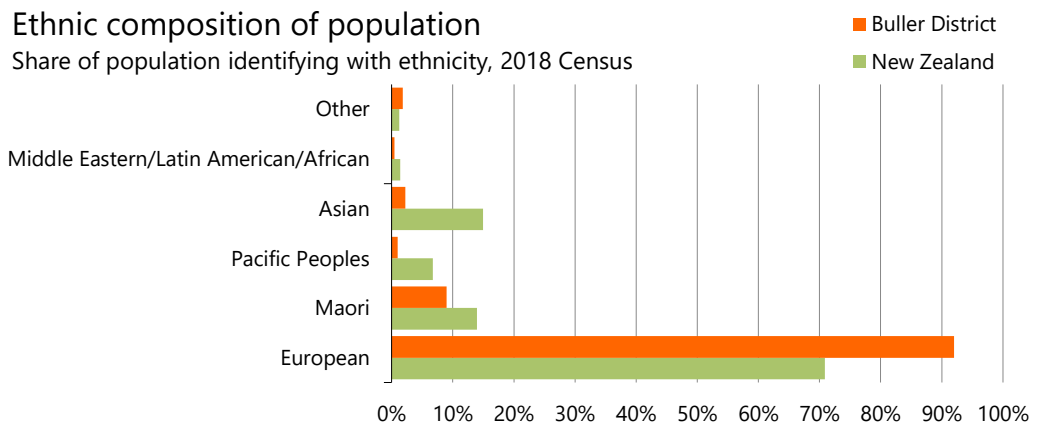
The ethnic makeup of the population can be gleaned from Census data. Ethnicity is subjective concept, based on what an individual identifies with at a particular point in time. This can be subject to external influence, notably the unofficial campaign during the 2006 Census to establish 'New Zealander' as an ethnicity. This has had a distortionary effect on both 2006 and 2013 Census results, as the New Zealander ethnicity attracted people previously identifying with a variety of different ethnicities. This means that we can't confidently interpret changes in ethnicity between 2013 and 2018 as representing a change in the ethnic makeup of the population.

## Buller's population is predominantly European

The ethnic composition of Buller District's population is notably different to that of New Zealand overall. In Buller, 92% of the population identify with European ethnicity, compared to 71% nationally. Accordingly, a smaller share of Buller's population identifies with non-European ethnicities than the national average. 9% of Buller's population identifies as Maori, compared to 14% nationally. 1% of Buller's population identifies as Pasifika, compared to 7% nationally.

Note that individuals can identify with more than one ethnicity, so percentages add up to more than 100%.

**Chart 7**




## Population of Maori descent has grown

The Census also collects data on Maori descent, which is less likely to be distorted by contemporary trends. This indicates that the Maori population in Buller has been steadily increasing, up by 138 between 2006 and 2013, and 141 between 2013 and 2018, to reach 1,236 in 2018.

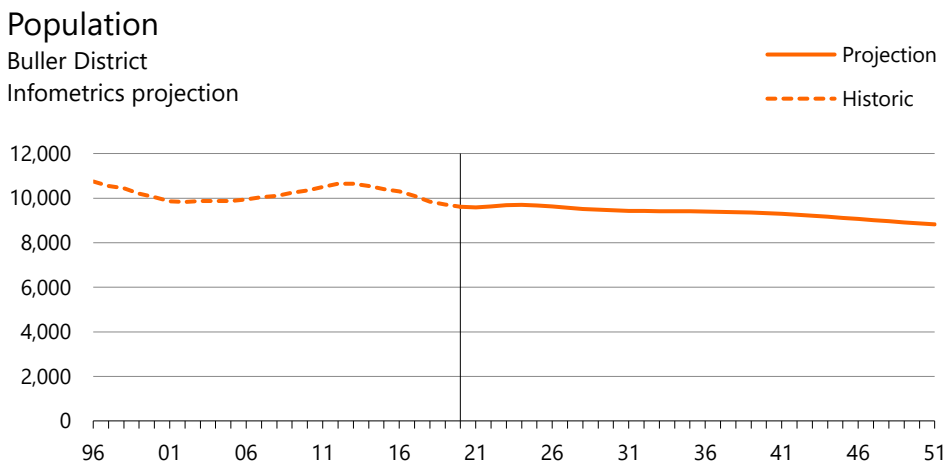
## Buller's population growth has been volatile

Buller's population growth has been relatively volatile over the past 25 years. The population was in steady decline up to 2002, but began to grow over the period 2006 to 2012 on the back of a boom in coal mining. As jobs were shed in coal mining and other industries, the population went into decline again, reaching a population of 9,610 in 2020. This represents the District's lowest population in over 25 years, and approximately 1,000 fewer residents than at the previous peak in 2012.

## Population set to ease

Buller's population is forecast to be relatively stable over the coming decade, holding at around the 2020 level of 9,600. However, due to a weak outlook for employment growth, we expect the District's population to ease for the remainder of the projection period. The rate of decline is projected to be very weak initially, averaging 0.1% per annum for the 2030s and building up to 0.5% decline per annum in the 2040s. This ultimately leads to a smaller population of 8,800 in 2051.

**Chart 8**

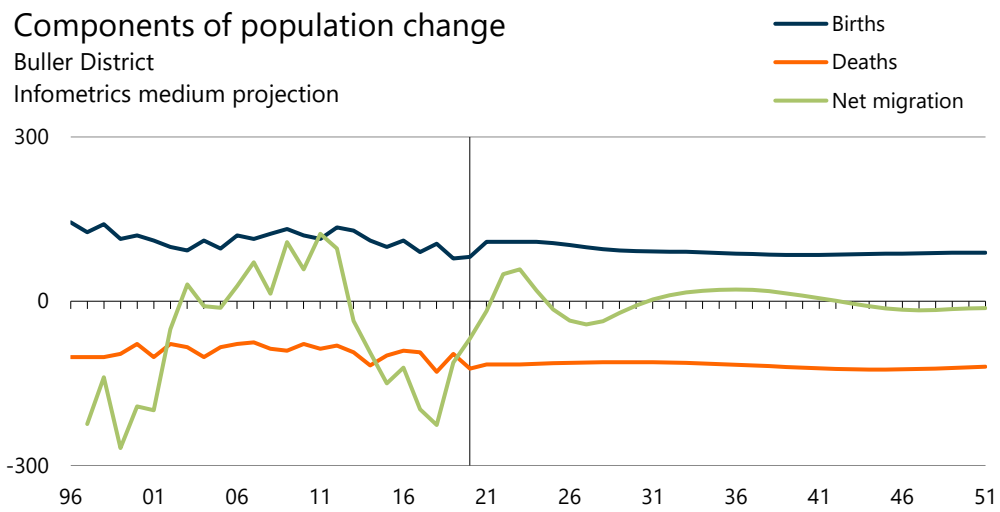



## Population drivers

Over much of the past 25 years in Buller, births have exceeded deaths, meaning that positive natural increase has contributed towards population growth. However, reduction in the population of childbearing age has led to a strong decline in the number of births since 2012. At the same time, deaths have been gradually increasing as the older-age population increases. The combined effect has been that deaths began to exceed births in 2017 and this deficit is projected to further increase over time. Net migration into the District has been highly volatile in the past, associated with changes in employment.

As the population ages and eventually retires from the workforce, a modest wave of positive net migration in the 2030s is expected, bringing in people to take the place of those retiring from the workforce. This wave is assumed to take place on the back of demand for workers, but this does rely on efforts to raise and maintain the profile of the District to international and domestic migrants. This may be aided by the District's quality of life and availability of desirable lifestyle block properties.

**Chart 9**

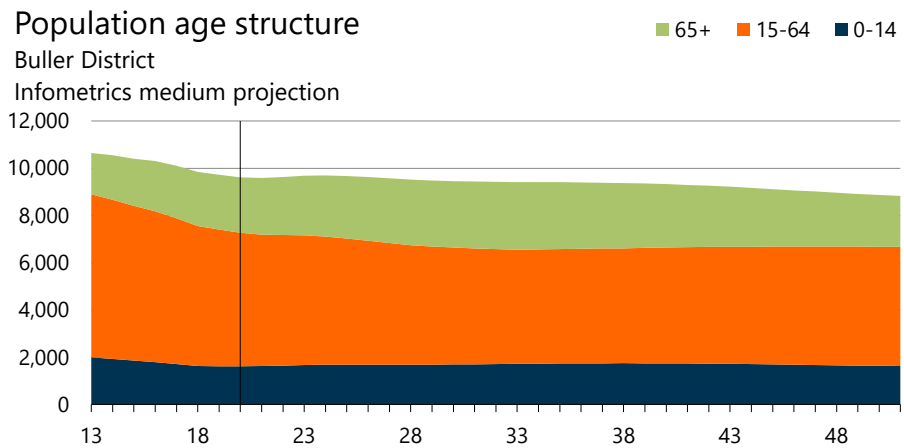



## Projection of population by age

Buller's population loss in the past decade largely took place in the working age and children population groups. Between 2013 and 2020, the 0-14 year old age group declined by 19%, and the 15-64 year old age group ("working age population") declined by 18%. This indicates that many of the workers who lost their jobs left the District and took their family with them.

The 65 years and older population grew by 33% between 2013 and 2020, and is forecast to grow a further 22% until peaking in 2033. The 0-14 year old population is forecast to grow slightly to 2051. the working age population is forecast to decline further, from just over 5,600 in 2020 to just over 5,000 in 2051.

**Chart 10**

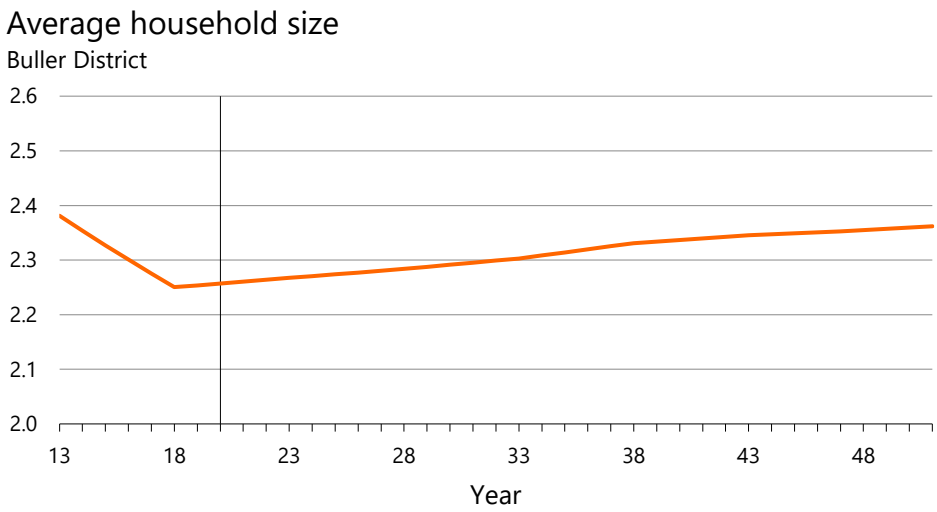



## Household size set to rise

Buller's average household size declined over the past decade, as families left the district and older couple or single person households dragged down the average. Over the

coming 30 years, average household size forecast to rise slightly as younger migrants come into the District to replace retiring workers, particularly in the 2030s.

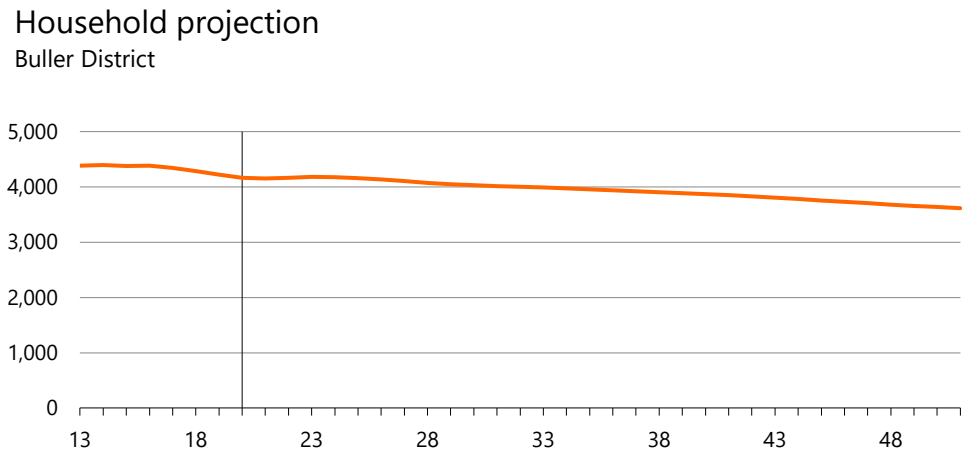
**Chart 11**




## Number of households declines faster than population

The number of households in Buller is forecast to decline faster than the population, as the increases in average household size means fewer households will incorporate the same population. This is in important indicator for the District Council of the number of residential rating units and properties to service. The number of households is forecast to decline from 4,200 in 2020 to 3,600 in 2051.

**Chart 12**




## Booming housing market

Buller's housing market has been booming since the end of COVID-19 lockdown, with border closures and strong house price growth leading to a renewed interest in the regions. House sales in Buller were at their strongest in eight years over the year to September 2020. This strong level of interest may lead to a small boost to population

over the short term, however, employment remains the key determinant of population over the long term.

# Crime trends

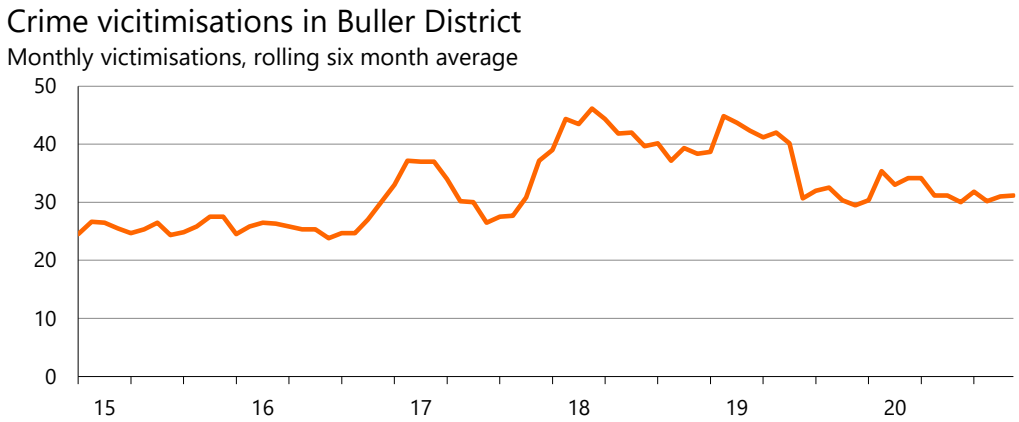
Data on the number of crimes taking place have been sourced from the New Zealand Police, covering the period June 2014 to October 2020. Crime data can be assessed from two perspectives – victimisations, which are based on the location of the crime taking place; or proceedings, which are based on the location the perpetrator was apprehended. Crimes without a distinct victim are not counted in victimisations, such as some driving or drug offences. Victimisations are an indicator of the effect of crime on local residents and visitors, whereas proceedings reflect the incidence of crimes taking place in the area.

Across the West Coast Region, the most common crimes subject to proceedings do not have a distinct victim. Over the period of analysis, the most common types of crime were dangerous driving (10% of all proceedings), drunk or drugged driving (9%), common assault (8%), disorderly conduct (6%), threatening behaviour (6%) and breach of bail (5%).

## Victimisations

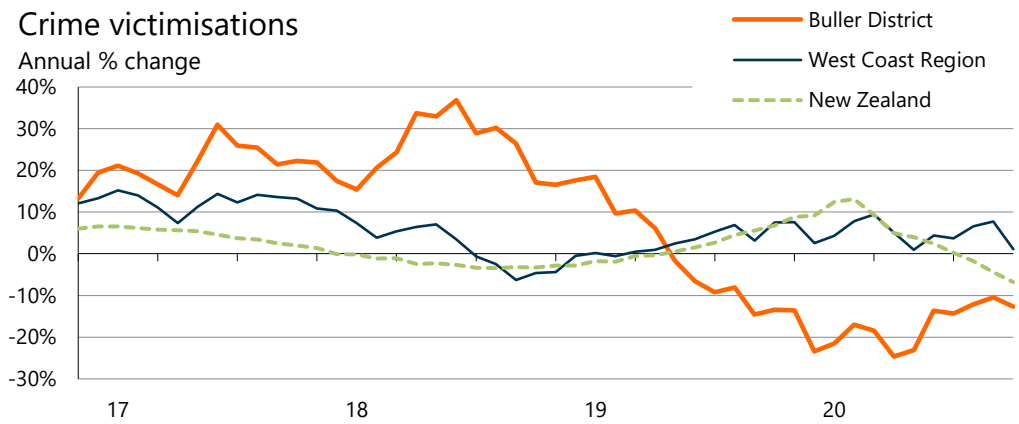
Victimisations are a measure of the number of crimes which have affected a distinct victim. Victimisations in Buller District rose to elevated levels over 2018 and 2019, averaging over 40 per month. Victimisations eased heading into 2020, and remain at around 30 per month.

**Chart 13**




The increase in crime victimisations over 2018 and 2019 corresponded to an annual increase of 20-30%, well above the national and regional growth rate in victimisations. Since 2019, the decrease in victimisations in Buller has seen the annual growth rate fall well below the national and regional trends.

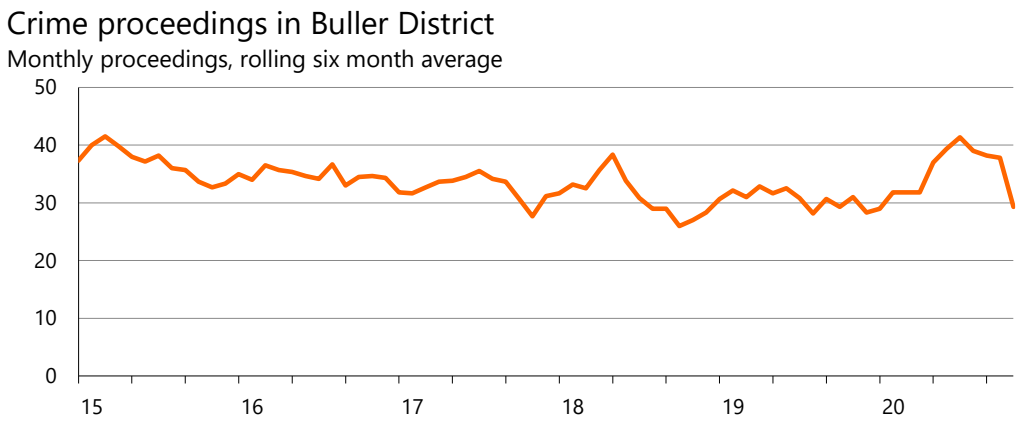
**Chart 14**




## Proceedings

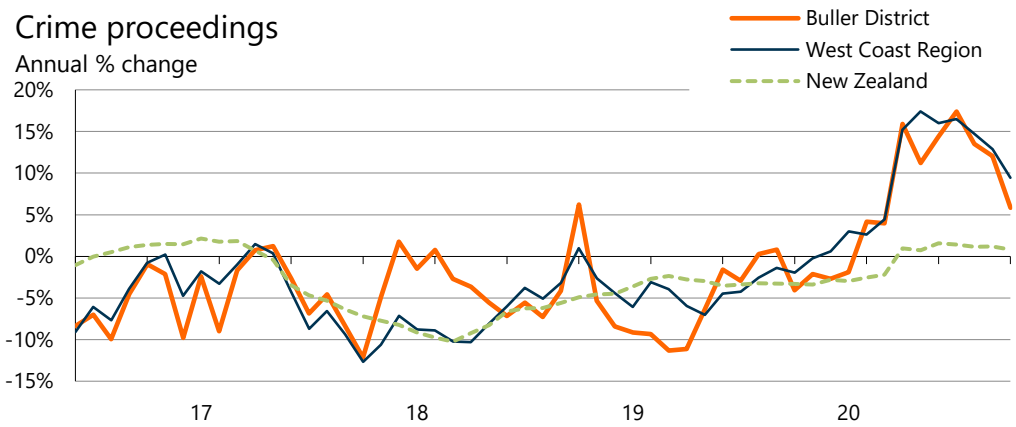
Crime proceedings are another indicator of crime, based on the number of proceedings initiated by Police. Proceedings include crimes without a distinct victim, such as drug crimes. Crime proceedings in Buller have been relatively steady over time, sitting at around 30-40 per month since 2015. Proceedings rose slightly in 2020.

**Chart 15**




Over the past four years, growth in proceedings in Buller has largely followed the regional trend. Proceedings increased by around 15% in 2020 in both Buller and West Coast Region.

**Chart 16**

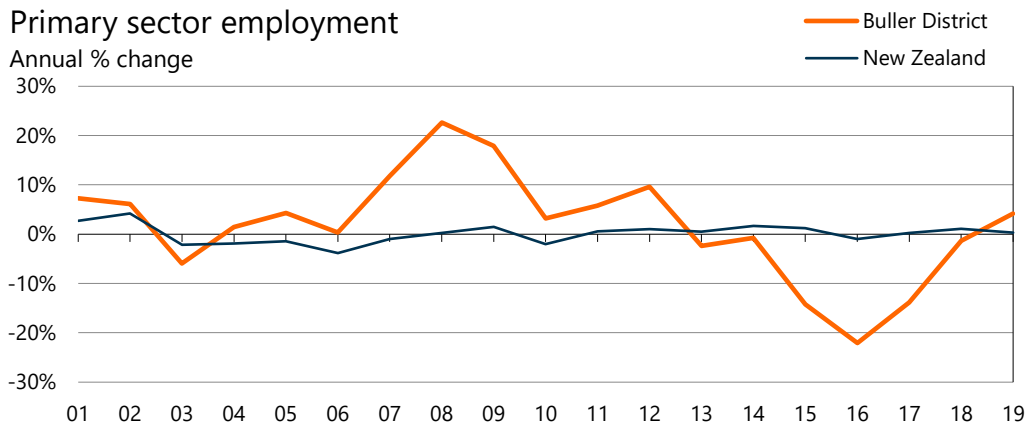

Crime proceedings
Annual % change
Buller District
West Coast Region
New Zealand
20%
15%
10%
5%
0%
-5%
-10%
-15%
17
18
19
20

# Primary sector focus

In this section we focus on Buller's primary sector, analysing its industry makeup and historic performance. We then focus on each specific industry within the sector.

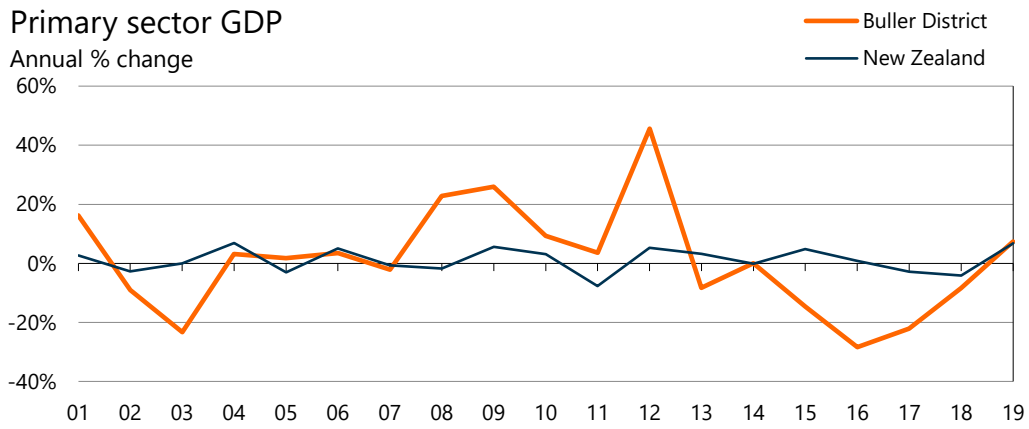
Employment in Buller's primary sector has grown overall in the past 20 years, however significant job losses in mining since 2013 have dragged down growth. Nationally, primary sector employment growth has been muted as productivity improvements have enabled GDP to grow faster than employment.

**Chart 17**




Primary sector GDP growth in Buller has been more volatile than employment, highly sensitive to swings in commodity prices such as a surge in coal prices in 2012. Nationally, the primary sector is more diverse and thus less subject to individual commodity price swings, thus the rate of change in GDP has been more muted compared to Buller.

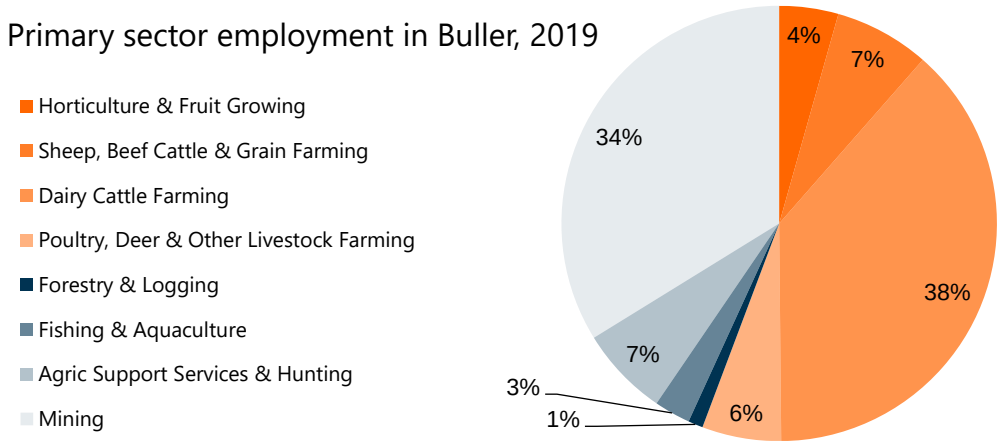
**Chart 18**




Buller's primary sector is dominated by dairy cattle farming and mining, each responsible for over a third of the District's primary sector employment. Trailing well

behind are sheep, beef cattle and grain farming on 7%, and agriculture support services and hunting on 7%.

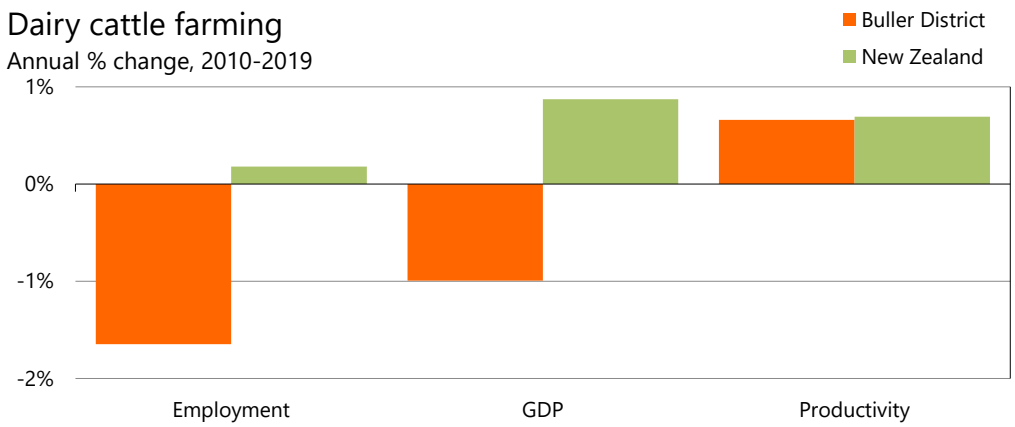
**Chart 19**




## Dairy cattle farming

Dairy cattle farming supports 385 jobs in Buller, and has been in decline over the past decade despite modest growth nationally. Productivity per worker has increased at a similar pace to the national growth rate, meaning that GDP hasn't declined as much as employment.

**Chart 20**

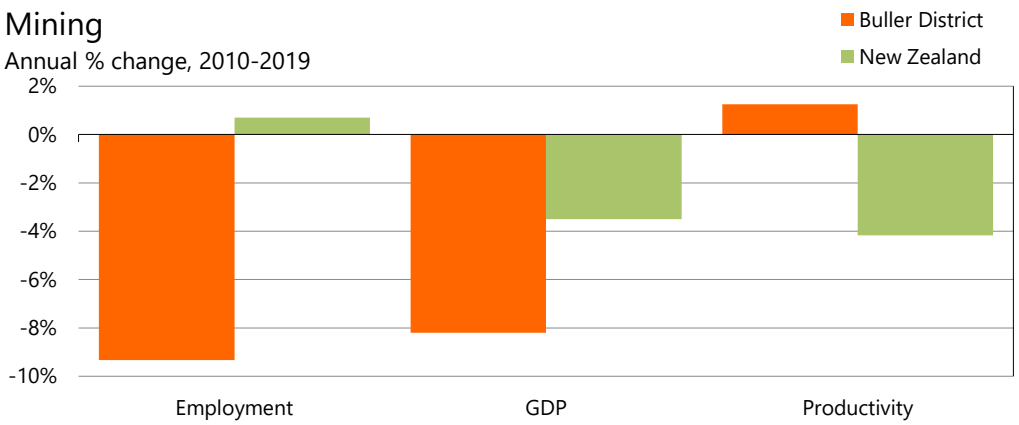



## Mining

Mining directly supports 338 jobs in Buller, with the majority of 280 involved in coal mining. A minority are spread across gold mining, quarrying, exploration and support services.

Mining employment and GDP in Buller has fallen sharply over the past decade as commodity prices have fallen, adversely affecting coal and gold. Nationally, the mining sector has been less affected by commodity price falls as it is dominated by quarrying for domestic demand such as construction.

**Chart 21**

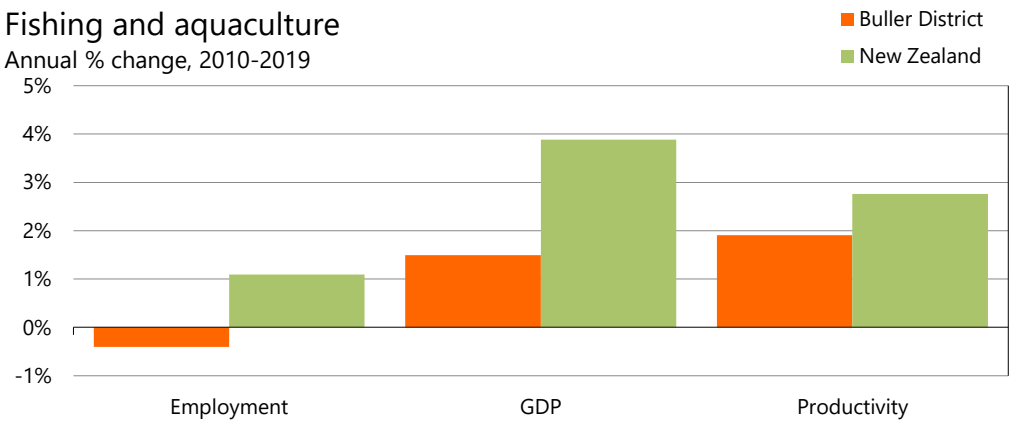



## Fishing and aquaculture

Fishing is a relatively modest employer in Buller, with 27 jobs directly involved in fishing in 2019. However, there are a further 75 jobs involved in seafood processing which likely rely on local fishing activity.

GDP from the fishing industry has grown by a solid 1.5% per annum over the past decade, enabled by steady productivity increases. Fishing industry employment has eased slightly, running against a national trend of growth.

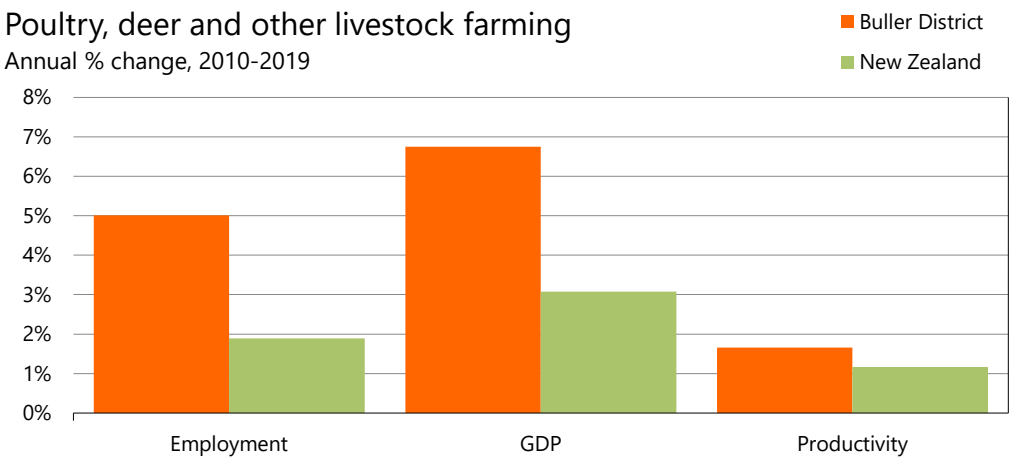
**Chart 22**




## Poultry, deer and other livestock farming

Poultry, deer and other livestock farming employed 59 people in Buller in 2019. In Buller, this industry is predominantly engaged in horse farming, followed by deer farming and beekeeping. The industry has grown strongly over the past decade, with employment up by 5.0% per annum and GDP up by 6.7% per annum, both well ahead of the national growth rate for the industry. Productivity in the industry in Buller has also grown faster than the national rate.

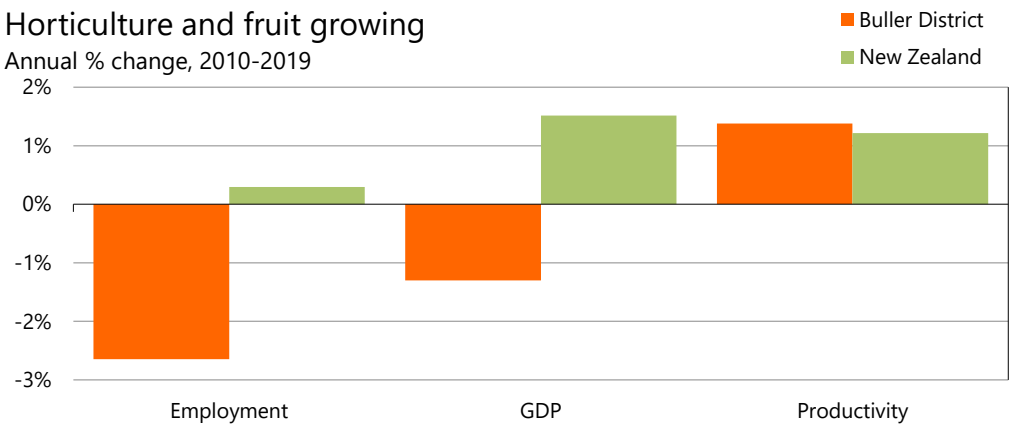
**Chart 23**




## Horticulture and fruit growing

Horticulture and fruit growing employed 44 people in Buller in 2019. In Buller, this industry predominantly involves production of vegetables under cover. The industry has contracted in Buller over the past decade, with employment down 2.6% per annum and GDP down 1.3%, compared to a trend of expansion nationally. Despite the contraction in Buller, productivity in the industry has continued to improve in line with national productivity improvements.

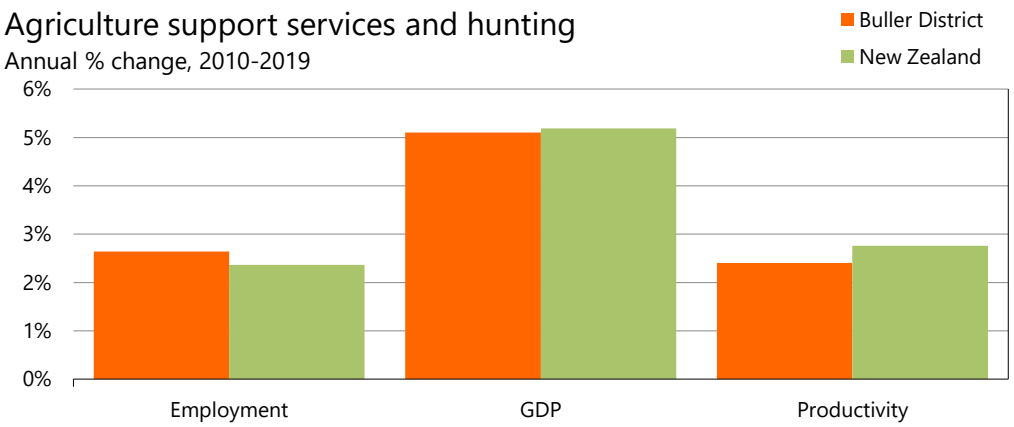
**Chart 24**




## Agriculture support services and hunting

Agriculture support services and hunting employed 67 people in Buller in 2019. This industry encompasses a range of support services such as spreading fertiliser or harvesting crops. The industry has grown solidly in Buller over the past decade, with employment growing 2.6% per annum and GDP growing 5.1%, closely following the national trend for the industry. Productivity growth also followed the national trend, up by 2.4%.

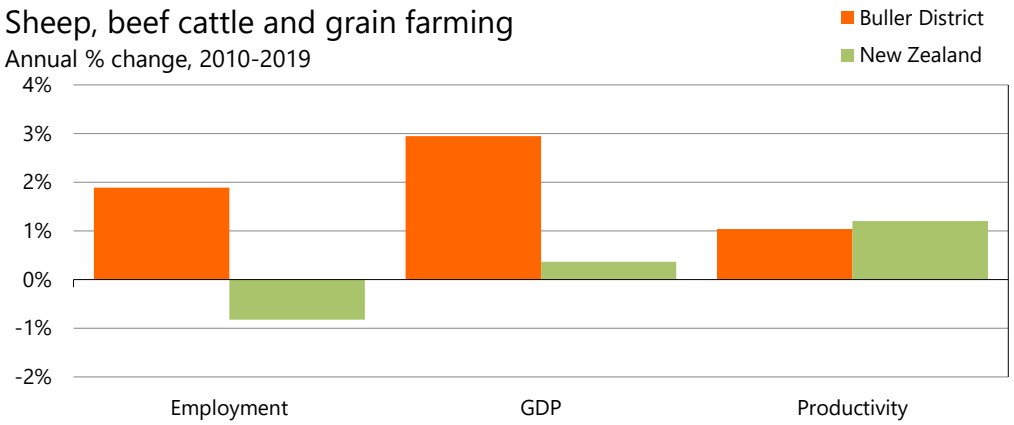
**Chart 25**




## Sheep, beef cattle and grain farming

Sheep, beef cattle and grain farming employed 71 people in Buller in 2019. In Buller, the industry predominantly involves beef cattle farming. The industry has grown steadily in Buller, with employment up by 1.9% per annum over the past decade, and GDP up by 2.9%. Productivity in the industry in Buller has grown in line with the national trend.

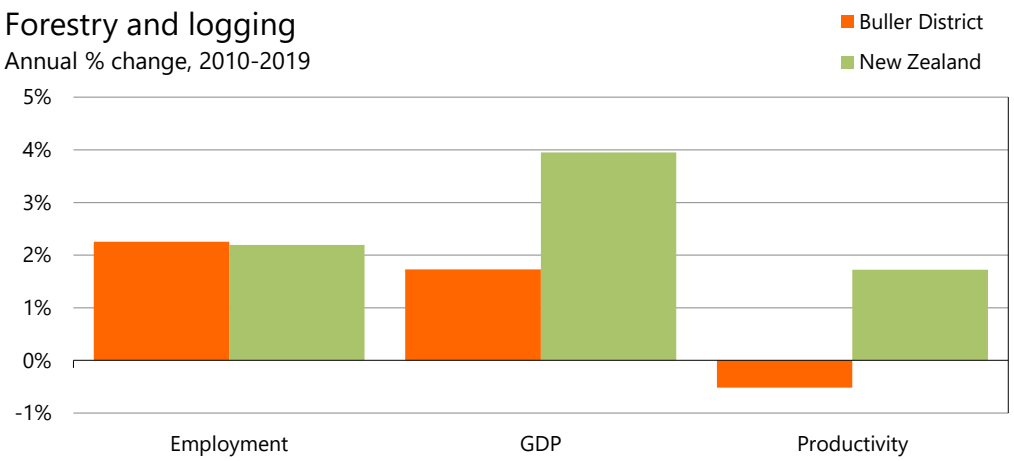
**Chart 26**




## Forestry and logging

Forestry and logging employed 11 people in Buller in 2019. The industry experienced significant decline in the early to mid 2000's due to the cessation of native timber logging. Employment has been steady over the past decade, growing by 2.3% per annum on average, while GDP has grown 1.7%. Productivity in the industry in Buller has declined over the past decade, bucking a national trend of productivity growth.

**Chart 27**




## Outlook

The primary sector faces a number of headwinds over the coming decades. More stringent regulations around land use to protect freshwater mean that agricultural activities will be required to reduce their intensity. Decarbonisation in New Zealand and globally will adversely affect demand for coal, although it is unclear how the production of steel globally will continue without coal. Finally, a more inclusive carbon pricing regime and increasing carbon prices will increase costs across emissions intensive aspects of the primary sector from 2025. While these factors may contribute to expanded forestry activity, forestry tends to have a lower employment per hectare than other primary sector land uses. This means that a decline in primary sector employment and GDP can be expected over the next 10-15 years, and declines in productivity may be expected too due to a reduction in farming intensity.

# West Coast Region overview

The West Coast is a region with a strong connection between its economy and its land, a theme that has pervaded throughout its human history. The Region maintains a strong connection to the land in its key industries today – agriculture, mining and tourism. With the exception of tourism, these industries are expected to largely carry on throughout the COVID-19 economic crisis as the world continues to demand our food and energy exports. Over time, the region's tourism sector will recover, but the prolonged nature of the recovery means that the sector will have to adapt to a new transitionary state, rather merely wait for a return to business as usual.

In the near term, the region faces a construction boom, with provincial growth fund funding directed into a range of non-residential and civil construction projects. These projects will renew and enhance existing community infrastructure, as well as creating long-term employment in existing industries such as fishing, mining and tourism; and new industries such as whitebait farming. Long term success of these initiatives may enable a stronger employment outlook than has been forecast.

Looking out into the long term, the Region faces two interrelated challenges – employment and population decline. The Region's reliance on land-based industries makes employment vulnerable to the introduction of environmentally-focused regulations on several fronts. The National Policy Statements on Freshwater Management and Indigenous Biodiversity are expected to lead to pastural land being retired on river and wetland margins, and de-intensification of farming on the remaining land to reduce leaching into waterways. The full inclusion of agriculture in the emissions trading scheme from 2025 will add costs for the agriculture industry to offset their emissions, further incentivizing deintensification. The Zero Carbon Amendment Act is likely to herald further strong moves in this space to reduce emissions. The combined effect of these changes is likely to be a reduction in agricultural production and therefore lower employment, both on-farm and off-farm in processing and support services. There is potential for a short-term employment boost as these changes are implemented – with jobs created in areas such as environmental assessment, fencing, and environmental restoration.

Moves towards decarbonization under the Zero Carbon Amendment Act may also threaten coal mining activities. While aiming to achieve laudable environmental goals, the cumulative effect of these regulations will also be to weaken employment across several of the region's largest industries. This has a flow on effect on population, as weak to negative employment growth reduces the pull for migration into the Region.

The Region's population growth has recently been weak to negative as the population ages and migration into the Region slowed, particularly as coal mining employment slumped after coal prices fell in 2013. The ageing nature of the Region's population means that deaths will increasingly outnumber births, tipping the population into weak decline by the 2050s unless there is a substantially positive net migration flow. Sustained positive net migration would require a strong demand for workers into the region, but this seems unlikely given the combination of factors contributing to flat to declining employment. It may become increasingly important to plan for the eventuality of a smaller population by looking strategically at what services and amenities are most important for the community to retain as the population ages and declines. On the

upside, the population is demonstrable mobile and resilient, as evidenced by a population shift into Buller in the early 2010s as coal mining expanded, and a shift back to Westland and Grey Districts after coal prices collapsed. These qualities will be invaluable in the coming years, with uneven employment growth expected going forward.

# Appendix 1. Employment forecasting methodology

Infometrics has developed a series of models to robustly forecast regional economic performance. We have augmented our forecasting approach to account for the potential impact of COVID-19 on regional economies.

We first forecast the overall macroeconomic conditions of the New Zealand economy. Then, we model this down to industries at a national level. We then break down our national industry forecasts to industries at a city and district level, using an array of forecasting models over the short and long term.

## Forecasting the macroeconomy

Infometrics maintains a macroeconomic forecasting framework that underpins our five-year forecasts of activity across the national economy. Our framework accounts for the relationships between different sectors of the economy and their responsiveness to one another. These include the labour market, households, businesses, government, the international trade sector, and financial markets.

In times of economic upheaval, we refine the output from the framework based on expert input from our forecasting team, their knowledge of rapidly changing trends in the economy, and the insights we gain from our interactions with central government, Councils, Economic Development Agencies and private sector clients.

Overseeing the forecasting process and framework is Gareth Kiernan, who has been forecasting the New Zealand economy for more than 20 years. The framework provides quarterly forecasts of GDP, employment, unemployment, and a range of other macroeconomic indicators up to 2025.

We have described our macroeconomic forecast in Macroeconomic overview and summarised our assumptions below.

### COVID-19 macroeconomic assumptions

We have employed the following the macro-economic assumptions in modelling the effects of COVID-19 on the New Zealand economy as follows:

- **No further lockdowns** – we have not modelled further nationwide lockdowns in the remainder of the year to March 2021 or the following year.
- **Global demand for food products holds up, but non-food exports decline** – our forecast of a 16% contraction in non-food manufacturing exports volumes over the year to March 2021 remains unchanged, while the forecast for the year to March 2022 is revised to a decline of 8.1%.
- **Foreign tourism remains off the table** – the ongoing closure of New Zealand's border to all but returning citizens and residents, essential workers and a limited number of exemption holders, mean that we have revised our estimates of the

reduction in foreign tourism demand to 99% for the year to March 2021, and 91% for the year to March 2022.

- **Domestic tourism spending increases** – continued constraints on the ability of New Zealanders to travel internationally, along with the strong demand for domestic travel, have led us to revise our estimate of 21% decline in domestic tourism spending, to a 3.3% increase in this spending category in the year to March 2021, and a 12.3% increase in the following year.
- **International education revenue halves** – we retain our forecast of a 49% reduction in international education revenue in both the year to March 2021 and the year to March 2022.
- **Domestic education demand increases** – we have estimated the increase in domestic demand for tertiary education at 8.3% for the year to March 2021, and 4.4% for the year to March 2022.
- **House prices growth will continue** – the combination of government support measures and market forces has caused us to revise our assumption of an 11% decline in average house prices by the end of 2021. Instead, following the sharp price increases of the past two quarters, our forecast is for house price inflation of between 0% and 2%pa for the two years to March 2023.
- **Construction gets a boost** – the heat in the housing market will have a buoyant effect on residential construction, counteracting the effects of the sharp decline in international net migration. We have therefore revised our estimate of a 35% decline in new dwelling construction, to a 16% decline in the year to March 2021 and an 8% decline in the following year. Non-residential construction is likely to be boosted by the New Zealand Upgrade Programme, COVID Response and Recovery Fund (CRRF), and the acceleration of various projects earmarked for funding from the Provincial Growth Fund.
- **Government comes to the party** – our modelling includes the wage subsidy and its subsequent extension, the COVID-19 Income Relief Payment and increase social welfare benefits. Collectively these benefits have injected close to $20 billion into the national economy in the current financial year.

# Measuring impacts on individual industries

The pandemic will affect industries differently. To measure this, we have used Infometrics' general equilibrium (GE) model, which is designed to measure the impact of economic shocks on individual industries. We introduce shocks to the model, including a sharp decline in foreign tourism, declines in international education and non-food commodity exports, and a fall in productivity across affected industries. We also temper these shocks through the introduction of support measures such as the wage subsidy and an increase in benefit payments.

The GE model estimates the combined impact of these factors on future economic output and employment across 54 industries. In this sense, the GE model breaks down the national macroeconomic forecasts of GDP and employment to industry level.

Infometrics' GE model is maintained by one of New Zealand's foremost econometricians, Dr Adolf Stroombergen.

# Measure the impact on regions and districts

Regions will also be impacted differently by COVID-19. Those with a large tourism industry, for example, will be hardest hit. To measure regional impacts, we draw on our Regional Forecasting Model (RFM), an econometric model that breaks down national industry forecasts to territorial authority level.

The RFM draws on historic trends, patterns and relationships, and projects these into the future. It creates multiple forecast models for every territorial authority and industry combination and using machine learning techniques, selects and applies the model which is historically determined to have best predictive ability. It then produces forecasts of GDP and employment across 54 industries for each territorial authority up to a predetermined point in the future, e.g. 2025 or 2030.

Our regional forecasts use a combination of two approaches for the short-term and long-term, described below.

## Short term regional forecasts (2020-2025)

In the first step of the process we develop forecasts of employment at the national level by 54 industries. Using econometric techniques, we develop approximately 50 separate statistical models for forecasting employment in each industry. The models draw on historic trends, patterns and relationships and extend these into the future.

Using machine learning we rank the models according to their track record of forecasting future employment in the industry. We can measure each model's forecasting ability by using historical data. For example, using data from 2000 to 2016 we can forecast employment to 2019 with each model and then compare the forecasts against actual numbers from 2017 to 2019. The model with the best track record is used to produce the final forecast for each industry to 2025. The industry forecasts are adjusted to ensure they are consistent with Infometrics' view of total employment growth over the forecast period.

In the second step we develop forecasts by territorial authority and region which are consistent with our national forecasts. We use a similar technique as in the national forecasts developing 50 models for each combination of 485 ANZSIC industries and 66 territorial authorities. Slightly different techniques are used for the various industries in the regions which accounts for different industry drivers.

The future performance of *agriculture, forestry, fishing, mining and manufacturing* industries are influenced predominately by macro-economic conditions which are not specific to local conditions. For example, a boost in forestry from strong demand in China is likely to benefit forestry in all regions. Hence the models we develop for these industries are driven by nationwide industry trends and the extent to which the regional trends historically deviate from the national. Using machine learning we choose the model which is most effective at mimicking and predicting these components.

The regional forecasts for *service industries* (including trade, accommodation, education, health and professional services) consider more local drivers including population growth, local macroeconomic conditions and visitor numbers.

The regional forecasts for *construction* industries incorporate Infometrics' forecasts of construction work-put-in-place from Infometrics' Regional Construction Outlook. They also take population growth into consideration.

After we have generated forecasts for each industry/territorial authority combination we ensure they are mathematically consistent with our national level industry forecasts.

## Long term regional forecasts (2025+)

The method used in the short-term forecasts draws heavily on a statistical approach to forecasting: they draw on historic trends, patterns and relationships and extend these into the future. This statistical approach becomes less accurate with longer forecast horizons. Therefore, we modify the forecasts from 2025 onwards to ensure consistency with the outputs of Infometrics' general equilibrium model of the New Zealand economy (ESSAM).

ESSAM considers the main inter-dependencies of industries in the economy, such as flows of goods from one industry to another, plus the passing on of higher costs in one industry into prices and thence the costs of other industries. The model presents a picture or scenario of the economy for the target years (in our case 2030 and 2050) based on plausible assumptions of economic factors including international commodity prices, population growth, carbon price, automation, changes in energy efficiency, and substitution between four energy types (coal, oil, gas and electricity). ESSAM's estimate of employment by industry in 2030 and 2050 provides a benchmark for our long-term employment projections. Some of the key macro-economic assumptions used by the model are shown in Table 1.

**Table 1. ESSAM macro-economic assumptions and outputs**

| Indicator | 2025-2030 | 2030-2050 |
|---|---|---|
| *Growth rates* | | |
| Population | 1.0%pa | 1.0% pa |
| Labour force | 0.7%pa | 0.46%pa |
| GDP | 2.9%pa | 1.7%pa* |
| World trade | 2.7%pa | 2.5%pa |
| Public investment | 3.0%pa | 2.5%pa |
| Government consumption | 2.1%pa | 1.7%pa |
| Investment in dwellings | 2.0%pa | 1.0%pa |
| *Real prices* | | |
| Oil price | US$110/bbl in 2030 | US$110/bbl in 2050 |
| Carbon price | NZ$100/tonne $CO_2$ in 2030 | NZ$200/tonne $CO_2$ in 2050 |

* These are model results, not input assumptions.

# Appendix 2. Demographic projection methodology

## Migration

The population projections draw on Infometrics' short- and long-term international migration forecasts.

In the short term, COVID-19 is the most significant influence on international net migration. We expect that heavily reduced international flight schedules, restrictions on international movements, and a general reluctance to migrate will drive net migration to around zero for 2020 and 2021. As global travel slowly resumes and the New Zealand economy recovers, net migration is expected to slowly return to our long-term forecast level of 30,000 people per annum from 2025 onwards.

Our long-term forecast considers a wide range of factors affecting both the global and the New Zealand economy. Although recent historic inward net migration levels in excess of 60,000 individuals per annum are unlikely to be sustained in the long term, given projections of steady employment growth projected and an ageing population, we expect sustained positive net migration over the long term, particularly with the aid of favourable work visa conditions.

Migration is apportioned to territorial authorities using a mix of two approaches. Firstly, historic migration trends are applied to forecast the volume of non-employment-driven migration, such as people moving at retirement. Secondly, forecast labour market shortfalls are used to forecast the volume of employment-driven migration, such as people moving to take up employment opportunities. For both employment-driven and non-employment-driven migration, Stats NZ's projected age and gender profile of migrants to the district is assumed.

### Labour Market Shortfalls

Labour market shortfalls exist when employers' requirement for labour exceeds the number of workers available at current wage rates. When labour market shortfalls exist in an area, additional labour, and hence population, is attracted to that area.

Infometrics estimates future labour market shortfalls by separately considering the projected supply of labour and the projected demand for labour (as measured by employment) and comparing these two factors.

As the starting point for estimating labour supply, Infometrics makes use of Stats NZ's published population projections by 5-year age group and gender.

Labour force participation rates (LFPRs) by age and gender are projected based on Stats NZ's national labour force projections. In addition, historic LFPRs for each region are analysed to identify their deviation from the national average. This deviation is applied to the national LFPR by age, to project regional LFPR by age. Historic averages for the unemployment rate in each region are analysed and projected forward. Projected LFPR

by age is applied to the Stats NZ population projection, and the projected unemployment rate is applied to this, in order to estimate labour supply.

This projection is undertaken for each region or territorial authority, enabling the balance between labour supply and demand (as measured by employment) to be assessed within each labour market area. In periods of insufficient labour supply within a territorial authority or broader regional labour market to meet projected labour demand, the area is projected to receive additional migration.

This additional migration is apportioned to regions or territorial authorities based on their respective share of the national labour market shortfall. At the same time, however, additional migration may be constrained by the Infometrics' international net migration forecast, meaning that a particular region may not necessarily receive sufficient inward migration to entirely eliminate its labour market shortfall.

Similarly, the projected LFPR and unemployment rates are applied to the additional migration, reflecting the fact that it is rarely possible to import only workers – instead these workers often come with family members, who may not necessarily be economically active. Examples in this regard might include stay-at-home parents, children and aged dependents. Furthermore, in some instances, migrants may not immediately gain employment following their move.

# Population

## Population Base

As a rule, the appropriate population to use for Council Long Term Planning (LTP) purposes is the estimated resident population (ERP). This represents all individuals who permanently reside in an area and could be considered a 'maximum' population, as a small percentage of these individuals are likely to be away at any given point in time.

Consequently, the Stats NZ 2018 Estimated Resident Population (ERP) is considered as the basis for the population projections. This estimate is produced by Stats NZ with the most recent available Census (2018) data, and births, deaths and migration that has been recorded since.

Given that the majority of population projection parameters from Stats NZ are published for five-year intervals, our projection model also operates at five-year intervals, from 2018 to 2053. We then make use of a cubic-spine statistical process to interpolate population to single years.

Stats NZ's population estimates for 2019 and 2020 are also included in the projection outputs.

## Fertility

Stats NZ publishes regional age-specific fertility rates, for five-year age groups. This includes an open-bounded 45+ age group. We have however chosen to apply this only to the 45-49 year age group. This ensures that a growing population beyond the age of fertility does not artificially inflate the projection of births. The impact of this change is considered negligible, particularly given that between 2012 and 2014, there occurred an average of only eight births per annum to women aged 49 and over across New Zealand. Similarly, we ignore births to mothers under the age of 15, due to a lack of reliable data regarding fertility rates in this age group. Again, this is not statistically

significant, as nationwide there were an average of only 21 births per annum recorded to mothers under the age of 15 between 2012 and 2014.

Throughout the projection period, we adopt Stats NZ's assumed gender ratio of 105.5 males per 100 females born – this is based on the historic average ratio at a national level. This natural phenomenon is commonly observed around the world, and is understood to be a function of slightly higher miscarriage rates for female children, rather than of selective abortion.

### Mortality

Projected age- and gender-specific mortality rates by region or territorial authority, as calculated by Stats NZ, are applied to accurately project the number of deaths.

## Households

### Living Arrangement Types

The number of households at SA2 or district level is projected by applying Living Arrangement Type Rates (LATR) to the projected population. At present, Stats NZ projects LATR to 2038 from the 2013 Census figures across two scenarios – A and B. Scenario A assumes that LATR remain constant into the future at 2013 rates, while Scenario B projects a linear change to 2038, based on observed historic trends and future expectations. These trends include delayed childbearing (discussed under Fertility above), decreased rates of single parenting, and improvements in life expectancy which enable older individuals to live independently for longer periods[2]. We follow the Stats NZ recommendation to use Scenario B for projection purposes, as this is considered more realistic. This means that the LATR used in the projections transitions up to 2038, and then remain constant at 2038 rates up to 2053.

Applying LATR to the population provides an estimate of the number of people in each living arrangement type; this is then translated this into the number of households based on expected family structures – for example, couple households consisting of two individuals. For other multi-person households, we follow the standard Stats NZ assumptions, and assumes 2.6 persons per household. Projected population figures are accordingly divided by the number of households to project average household size.

As a rule, the projected household size calculated in these projections varies somewhat from the 2018 Census measures. This variance can arise for several reasons:

1) Census counts are randomly rounded to the nearest multiple of 3, or supressed entirely, so as to ensure confidentiality of Census respondents. Census outputs such as average household size are however based on actual data, meaning that it is impossible for third parties to precisely replicate these outputs.
2) LATR projections are developed at a national level, representing an average across New Zealand. As a result, local patterns will differ – this can for example be driven by differences in ethnic makeup, with some non-European ethnic

[2] Full discussion available here http://archive.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalFamilyAndHouseholdProjections_HOTP2013base/Data%20Quality.aspx#Livingarrangementtyperates

groups exhibiting a greater propensity to form multi-generational households, leading to larger household sizes.

3) Household sizes are susceptible to change in the short term in response to non-demographic factors such as increasing housing costs.