

Economic Impacts of COVID-19 on the Selwyn Economy – Early Estimates

Selwyn District Council

April 2020



Infometrics

Economics put simply

Authorship

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Executive Summary

This report provides an overview of the anticipated economic impacts of the COVID-19 pandemic for the Selwyn District. It includes an assessment of the headline impacts of the COVID-19 lockdown as of April 2020, forecast changes to economic activity, employment and other key indicators over the year to March 2021, information on potential mobility of labour between different industries, and the outlook for construction activity and house prices in the district out to 2024.

COVID-19 presents the greatest economic shock in living memory

Although the full extent of the shock is still to play out, it is clear that the economy will be irrevocably changed by this pandemic. The speed with which the economic outlook changed during March far exceeded anything experienced during the Global Financial Crisis (GFC) of 2008/09. Infometrics is currently forecasting a 13% contraction in economic activity in the New Zealand economy over the first half of 2020.

COVID-19 has hit Selwyn's economy hard

Consumer spending and traffic volumes are down substantially, and only 56% of the workforce is able to work under the Level 4 lockdown. As New Zealand transitions into Level 3 restrictions, 78% of Selwyn's workforce is expected to be able to work.

Selwyn's economy is relatively resilient

Selwyn's economy is diversified across many industries and has strong agricultural foundations, so it will take a smaller hit than most districts. Over the coming year, primary sector exports are expected to hold up and food product manufacturing will even expand slightly. Selwyn's tourism sector is relatively small and not overly reliant on international tourism, which is expected to fall dramatically.

Economy expected to contract by 5.4%

Over the year to March 2021, Selwyn's economy is projected to contract by 5.4%, with the **Construction** industry (-27%) taking the biggest hit. Lesser declines are expected in **Professional, Scientific and Technical Services** (-8%), **Transport, postal and warehousing** (-16%), **Retail and wholesale trade** (-6%) and **Accommodation and food services** (-22%).

Employment declines by 2,000 jobs, all skill levels affected

Employment in Selwyn is expected to decline by 2,100 jobs in the year to March 2021, a decline of 8.6%. Nationally, a decline of 9.8% is projected. Job losses are expected at all skill levels, but particularly **Highly-skilled** (-748 jobs) and **Low-skilled** (-604 jobs) roles.

Specialist Managers and Construction Trades Workers are the most affected occupations

Employment in **Specialist Manager** roles are projected to decline by 270 jobs, and **Construction Trades Workers** by 180.

Opportunities for affected workers to change industries is likely to be limited to lower skilled roles, such as **Clerical and Administrative Workers**, **Machine Operators and**

Drivers, and Labourers. These workers may find opportunities in the growing industries like **Food Processing and Manufacturing** industry, or fill vacancies by workers changing jobs or retiring.

Job losses will push unemployment to 7.1%

The overall unemployment rate in Selwyn is forecast to rise from 2.3% the March 2020 quarter to 7.1% in March 2021. This is just beneath the forecast national unemployment rate of 9.0%.

Construction will take a big hit

Both residential and non-residential construction activity is forecast to fall rapidly in Selwyn District. Coupled with a reduction in construction activity in Christchurch City, the amount of work available for the Selwyn construction industry will shrink.

House prices to fall 10.8%, bottoming out in December 2021

We expect Selwyn's house prices to follow the national trend, and decline 10.8% between December 2019 and December 2021, before gradually recovering. This will take Selwyn's average house value from \$558,000 for the year to December 2019, to \$498,000 in December 2021, then settle at \$523,000 by June 2025.

Summary of key indicators

Indicator	Selwyn District	New Zealand
Change in consumer spending (week ending 12 April 2020 compared to same period 201	-18%	-56%
Change in heavy traffic (week ending 9 April 2020 compared to 1 February 2020)	-48%	-60%
% working at Level 4	55%	52%
% working at Level 3	78%	74%
GDP % change, year to March 2021	-5.4%	-7.9%
Employment change, year to March 2021	-2,000	-250,522
Employment % change, year to March 2021	-8.6%	-9.8%
Unemployment rate, March 2021	7.1%	9.0%
Loss in total earnings, year to March 2021 (\$m)	-\$106	\$13,864
Residential construction % change, year to March 2021	-47%	-19%
Non-residential construction % change, year to March 2021	-36%	-18%

Introduction

This report provides an overview of the anticipated economic impacts of the COVID-19 pandemic for the Selwyn District.

It includes an assessment of the headline impacts of the COVID-19 lockdown as of April 2020, forecast changes to economic activity, employment and other key indicators over the year to March 2021, information on potential mobility of labour between different industries, and the outlook for construction activity in the district. The data presented here is based on workplace location, meaning that it reflects economic activity taking place in Selwyn District. The impact of COVID-19 on Selwyn's residents may differ as many commute to workplaces in other areas, such as Christchurch City.

The forecast analysis presented in this report draws on a suite of economic models maintained by Infometrics. Models are only as good as the assumptions we put into them and we have clearly outlined our key assumptions.

The report is intended to provide evidenced-based information and analysis to Selwyn District Council and its key stakeholders, that can inform short-term responses to the pandemic and support long-term planning activities.

This report is accompanied by a spreadsheet set which contains all the data used to prepare this report plus additional data. It is also accompanied by a report called *Additional insights on the economic impacts of the COVID-19 pandemic* which provides information which is too detailed for this main report. The supporting document contains an expanded explanation of how COVID-19 is likely to impact the New Zealand economy and additional detail of how the pandemic will impact on each industry.

The greatest economic shock in living memory

COVID-19 presents the greatest economic shock in living memory, and although the full extent of the shock is still to play out, it is clear that the economy will be irrevocably changed by this pandemic. The speed with which the economic outlook changed during March far exceeded anything experienced during the Global Financial Crisis (GFC) of 2008/09.

Infometrics is currently forecasting a 13% contraction in economic activity in the New Zealand economy between the December 2019 and June 2020 quarters, with most of the decline occurring in the June quarter due to the current lockdown. This contraction is set to be at least four times larger than anything seen before, so there is understandably considerable scope for error in this estimate. Over a slightly longer time horizon, our forecast is for an 8% contraction in economic activity over the year to March 2021.

By March 2022, we expect quarterly GDP to be 6.6% below its December 2019 level. We estimate the unemployment rate will peak at 9.5% in the September 2021 quarter, and to remain above 8% until the December 2023 quarter. In addition, underemployment is set to rise, while some of the unemployed will drop out of the labour force or seek out education opportunities in order to reskill. These factors will contribute to a decline in the labour participation rate, which we predict could fall to its lowest level since 2001.

Our modelling of the impacts of COVID-19 are based on key assumptions

We have made the following assumptions when modelling the effects of the COVID-19 pandemic, the economic downturn, and the government's policy responses on the New Zealand economy.

- **Lockdown is 4½ weeks at Level 4 and 2 weeks at Level 3** - we have based our industry employment and output modelling on Level 4 being in place for 4½ weeks and Level 3 being in place for two weeks.
- **Economic activity is constrained across the entire economy** - we estimate that approximately 65% of economic activity can take place under Level 4. This estimate includes people that can work from home and those people working in essential services. Under Level 3, our estimate of potential economic activity taking place rises to 82%.
- **Global demand for food products will hold up but non-food exports will take a hit** –people still need to eat during a recession, which will limit any reduction in our food exports, we have allowed for a 16% contraction in non-food manufacturing export volumes over the coming year, and a 9.5% reduction in international demand for unprocessed forestry exports such as logs.
- **Foreign tourism tanks** – we have estimated a 91% reduction in foreign tourist spending in New Zealand over the coming year, and a similarly sized reduction in New Zealand tourists spending money overseas.
- **Domestic tourism spending will drop** – despite more New Zealanders choosing to have domestic holidays rather than travel overseas, we estimate a 21% decline in domestic tourism spending from the previous year.
- **International education revenue halves** – we estimate the number of international students at schools this year to be 79% of normal levels, and predict a 49% reduction in international education revenue during the year to March 2021.
- **Domestic education demand will increase** – we have allowed for a lift in total demand for tertiary training from domestic students over the coming year of 8.3%, similar to what we saw following the GFC.
- **The housing market takes a hit** – our assumptions include an 11% drop in average house prices between mid-2020 and the end of 2021.
- **Construction is also hit hard** – the housing market downturn will drag down the rate of residential construction by nearly 20%, while non-residential construction activity will decrease by a similar magnitude. In contrast, prospects for civil construction are positive outside Level 4 lockdown conditions.
- **Government comes to the party** – our modelling includes a \$10b wage subsidy scheme and \$2.5b through a one-off increase in social welfare benefits of \$25 per week.
- **A U-shaped downturn and recovery** – Although the government has stepped in quickly to try and help businesses through the lockdown, the wage subsidy and

other measures will not be enough to keep all businesses going in the face of a drop in demand globally. Many business failures are inevitable, and it will take time for the surplus labour and capital resulting from this downturn to be redeployed by other businesses. This means a U-shaped recovery, with a flat growth period of 9-12 months, is more likely than a V-shaped recovery.

A full description of the Infometrics modelling assumptions is provided in Appendix I.

The Level 4 lockdown has hit Selwyn hard

Like the rest of New Zealand, much of Selwyn's economy has been closed by the Level 4 lockdown.

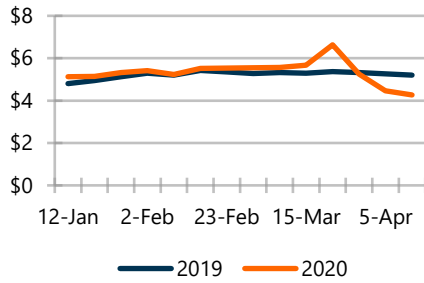
Consumer spending has fallen off a cliff

Consumer spending in Selwyn rose in the days after the announcement of a move to Level 4, then the loss of activity from Thursday 26th March took weekly spending down.

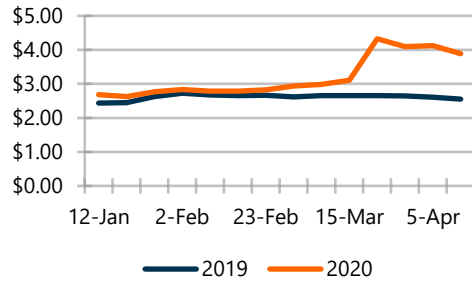
The only category in which spending increased compared to 2019 was food, liquor and pharmacies, which increased ahead of the lockdown and remains at elevated levels. Spending at home and recreational retail stores spiked ahead of the lockdown before plummeting to zero.

Chart 1. Selwyn District consumer spending (\$million)

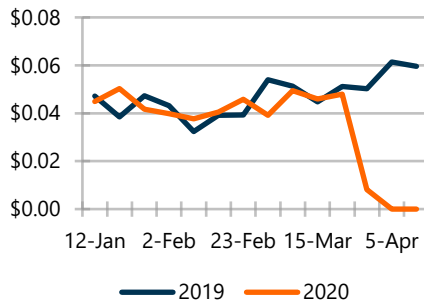
Total consumer spending



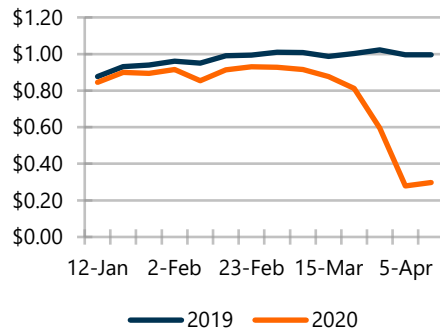
Food, liquor & pharmacies



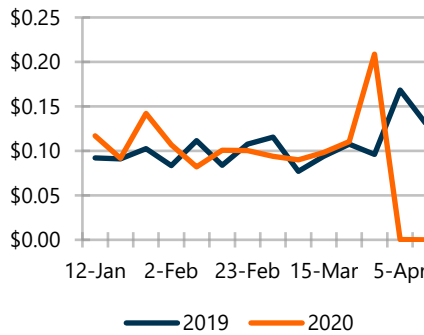
Clothing, Footwear & Department Stores



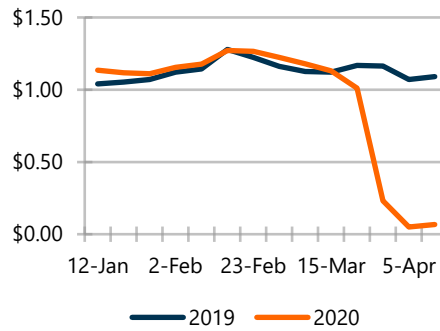
Fuel & Automotive



Home & Recreational Retailing



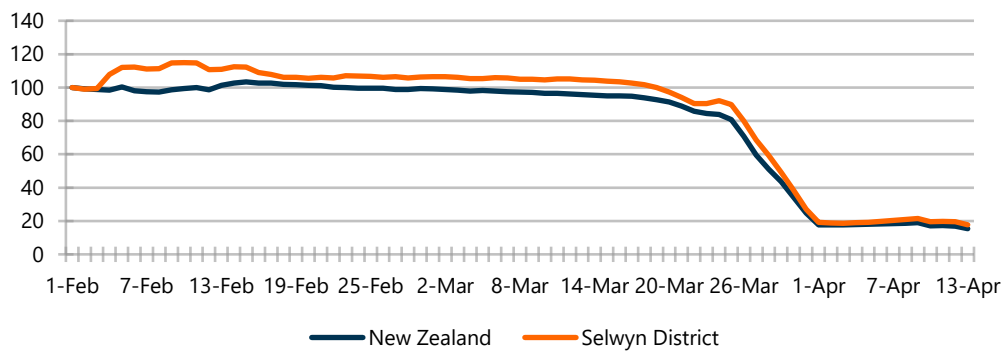
Hospitality & Accommodation



Traffic flows have dwindled

According to data received from NZTA, traffic flows in Selwyn plummeted following the Level 4 lockdown, in line with the national decline.

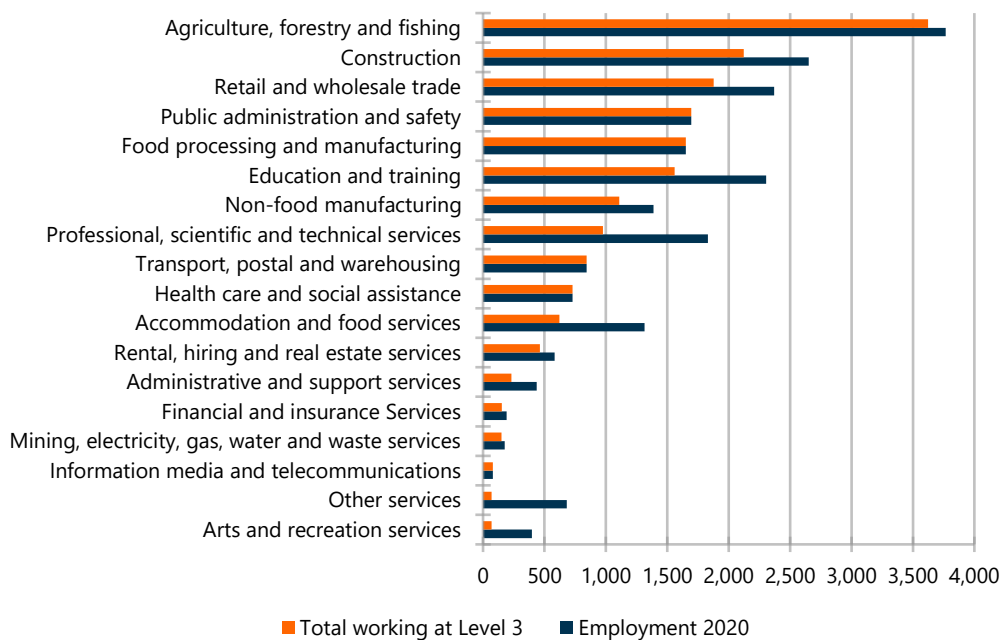
Chart 2. Traffic flow, indexed (1 Feb 2020=100)



78% of the workforce will be working in Level 3

We estimate that during the Level 4 of the lockdown, approximately 56% of the total Selwyn workforce can operate, either by working from home, or being employed in essential services. In the national economy 53% could work. At Level 3, the rate will rise to 78% compared with 74% in the national economy. The slightly higher proportion able to work is largely due to Selwyn's strong agriculture and food processing industries.

Chart 3. Working from home and essential services, Level 3



Selwyn will take a smaller hit than most districts

All districts and regions in New Zealand will be hard hit by the pandemic. The worst hit will be districts that are heavily exposed to international tourism including Queenstown-Lakes, Mackenzie, Westland and Kaikōura. By contrast the least affected districts are those with a diversified industry mix and strong agricultural foundation. Selwyn District and its neighbours Ashburton and Waimakariri Districts are in this position

Several factors will lessen the impact of the pandemic on Selwyn's economy:

Primary exports are holding up

Despite the widespread turmoil in international markets, New Zealand's exports of food products are holding up and for some commodities even growing slightly. Agriculture, forestry and fishing is Selwyn's largest industry and contributes over 20% of GDP. Continued primary export strength is likely to support the District's economic recovery.

Food production will continue

People need to continue eating during a recession which means the food manufacturing sector will not be as hard hit as the rest of the economy. In particular, Selwyn's dairy processing facilities will remain a mainstay of the district's economy.

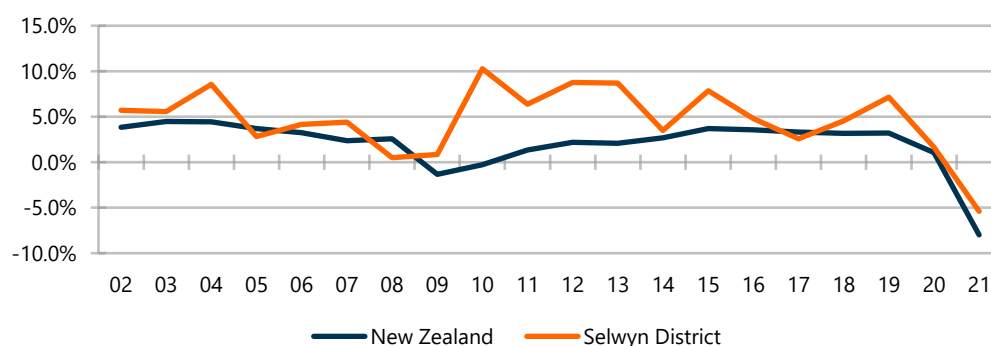
Selwyn is not highly exposed to international tourism

Only 32% of tourist expenditure in Selwyn is from foreign tourists. Most of Selwyn's tourist spending comes from Domestic tourists, and we expect this will hold up much better than foreign tourism. We estimate that domestic tourism spending will drop by 21% compared with 91% of foreign tourism spending.

Selwyn's economy will contract by 5.4%

Selwyn District's GDP is forecast to contract by 5.4% over the year to March 2021, compared with 8% in the national economy. The contraction in Selwyn is the most severe in recent history, as GDP growth slowed but did not decline during the Global Financial Crisis in 2009.

Chart 4. Annual GDP change, 2002-2021

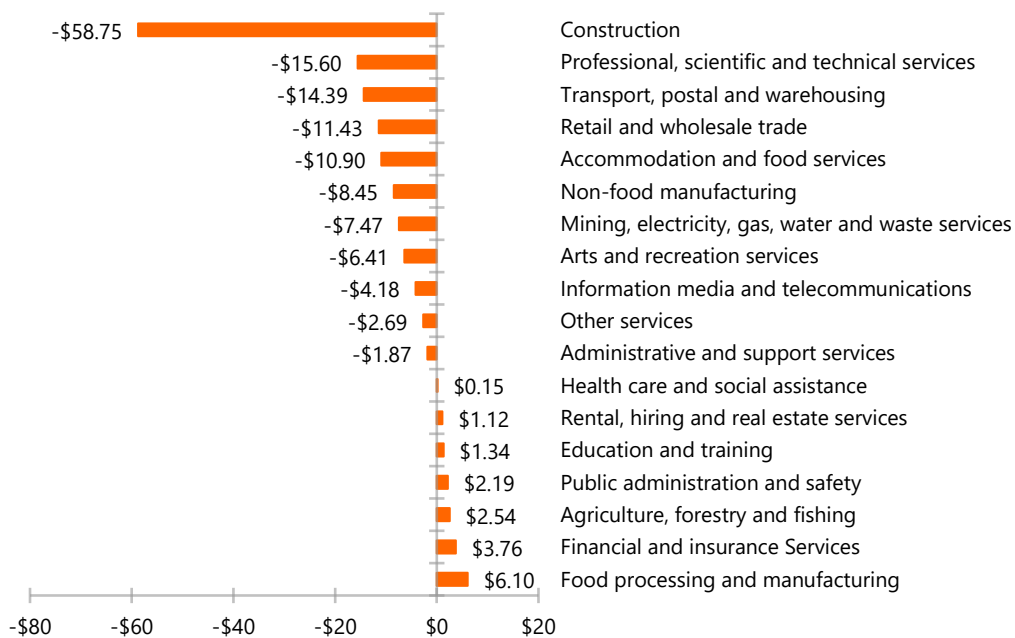


Construction industry will take the biggest hit

The largest decline in the District will take place in the **Construction industry** (-27%). Lesser declines are expected in **Professional, Scientific and Technical Services** (-8%), **Transport, postal and warehousing** (-16%), **Retail and wholesale trade** (-6%) and **Accommodation and food services** (-22%).

Minor growth in **Food processing and manufacturing** (+3.3%) is expected, but this will be insignificant relative to overall job losses.

Chart 5. GDP changes by broad industry, 2020-2021 (\$million)



- **Construction** activity was close to peaking even before the COVID-19 pandemic occurred. Rising unemployment, falling house prices, slower population growth, and tighter bank lending conditions will all weigh on activity over the next 1-2 years across both the residential and non-residential subindustries. Prospects for infrastructure look more promising given the government's desire to use this channel to try and stimulate the economy's recovery. We also note that strong growth in the population and building stock over recent years has increased the baseline level of maintenance work that needs to be done, mitigating the downturn for those parts of the industry that tend to be less cyclical.
- **Professional, scientific, and technical services** is the fifth-largest industry by employment in the Selwyn economy. Despite the industry being less directly affected by COVID-19 than many other industries, the forecast drop in job numbers is still large. Cost-cutting by firms and a reduction in business numbers across the economy will negatively influence demand for services within this industry across the board. Areas that are likely to be most heavily affected include those subindustries that are closely linked with construction activity.
- **Transport, postal, and warehousing** has been significantly affected by the pandemic. As is the case for accommodation and food services, these effects will

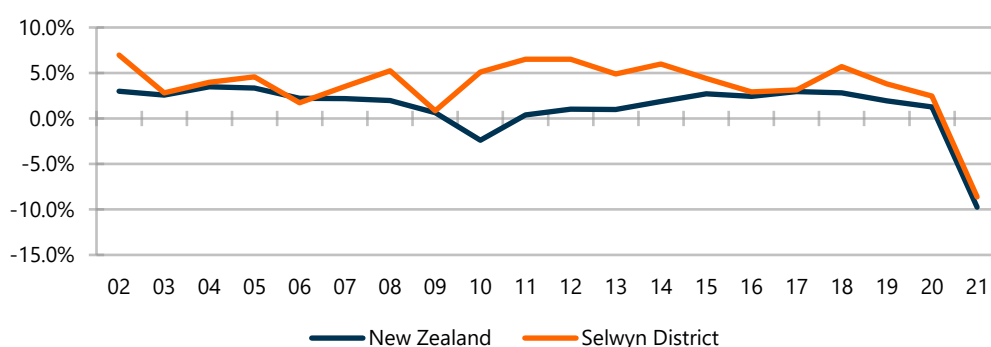
continue long after the lockdown ends. Other parts of the transport and logistics industry have been weakened by factors such as reduced commuter travel and cutbacks in distribution and freight requirements caused by the lockdown. Some of these effects will start to reverse out with a pick-up in online spending outside Level 4, but this positive influence on activity is likely to be outweighed by the reduction in overall spending caused by the weaker labour market and incomes.

- **Retail and wholesale trade** has experienced a significant drop in demand under Level 4, and restrictions will remain in place under Level 3 as well. These effects are not being felt equally, with supermarkets enjoying periods of higher-than-usual demand. Other businesses that can sell online will be able to operate under Level 3, although we do not expect spending patterns during this period to be normal. The declines in tourism activity and other discretionary spending will also be felt disproportionately by retailers selling more luxury or higher-end products.
- **Accommodation and food services** will be arguably the most heavily affected part of the economy by the COVID-19 pandemic and its aftermath. The disappearance of international tourism and declines in domestic tourism and other discretionary spending are key factors in the industry's contraction. Activity will continue to be severely constrained under COVID Alert Level 3, while domestic travel will also remain restricted under Alert Level 2.

Employment will shrink by 2,000 jobs

Employment in Selwyn is expected to decline from over 23,100 in the year to March 2020 to approximately 21,100 in the same period to March 2021, a decline of 8.6% or just under 2,000 jobs. This compares to an economy-wide decline in employment of 9.8%.

Chart 6. Employment Growth, 2002-2021



The bulk of these job losses are forecast to be in the **Construction** (-751 jobs, -28.3%), **Accommodation and food services** (-305, 23.2%) and **Retail and wholesale trade** (-211, 8.9%) industries.

On a slightly positive note, a small increase in demand for labour is forecast in the **Food processing and manufacturing** industry.

Chart 7. Employment changes by broad industry, 2020-2021

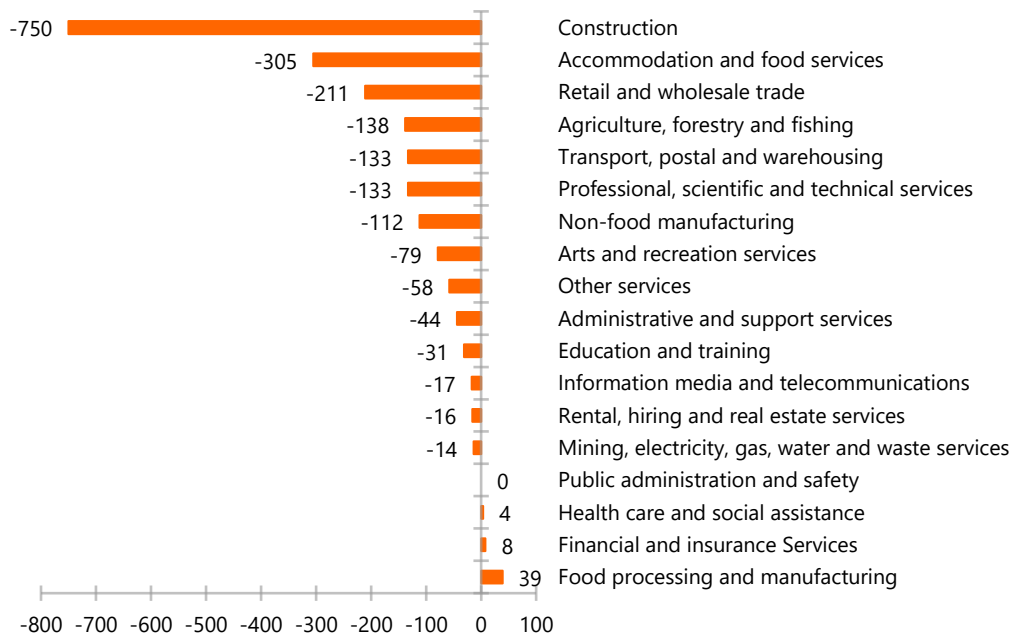
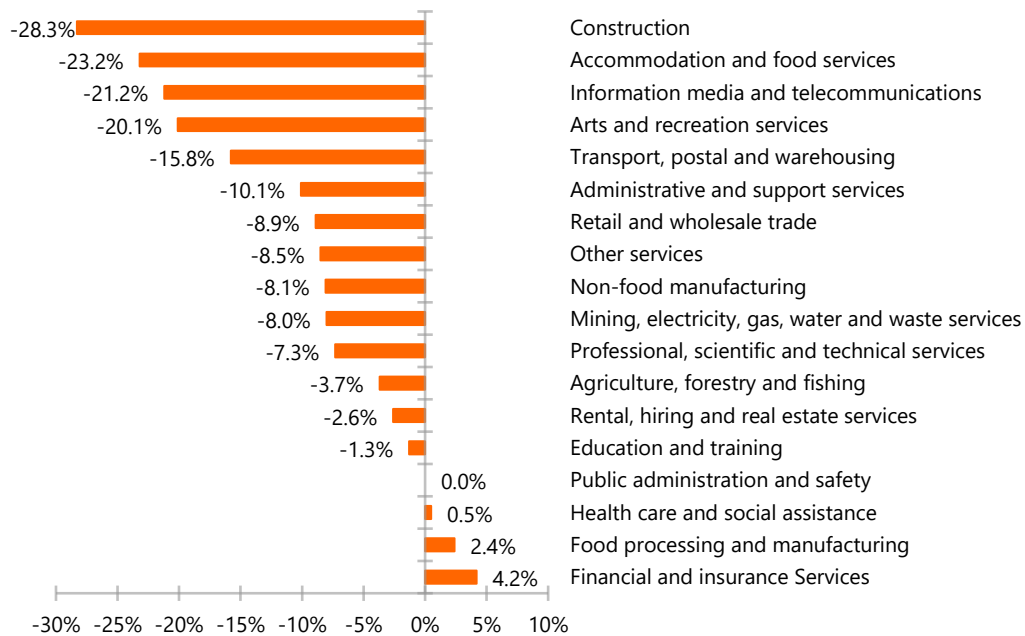
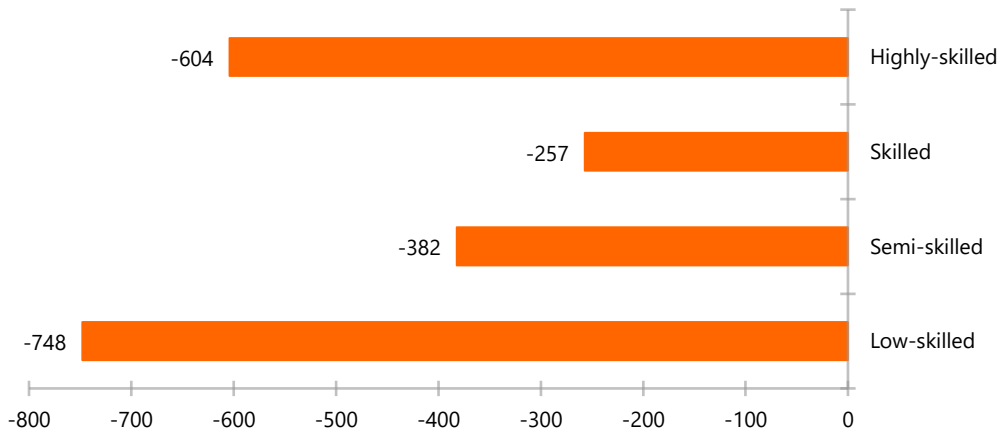


Chart 8. Percentage changes in employment by broad industry, 2020-2021



Both low-skilled and highly-skilled jobs will be hit

Chart 9. Employment changes by skill level, 2020-2021



The highest number of job losses is projected to occur in **Highly-skilled** (-748) and **Low-skilled** (-604 jobs) roles.

On an individual occupation basis, job losses are projected in Highly-skilled occupations such as **Specialist Managers, Farmers and Farm Managers**, and **Chief Executives, General Managers, Legislators**. Heavily affected Low-skilled occupations include **Hospitality Workers, Other Labourers** and **Road and Rail Drivers**. **Construction Trades Workers** make up bulk of job losses in Skilled roles.

Chart 10. Employment changes by occupation, ANZSCO Level 2, 2020-2021



Some jobseekers can move between industries

Certain occupations such as clerical and administration workers, machine operators and drivers, and labourers require relatively generic skills, which can allow workers in these occupations to move between industries. Here, we analyse job losses in these occupation groups across the district's industries to identify potential job opportunities for job seekers and potential labour sources for employers who might have job vacancies due to expansion, workers retiring, or workers changing jobs. See Chart 11 to Chart 15. For example, Labourers who have lost their jobs in the construction industry might find opportunities in the growing Food processing and manufacturing industry. Likewise, Machine Operators and Drivers who lose their jobs in the Construction or Transport, postal and warehousing industries, may find opportunities in Agriculture, forestry and fishing.

In coming years, we will be able to identify opportunities for jobseeker mobility into industries that are starting to recover.

Chart 11. Job losses in 'Community and personal service worker' occupations by broad industry, 2020-2021

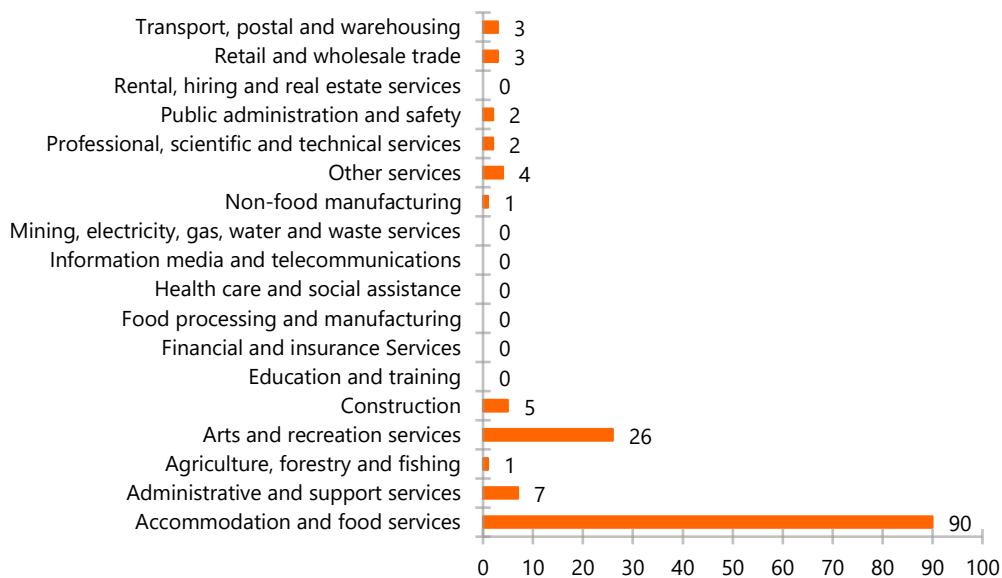


Chart 12. Job losses in 'Clerical and administrative worker' occupations by broad industry, 2020-2021

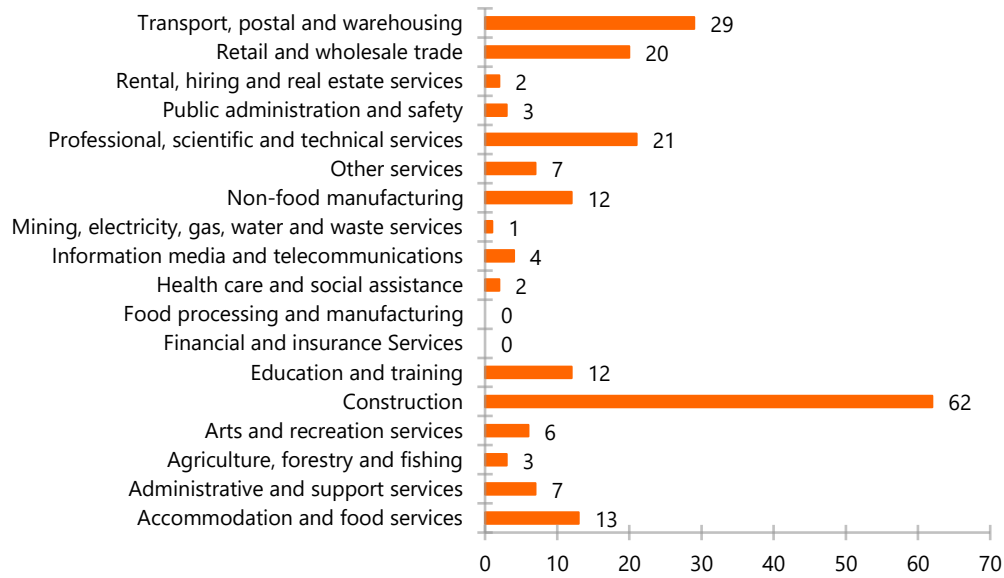


Chart 13. Job losses in 'Sales worker' occupations by broad industry, 2020-2021

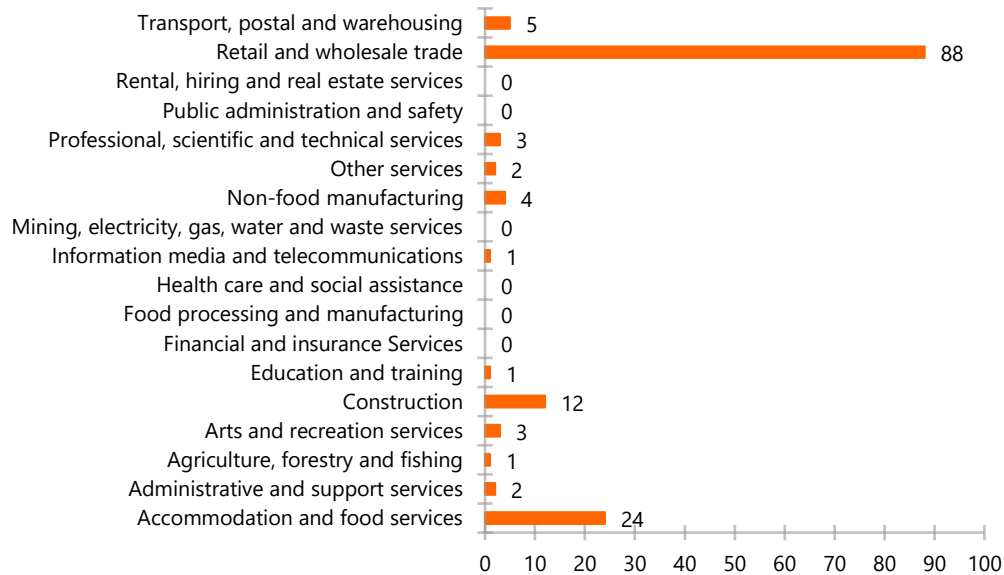


Chart 14. Job losses in 'Machine operator and driver' occupations by broad industry, 2020-2021

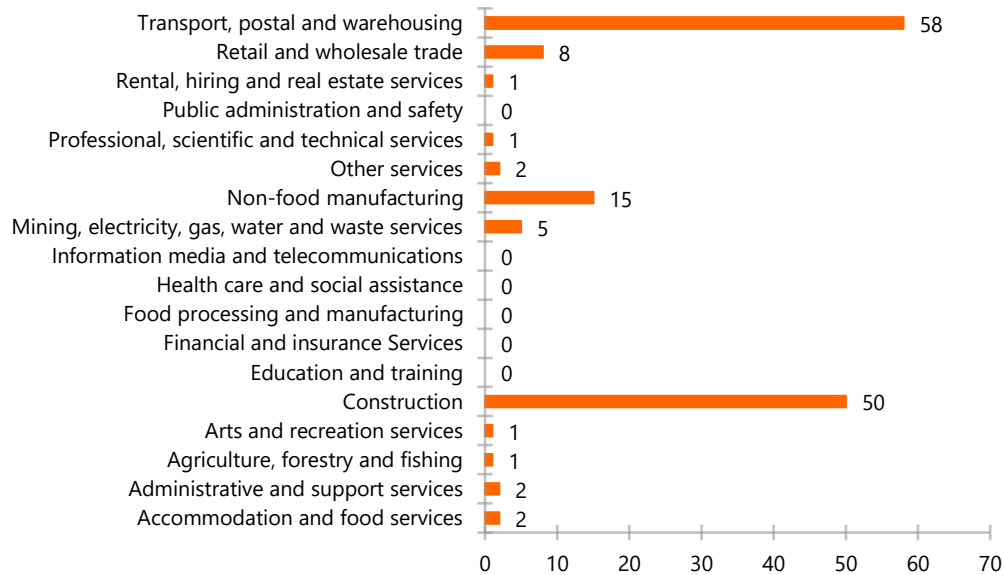
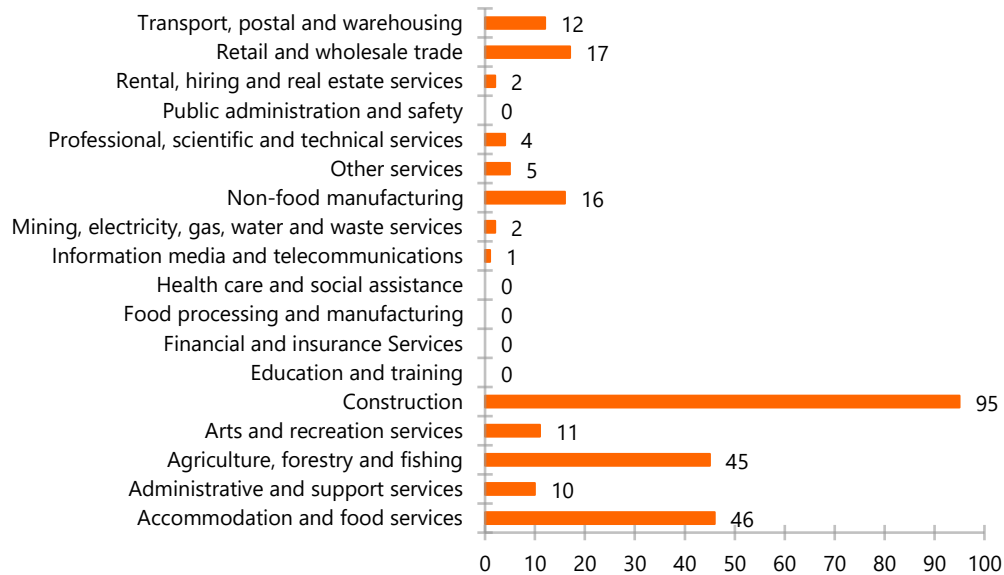


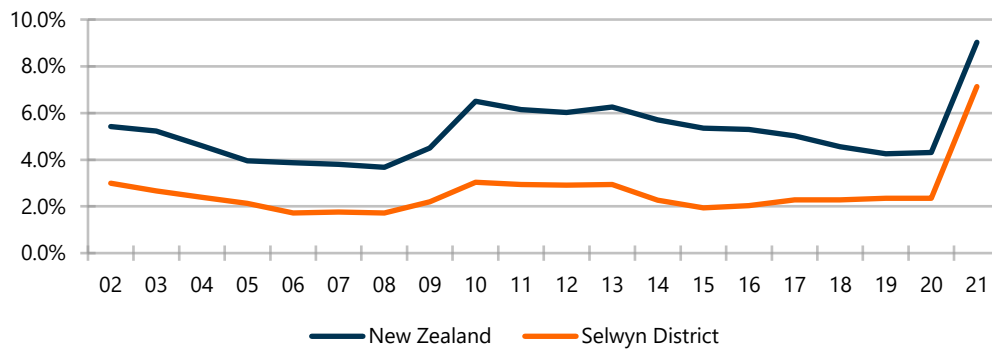
Chart 15. Job losses in 'Labourer' occupations by broad industry, 2020-2021



Job losses will push unemployment to 7.1%

Selwyn's overall unemployment level has been very low for some time, sitting at **2.3%** in the March 2020 quarter. Unemployment in Selwyn is forecast to rise to **7.1%** in March 2021, compared to forecast national unemployment rate of **9.0%**.

Chart 16. Unemployment Rate, 2002-2021

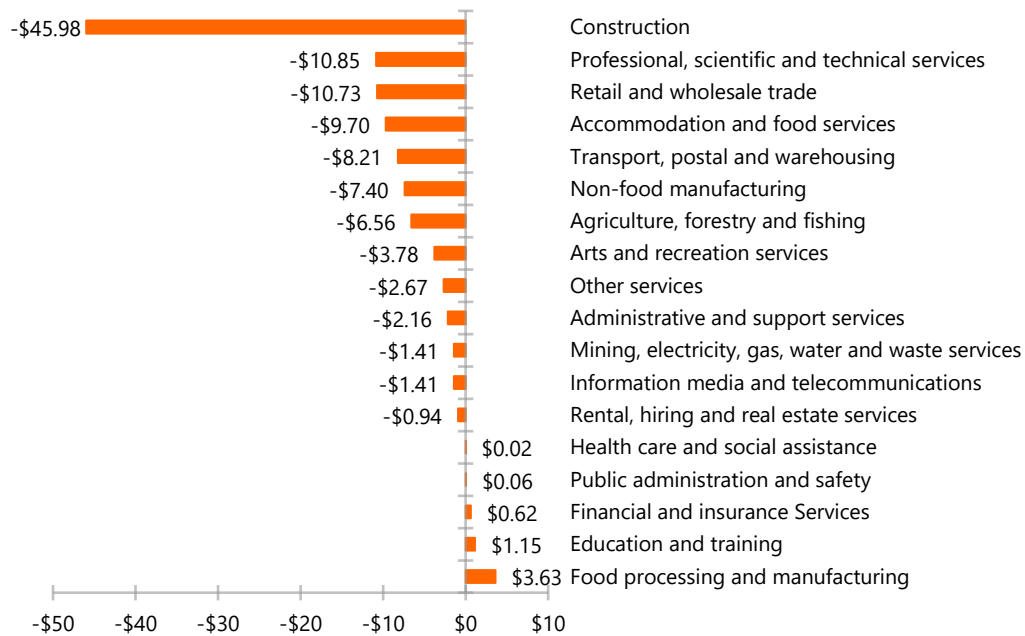


And result in lost earnings of \$106 million

Earnings across the Selwyn economy are forecast to decline by \$106 million in the year to March 2021. The largest declines are expected to occur in the **Construction** (-\$46m) **Professional, scientific and technical services** (-\$11m) and **Retail and wholesale trade** (-\$11m) industries.

A small increase in earnings is once again forecast in the **Food processing and manufacturing** industry.

Chart 17. Earnings changes by broad industry, 2020-2021 (\$million)

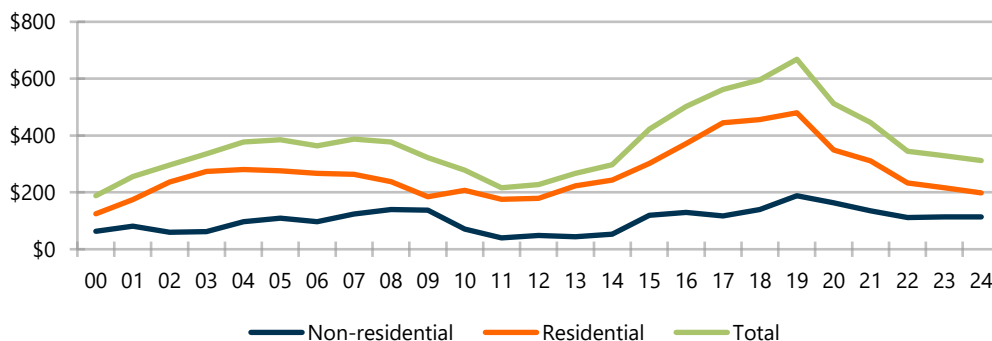


Construction will take a big hit

A strong construction sector has been a key feature of Selwyn District's growth in recent years, however the Infometrics Regional Construction Outlook shows that work declined slightly in 2019 and is expected to decline further in the coming years. By 2022, the decline in construction activity will be arrested, stabilising at over \$300 million per year, above the Global Financial Crisis low of \$216 million. Following an extended period of strong housing supply in Selwyn and Greater Christchurch, Selwyn's residential construction activity is expected to more than halve. Non-residential construction falls by a lesser extent.

Selwyn's construction industry will face a decline in workloads as construction activity falls in Christchurch City too, due to COVID-19 and ongoing declines in earthquake recovery activity.

Chart 18. Construction: Work put in place, by year

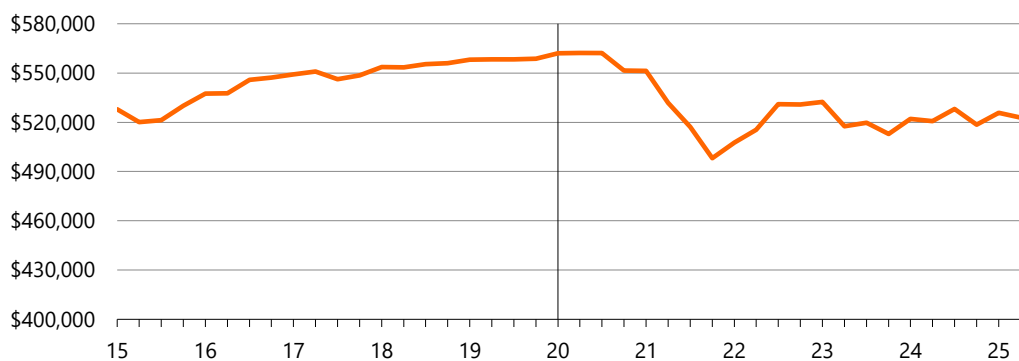


House values expected to dip, and growth remain soft

House value growth in Selwyn has been relatively soft following a strong period of growth resulting from the 2010-11 Canterbury earthquakes. While the immediate effects of rising unemployment will be masked by the government's mortgage holiday scheme, we expect forced sales to pick up by the end of the year once the scheme expires and job losses mount. We expect Selwyn's house values to follow the national trend, declining by 10.8% from December 2019 to December 2021. House values are expected to undergo a strong recovery throughout 2022 as investors re-enter the market to pick up bargains. Thereafter, house value growth is expected to be muted through to the end of our projection in June 2025 due to weak underlying demand and an excess supply of housing.

This will take Selwyn's average house value from \$558,000 for the year to December 2019, to \$498,000 in December 2021, then settle at \$523,000 by June 2025.

Chart 19. Average house values



Some thoughts on recovery

Housing affordability and lifestyle benefits can be assets

Over the next several years, recessionary condition might give rise to increased levels of domestic migration. We anticipate that increased unemployment and high costs of living in urban centres, might provide a competitive edge for regions offering lower property prices and high-quality lifestyle attractions. This trend is likely to be reinforced by an increased capacity for working remotely, as the pandemic has forced many organisations to improve their systems and practices in this area.

With low house prices, an attractive lifestyle offering and proximity to Christchurch City to be improved with the upcoming Southern Motorway extension, Selwyn is well positioned to take advantage of any such increase in domestic migration.

Skills development and retention will be key

Increased unemployment will lead to increased interest in tertiary and vocational education. Constrained economic conditions will present fewer opportunities for school leavers and recent graduates to enter the workforce, while recently unemployed workers will explore options for retraining and up-skilling. Under these conditions, the government's Reform of Vocational Education (RoVE) process will assume even greater importance than was the case before the recession.

While much of the detail around the RoVE process is yet to be finalised, local government support for the process will be critical in promoting economic recovery and enhancing future resilience in the local workforce.

Councils and key regional stakeholders will need to play a leading role in implementing the RoVE outcomes. In particular, they will need to be centrally involved in the establishment and operation of structures such as the Regional Skills Leadership Groups (RSLGs), that will be a critical outcome of the RoVE process.

Infrastructure development is an opportunity

Government has prioritised the identification of 'shovel ready' infrastructure projects, that can assist in economic recovery across the country. These projects are likely to be funded through a range of support mechanisms, including Crown Infrastructure Partners, New Zealand Upgrade Programme and possible even a realignment of the Provincial Growth Fund.

In addition to an immediate focus on these 'shovel ready' projects, we believe that regions have a window of opportunity to develop projects with somewhat longer implementation timeframes. If sufficiently ambitious, such projects can provide a step change in the economic development trajectory of regions. Projects that fall into this category might include enhanced water management, localized renewable energy generation and distribution, and transportation infrastructure such as inland ports or customs-controlled areas.

Local government will play a critical role in any recovery

The Selwyn District Council, along with other key organizations in the region, will play a critical role in supporting local communities over the upcoming months and years. Some of the measures that the Council and its partners might consider include:

- Maintaining levels of operational expenditure and where possible accelerating already funded capital projects
- Implementing preferential procurement policies to support local businesses rather than those located outside the District (or even outside New Zealand)
- Increased investment in community development activities, particularly in vulnerable and highly impacted communities
- Highly localized destination marketing activities, aimed firstly within the District's communities, and only subsequently being extended to neighboring communities and further afield in New Zealand
- The extension of business support services, particularly in partnership with local chambers of commerce, industry bodies and organizations such as the Regional Business Partners Network or Business Mentors New Zealand
- Maintaining a balance between rates increases required to fund ongoing and future activities, and increasing financial stress in the community
- Leveraging off the existing local public asset base – prudent borrowing against assets or depletion of financial reserves in the short to medium term
- Support for local vocational and tertiary education providers, to promote reskilling within local communities
- Support for and participation in bodies such as the Regional Skills Leadership Groups
- Developing infrastructure projects beyond the most obvious "shovel-ready" project that might already be under consideration through various central government support measures
- The development of comprehensive local wellbeing-based economic development strategies, in line with government's Living Standards Framework and other international best practice in the field of wellbeing economics

These and other activities, while unable to avert the inevitable unemployment increases and economic distress, can somewhat exacerbate the worst impacts of the recession, increase the resilience of the Selwyn community, and support economic recovery in the longer term.

Appendix I. Forecast Assumptions

We have made the following assumptions when modelling the effects of the COVID-19 pandemic, the economic downturn, and the government's policy responses on the New Zealand economy.

Lockdown is 4½ weeks at Level 4 and 2 weeks at Level 3

Following the Prime Minister's announcement on April 20 of the expected timeline for the COVID Alert Level 4 and Level 3 conditions, we have based our industry employment and output modelling on Level 4 being in place for 4½ weeks and Level 3 being in place for two weeks.

Across the entire economy, we estimate that approximately 65% of economic activity can take place under Level 4. This estimate includes people that can work from home and those people working in essential services. Under Level 3, our estimate of potential economic activity taking place rises to 82%. Obviously, the effects of Alert Levels 3 and 4 on specific industries vary significantly.

We have not made economy-wide adjustments for conditions in Alert Levels 1 or 2 because the constraints on activity are much less widespread. Instead, we have made specific targeted adjustments to industries associated with tourism (see below). These industries will be the most heavily and directly affected by COVID-19 over the medium term, almost irrespective of the alert levels implemented by the government at any particular point in time.

Sustained global demand for food, but non-food exports will be knocked hard

Forecasts of global economic growth for 2020 are being rapidly revised lower due to the COVID-19 pandemic, lockdown conditions, and negative effects on economic activity around much of the world. Between February and April, Consensus forecasts for global growth during 2020 have slumped from +2.3% to -2.5%. We expect further revisions in coming months will take this figure to -5.0% or below.

This downturn will have some effect on New Zealand's agricultural export prices for products such as dairy, meat, and horticulture. However, the fact that people still need to eat during a recession will limit the pressure on our agricultural producers. Furthermore, the drop in the New Zealand dollar, from US67c at the start of the year to below US60c, has offset some of the decline in international prices.

The most pressure will come on non-food exports such as forestry and manufactured products. Putting aside the disruption to movements of goods that occurred early in the year with the shutdown of ports in China, weaker incomes and spending around the world will limit both business and consumer demand for manufactured products.

During 2009, we saw a 5.9% decline in New Zealand's non-food manufactured export volumes. With the current global downturn being significantly larger than the Global Financial Crisis (GFC), we have allowed for a 16% contraction in volumes over the coming year. Alongside this drop, we have also assumed a 9.5% reduction in international demand for unprocessed forestry exports such as logs.

Foreign tourism tanks by 91%

We expect New Zealand's borders to effectively remain closed for a year, with either complete closures or, at a minimum, a mandatory 14-day quarantine requirement for people arriving from overseas. However, we also recognise that there is scope for a trans-Tasman or wider Polynesian travel "bubble" to be introduced later in the year if COVID-19 infection conditions allow. We have assumed that this "bubble" could be implemented from December onwards, and could result in 50% of usual tourist travel on NZ-Australia and NZ-Pacific Island routes.

Travel up until November will be very limited – we have allowed for visitor numbers to be at just 0.8% of their usual levels. This figure allows for a small amount of non-holiday travel, and it is equivalent to total international arrival numbers (including returning New Zealanders) for the week to 14 April 2020. We have also maintained this assumption for countries outside Australia and the Pacific Islands beyond November 2020, on the basis that COVID-19 case numbers overseas will warrant ongoing strict controls. The allowance for small visitor flows in and out of New Zealand recognises there will be some people who are required to travel for work purposes.

Taken together, these assumptions result in an estimated 91% reduction in foreign demand for tourism over the coming year, and a similarly sized reduction in New Zealand demand for international tourism.

Domestic tourism spending drops by 21%

With New Zealanders effectively unable or unwilling to travel overseas during the coming year, at least some of the pool of \$5.4b that was spent on international tourism during 2019 is likely to be spent on holidays within New Zealand instead.

Having looked at domestic and international tourism spending patterns, we estimate that total spending on a holiday in New Zealand is likely to be about 69% of what would be spent on an equivalent holiday overseas. Some of this gap arises because a domestic holiday will naturally involve less spending on airfares. Furthermore, people on holiday within their own country also tend to spend less, on average, on both accommodation and eating out.

Reallocating this proportion of overseas tourism spending by New Zealanders to domestic spending results in a total pool of about \$21b of potential spending for the coming year. However, the economic downturn will have a negative effect on people's willingness to spend on travel and holidays. For example, there was an 8.6% drop in annual spending on restaurants and hotels between March 2008 and December 2009 during the GFC.

Furthermore, there have been severe limitations on people's ability to travel domestically during the 6½ weeks of Level 3 and Level 4 lockdown, and these restrictions will only be partially relaxed when we move to Alert Level 2. We note that The Treasury's Scenario 1

assumes we could remain in Alert Levels 1 and 2 for a total of 10 months, although the specific timings across each of these Alert Levels is not stated.

Taking all these considerations together, we estimate that spending on domestic holidays over the coming year could be constrained by 35%. After incorporating the increased pool of potential spending due to a lack of international travel, these constraints imply a 21% decline in domestic tourism spending from the previous year.

International education revenue halves

Data up to 2018 shows that, for international fee-paying students in New Zealand, 50% were enrolled at Single Data Return (SDR) providers such as universities and polytechnics, 31% were enrolled at non-SDR providers that largely cater to international students, and 20% were enrolled at primary and secondary schools. We have made differing assumptions about how each of these providers will be affected.

We have assumed that non-SDR providers will be knocked heavily, with the relatively short nature of many of their courses meaning they are not conducive to students being quarantined for two weeks on arrival in the country. We expect an 82% reduction in student numbers over the coming year, with virtually all the surviving revenue arising from students who were already in the country before border restrictions were implemented. This assumption is based on media reports suggesting about 3,000 of the 17,000 students that would normally be trained at English language schools during the year were already here and being taught when the border closures occurred.

In early April, Universities New Zealand's chief executive Chris Whelan stated that universities are facing a 25-33% reduction in international student numbers this year. In our view, this expected decline might prove to be too small, particularly given that there must be serious doubts about the mid-year intake of students that would normally occur in July. We have opted for a bigger reduction in international student revenue across all SDR providers, with universities retaining 62% of their international student revenue this year – mostly thanks to students who were already in the country in January and February. Our figure has also been informed by Immigration NZ's visa approval data for March, which showed a 43% reduction in student visa approvals compared with March 2019.

International education at a primary and secondary level will be less affected by the pandemic and border closures, given that the school year started in early February before most of the effects of COVID-19 appeared in New Zealand. We are aware that some students will have chosen to return home, and that students that might have come later in the year will now not do so. We have allowed for the number of international students at schools this year to be 79% of normal levels.

Taken together, these figures imply a 49% reduction in international education revenue during 2020, which we have included in our modelling.

Domestic education picks up some of the slack

During periods of labour market weakness, there is an increased propensity of people to leave, or stay out of, the workforce and undertake study instead. For example, between 2008 and 2010, the number of domestic equivalent full-time tertiary students (EFTS) increased from 235,100 to 254,500, a rise of 8.3%. This lift contrasts with the periods of

labour market strength between 2004 and 2008, and again between 2012 and 2018, when domestic EFTS numbers fell by 3.3% and 10.4% respectively.

Demographic factors, such as the number of school leavers, can also play a role in determining overall student numbers. Between 2008 and 2010, over half the increase in student numbers could be attributed to a lift in the number of students completing secondary school compared with three years prior. In contrast, since about 2012, the number of Year 13 students has been relatively stable, meaning that any changes in total tertiary student numbers now are more a reflection of economic conditions or other factors influencing training choices, such as the government's tertiary fees-free scheme.

Bearing these factors in mind, we have allowed for a similar lift in total demand for tertiary training over the coming year as we saw following the GFC. However, the change in demographic trends compared with a decade ago means that the implied increase in underlying demand for training will be greater than in the wake of the GFC.

House prices and construction activity take a hit

The substantial rise in unemployment associated with many of the outcomes summarised above will have a significant negative effect on the housing market. Furthermore, border closures for the next year mean that net migration will be close to zero, and population growth is set to drop to a 30-year low of 0.5%pa. These results will limit the number of potential buyers in the housing market as well as considerably reducing underlying demand for new housing.

Our assumptions include an 11% drop in average house prices between mid-2020 and the end of 2021. We note that house price falls in the short-term will be restrained by the mortgage holiday scheme that the government has negotiated with retail banks. Nevertheless, this housing market downturn will drag down the rate of new residential construction, particularly given that banks are likely to be very reluctant to finance property development over the next year. Nationally, we estimate the value of residential building work put in place to decline by 19% over the year to March 2021.

Non-residential construction activity will also come under downward pressure given declines in key drivers for space such as employment, household spending, and tourism activity. We estimate the value of non-residential work put in place to decline by 18% over the year to March 2021.

In contrast, prospects for civil construction are positive outside Level 4 lockdown conditions. Nevertheless, we are cautious about the potential for an immediate lift in activity caused by government stimulus and increased spending. Although there is likely to be faster growth in infrastructure activity over the medium term, we anticipate that planning, design, and consenting requirements will prevent more rapid growth in work until 2022.

Government stimulus includes \$10b wage subsidy and benefit increases

We have made allowances for two major government initiatives in our modelling. The first of these initiatives is the wage subsidy scheme, which represents a cash injection of approximately \$10b to businesses to help meet their labour costs. The total fiscal cost of this scheme has risen over time, although the rate of increase appears to have slowed over the last week or so.

We note that there could be scope for the scheme to be extended beyond 12 weeks for selected businesses that continue to be negatively affected under Alert Level 2, although the government has not made any strong signals about an extension at this stage. Indeed, an extension of the scheme might not be sufficient to secure the ongoing viability of many businesses that are dependent on tourism activity anyway.

The second initiative we have included in our modelling is the one-off increase in social welfare benefits of \$25 per week. This change represents a boost to aggregate household incomes of around \$2.5b. In tandem with the wage subsidy scheme, this additional money from the government will mitigate the negative effects of falling employment on overall household incomes. In doing so, the policies will also limit the decline in household consumption spending that results from the economy's downturn.

There is obviously significant potential for additional government stimulus to be introduced in coming weeks and months. Further fiscal initiatives are likely as the public health response to the COVID-19 pandemic becomes less critical and more of the policy focus turns to measures that could help drive the economic recovery. The government's 2020 Budget is due to be announced on May 14, and this date will be a key one.

At this stage, we have not made any specific allowance for additional fiscal measures. In our view, it is likely that their effectiveness in accelerating economic growth is likely to be limited within the next 12 months. We expect the negative effects of the pandemic, the lockdown, and the failures of tourism and hospitality businesses will continue to ripple through the economy for some time. These effects will weigh heavily on business and consumer confidence, influencing spending and investment decisions, and reducing the immediate effectiveness of any government initiatives designed to try and boost economic growth.

Appendix II. Broad approach to modelling the impact of COVID-19 on the Selwyn economy

Infometrics has drawn on a range of econometric and statistical model to measure the potential impact of COVID-19 on regional economies.

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.

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.