

## COVID-19 scenario analysis - Otago

Navigating uncertainty through macroeconomic scenario modelling

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# Executive summary

## Deloitte Access Economics has developed a set of COVID-19 scenarios to assess the possible regional impact on Otago

Deloitte Access Economics has developed a set of three macroeconomic scenarios to assess the potential impact of COVID-19 on the regional economy.

These scenarios consider a range of potential impacts, including:

- The global recovery and differences of New Zealand's major trading partners
- The short-term economic impact on the regional economy
- The effectiveness of health and fiscal policies in containing the outbreak and supporting the regional recovery

We have developed a number of forecasts predicting the likely impact of COVID-19 on the Otago economy.

The description and assumptions for each scenario are in **Appendix A**.

This report analyses the results of the scenario modelling.

While each scenario provides a different view of the potential path of the outbreak and recovery, there are a number of key themes that emerge. This includes:

1. Both the regional economy and the domestic economy are likely to enter recessions across all three scenarios given the unprecedented nature of the economic shock that is occurring.
2. Slower population growth will limit demand over the coming years.
3. Unemployment is likely to experience an immediate and significant increase across all three scenarios.

# Scenario development

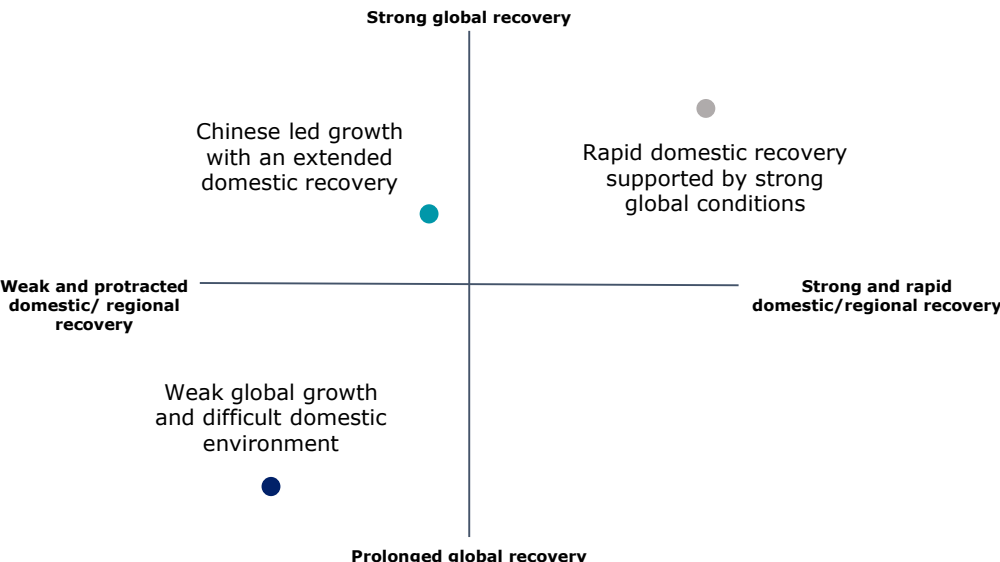
## Three key uncertainties were identified to create the different scenarios

In short, the three scenarios considered in this report are:

1. Weak global growth and difficult domestic environment
2. Chinese led growth with an extended domestic recovery
3. Rapid domestic recovery supported by strong global conditions.

Each of the scenarios can also be considered across two key continuums: the domestic/regional recovery and the global recovery. This is a succinct way of considering how the three scenarios differ based on internal and external factors.

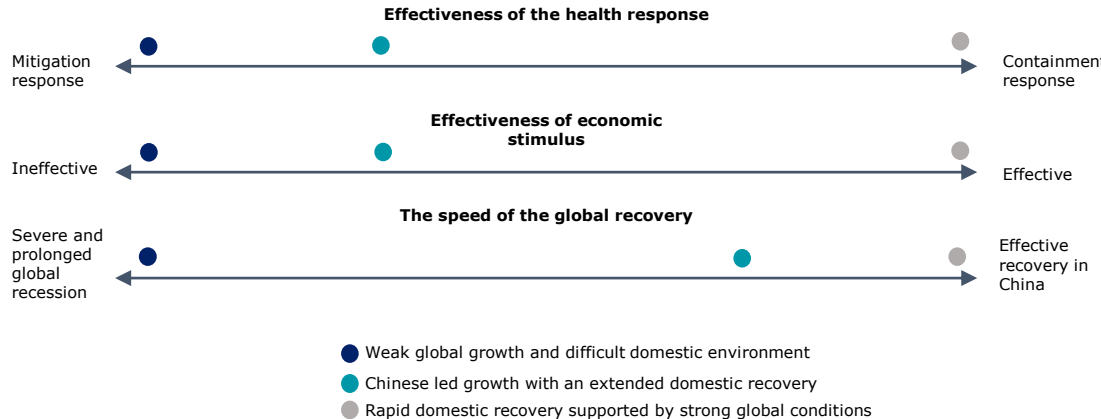
### Mapping scenarios against global and local outcomes



Three key uncertainties were explored when developing scenarios, covering the health response and outcomes, effectiveness of fiscal policy, and outcomes in major trading partners.

The effectiveness of the health response is highly correlated with the speed of the economic recovery, where the effectiveness of fiscal stimulus also plays an important role. Meanwhile, the global environment is considered to be somewhat exogenous to the other uncertainties as this cannot be controlled by domestic policy. Despite being exogenous, the global environment has a significant impact on the recovery of the regional economy.

### Mapping scenarios against three key uncertainties



# Potential COVID-19 impacts on Otago

The depth and persistence of the impact varies significantly across scenarios

## Scenario 1

### Weak global growth and difficult domestic environment

- **Otago** enters a severe recession, and the recovery is limited due to weak domestic and foreign sentiment.
- New Zealand's focus on virus elimination reduces the risk of a second outbreak, but closed borders weighs on the recovery.
- Unemployment swells to 11% in Otago, and it is likely to remain elevated for some time.

## Scenario 2

### Chinese led growth with a protracted domestic recovery

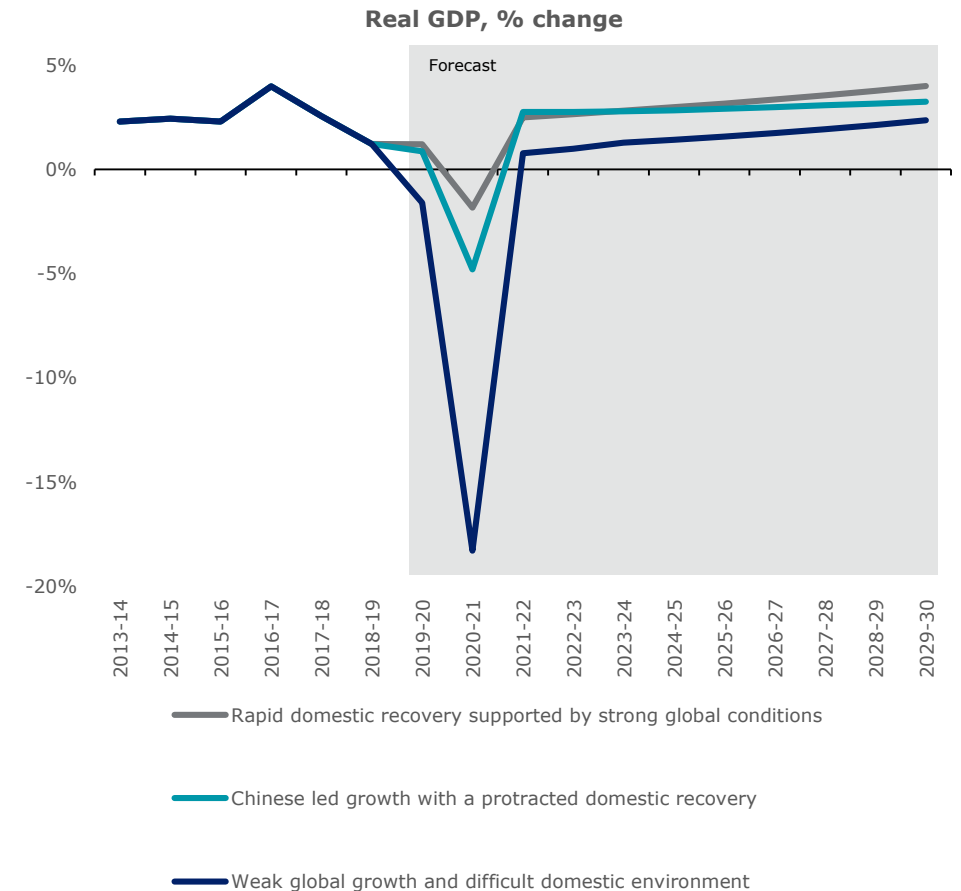
- Otago's economy is hit hard and enters a significant recession.
- While the elimination approach supports an earlier return to domestic activity, the closure of borders weighs on the recovery.
- Unemployment in Otago sharply rises to 8.3% and a recovery is prolonged.

## Scenario 3

### Rapid domestic recovery supported by strong global conditions

- The regional hurt is contained, but Otago still enters a recession.
- Otago faces a sharp decline in activity but the stronger global outlook supports a solid recovery.
- Unemployment jumps to 8% in Otago but swiftly falls in the second half of 2021.

**At this stage, we think Scenario 2 is most likely to occur. Domestically, the current trajectory of the economy is further towards Scenario 3, but poor global economic conditions make Scenario 2 more probable.**



# Overview of the regional economy

# Sector exposure

Otago faces a different sector mix to the New Zealand economy which may insulate it somewhat from the downturn

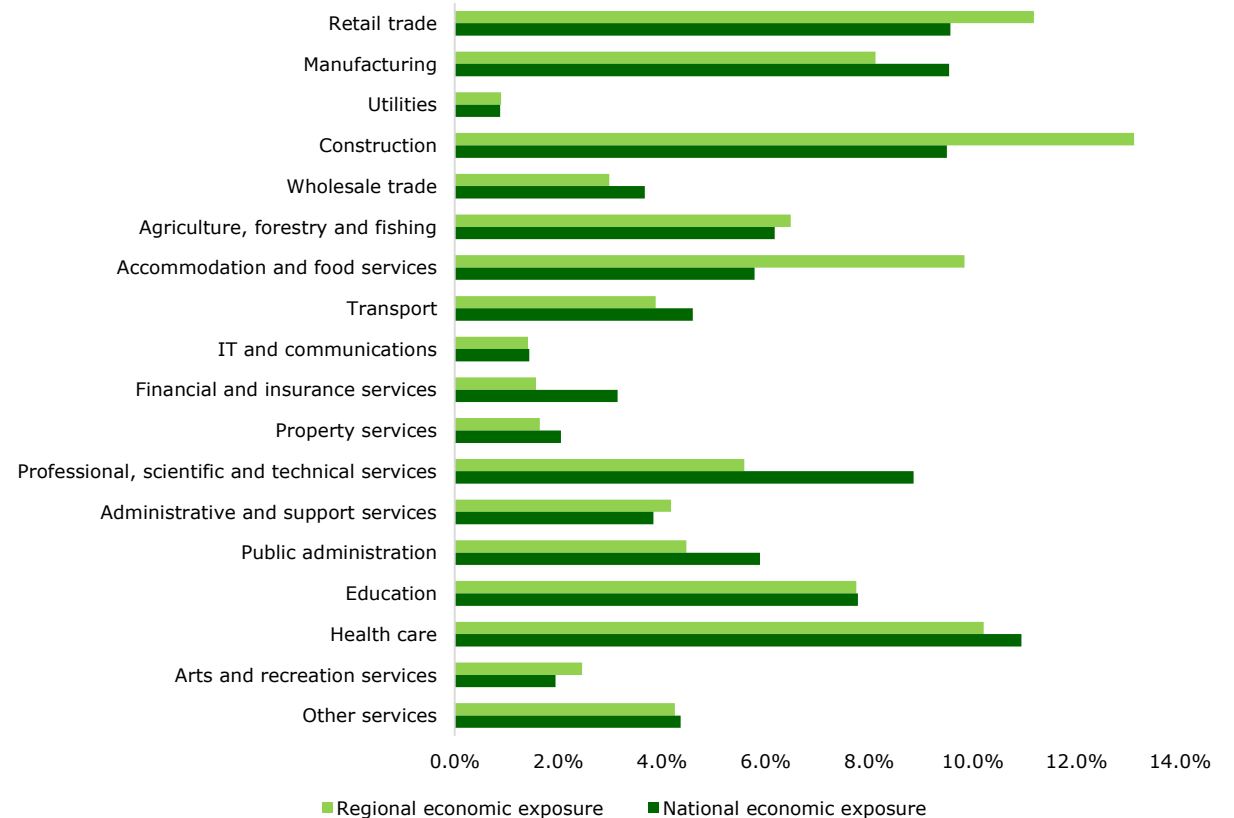
While the impact of COVID-19 across most sectors is likely to be significant, some will be impacted more than others, and this may present challenges and opportunities for Otago.

Otago is highly exposed to the accommodation and food services sector, with an economic exposure 4% higher than the New Zealand average. Many businesses in this sector will struggle to survive beyond the wage subsidy scheme, and those that do will have a long recovery having to deal with constant restrictions.

Otago is also highly exposed to the construction industry. Most projects were suspended over the lockdown period and are still having to abide by social distancing protocols. A decrease in productivity combined with a disrupted global supply chain will present a challenge for the region. On the other hand, the Government has allocated another \$3 billion for infrastructure in the latest budget which will increase domestic demand.

One area that the region is under-exposed to is professional/financial services. Unfortunately these are two sectors that are likely to be relatively resilient given their ability to adapt to a digital world.

## Sector exposure



Source: Statistics New Zealand, Deloitte

# Distribution of SME's in the region over time

## COVID-19 is likely to hit SME's the hardest

The two graphs to the right show the distribution of small-to-medium enterprises (**SME's**) in Otago over the last two decades. SME's are classified as enterprises who have fewer than 19 employees.

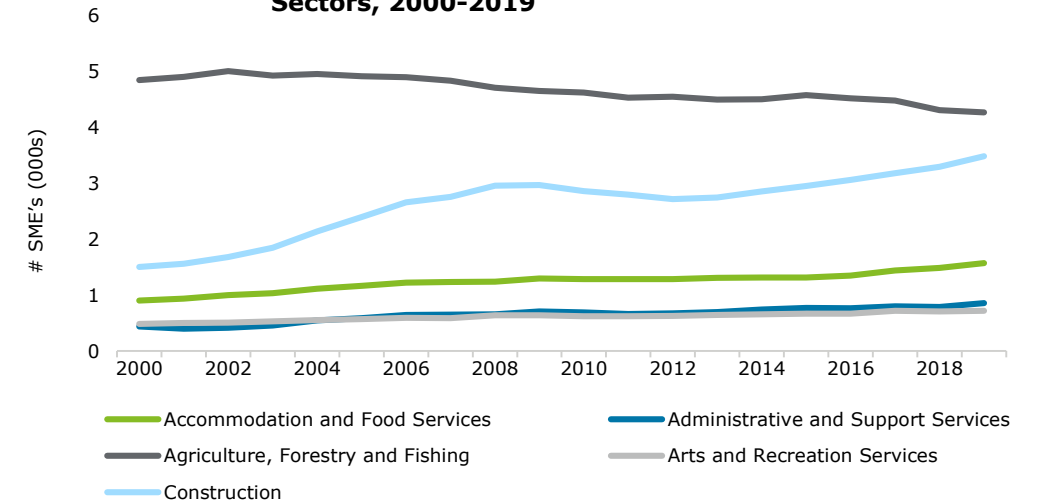
SME's are at a high risk of severe negative impacts due to the unprecedented circumstances of COVID-19. Alert Level Four and Three impacted the overall cash flow of SME's. The distribution of SME's in Otago gives an idea of which sectors are the least well insulated from pressures faced by these enterprises. **Not all SME's will be affected in the same way - a portion of SME's may prove to be more resilient than others, such as family businesses.**

The **top graph** shows the distribution over time of the top five sectors in Christchurch, based on the number of SME's in that sector. Generally, the number of SME's has grown, with an exception in agriculture, forestry and fishing. During the Global Financial Crisis recovery period from 2009 to 2012, growth in most sectors for SME's plateaued. In the last seven years, the number of SME's in the construction sector has visibly increased.

The **second graph** shows the percentage of employment in SME's in each sector. As an example, 63% of employment in the agriculture, forestry and fishing sector was in SME's in 2019, rather than in larger firms. The general trend over the last two decades is that employment in SME's has decreased. Comparing this trend with the general increase in the number of SME's, it appears that the number of employees in SME's is decreasing over time.

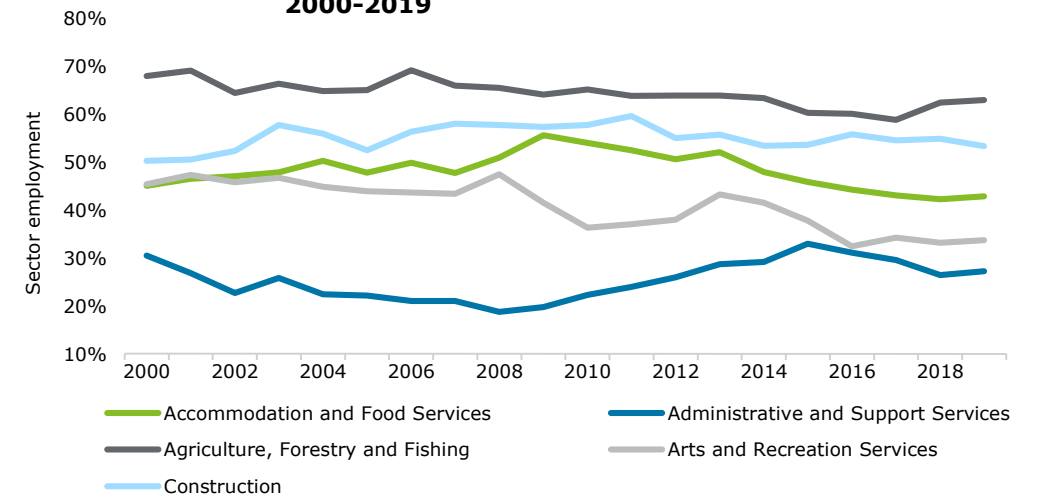
**Appendix B** tables detailed figures for the number of SME's by sector and the percentage of employment in SME's by sector for 2009 and 2019 in the Otago region.

**Number of Small to Medium Enterprises in Otago - Top 5 Sectors, 2000-2019**



Source: Statistics New Zealand

**Employment Percentage in Otago - Top 5 Sectors, 2000-2019**



Source: Statistics New Zealand



# **Scenario analysis**

Analysis of regional results

# Scenario 1 - Weak global growth and difficult domestic environment



## Key assumptions

- The success of New Zealand's Alert Levels 4 and 3 are short lived. A second outbreak occurs in the second half of 2020.
- A vaccine is found by July 2021 and rolled out by December 2021.
- Borders begin to open in late 2021 as the vaccine is rolled out, but restrictions remain for travel to and from the US.
- The fiscal response is not strong enough resulting in devastating loss to incomes and widespread job losses.
- Monetary policy remains towards the zero lower bound with strong quantitative easing.

## Key results



Change in population falls from 3,750 in 2018-19 to 1,020 in 2020-21



Otago's economy contracts 17% in 2020-21



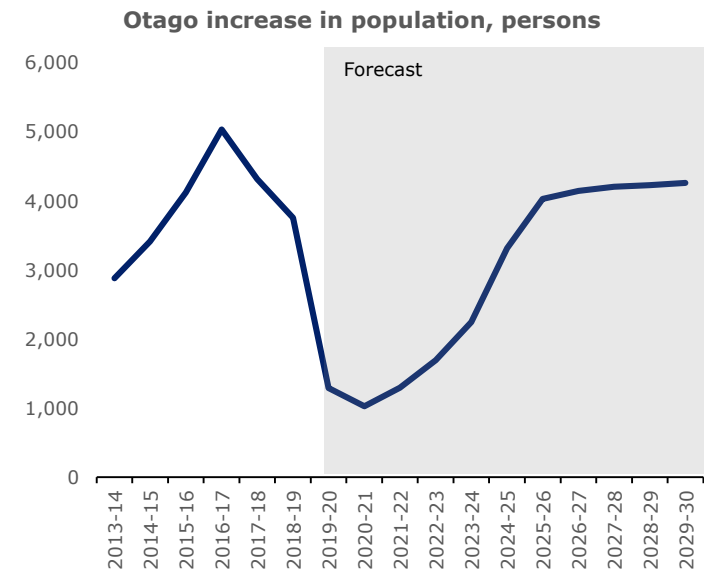
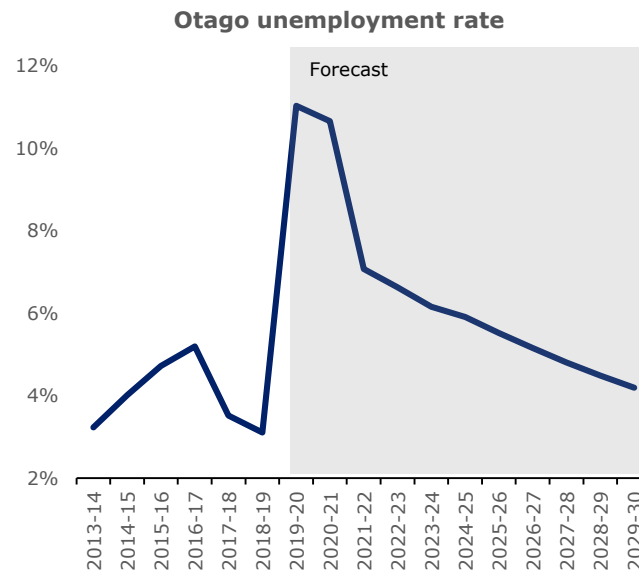
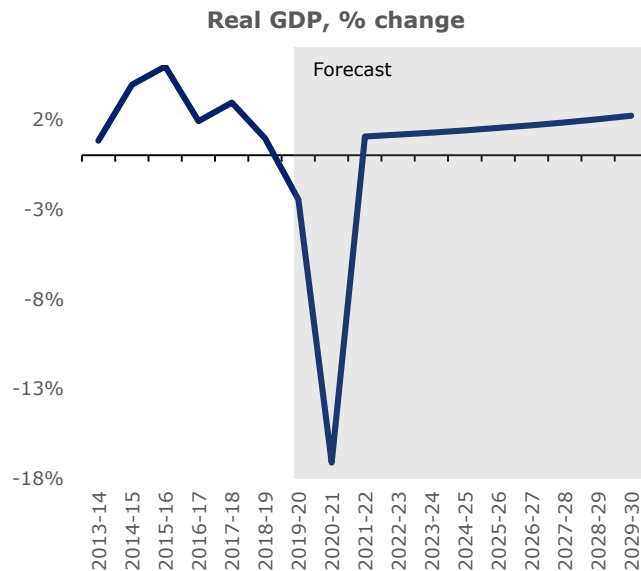
Unemployment rises to 11% in 2019-2020

# Otago economy

The fiscal response from government is not strong enough to shelter the economy from the implications of the lockdown, and additional outbreaks of the virus result in an extended period of weak growth. Regional GDP contracts significantly over two financial years, before rebounding in 2021-22. Demand and supply side constraints in the form of lost income and unemployment, and lockdown and border closures respectively, add to the slump in the economy.

Unemployment rises significantly through 2019-20 and 2020-21 as businesses are unable to open and staff are let go. Many small businesses in the tourism sector collapse, along with those in retail and hospitality. While wage subsidy support and low interest rates provide some support, people ultimately pull back on non-essential purchases. The prolonged impact of the virus means household consumption does not recover for quite some time.

Borders remain closed until a vaccine is found in late 2021, causing a much weaker increase to population in both 2019-20 and 2020-21. The effect on population growth is forecast to be prolonged until 2026-27 where it bounces back to pre-virus levels. The key driver for this change is net migration. New Zealand also experiences lower fertility rates and higher mortality than it would have pre-COVID-19.



# Regional analysis

Every region faces significant impacts under this scenario. The graph to the right shows that New Zealand as a nation is set to see a negative growth of 19%, stemming from related impacts of COVID-19.

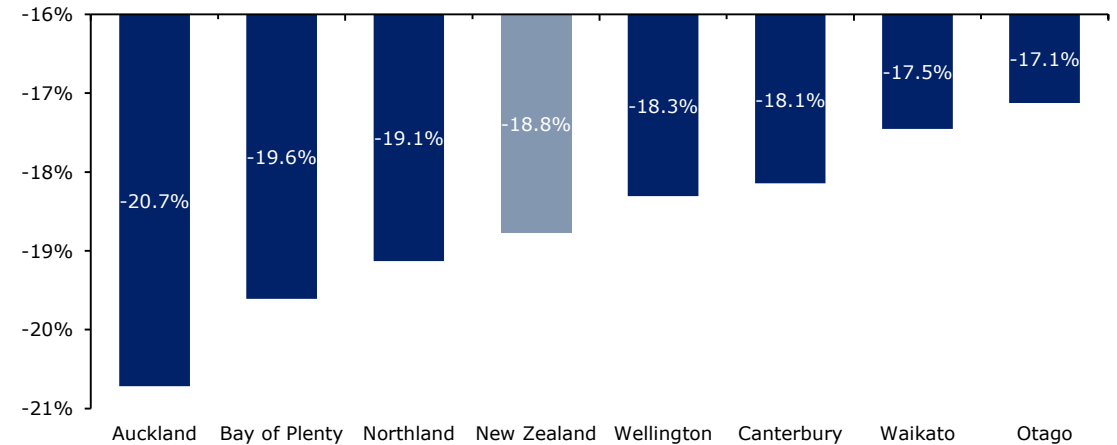
In this scenario, Auckland is the hardest hit. Border restrictions severely limit the movement of people, affecting the inbound tourism sector and international education. Migration comes to a halt and supply chains are heavily disrupted, slowing retail and wholesale trade. Bay of Plenty follows as the second-hardest hit region, due to its reliance on tourism.

Canterbury, Waikato and Otago are set to fare the best in this scenario. Waikato has high economic exposure to agriculture, an essential service during the lockdown. Canterbury and Otago (excluding Queenstown) are less reliant on international visitors but more exposed to construction and manufacturing, both of which are picking up quickly as the economy re-opens.

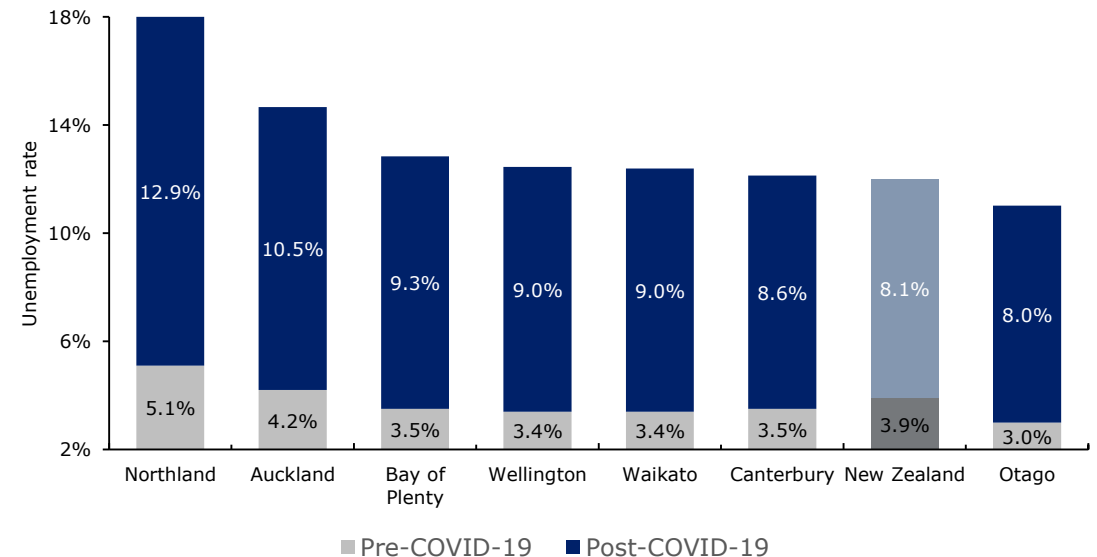
The second graph shows unemployment rates for 2020 compared to 2019 for each region. Northland's already high unemployment figure is most impacted relative to other regions. On average, unemployment is set to rise from 3.9% to 13.2%.

Note: Only six key regions and two extreme regions (Northland and Otago) are shown in these graphs. The impact on New Zealand is a representation of the entire country, rather than an average of the data shown.

**Regional Growth, 2020-21 (June year-end)**



**Incremental Impact of COVID-19 on Unemployment, 2019 vs 2020 (June year-end)**



# Scenario 2 - Chinese led growth with a protracted domestic recovery



## Triggers

- The success of the Alert Level 4 lockdown allows New Zealand to roll back to Alert Level 1.
- A vaccine is found by July 2021 and rolled out by September 2021.
- Borders begin to open in mid-2021 as the vaccine is rolled out.
- The fiscal response focuses on providing income support and limiting business operating costs during the lockdown period. However, cash flow problems lead to some business closures.
- Reserve Bank works to keep interest rates low through a significant bond buying program, supporting liquidity in the market.
- Global growth is led by China.

## Key results



Change in  
population falls  
from 3,750 in  
2018-19 to 1,300  
in 2020-21



Otago's economy  
contracts 4.8% in  
2020-21



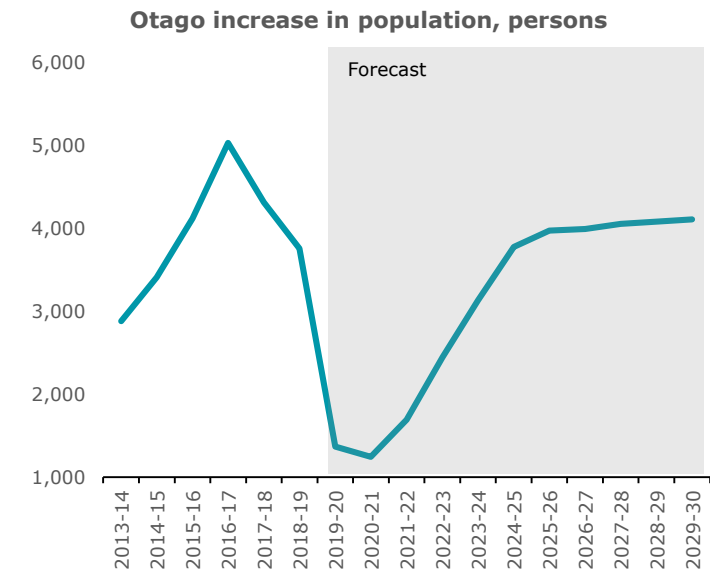
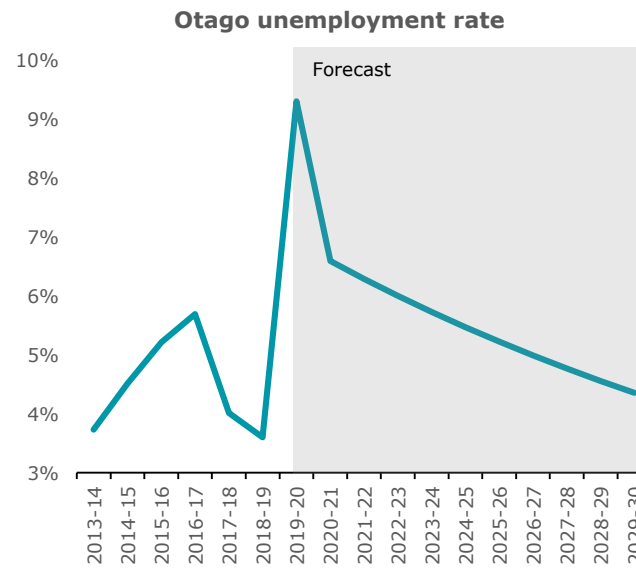
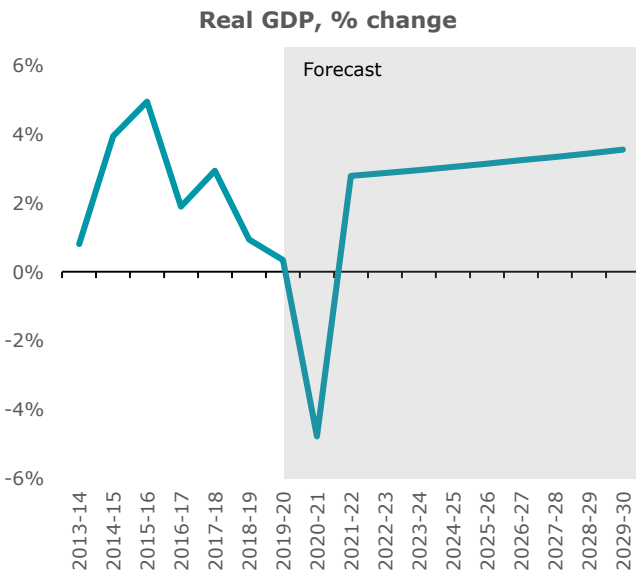
Unemployment  
rises to 8.8%  
in 2019-2020

# Otago economy

Under this scenario, the Otago economy takes a substantial hit. Regional GDP contracts sharply, but stronger growth in China supports a quick rebound. Most of the weakness is felt through consumption, as both supply side (shutdown and border closures) and demand side (lost income and unemployment) factors limit spending by households.

The closure of borders to contain the outbreak also has serious population impacts, with net overseas migration dropping substantially. As borders open again, population growth starts to improve rebounding from 2021-22. Under this scenario, Otago's increase in population only bounces back to pre-virus level in mid 2024-2025.

With businesses forced to shut up shop, the declines in employment are substantial in 2019-20. Measures such as the wage subsidy package have enabled some businesses to retain a connection to staff, but a prolonged period of weaker demand means it takes longer for the unemployment rate to return to its previous level. While the government's fiscal support measures provide some solace to households, ultimately incomes take a hit and wage growth remains constrained when labour market outcomes start to improve.



# Regional analysis

In this scenario, the GDP in growth in New Zealand is ~9% in 2020-21 (Northland is the hardest hit sector). Northland's dependence on the non-food manufacturing sector will increase its exposure to the downturn, and demand for oil may drop significantly.

Growth in Auckland is forecast to contract by 5%. Auckland's success in this scenario can be attributed to the earlier opening of borders, creating more opportunity for trade, tourism and international education.

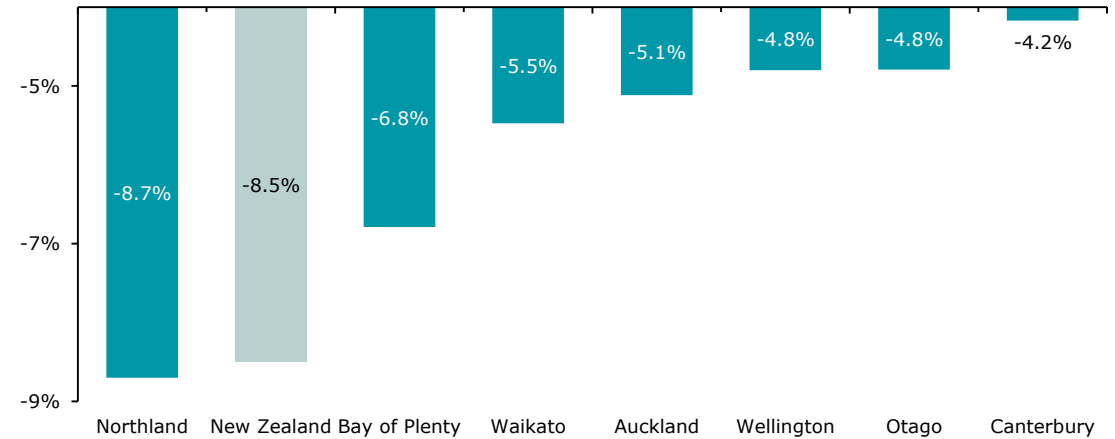
Auckland and Wellington are also somewhat insulated from the crisis in this scenario, as many large firms and public services are able to operate remotely. Not only does this mean employers are able to retain staff, but it also allows these businesses to move towards a more efficient and adaptable system.

Auckland's unemployment could increase by 8%, while New Zealand's unemployment rate sees an increase in unemployment of 6%.

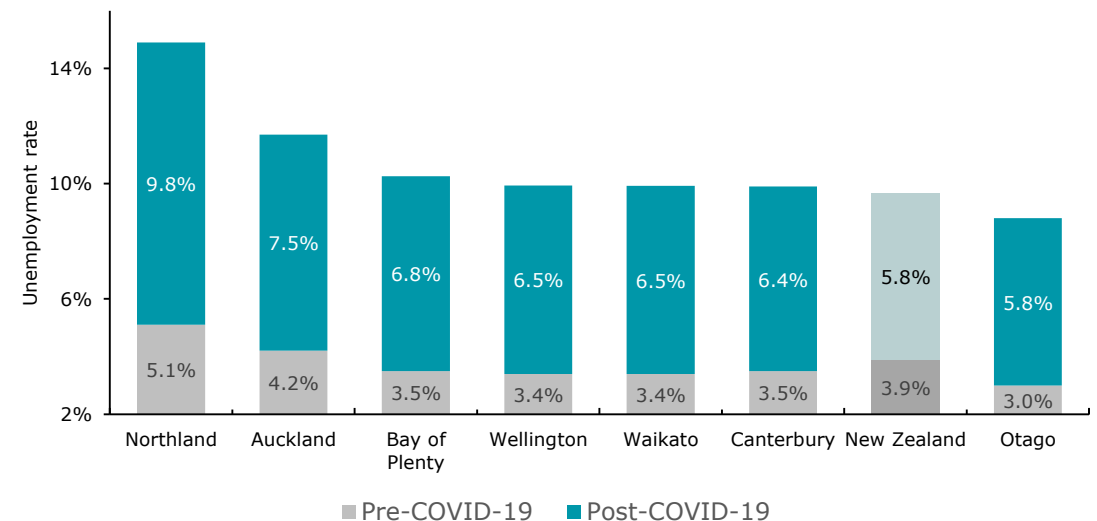
Along with the biggest drop in regional growth, Northland sees the highest increase in unemployment of 10%. Both high and low-skilled workers will experience job losses due to a decrease in employment in transport, warehousing and oil and gas.

Note: Only six key regions and two extreme regions (Northland and Otago) are shown in these graphs. The impact on New Zealand is a representation of the entire country, rather than an average of the data shown.

**Regional Growth, 2020-21 (June year-end)**



**Incremental Impact of COVID-19 on Unemployment, 2019-20 (June year-end)**



# *Scenario 3 - Rapid domestic recovery supported by strong global conditions*



## Triggers

- The Alert Level 4 lockdown followed by general compliance during Alert Level 3 and 2 have placed New Zealand in a position to downgrade to Alert Level 1 in June 2020. Restrictions are fully lifted by the end of the year.
- A vaccine is found by April 2021 and rolled out immediately.
- Borders begin to open in late 2020 as testing and tracing technology enables immediate screening of arrivals.
- The fiscal response is large and targeted, allowing companies to hibernate for the entire lockdown without losing links to key assets and people.
- Reserve Bank works to keep interest rates low through a significant bond buying program until inflation starts to pick up.
- The global economy is successful at controlling further outbreaks of COVID-19 given new comprehensive testing and tracing technology.

## Key results



Change in population falls from 3,750 in 2018-19 to 2,700 in 2020-21



Otago's economy contracts 1.6% in 2020-21



Unemployment rises to 8% in 2019-2020



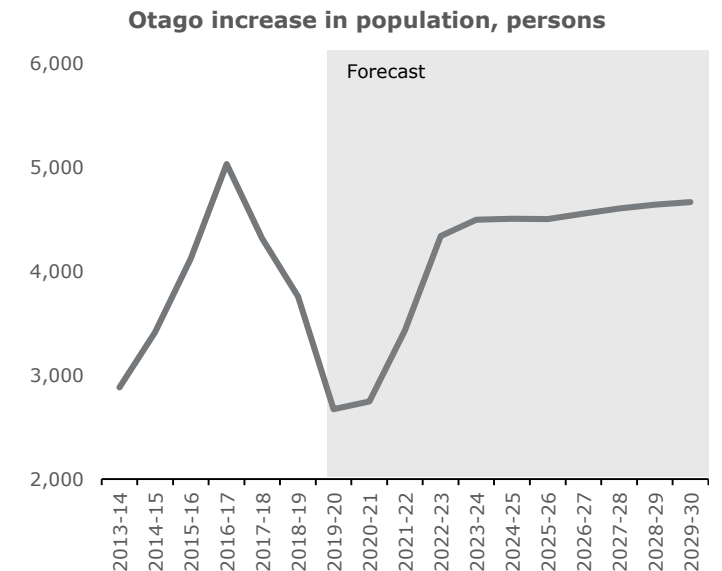
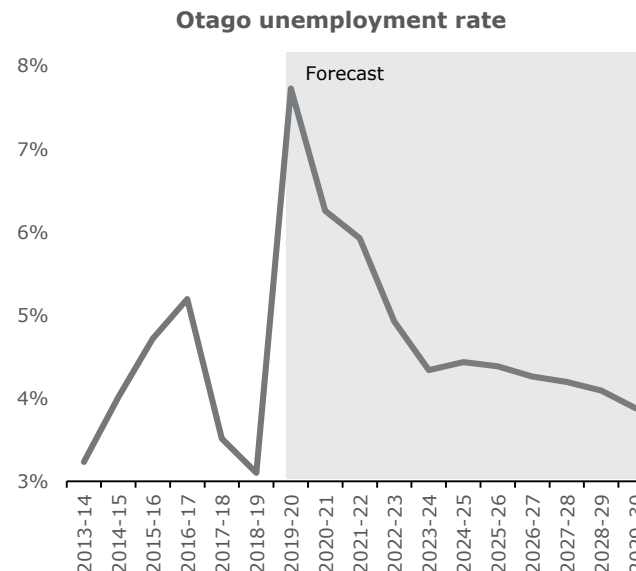
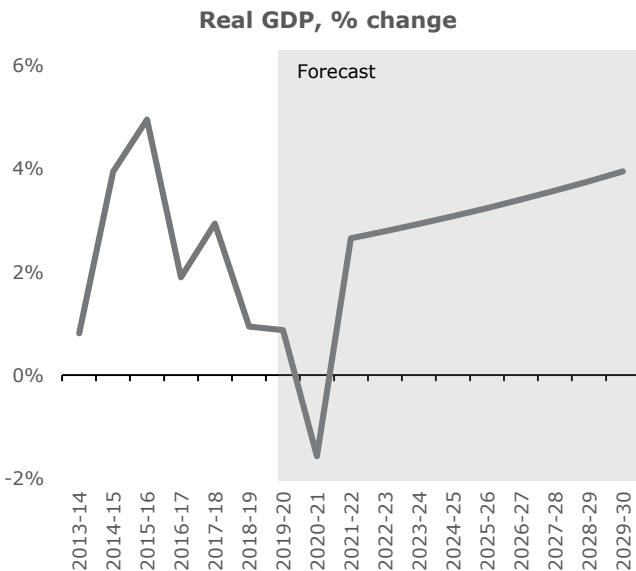
# Otago economy

In this scenario, Otago's GDP growth declines mildly before quickly rebounding in 2021-22. The rapid domestic recovery sees consumer confidence restored, with flow-on impacts for small businesses, retailers and the domestic tourism sector. The recovery is largely driven by the large and effective fiscal response. This response enables employees and employers to remain connected with jobs and ensures the return to full economic activity over a much shorter time frame than would otherwise have been possible.

Unemployment takes a short hit before rebounding strongly to pre-virus levels. Wage growth is strong once the virus is contained due to stronger demand and the linkages that kept employees with employers.

By late 2020, international borders are opened, allowing tourists and international students back into New Zealand and the region, which further supports population growth. However, the global economy is strong and this influences net migration. Population growth slows in 2019-20 and 2020-21, but bounces back to pre-COVID-19 levels in 2023-24.

Due to the fiscal response, Otago feels confident that the economy will recover, which supports spending and investment in regional markets.



# Regional analysis

In this scenario, the largest decline in regional growth for any region is 3.7%, reflecting the progress the country makes as the Alert Levels are lowered. Businesses are kept afloat by the government stimulus package during the lockdown and therefore are able to retain most of their staff.

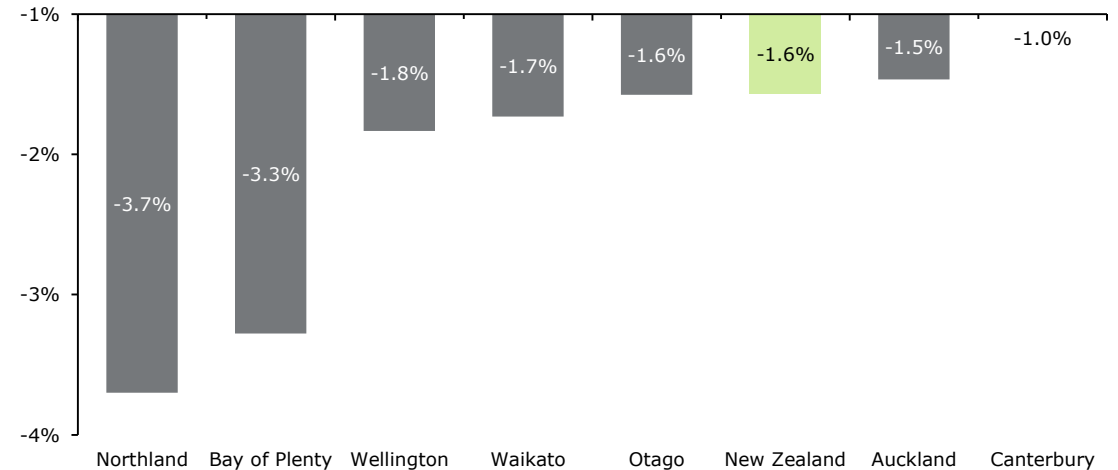
Northland is set to see the biggest drop in regional growth. The re-opening of borders has less of a positive effect on the region compared to the rest of the country given the region's light exposure to tourism and migration. Oil and gas companies are hit hard and need to halt production for a while until their oversupply is balanced.

The opening of borders in late 2020 benefits Auckland by increasing migration and bringing international visitors to the region. Auckland's regional growth is set to contract by 1.5% over 2021.

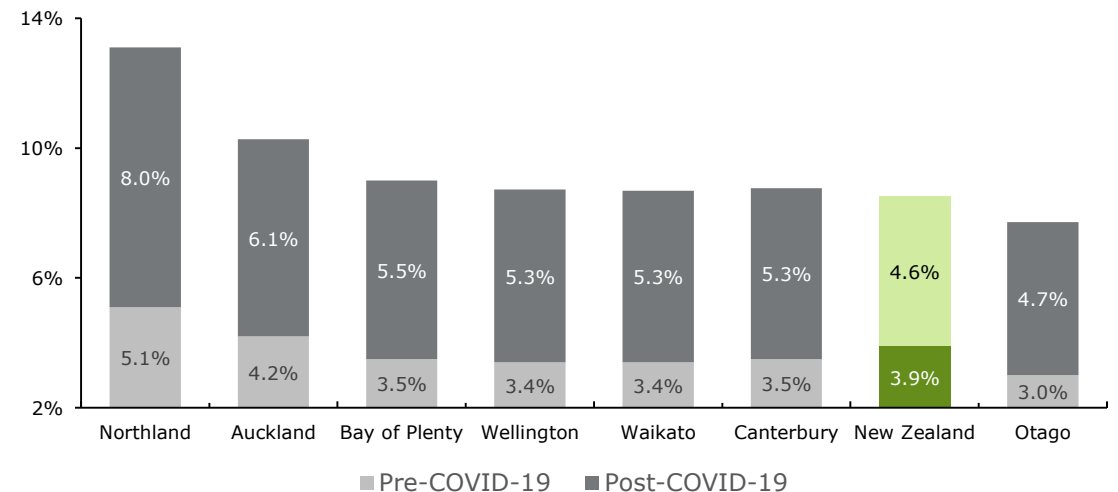
Northland has the highest unemployment rate at 13%, stemming from a comparatively high figure pre-COVID-19. Otago has the lowest unemployment rate at 8%. In general, the unemployment rate varies less in this scenario than previous scenarios, reflecting the ability to utilise fiscal stimulus and keep businesses afloat.

Note: Only six key regions and two extreme regions (Northland and Otago) are shown in these graphs. The impact on New Zealand is a representation of the entire country, rather than an average of the data shown.

**Regional Growth, 2020-21 (June year-end)**



**Incremental Impact of COVID-19 on Unemployment, 2019-20 (June year-end)**



# Appendix

## Scenario development process and assumptions

# Appendix A: Scenario design process

A four stage process was used to develop plausible scenarios relevant to a regional analysis



The four categories of risk identification include:

- **Policy;**
- **Economic;**
- **Social;** and
- **Technology.**

The key questions considered during this process include:

- What is the **trigger** that would increase the likelihood of this scenario?
- Who are the **actors** involved?
- What are the **immediate and secondary impacts**?
- How does the **long run outlook** change?

Deloitte quantifies the external economic impacts of the scenario. This can include important drivers such as consumer spending, currency movements, interest rates, and industry activity. Importantly, the comprehensive nature of the model captures the first and second round impacts.

Scenario analysis doesn't end at the quantification of impacts. The next stage involves:

- Identification of key indicators for monitoring the situation;
- Ranking of risks based on relative impact to your business; and
- Consideration of financial defences and cost optimisation.

# Scenario 1 – Weak global growth and difficult domestic environment

## Key assumptions



Likelihood



### Health

- A complete shutdown of non-essential services occurs.
- A second outbreak occurs in October 2020.
- There is a significant increase in demand for mental health services as prolonged closures result in increased cases. This extends into the recovery, reducing productivity and participation in the workforce.
- Sharp peak in new cases in November 2020.
- Vaccine is found in July 2021 and rolled out by December 2021.



### Global Economy

- The global outbreak continues to cause difficulties for the economic recovery.
- China experiences a second COVID-19 outbreak which causes a prolonged economic slowdown.
- There is a coordinated fiscal response in the EU. However, the ECB has to step in to bail out Italy and Spain, imposing tighter spending requirements post the outbreak that limits the recovery in the region.
- US containment policies are ineffective and further outbreaks occur. Partisan politics limit the ability to enact further effective stimulus measures and the economy enters a significant recession. The results of the 2020 election are brought into question, creating further uncertainty and limiting the economic recovery through 2021.
- Limited export demand from the US and China dampen the speed of the recovery. In addition, the inability to open borders hurts the large tourism sector.
- Central banks maintain accommodative monetary policy settings globally, with rates lower for longer in the US.



### New Zealand Economy

- New Zealand fiscal response is not strong enough resulting in devastating loss to incomes and widespread job losses.
- Unemployment surges with some industries losing the majority of small businesses.
- The public loses trust in the New Zealand economy which causes social unrest and a sharp drop in spending and investment.
- Monetary policy remains towards the zero lower bound with strong quantitative easing.
- The New Zealand dollar devalues further due to our failed response relative to our global peers, and the country comes under pressure as our credit rating drops and public debt soars.
- New Zealand borders remain closed until a vaccine is rolled out in late 2021, with travel limited, reducing population growth. This is exacerbated by lower fertility rates and higher mortality rates.

# Scenario 2 – Chinese led growth with an protracted domestic recovery

## Key assumptions



### Health

- The success of the Alert Level 4 lockdown allows New Zealand to roll back to Alert Level 1.
- A vaccine is found by July 2021 and rolled out by September 2021.
- Borders begin to open in mid-2021 as the vaccine is rolled out.



### Global Economy

- The global outbreak is mostly contained in 2020, after which there is a slow unwinding of travel bans over the following year.
- The Chinese economy continues its slow and steady recovery, driven by domestic demand improvements through stimulus measures.
- There is a coordinated fiscal response in the EU.
- US containment policies are ineffective and partisan politics limit the ability to enact further effective stimulus measures. The economy enters a significant recession. Post the 2020 election, road blocks remain on passing additional fiscal stimulus to support the recovery.
- Population growth slows given weaker global movement of people.
- Central banks maintain accommodative monetary policy settings globally and support liquidity in financial markets.



### New Zealand Economy

- The fiscal response focuses on providing income support and limiting business operating costs during the lockdown period.
- Unemployment spikes in mid-2020 and remains elevated.
- Fiscal measures provide some support to households, but consumption is curtailed.
- Wage growth comes under pressure given both increased unemployment and cost cutting measures taken during the crisis.
- The New Zealand dollar comes under pressure and investors flock to safe havens and the RBNZ works to keep interest rates low through a significant bond buying program.
- Consumer and business sentiment remain weak post 2021, limiting investment and spending in the recovery.
- Despite low interest rates in the recovery, investor sentiment remains weak and access to credit for SME's is limited.
- New Zealand borders remain closed until a vaccine is rolled out in July 2021, limiting population growth, with the international students and tourism streams hit the hardest.
- The health crisis and extended period of work from home requirements results in a population flow out of major cities.

# Scenario 3 – Rapid domestic recovery supported by strong global conditions

## Key assumptions



### Health

- A complete shutdown of non-essential services occurs for three months.
- Population largely complies.
- Technology advancements in testing and tracing allowing for targeted quarantine measures.
- Vaccine is rolled out in April 2021.



### Global Economy

- The global economy is successful at controlling further outbreaks of COVID-19 given new comprehensive testing and tracing technology which enables borders to slowly open in late 2020.
- The Chinese economy benefits from the pioneering of new testing technology, driving a rapid recovery to full economic activity.
- There is a coordinated fiscal response by the EU, and the global recovery enables an improvement in country's fiscal position.
- Despite ongoing partisan divisions creating difficulty in passing stimulus measures at a Federal level, coordinated State responses to containing the outbreak are relatively effective. However, the economy enters a recession without effective fiscal support. Post the 2020 election, the winning party gains majority and is able to pass legislation for additional fiscal stimulus to support a swift recovery.
- Central banks enact supportive monetary policy during the crisis, but this is able to be unwound as the global recovery picks up.



### New Zealand Economy

- The fiscal response is large and targeted, allowing companies to hibernate for the entire lockdown period without losing links to key assets and people.
- Unemployment spikes in mid-2020, but this rapidly recovers post shutdown given the linkages through fiscal measures such as wage guarantees.
- While wage growth comes under pressure during the crisis, stronger demand and the retention of employees leads to stronger growth in recovery.
- The New Zealand dollar comes under pressure in the short term as investors flock to safe havens, but Chinese demand supports a stabilisation.
- The RBNZ works to keep interest rates low through a significant bond buying program until inflation starts to pick up.
- Businesses and consumers feel confident about the recovery given effective stimulus, and coupled with low interest rates, this drives investment and spending in the recovery.
- New Zealand borders open to international tourists and students by April 2021, supporting a recovery in population growth.

## Appendix B: Small to medium enterprises by sector in Otago

This table shows the number of small to medium enterprises (**SME's**) by sector, and the percentage of employment in SME's in that sector for 2009 and 2019 in Otago

Sector	2009		2019	
	#SME's	% employment	#SME's	% employment
Accommodation and Food Services	1,296	56%	1,575	43%
Administrative and Support Services	711	20%	858	27%
Agriculture, Forestry and Fishing	4,650	64%	4,266	63%
Arts and Recreation Services	639	41%	723	34%
Construction	2,967	57%	3,486	53%
Education and Training	408	20%	405	19%
Electricity, Gas, Water and Waste Services	66	26%	87	26%
Financial and Insurance Services	1,380	62%	1,989	68%
Health Care and Social Assistance	948	22%	1,116	22%
Information Media and Telecommunications	225	25%	276	26%
Manufacturing	834	28%	882	30%
Mining	42	24%	42	18%
Other Services	1,023	82%	1,188	72%
Professional, Scientific and Technical Services	1,701	56%	2,277	57%
Public Administration and Safety	207	25%	177	14%
Rental, Hiring and Real Estate Services	5,217	92%	6,420	69%
Retail Trade	1,617	52%	1,593	48%
Transport, Postal and Warehousing	804	47%	855	37%
Wholesale Trade	723	63%	693	59%



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