# Southland Region post-COVID scenario analysis

for Great South

February 2021
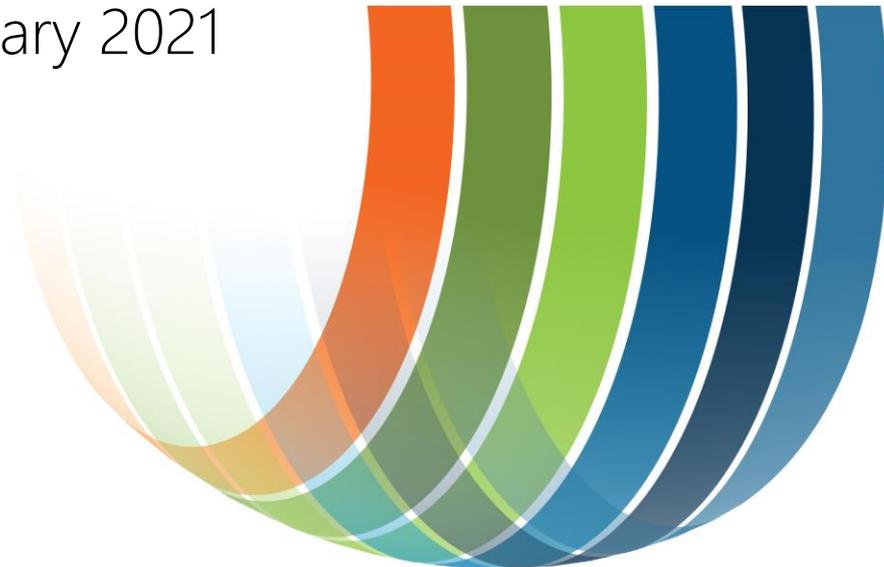
Infometrics

Economics put simply

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Executive summary

Infometrics was commissioned by Great South to produce this report, assessing the region's performance throughout the COVID-19 lockdown period; forecasting the region's economic and population outlook over the coming five years; and discussing the region's long-term challenges and opportunities.

Southland performed strongly through COVID-19 lockdown

Southland performed strongly through the COVID-19 lockdown, with key industries such as agriculture and food manufacturing considered essential industries, and permitted to keep operating. This meant that under Alert Level 4, 59% of Southland's economy was able to operate, compared to 53% nationally. Under Alert Level 3, 80% of Southland's economy was able to operate, compared to 74% nationally.

Steady outlook for employment

The outlook for Southland's economy over the next five years is steady. Employment in the region is forecast to decline slightly due to the COVID-19-induced recession, down by 0.3% in 2021 and 0.4% in 2022. Employment is forecast to grow strongly in 2023 and 2024, recovering to pre-COVID levels by 2023. Growth tapers off in 2025 as the expected closure of the Tiwai Point smelter comes into effect.

Loss of tourism drives employment decline in near term

The loss of international tourism drives employment decline between 2020 and 2022 in the medium scenario, with the strongest employment declines expected in tourism related industries, including accommodation and food services (-25%); transport, postal and warehousing (-11%); and arts and recreation services (-7%). Information, media and telecommunications suffers a 17% fall in employment in Southland due to a loss of advertising revenue and an ongoing trend of centralisation.

Growth is expected in the near term in health care and social assistance (8%), public administration and safety (6%), and education and training (5%)

Most industries recovered by 2025

Most industries are expected to be back to their pre-COVID size by 2025 under the medium scenario. Employment in information, media and telecommunications is expected to remain well below its pre-COVID level due to structural changes. Employment in tourism related industries is expected to be slightly below pre-COVID levels, as international visitor arrivals aren't expected to have fully recovered.

Employment growth drives population growth

Southland's population is forecast to continue growing across all three scenarios, on the back of sustained employment growth. Population growth is still expected to be strong in 2025, but may taper off in subsequent years as the closure of the Tiwai Point dampens employment growth. Given the strength of underlying employment demand and the likely development of alternative industries, it appears unlikely that the population will decline in response to the Tiwai Point smelter closure.

Southland's population was 102,600 in 2020, and by 2025 is forecast to reach 109,600 under the medium scenario, 111,300 under the high scenario, and 108,800 under the low scenario.

Risks and opportunities on the horizon

Southland's economy faces change on several fronts over the medium to long term, which may require adjustment to the region's economic structure.

Freshwater and carbon regulation hit primary sector

Increasing stringency in environmental regulations – related to carbon emissions and freshwater – will soon start to constrain output from Southland's key agriculture activities such as dairy cattle farming. The combination of regulation is expected to reduce fertiliser application, grazing area, and grazing intensity. This will adversely effect employment, both on-farm and in downstream processors such as dairy and meat product manufacturing. By some estimates, this might lead to a 15-20% drop in employment, At the same time, it may in practice encourage land use changes. Growing oats for oat milk, supported by development of a new oat milk factory in the region, is emerging as a promising alternative land use.

Tiwai closure is increasingly likely

Closure of the Tiwai Point smelter has become increasingly likely, despite the recently announced four-year extension to its operation. Southland is beginning to develop new industries to create alternative employment for smelter workers.

The global aluminium market is becoming dominated by highly efficient and low-cost smelters in Canada and China. Tiwai Point is unable to compete with these smelters on a undifferentiated commodity basis. However, there are early signs of a price premium emerging for high-purity aluminium with low carbon emissions. This premium would improve the profitability of Tiwai Point and enable it to continue operating into the long term.

Job losses will take time to absorb into labour market

The smelter is estimated to directly and indirectly support 2,300 jobs across the region, a volume which cannot immediately be absorbed into the local labour market. However over time, retirement and employment growth is likely to absorb this number of workers.

Opportunities for alternative industries

The private sector, as well as local and central government, are exploring options to develop alternative industries to generate employment opportunities, particularly 'green industries' which can utilise the surplus low-carbon electricity from Manapōuri Power Station. Opportunities being mooted include expansion of the aquaculture industry around Stewart Island, production of hydrogen using green electricity, development of a data centre, and production of batteries.

Closure of the smelter is also expected to lead to a $350m, five-year remediation project, which will create employment opportunities in the short to medium term.

Southland expected to recover well to COVID

Southland's primary sector and food manufacturing industries provided strength throughout the COVID-19 lockdown, and are expected to provide stability throughout the COVID-19 recovery too. The world's need for food will endure, however demand may shift away from more discretionary and luxurious foods.

Tourism is an important contributor to Southland's economy, but is expected to suffer for some time. Domestic tourism has been helpful in plugging the tourism deficit to date, but it is only a partial offset for international visitor spending. Reopening our border to Australia and the rest of the world will help, but international tourism faces serious headwinds in its recovery, with only an 80% recovery expected by 2025. Tourism won't be the same again, and this presents an opportunity for New Zealand to shift its offering from volume to value.

Need to shift from commodity focus

Southland's exports are heavily concentrated in the commodities of meat, dairy, forestry, and aluminium products. This leaves the region vulnerable to exogenous changes such as the introduction of tariffs or carbon pricing. Southland could change this situation by gaining greater control over the downstream supply chain of their products, and creating strong brands which value the products' provenance and connect their products to the qualities of the region.

Labour force issues persist

Southland Region is at risk of substantial labour shortages over the medium to long term. These shortages are due to long-running and historic demographic factors, although they have been ameliorated in the short term. At a regional level, the attraction of domestic migrants and support for greater labour force participation may help. Employer- and industry-specific approaches are also needed.

Introduction

Infometrics was commissioned by Great South to produce this analysis of the outlook for the Southland Region. We begin by analysing the effect the COVID-19 lockdown, before presenting several growth scenarios for the coming five years. These scenarios forecast the region's employment, GDP and population in the context of different outcomes for New Zealand's economic recovery post-COVID, and the recovery of international visitor arrivals to New Zealand. These factors present a range of possible outcomes for the region.

Over the longer term, Southland's economy faces some serious challenges, all of which are shared with the rest of New Zealand; however some are particularly acute for Southland. This report discusses five of these risks and opportunities, with effects likely to be felt beyond 2025, but for which consideration and action are required sooner rather than later.

Analysis of COVID lockdown

Infometrics conducted an analysis of the ability of each of 54 industries to operate under COVID Alert Level 4 and Level 3 restrictions, to estimate effect of these restrictions on the economy.

This analysis draws upon Stats NZ 2018 Business Operations Survey, which contains information on how businesses in different industries operate – for example, the extent to which staff can work from home, or whether they are equipped to accept orders online. We considered which industries were classified as 'essential' by the government, and thus were able to continue operating in some form even under the most restrictive Level 4 lockdown. We also considered how the Level 3 lockdown would affect businesses, with for example, hospitality operators having reduced capacity due to the need for social distancing between tables. This analysis only considered the capacity of industries to operate, not their demand. For areas such as Fiordland, although accommodation and food services businesses were theoretically able to operate at 47% capacity during Level 3, the lack of international visitors means they were likely operating at a far lower level, with businesses remaining closed in some cases.

The effect of the lockdown restrictions on the Southland Region is shown in Chart 1. Industries which were classified as essential, such as agriculture, fishing and food manufacturing were allowed to operate fully throughout the Level 4 lockdown. However these are grouped with other industries, such as forestry and non-food manufacturing, which were not able to fully operate. For industries such as professional, scientific and technical services, many workers were able to continue to work from home.

Chart 1

Effect of lockdowns on economic activity in Southland
% of activity able to take place under lockdown restrictions

Legend: ■ Level 3 ■ Level 4
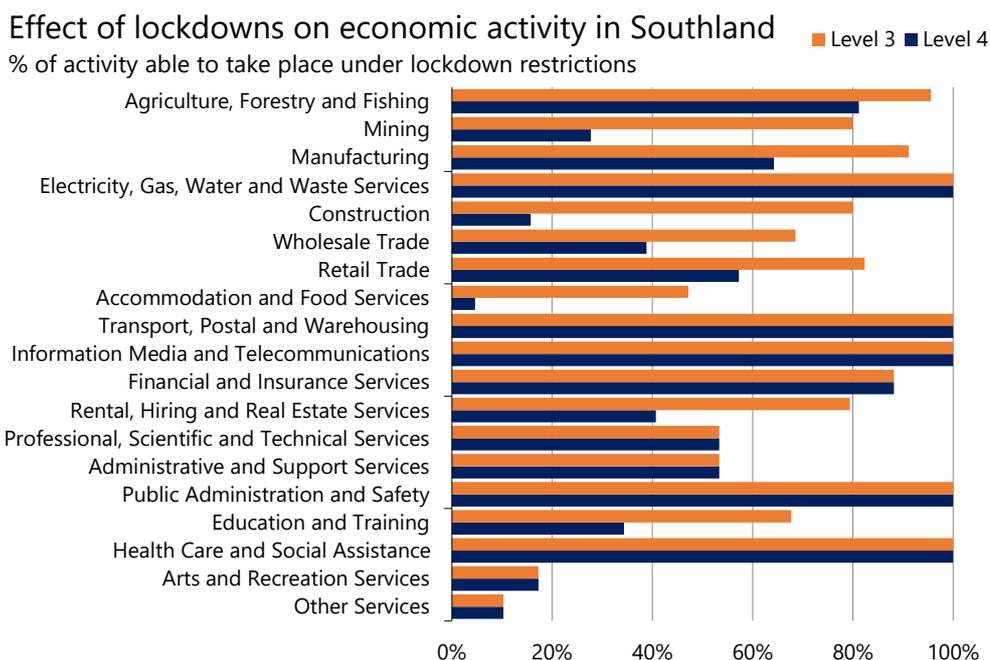
Although the restrictions on each industry applied uniformly across the country, differences in the industry composition of each region meant that the overall effect on regional economies differed. A greater proportion of Southland's economy is based on essential industries such as agriculture and food manufacturing, compared to the national average. This meant that a greater share of Southland's economy was able to operate under both Level 4 and Level 3 restrictions. Infometrics estimate that 59% of Southland's economy could operate under Level 4, compared to 53% nationally. Likewise, under Level 3 restrictions, 80% of the region's economy was able to operate compared to 74% nationally.

Chart 2

Effect of lockdown on economic activity
% of activity able to take place under lockdown restrictions

Legend: ■ Level 3   ■ Level 4
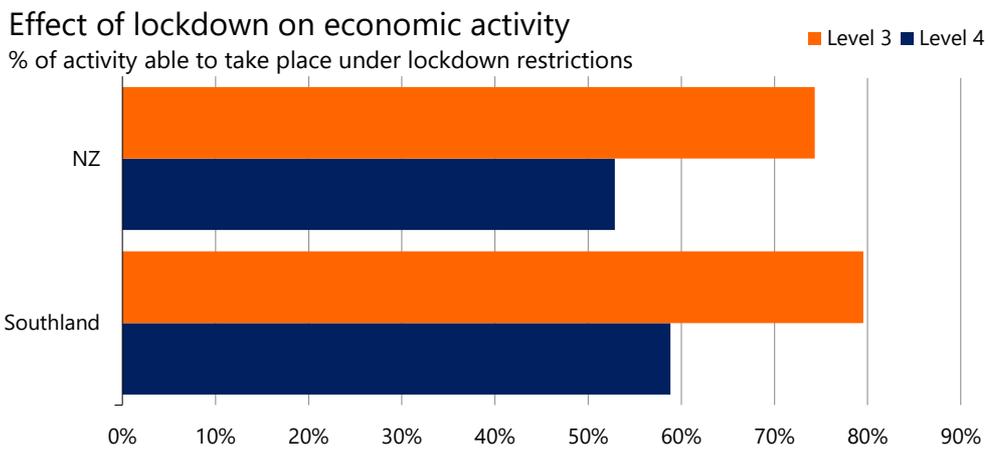
Scenario analysis

We have modelled three scenarios for the Southland Region over the next five years. The scenarios consider different outcomes for New Zealand's economic recovery from COVID-19, the recovery of international visitor arrivals, and the status of the Tiwai point aluminium smelter. Below we describe our methodology, followed by a detailed discussion of the findings.

Methodology

The forecast scenarios were produced through a combination of our regional forecasting model and multiplier analysis. We specified the parameters of the low and high scenarios to illustrate a range of outcomes for the COVID-19 recovery.

Our regional forecasting model incorporates our macroeconomic forecast for New Zealand and models the effect on employment and GDP for industries and regions. Multiplier analysis models the effect of a shock on the economy – the closure of the fourth potline at the Tiwai Point Smelter.

Across all three scenarios, we have assumed that the Tiwai Point smelter will remain operational until December 2024, with the fourth potline remaining closed. The fourth potline was closed in April 2020 in response to COVID-19. A $350m remediation programme is expected to commence once the smelter closes, however this is beyond the forecast period. Our estimates indicate that the remediation project would create approximately 3-400 jobs over a five-year period.

The three forecast scenarios are:

Baseline

- Infometrics core (medium) macroeconomic forecast
- Infometrics core international visitor arrival forecast, of recovery to 80% of pre-COVID levels by 2025

High

- National and international economic growth stronger than Infometrics core macroeconomic forecast
- Stronger recovery of international visitor arrivals, to 100% of pre-COVID levels by 2025.

Low

- National and international economic growth weaker than Infometrics core macroeconomic forecast
- Weaker recovery of international visitor arrivals, to 70% of pre-COVID levels by 2025.

Infometrics

Regional Forecasting Model

Infometrics has drawn on a range of econometric and statistical models 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.

Measuring the impact on regions and cities

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.

Multiplier analysis

Input-output tables from Insight Economics, procured by Great South, were used to characterise the interrelationships between Southland's industries in terms of GDP and employment. This will enable multiplier analysis to quantity the effect of the closure of the fourth potline at Tiwai Point and the full closure of Tiwai point in 2024.

Demographic projection model

Infometrics has developed a demographic projection model which models the components of population change at a granular level – including mortality, fertility, net migration and labour force participation. This was used to provide projections of the age composition and workforce participation rate for Southland. The assumption has been made that the age composition of the region will be the same across the low, medium and high scenarios. A forecast of the total population in the region under each of the three scenarios was developed in consideration of:

- Employment forecasts for the region
- National unemployment rate forecasts
- Historic relationship between Southland's unemployment rate and the national unemployment rate

Findings

Economic activity set to fall in 2021, weaker recovery in Southland

Economic activity (GDP) is forecast to fall by 2.4% in Southland between 2020 and 2021, a similar rate to the national decline of 1.9%. However, Southland is forecast to recover more slowly than New Zealand overall, with growth peaking at 2.6% in Southland in 2022, compared to 3.6% nationally. Southland's economy is forecast to contract in 2025, as the expected closure of the Tiwai Point smelter hits the last quarter of the 2025 year.

Chart 3

Growth in economic activity
GDP annual % change, medium scenario
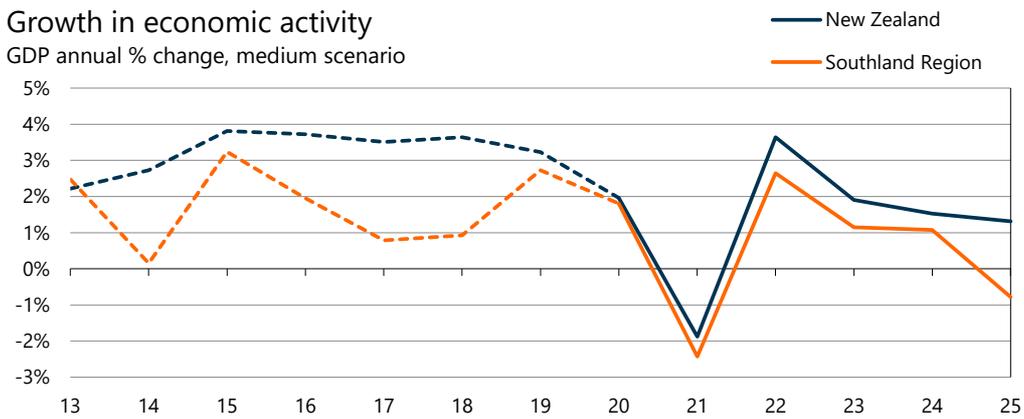
Growth is forecast across three scenarios – low, medium and high – which all feature the same assumptions for the 2021 year, as this year is nearly complete (ends in March 2021). The scenarios start to diverge in 2022, with the strength of macroeconomic conditions and the recovery of international visitor arrivals distinguishing the scenarios.

Economic activity in Southland is expected to return to pre-COVID levels (2020) by 2022 under the medium and high scenarios. Under the low scenario, recovery is expected to take place by 2023.

Chart 4

Level of economic activity
GDP $m, Southland Region
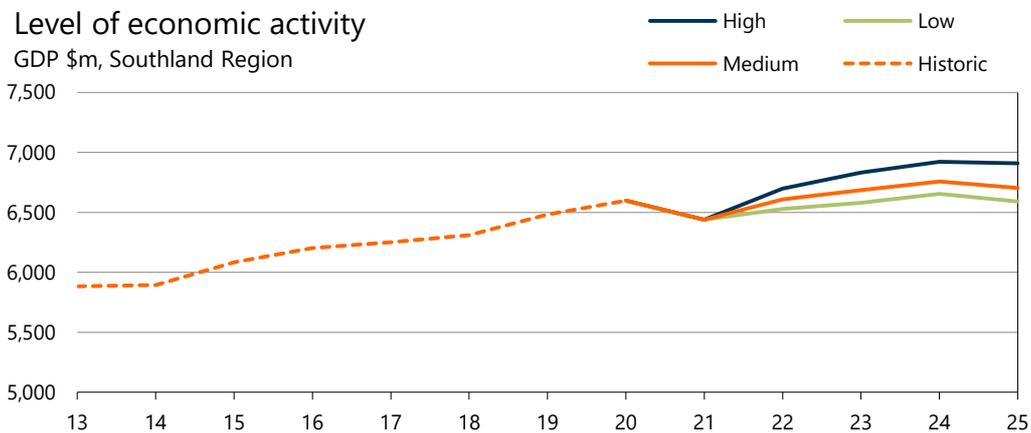
Employment falls in 2021 and 2022

Employment in Southland is forecast to fall by 0.3% in 2021, and 0.4% in 2022. This compares to the national forecast of a 0.2% decline followed by 0.3% recovery. Southland's employment growth rate is expected to re-couple with the national trend in 2023 and 2024, before the impact of the Tiwai closure is felt in 2025.

Chart 5

Employment growth
Annual % change, medium scenario
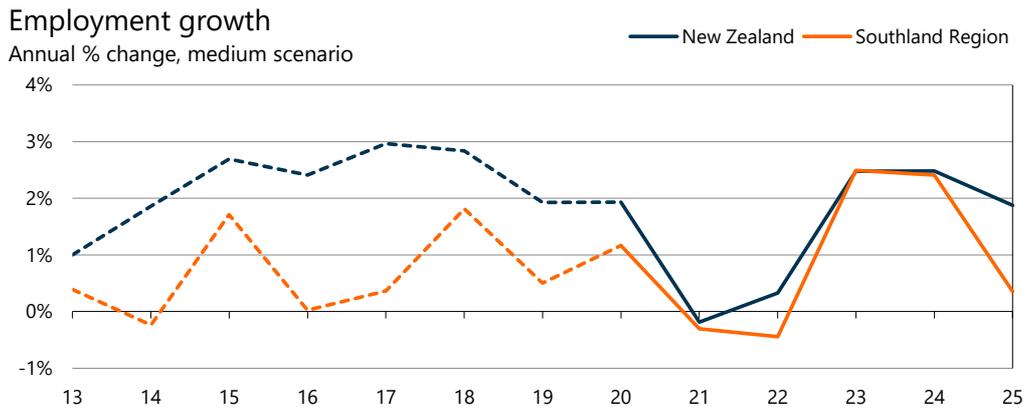
In line with the economic activity forecast, employment under the three scenarios is distinguished by the strength of national macroeconomic conditions and the recovery of international visitor arrivals. Employment in Southland is forecast to reach 57,800 by 2025 under the high scenario, compared to 56,700 under the medium scenario, and 56,000 under the low scenario.

Employment is expected to take slightly longer than GDP to recover to pre-COVID levels. Employment reaches pre-COVID levels in 2022 under the high scenario, and 2023 under the medium and low scenarios.

Chart 6

Level of employment
Southland Region

Infometrics
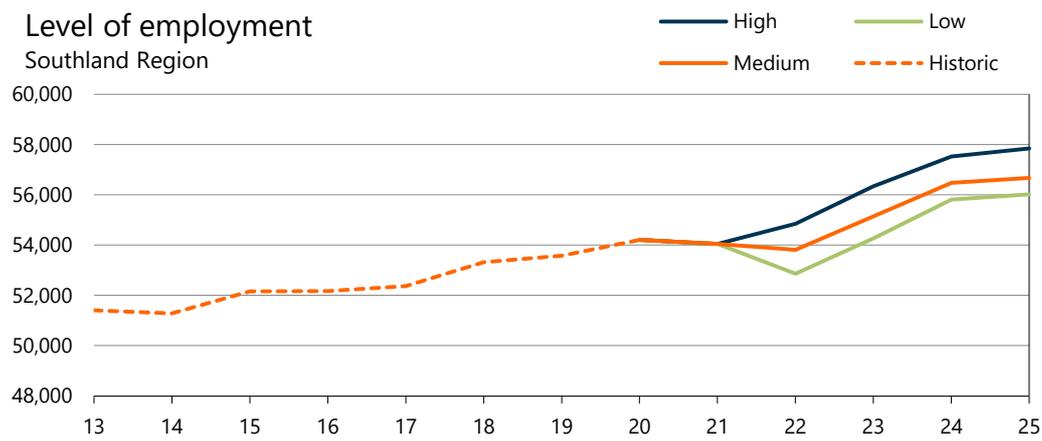
Population holds up, driven by employment growth

Southland's population is expected to continue growing out to 2025, driven by employment growth across all three scenarios. The brief slowing in employment growth in 2022 does little to deter population growth, as it coincides with weaker employment growth nationally. This means that people out of employment are unlikely to move regions for employment, as prospects will be similar across most regions. Population growth is expected to accelerate towards 2024, as solid employment growth pulls migrants into the region. Population growth is still expected to be strong in 2025, but may taper off in subsequent years as the closure of the Tiwai Point dampens employment growth. Given the strength of underlying employment demand and development of alternative industries, it appears unlikely that the population will decline in response to the Tiwai Point smelter closure. There is a risk that anticipation of the smelter closure may serve to discourage migration to the region ahead of the smelter closure, but this has not been quantified.

Southland's population was 102,600 in 2020, and by 2025 is forecast to reach 109,600 under the medium scenario, 111,300 under the high scenario, and 108,800 under the low scenario.

Chart 7

Southland Region Population
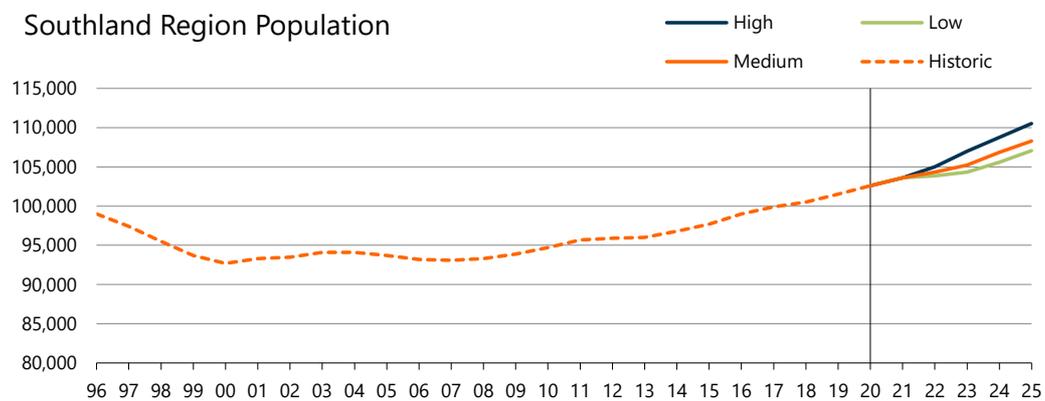
Many industries will have less activity in 2022…

Many of Southland and New Zealand's industries will experience reduced economic activity in 2022, which is indicative of the low point of the COVID-19-induced recession. Tourism-related industries are among the worst affected, with accommodation and food services industry GDP down by 27% in Southland; and transport, postal and warehousing down by 9%. Mining GDP is forecast to decline by 10% due to the closure of the Waikaia gold mine. Growth is expected across a variety of industries, notably health care and social assistance (9%) and public administration and safety (7%).

Chart 8

Change in economic activity (GDP)
2020-2022, medium scenario
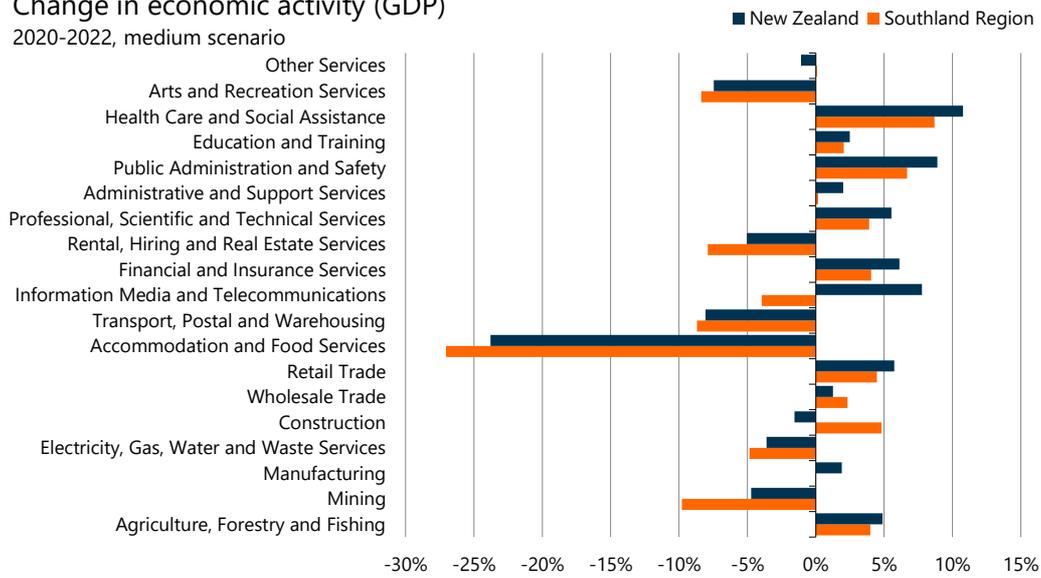
...But most will have recovered by 2025

Economic activity in most industries is expected to recover by 2025. Accommodation and food services is still expected to be below 2020 levels due to the slow recovery of international visitor arrivals. Mining industry GDP remains down following the closure of the Waikaia gold mine. The decline in electricity, gas, water and waste services GDP is largely driven by a correction in the electricity distribution sub-industry, following a spike in activity over 2018-2020.

Chart 9

Change in economic activity (GDP)
2020-2025, medium scenario
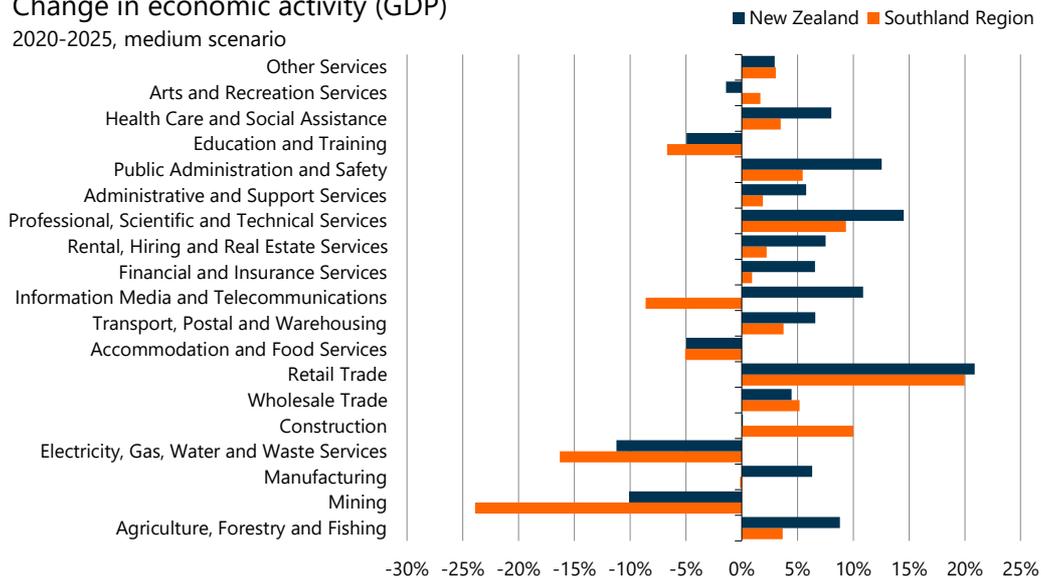
Weak tourism means low growth to 2022

Over the period 2020 to 2022, employment growth is expected to be low or negative in most industries.

A lack of international visitors contributes to a severe decline in accommodation and food services employment, down by 25% in Southland. Arts and recreation, and transport, postal and warehousing also suffer due to a lack of international visitors, down 7% and 11% respectively. Information, media and telecommunications suffers a 17% fall in employment in Southland due to a loss of advertising revenue affecting the publishing and broadcasting sector, in addition to an ongoing trend of centralisation.

By contrast, employment is expected to grow strongly over this period in health care and social assistance (8%), public administration and safety (6%), and education and training (5%).

Chart 10

Change in employment
2020-2022, medium scenario
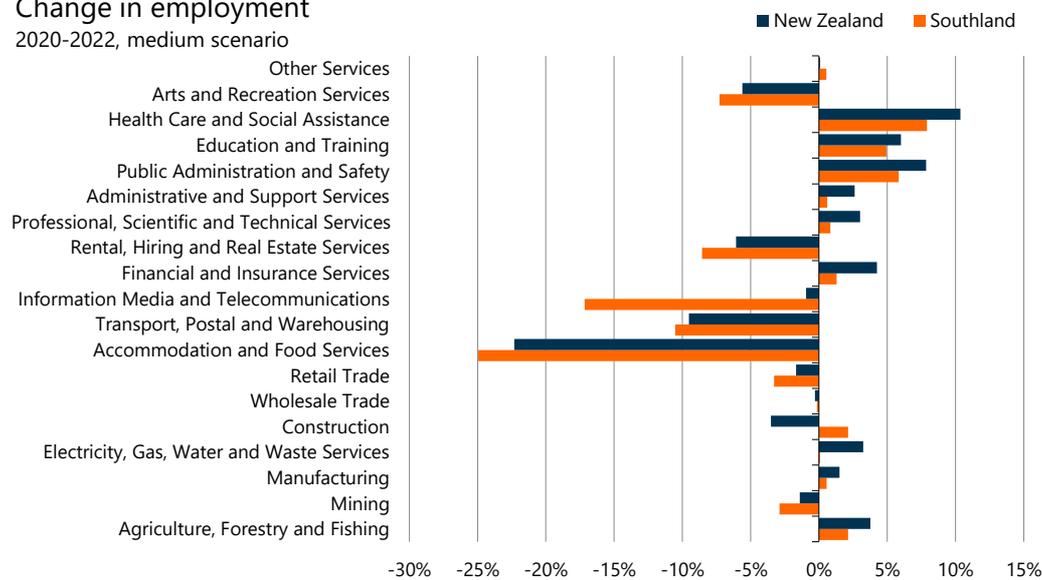
Employment in most industries recovers by 2025

By 2025, employment in most industries is expected to recover under the medium scenario. Information, media and telecommunications is a notable exception, with employment still 31% below 2020 levels in 2025. International visitor arrivals are still expected to be below pre-COVID levels by 2025 in the medium scenario, leading to a small decline in employment in tourism-related industries such as accommodation and food services (-3%).

Chart 11

Change in employment
2020-2025, medium scenario

Legend: ■ New Zealand ■ Southland

Categories (top to bottom):
- Other Services
- Arts and Recreation Services
- Health Care and Social Assistance
- Education and Training
- Public Administration and Safety
- Administrative and Support Services
- Professional, Scientific and Technical Services
- Rental, Hiring and Real Estate Services
- Financial and Insurance Services
- Information Media and Telecommunications
- Transport, Postal and Warehousing
- Accommodation and Food Services
- Retail Trade
- Wholesale Trade
- Construction
- Electricity, Gas, Water and Waste Services
- Manufacturing
- Mining
- Agriculture, Forestry and Fishing

X-axis: -35% -30% -25% -20% -15% -10% -5% 0% 5% 10% 15% 20%

Risks and opportunities

Over the next five years, the performance of Southland's economy is largely dependent on the status of the Tiwai Point smelter and New Zealand's economic recovery following COVID-19. In the longer term, the region faces challenges on several fronts, which may require adjustment to its economic structure.

Stronger regulation around freshwater restricting agricultural output

Increasing stringency in environmental regulations will soon start to limit, and ultimately reduce output from Southland's traditional agricultural activities such as dairy cattle farming. At present, this is driven by the Essential Freshwater work programme, which includes the National Policy Statement for Freshwater Management (NPS-FM). The work programme seeks to prevent further degradation of waterways and improve presently degraded waterways. The work programme includes elements which are contentious among the farming community, and is subject to change. However, it represents a broader long-term shift towards more stringent environmental regulation, to reflect changing societal attitudes and greater understanding of the adverse effects of land uses and intensification. In other words, change in this space is inevitable regardless of what happens to the programme or the government.

Changes mean lower dairy production

For the dairy sector in Southland, these changes will require reduced application of synthetic fertilizer, greater setbacks from waterways (which reduces the area of land available to be farmed), and lower stocking rates on steep or boggy terrain. Taken together, these changes will lead to a lower volume of milk production, which in turn leads to fewer dairy sector jobs, both on-farm and in related industries such as processing. Dairy NZ modelling[1] at a national level, suggests a 30% decline in milk production and a 15-20% fall in dairy sector employment. In practice, many farms that are forced to substantially cut their production are likely change to alternative land uses, rather than continue dairy farming. This will offset some of the job losses in the sector, both on-farm and in downstream processing. Nonetheless, this process will represent a significant change in Southland, and will involve a degree of disruption.

Alternative land uses

Minimising the negative economic impact of freshwater regulations will rely on a transition to alternative land uses. Great South has investigated alternatives, such as growing oat crops for oat milk, or legume crops for non-meat proteins. Transitioning to these land uses may be extremely challenging when farms have a large investment in dairy-specific capital such as milking sheds. Furthermore, shifting from dairy to crops will require a shift in farming skills at all levels, which may need some form of government support. The upcoming construction of an oat milk processing plant at Makarewa will provide a boost to the value of existing oat production, create a short-term boost in

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[1] https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/2183C%20Dairy%20NZ.pdf

construction activity, and provide a long-term platform for the conversion of cattle farming land to oat crops.

The impact of carbon emission pricing on Southland's industries

The effective cost of carbon emissions in New Zealand is expected to increase over time as the country seeks to mitigate climate change and meet its international obligations. Carbon emissions are required to be covered by carbon credits under the Emissions Trading Scheme (ETS), however there are currently a variety of carve-outs, exemptions and free allocations of credits to various industries, including agriculture and dairy farming. Over time these will be reduced, meaning that all industries will be required to obtain carbon credits covering their emissions, and at an increasing cost. This is expected to encourage changes in farming and industrial practices and the adoption of technologies which lead to reduction in emissions.

Exact impact is unclear

The exact quantum and mechanism of changes to the ETS is uncertain, however NZIER has modelled several scenarios for the Ministry for the Environment to understand the range of outcomes. The effect of these changes will vary depending on the price of emissions and the extent to which technological changes can ameliorate the effect on production in each industry. For example, dairy cattle farmers facing a high price on their carbon emissions may choose to change to a different land use, leading to a reduction in the output of the dairy cattle farming and dairy processing industries. Alternatively, technological solutions such as vaccines to prevent cows emitting methane may enable the two industries to continue operating in a similar way to what they do currently.

Emissions pricing will hit Southland's industries hard

NZIER modelled the effect of five core scenarios for emissions pricing and technological responses, including a baseline which involves the continuation of current policy settings. There are a wide variety of outcomes across these five scenarios. However, in every scenario except the baseline, output from the dairy cattle farming, sheep and beef farming, dairy processing and meat manufacturing industries falls substantially. This indicates that these industries are likely to face significant challenges in the future as carbon price increase, even if technological innovation provides a pathway to reduce their emission intensity.

Greater clarity around the impact of carbon pricing is expected in forthcoming outputs from Great South's Carbon Neutral Advantage project, which will include a pathway for emissions abatement by industry.

Climate Change Commission recommends fewer cows

The Climate Change Commission has recommended a reduction of the number of cows in New Zealand of 15%, to reduce the country's greenhouse gas emissions. This is potentially a smaller reduction for Southland than required under the Essential Freshwater programme, and will reduce the region's exposure to a higher carbon price. Regardless of the mechanism used to reduce or mitigate the region's greenhouse gas emissions, this will create an opportunity for shifting to lower-emission agricultural land uses.

The future of Tiwai Point, including potential impacts and diversification strategies.

The Tiwai Point aluminium smelter is a major contributor to Southland's economy, employment 800 workers directly in relatively high-paying employment, while also supporting 1,500 workers across its suppliers in the region.

Closure of the Tiwai Point smelter has become increasingly likely, despite the recently announced four-year extension to its operation. Southland is beginning to develop new industries to create alternative employment for smelter workers. The closure was delayed from an initial date of August 2021, which has provided the opportunity to develop industries that create alternative employment options in Southland and provide alternative uses for the electricity produced by Manapōuri power station.

The global aluminium market is becoming dominated by highly efficient and low-cost smelters in Canada and China. Tiwai Point is unable to compete with these smelters on a undifferentiated commodity basis. However, there are early signs of a price premium emerging for high-purity aluminium with low carbon emissions. This premium would improve the profitability of Tiwai Point and enable it to continue operating into the long term.

Labour market can't absorb an abrupt closure

The nature of Tiwai's operation, with a high fixed cost base, means that the closure is likely to be abrupt rather than staggered over time. The loss of 2,300 jobs across the smelter, suppliers and the broader Southland economy is greater than the local labour market can accommodate, at least in the short term.

Opportunities for alternative industries

The private sector, as well as local and central government, are exploring options to develop alternative industries to generate employment opportunities, particularly 'green industries' that can utilise the surplus low-carbon electricity from Manapōuri. Although it is possible that a similar-sized large employer could be established on the Tiwai site, it is unlikely that such an enterprise will accommodate all of the Tiwai workers, and if so, there would be several years delay between Tiwai closing down and the new industry establishing. The development of employment opportunities across a range of new and old industries is more likely. Opportunities being investigated include expansion of the aquaculture industry around Stewart Island, production of hydrogen using green electricity, the development of a data centre, and production of batteries.

The development of an additional 100 hectares of aquaculture sea space has been mooted, and would potentially support an additional 800 jobs after the initial $4-500m development phase. This job creation is likely to take place over a ten-year period and might ultimately employ a similar number of workers as those currently directly employed at the Tiwai Point smelter. Aquaculture has the advantage of being a very low-carbon food production system and provides a platform for a differentiated product with clear provenance to Southland.

Plans for the development of a data centre at Makarewa are well underway. The construction of this facility, and the installation of associated fibre optic cables, is expected to support 800 jobs at peak, with a relatively modest 35-40 jobs once

operational. This has the potential to use 18% of the electricity currently used by the Tiwai Point smelter.

Feasibility studies are underway to explore the development of a hydrogen production facility near Tiwai Point, using a similar quantum of electricity to that currently used by the smelter.

Smelter closure

Closure of the Tiwai Point facility will be followed by an estimated $350m five-year remediation project at the site, which may provide medium term employment opportunities for redundant workers.

Any transition is likely to involve several years of elevated unemployment and possibly migration from the region, as the labour market adjusts and employers in other industries scale up. Southland's population declined in the 1990s due to outward net migration following the closure of significant meat processing facilities. However, given the strong potential for alternative industries to develop by 2025, population decline following Tiwai's closure appears to be an unlikely outcome.

Response and recovery from COVID-19

Southland Region has a diverse economic structure with a strong primary and food processing foundation. This foundation of industries which were determined essential meant that the region was largely able to operate throughout the COVID-19 lockdown. Moving into the recovery phase, some industries such as tourism will struggle. However the region's overall diversity means that it will take less of a hit in the recovery phase than the national economy.

Southland's economy open for business through COVID lockdown

A greater share of Southland's economy was able to operate throughout COVID alert levels than the national economy. This was due to Southland's high share of essential industries such as agriculture and food processing. Infometrics estimate that 59% of Southland's economy could operate under Level 4, compared to 53% nationally. Likewise, under Level 3 restrictions, 80% of the region's economy was able to operate compared to 74% nationally.

Primary sector and food provides resilience

Southland's agriculture and food processing industries provided resilience for the region throughout the COVID-19 response phase, and is expected to provide continuing stability throughout the recovery phase. The world's need for food will endure, however demand for food may shift away from more discretionary and luxurious foods such as seafood, premium meat products and premium dairy-based supplements. Associated to this shift, distribution of our food products is likely to shift away from restaurants to supermarket channels while COVID-19 remains in circulation. This suggests that demand for seafood may ease while volumes of land-based food remain steady, albeit with potential for slightly lower returns.

Tourism sector is important, but will struggle

Tourism is an important contributor to Southland's economy, supporting 9.6% of employment in the region in 2020. The tourism sector faced an early hit ahead of the COVID-19 outbreak and lockdown, with substantial flooding damage in Fiordland in February 2020. International visitor spending effectively ceased early in February 2020, and will remain at near-zero levels until New Zealand's international border reopens without quarantine requirements. This is unlikely to happen until an effective COVID-19 vaccine is deployed globally.

International tourism recovery will be slow

Once the borders are open, we expect a slow recovery of international visitor arrivals. Over the next three years we expect weak international tourism. Concerns around virus spread even after a vaccine is deployed, are likely to result in increased hesitancy around international travel, particularly cruise travel. Recessionary conditions will lead to lower household incomes and therefore lower discretionary spending in areas like long-haul tourism. An expected sharp reduction in international airline capacity compared to the pre-COVID situation will constrain visitor arrivals to New Zealand and keep airfares relatively high. As the global economy recovers and the health crisis fades out of memory, tourism is still unlikely to grow as fast as it did in the 2010s.

Tourism won't be the same again

Strong tourism growth in the 2010s was stoked by a global decrease in the real price of air travel, which meant a larger global population could afford to fly to long-haul destinations like New Zealand. Furthermore, a growing middle class in developing countries, particularly China, further stoked demand. This unique combination is unlikely to be repeated, so growth in the coming decade is unlikely to be as swift as previously experienced. This also means that the milestone of returning to pre-COVID international visitor arrivals will take several years to achieve, if at all.

The rapid growth of international visitor arrivals, concentration in the summer season, and clustering in popular destinations, created extreme pressures in parts of the country. This threatened tourism's social license, and may prompt the country to review how we attract visitors, with a view to more sustainable tourism as we recover. The tourism Minister has signalled a shift in emphasis in this area.

Domestic tourism has been helpful, but can't replace internationals

The tourism sector is entirely reliant on domestic visitors at present, and will remain so for some time. Although domestic tourism spending has been surprisingly strong since the initial lockdown period ended, domestic spending is unable to substantially offset the loss of international visitor spending. This will become particularly apparent in the summer months, when the bulk of international tourism spending traditionally occurs. International visitors spent $11 billion in New Zealand in 2019, in comparison to the $6 billion spent by New Zealanders overseas. Even if New Zealanders shift their entire international travel budget to domestic travel, this spending will fall well short of typical international visitor spending. Furthermore, as a broad recession is expected to take hold in the New Zealand economy in 2021, domestic spending on tourism is likely to take a hit as households tighten their budgets.

Ultimately, the length and depth of the forecast economic downturn will mean that tourism businesses can't afford to go into a holding pattern. A pivot towards domestic tourism, hibernation or shut down are the only real options facing tourism operators.

Construction will help through the recession

Construction was strong pre-COVID, and should hold up relatively well in the region, particularly with the region receiving shovel-ready project funding from central government. Central government has this far announced funding of $66.5m for six projects in Southland worth a combined $327.1m. Across the broader construction sector in the region, residential activity is forecast to dip slightly going into the recession, while non-residential construction is forecast to grow on the back of the $243m Invercargill Central development.

Commodity pricing

Southland Region is relatively exposed to commodity prices. The region's exports are heavily concentrated in meat, dairy, forestry, and aluminium. These products tend to be sold in a relatively undifferentiated manner on the global market, meaning that returns are closely linked to commodity prices. Exposure to commodity prices can leave a region vulnerable to exogenous changes over which it has little or no control – for example the introduction of tariffs, carbon pricing on transport costs, or economic cycles.

Majority of Southland's exports are commodities

Infometrics estimates that 84.9% of Southland's exports in 2019 came from the agriculture, food, forestry or aluminium industries – all of which are typically of a commoditised nature. Southlands' major exports by value are dairy products ($2.3b in 2019), meat products ($1.0b), and aluminium ($800m).

Some control over the value chain, but undifferentiated products

In the case of dairy and meat products, Southland controls a relatively large share of the value chain, with primary production and processing taking place within the region, and ownership of associated branding often held in farmer-owned cooperatives. However in the case of dairy products, many of the exported products are relatively undifferentiated (such as skim milk powder), which means that returns are highly sensitive to commodity prices. In the case of aluminium, Southland is only responsible for part of the supply chain (smelting), and the nature of Tiwai Point as a tolling plant means that returns to the region are highly sensitive to commodity prices. Southland's forestry exports are predominantly of raw logs, with $120m of forestry exports compared to $67m of wood and paper product exports.

Southland's exporters could reduce their exposure to commodity prices by gaining greater control over the downstream supply chain of their exports, and by developing intellectual property and alternative markets for their products. Gaining greater control over the supply chain of exports may involve the location of further downstream processing capacity within the region. The development of intellectual property and alternative markets may involve developing a unique brand proposition for their exports which reflects their provenance, and which is understood by consumers, in order to earn a price premium. As an example, this process has already been initiated in the case of New Zealand salmon exports.

Labour force and population

Southland Region is at risk of substantial labour shortages over the medium to long term. These shortages are due to long-running and historic demographic factors, although they have been ameliorated in the short term.

Labour shortages have been a long time coming

Southland's labour shortages have been a long time coming. The region's population is ageing both structurally and numerically, due to high birth rates in the 1950-1960s, and low birth rates since. The closure of major employers such as freezing works in the 1990s led to depopulation followed by stagnant population growth in the region. These factors have contributed to expectations of widespread labour shortages from 2018 onwards.

Shortages have gone away for now, but long-term challenge remains

The success of the Southland Workforce Strategy and favourable net migration nationally and regionally has staved off widespread labour shortages for now. With job losses expected in the current recession, widespread labour shortages are unlikely to manifest until 2024 at the earliest. However, the challenge of an ageing workforce remains and will reach a crescendo later this decade. This applies equally to employees and business owners, meaning worker attraction and succession planning is important.

Attracting migrants

The attraction of migrants to the region is an important component of addressing labour and skills shortages. Attracting migrants at a broad scale will be challenging at the same time that other regions are vying for migrants to fill their own labour and skills shortages. Southland's workforce strategy identifies that population segments under the age of 45, and in particular those aged 25-34, are highly suitable for worker attraction. This is due to their high rates of labour force participation and high levels of mobility.

The Workforce Strategy also identifies that the majority of internal migrants come from Canterbury, Otago, Auckland and Waikato. Manawatu-Wanganui and Bay of Plenty are important regions for the attraction of workers in certain specific industries.

Southland's efforts to attract migrants are challenged by historic underinvestment in public and private housing.

Supporting greater participation

Southland's Workforce Strategy for 2014-2031 identified an opportunity to increase labour force participation in younger workers, older workers, female workers and migrant workers. A reassessment in 2020 showed that participation has risen, both overall and in the specific groups identified in the strategy. Continued focus on growing and sustaining high rates of participation is an important long-term solution to ensure the region's existing population is engaged in employment.

Addressing skills shortages requires nuanced approach

Addressing shortages in specific skills will require a more nuanced approach. Employers need to facilitate upskilling in the workplace, through formal training and facilitating knowledge transfer from older workers.

Critical mass would help, but is unlikely

Depopulation of the Southland Region in the past has presented challenges as the region lost 'critical mass' – the idea that a minimum level of population is required to maintain a particular level of economic activity, services, and self-sufficiency. Although it may be desirable for the region to grow its population to levels considered sufficient for such critical mass , this is unlikely to take place for several reasons. The risk of job losses from the likely closure of Tiwai and transition in agricultural land use, means that declines in employment are highly likely in the region over the short to medium term. A short-term employment decline may in turn lead to a brief period of weak population growth. Nationally, all regions will be seeking to replace a growing number of retiring workers, meaning that competition for migrant workers will be high. Maintaining Southland's population size over the long term may be a more achievable goal.