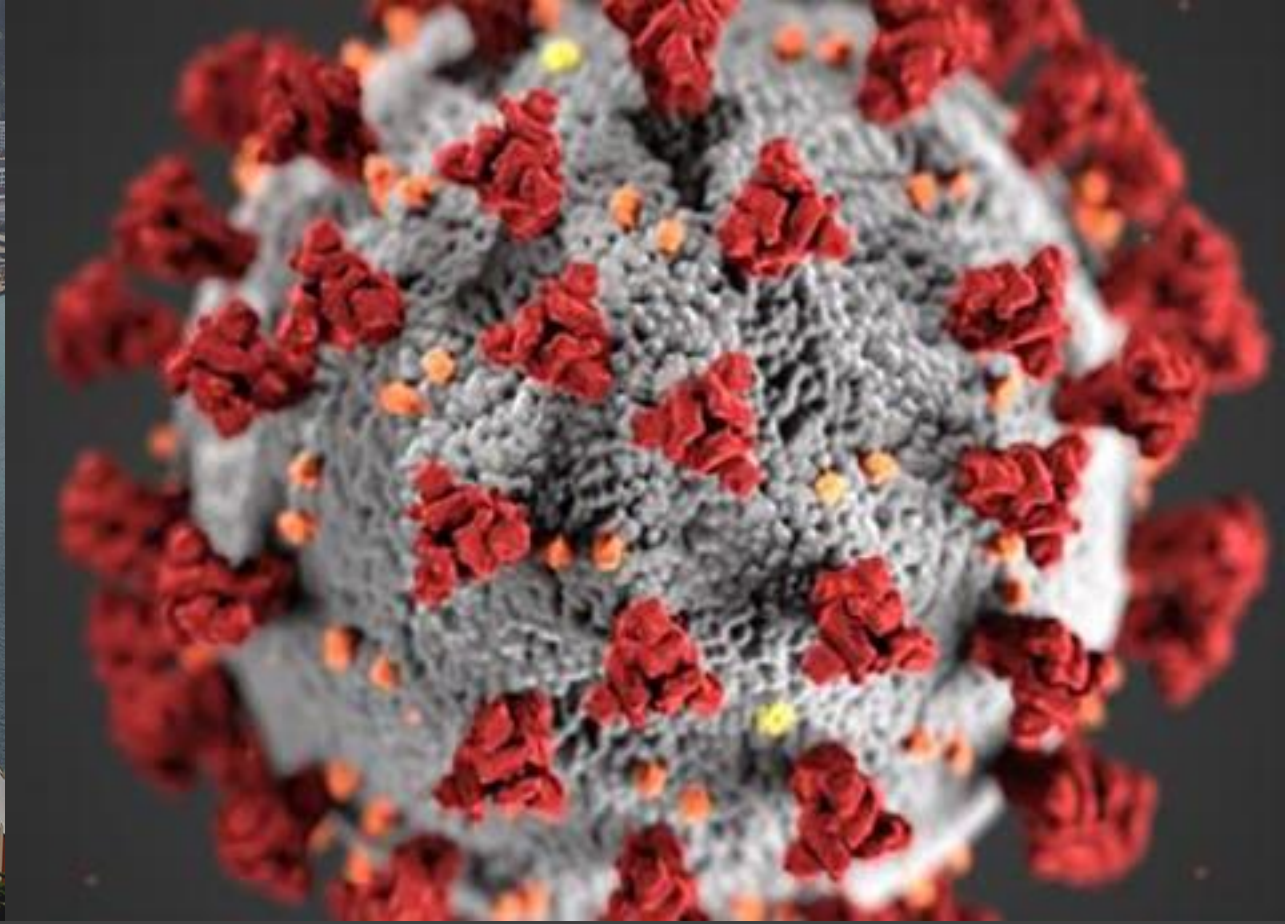


Local and regional economic impacts of COVID-19 in NZ

Laëtitia Leroy de Morel, Glyn Wittwer, Dion Gämperle, Christina Leung

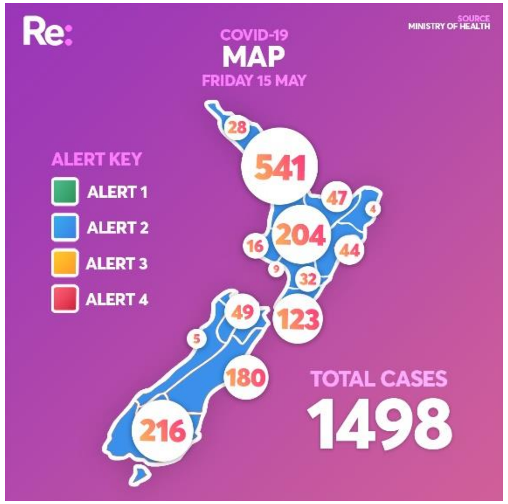
GTAP Conference, 17-19 June 2020

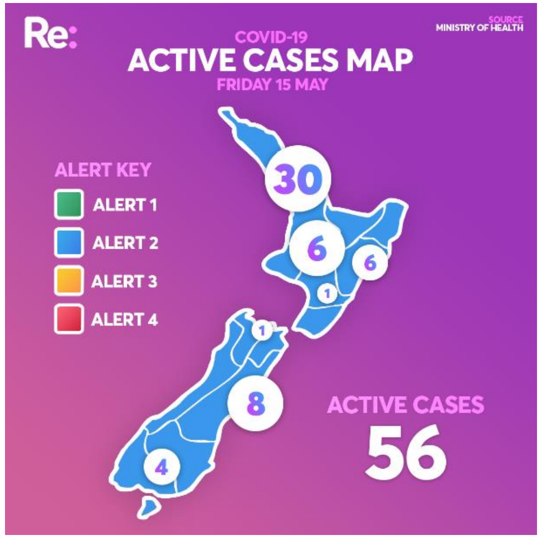
NZIER
NEW ZEALAND INSTITUTE OF ECONOMIC RESEARCH

Contents

All data is 2019 unless otherwise stated

A bit of a background on COVID-19 in NZ





Source: Re:, Ministry of Health

Outbreak of COVID-19 starts in China in December 2019 then declared as a pandemic on 30 January 2020

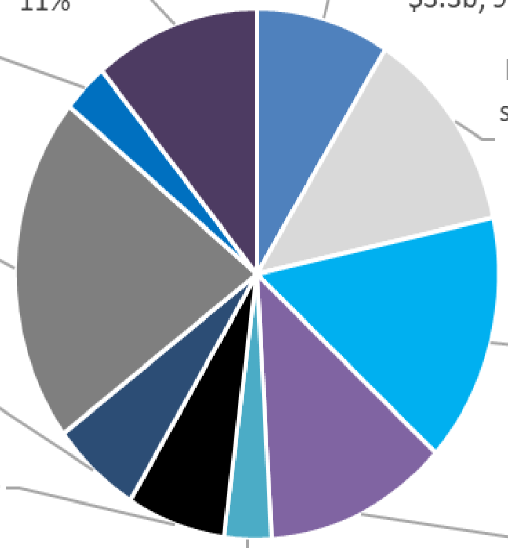
NZ moves to **Alert Level 4** (lock down) on 25 March 2020 (262 active cases) “Go hard; Go early” Jacinda Ardern

NZ moves to **Alert level 3** on 27 April;

Then moves to **Alert Level 2** on 15 May (56 active cases)

A bit of a background on tourism in NZ

Share of tourism expenditure by product in NZ



Source: Statistics NZ, Tourism Satellite Account (2019)

NZ tourism is a **$41 billion** industry (output) representing **$16.2 billion** of value added (**5.8%** of GDP)

Tourism expenditure accounted for **20%** of NZ total exports with international visitors spending **$17 billion**

NZ spends **$24 billion** per year in regions outside their residence

New Zealand’s largest urban areas and tourism hotspots

TERM-NZ and its database

TERM-NZ model

Based on original TERM model (Wittwer 2012, 2017)

A bottom-up multi-regional static CGE model

Assumptions

Source

- NZ Statistics 2013 IO tables,
- Benchmarked to 2019 with latest National Accounts

Regions

- Inter-regional trade in
- Movement in labour and capital between regions

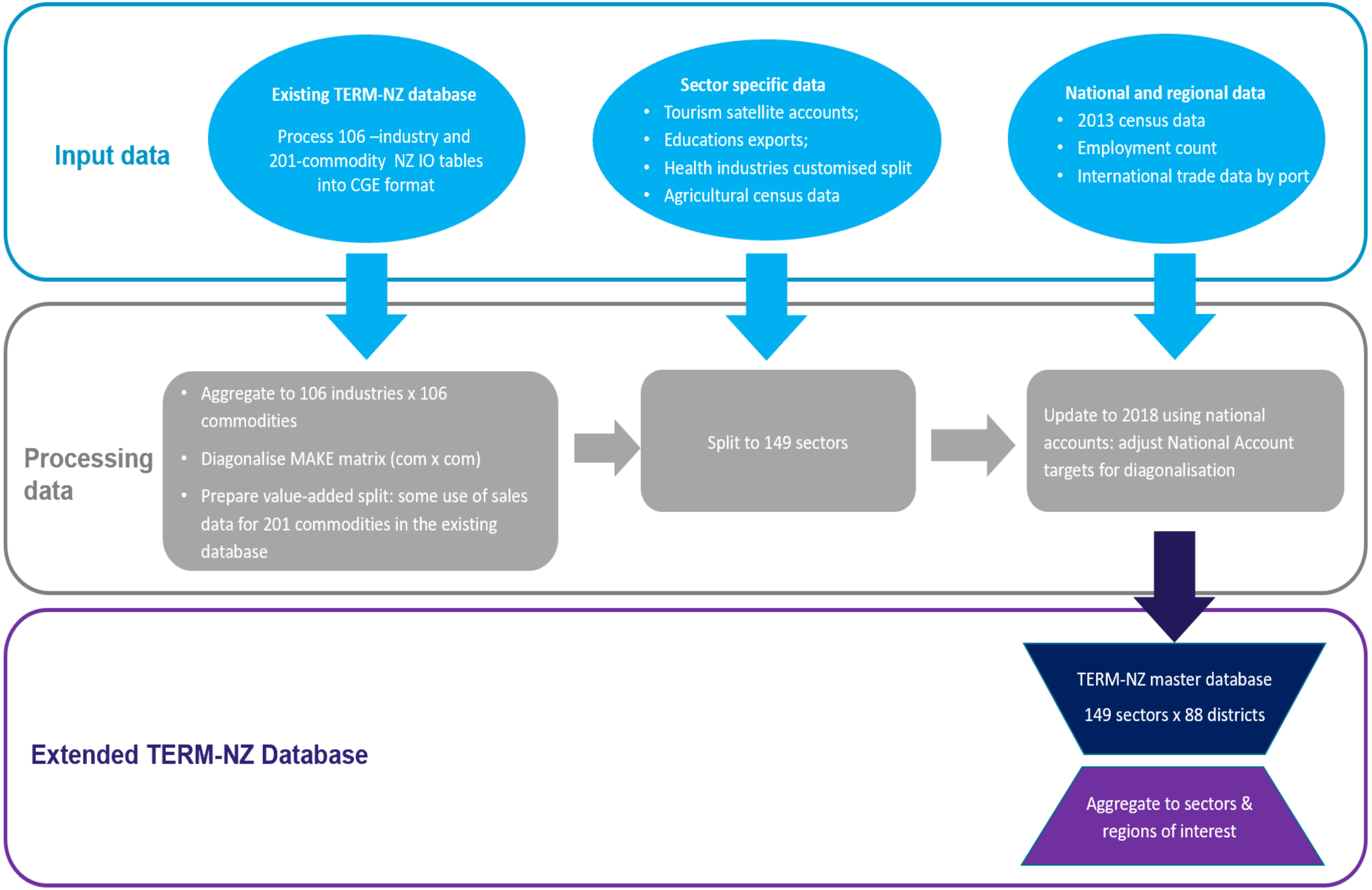
Trade

- Imports are imperfect substitutes to domestically produced commodities
- Exports face a foreign demand curve inversely related to the commodity's price

Inputs

- Intermediate commodities (both domestic and imported)
- Primary factors (land, labour and capital)

Steps to extend TERM-NZ database



Scenario assumptions

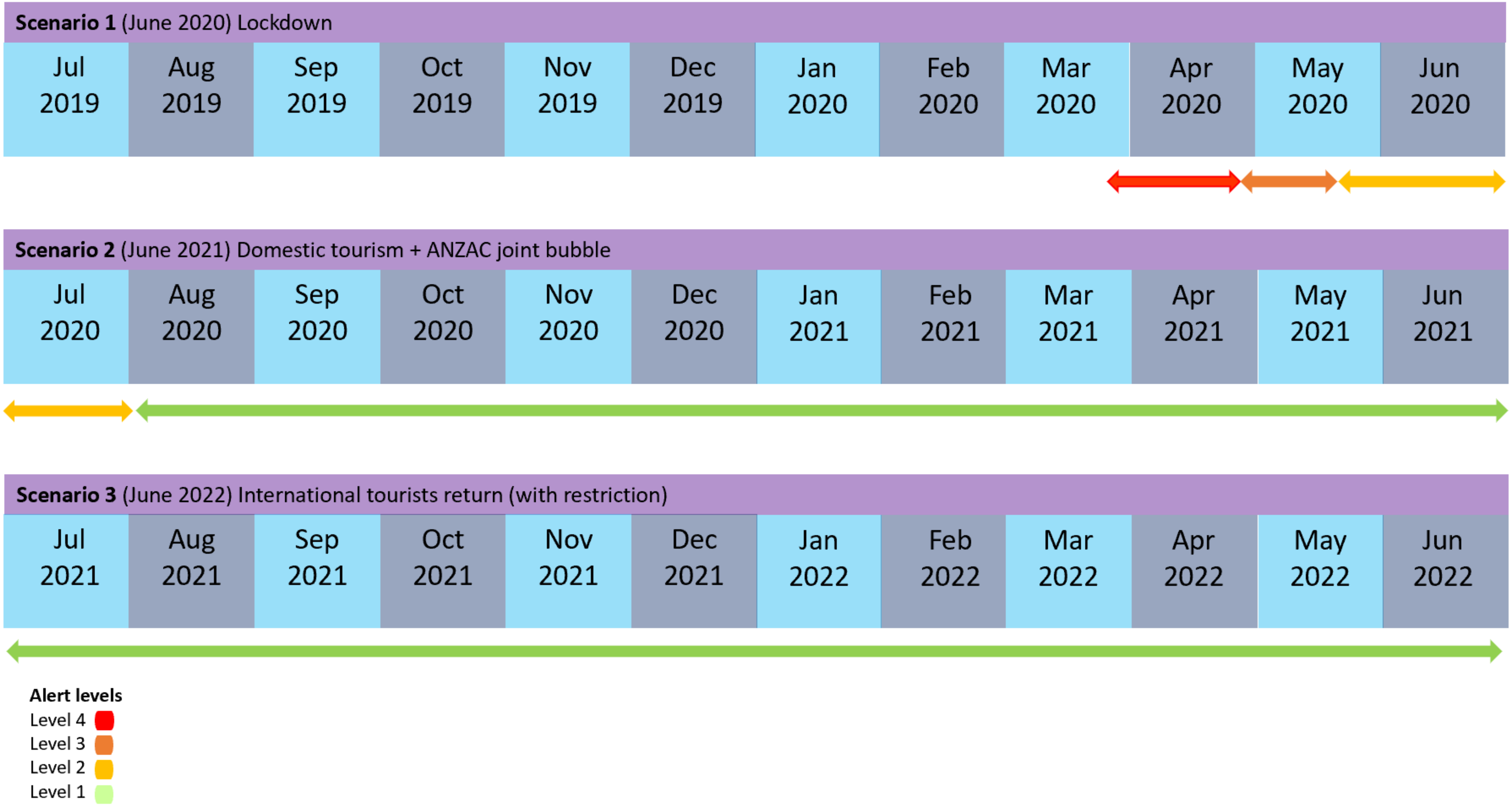
Demand

Assumptions	Scenario 1 (Lockdown)	Scenario 2 (Alert level 2)	Scenario 3 (Alert level 1)
Tourism & foreign students	• Total travel ban • Borders closed • A number of foreign students still abroad	• Domestic travel allowed • Borders closed but NZers allowed to fly back home • NZ-Australia joint bubble • A number of foreign students able to enter NZ	• Domestic travel allowed • Borders open with restrictions (self-confinement, selected countries) • More foreign students are able to enter NZ
Household spending	• Significant taste-swing away from consumer goods & services to reflect isolation measures	• Taste only partly swings back to consumer goods & services due to restrictions still in place	• Additional taste shift toward consumer goods & services but not back to pre-COVID-19 situation
Trade	• Exports increase for dairy, fruit, meat and seafood products • Exports decrease for forestry, and non-food manufacturing products	• Assume 5% annual average growth on exports	• Assume 5% annual average growth on exports

Supply

Assumptions	Scenario 1 (Lockdown)	Scenario 2 (Alert level 2)	Scenario 3 (Alert level 1)
Capital	• Capital immobilised in non essential manufacturing and services industries	• Most manufacturing and services industries are working again but some capital stays immobilised due to social distancing measures	• Most industries are back to normal except for air transport (some fleet permanently immobilised)
Labour	• Significant reduction in labour demand due to isolation measures (non essential industries shed zero hour contracted workers as they cannot operate)	• Labour demand increases slightly (compared to lockdown) as more firms are allowed to resume their activities	• Labour demand has improved but still below pre-COVID19 levels

Assumed timeline

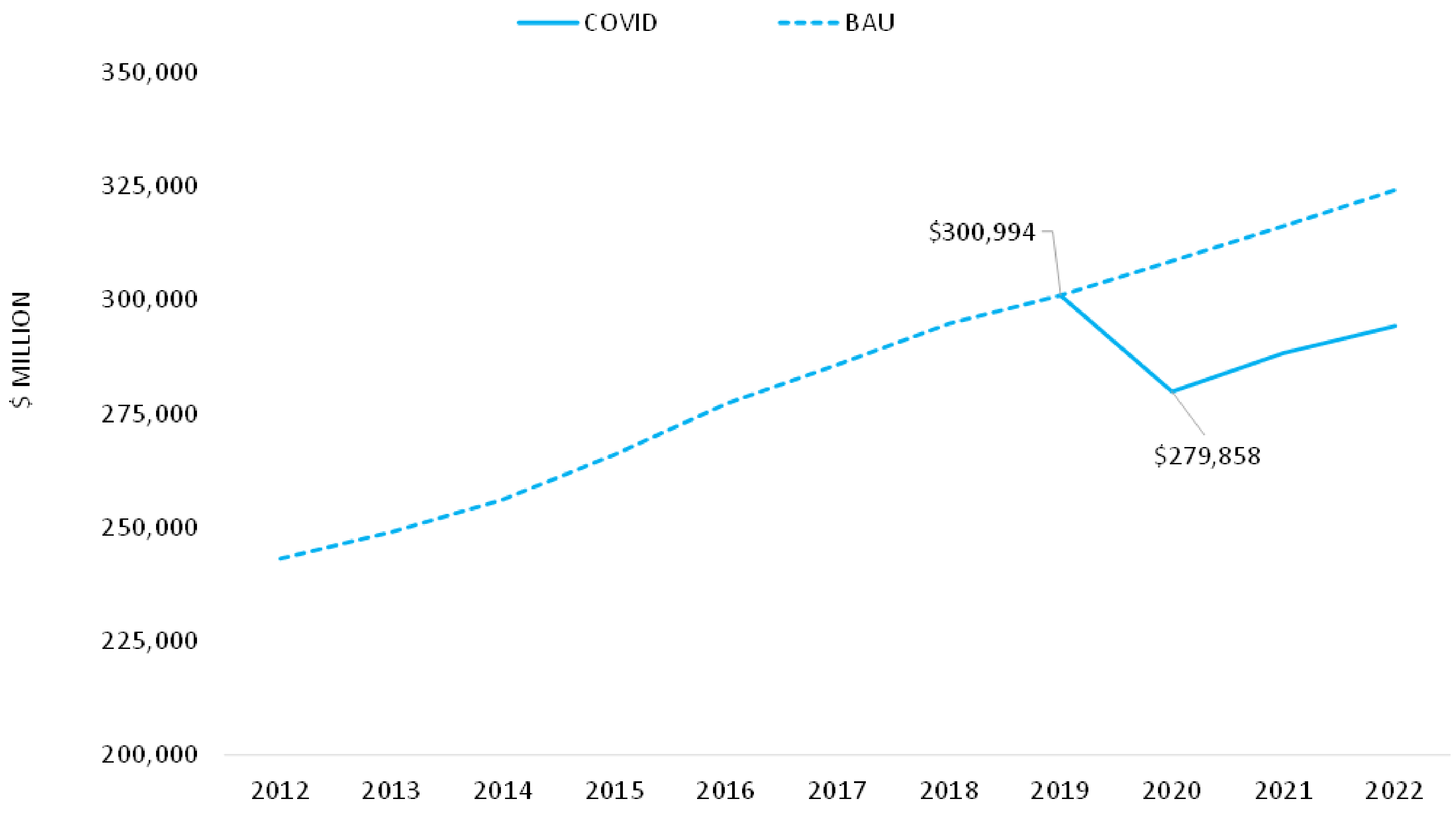


- Considerable uncertainty regarding severity of COVID-19's potential economic impacts. Assumptions based on data available at the time we wrote this paper
- Use of static TERM-NZ (before / after)
- Labour productivity loss resulting from social distancing is not explicitly modelled. NZIER's forecasts on labour supply take this loss into account
- Assume no fiscal response by government to showcase the base against which fiscal policies can be measured

Results

Real GDP recovery path

Annual changes from 2019 baseline, in percentage



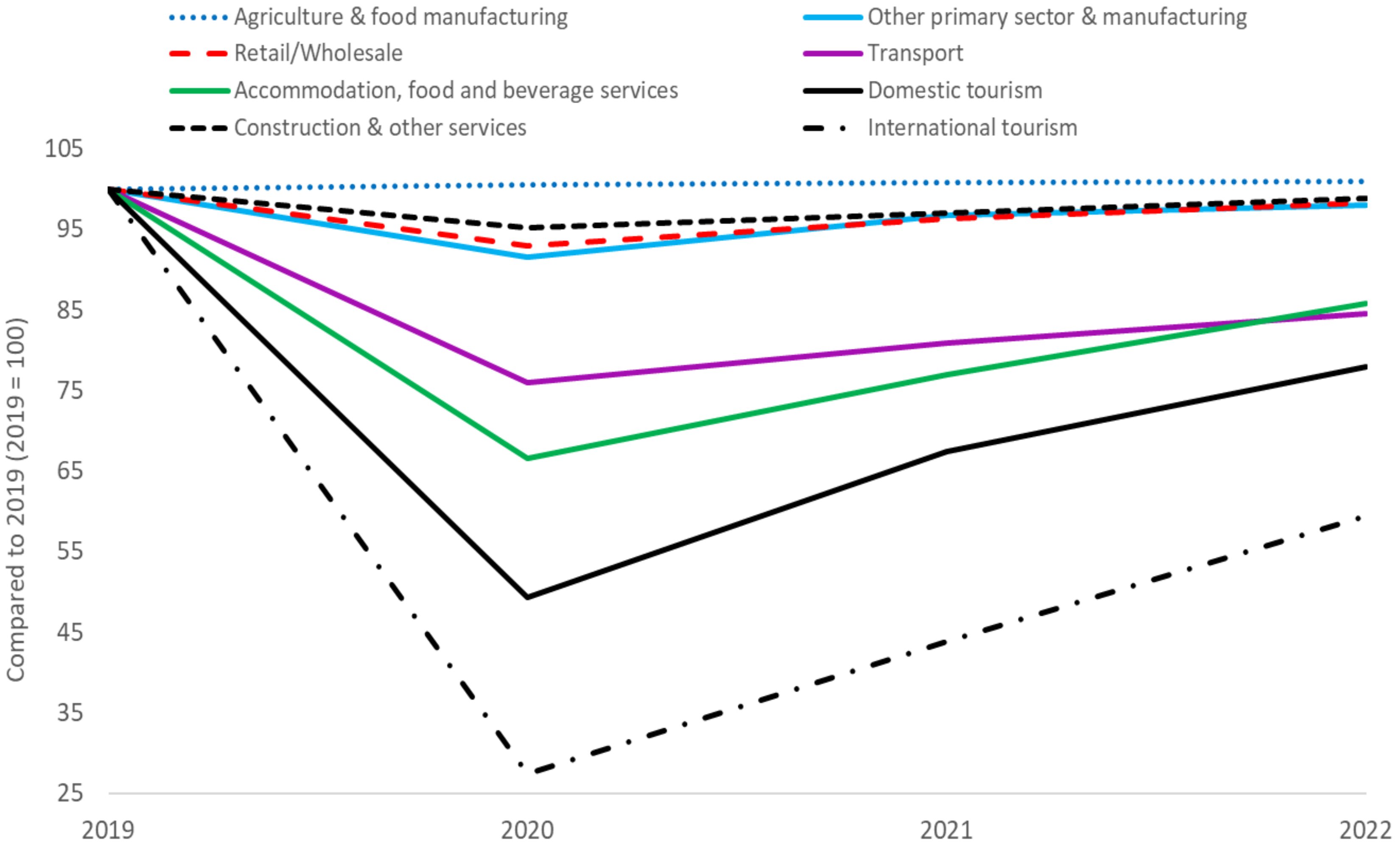
National macro economic impacts

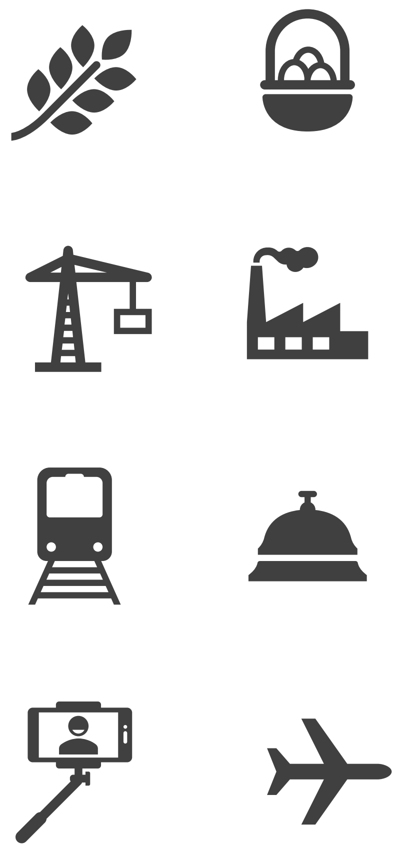
Annual changes from 2019 baseline, in percentage and $ million (real terms, 2019 prices)

Scenarios	Scenario 1		Scenario 2		Scenario 3	
	% change	Level ($m)	% change	Level ($m)	% change	Level ($m)
GDP	-7.10%	-21,136	-4.30%	-12,704	-2.20%	-6,759
Household consumption	-13.10%	-22,032	-7.50%	-12,824	-3.20%	-5,588
Exports	-10.80%	-9,096	-7.30%	-6,145	-5.60%	-4,710
Imports	-11.60%	9,616	-7.30%	6,003	-4.10%	3,388
National output	-8.90%	-50,348	-5.50%	-31,388	-3.30%	-18,772
Employment	-7.00%	-9,151	-5.00%	-6,570	-3.00%	-3,961
Capital	-6.70%	-8,514	-3.10%	-3,934	-1.30%	-1,711

Recovery path for industries

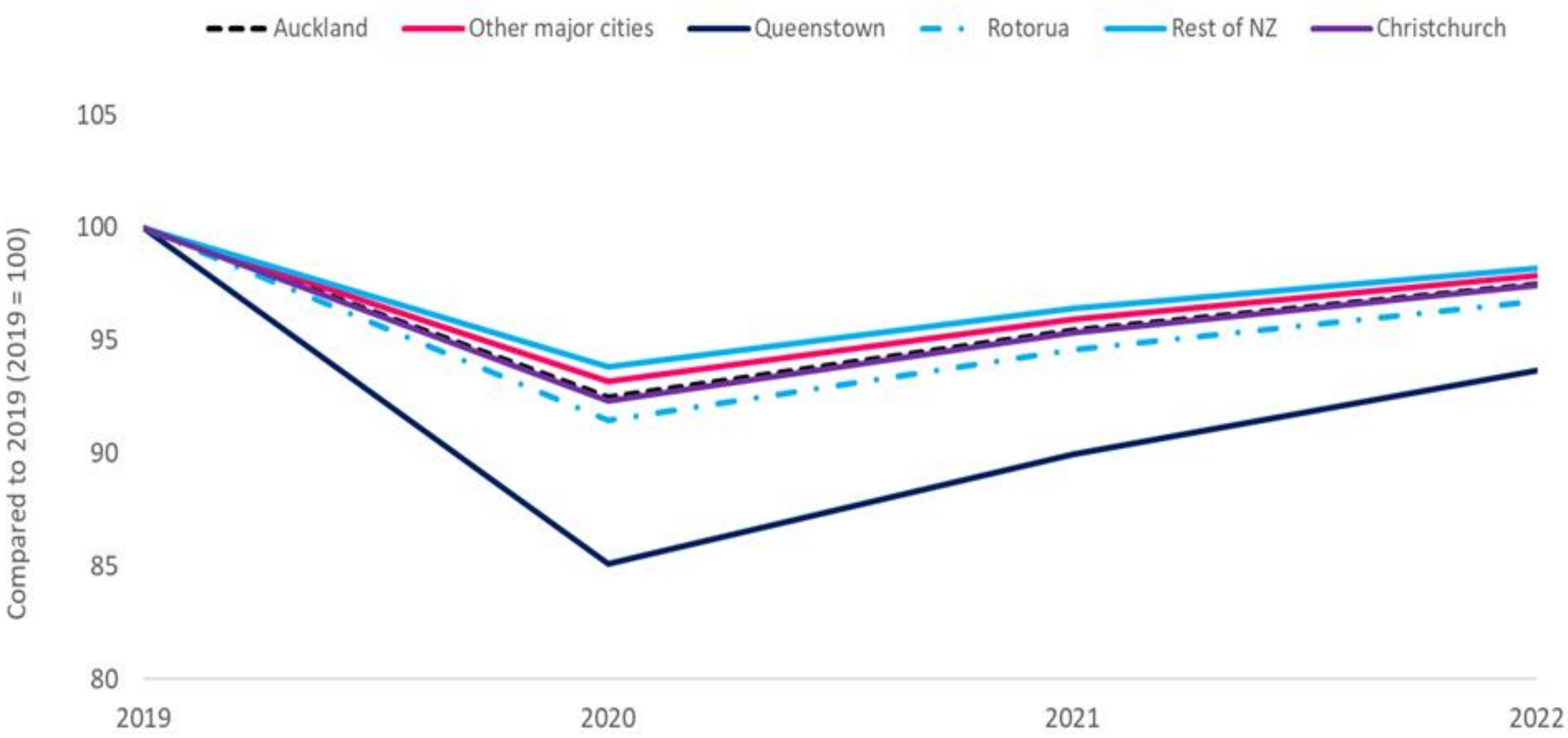
Annual changes from 2019 baseline, in percentage





Regional recovery path

Annual changes from 2019 baseline, in percentage



Impact on regional real GDP

Annual changes from 2019 baseline, in percentage and in $ million (real terms, 2019 prices)

Region (TLA)	Scenario 1		Scenario 2		Scenario 3	
	in %	in $ million	in %	in $ million	in %	in $ million
Auckland	-7.7%	-8,066.1	-4.6%	-4,895.4	-2.5%	-2,672.5
Greater Wellington*	-6.9%	-2,157.3	-4.1%	-1,290.2	-2.1%	-677.7
Christchurch City	-7.8%	-2,100.9	-4.7%	-1,276.3	-2.6%	-706.8
Queenstown-Lakes	-16.7%	-509.7	-10.8%	-343.5	-6.6%	-217.4
Hamilton City	-6.6%	-725.6	-3.8%	-419.1	-1.8%	-200.5
Tauranga	-7.1%	-531.5	-4.3%	-318.9	-2.3%	-175.1
Rotorua	-8.8%	-307.7	-5.5%	-196.4	-3.2%	-117.0
Dunedin	-7.5%	-462.0	-4.5%	-282.7	-2.4%	-153.0
Rest of North Island	-6.2%	-4,089.3	-3.6%	-2,351.5	-1.7%	-1,150.1
Rest of South Island	-6.2%	-2,186.3	-3.7%	-1,330.1	-1.9%	-689.2
National	**-7.1%**	**-21,136.5**	**-4.3%**	**-12,704.3**	**-2.2%**	**-6,759.3**

* Greater Wellington includes Wellington, Lower Hutt, Upper Hutt and Porirua.

Impact on regional real household spending

Annual changes from 2019 baseline, in percentage and $ million (real terms, 2019 prices)

Region (TLA)	Scenario 1		Scenario 2		Scenario 3	
	in %	in $ million	in %	in $ million	in %	in $ million
Auckland	-14.0%	-8,018.7	-8.2%	-4,739.5	-3.7%	-2,150.3
Greater Wellington*	-12.5%	-1,977.5	-7.2%	-1,160.2	-3.1%	-507.1
Christchurch City	-13.7%	-2,140.0	-8.0%	-1,263.2	-3.5%	-565.0
Queenstown-Lakes	-28.2%	-537.2	-18.4%	-361.4	-10.7%	-213.0
Hamilton City	-12.5%	-806.8	-7.1%	-466.3	-3.1%	-202.7
Tauranga	-12.8%	-536.9	-7.4%	-313.6	-3.3%	-140.2
Rotorua	-13.5%	-275.8	-7.8%	-161.3	-3.4%	-71.3
Dunedin	-13.1%	-457.9	-7.7%	-273.3	-3.5%	-123.7
Rest of North Island	-11.9%	-4,730.7	-6.6%	-2,649.0	-2.6%	-1,049.5
Rest of South Island	-11.9%	-2,550.2	-6.6%	-1,436.7	-2.6%	-565.6
National	**-13.1%**	**-22,031.8**	**-7.5%**	**-12,824.5**	**-3.2%**	**-5,588.5**

* Greater Wellington includes Wellington, Lower Hutt, Upper Hutt and Porirua.

In summary…

Under the 3 scenarios, Queenstown-Lakes' economy is the most affected in % term due to its reliance on tourism activities

Rotorua, Christchurch and Auckland follow right after in terms of economic impacts

Economic impacts are lesser for Greater Wellington as it is less reliant on tourism activities

Tourism industry is the most affected under the 3 scenarios, closely followed by transport (mostly air transport) and accommodation, food and beverages services

Dairy, horticulture and meat industry outputs increase mostly driven by export and domestic demands

THANK YOU

NZIER
NEW ZEALAND INSTITUTE OF ECONOMIC RESEARCH

Additional slides

Geographical detail in TERM-NZ