



TE TAI ŌHANGA
THE TREASURY



TGLS: Productivity in a Changing World Seminar Series

Special Joint Seminar with Productivity Commission and Motu Research

“Reviewing the drivers of New Zealand’s productivity and income growth
and implications for the future”

The session will begin at 9.30 am.

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NEW ZEALAND
PRODUCTIVITY COMMISSION
Te Kōmihana Whai Hua o Aotearoa



Motu
economic & public policy research

Reviewing the drivers of New Zealand's productivity and income growth and implications for the future

Matthew Galt, Macroeconomic and Fiscal Policy team, The Treasury

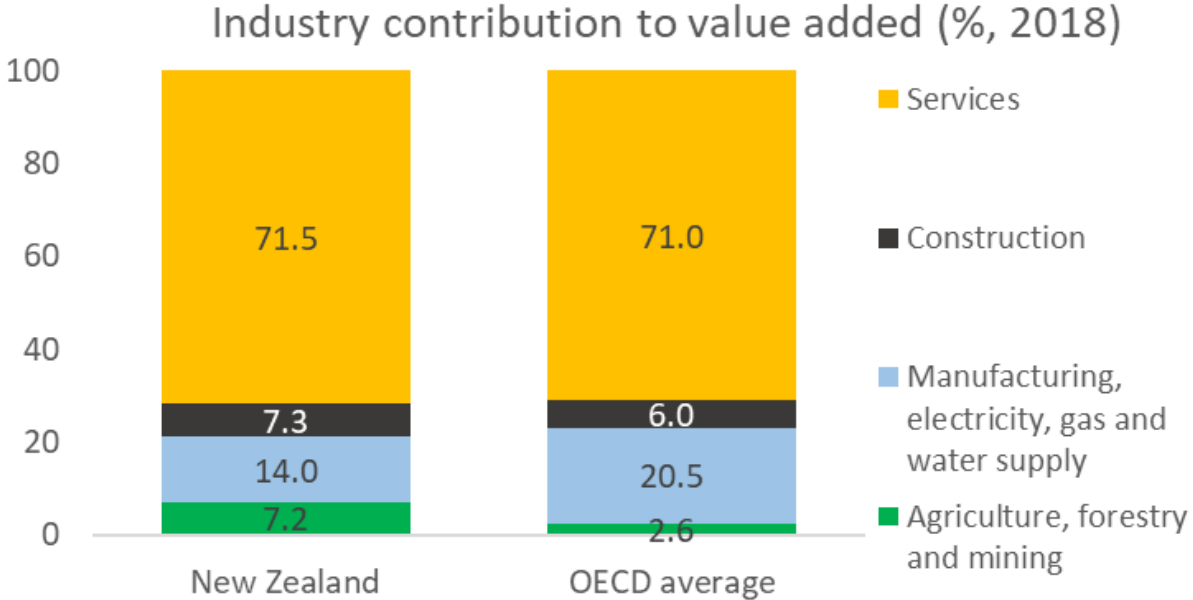
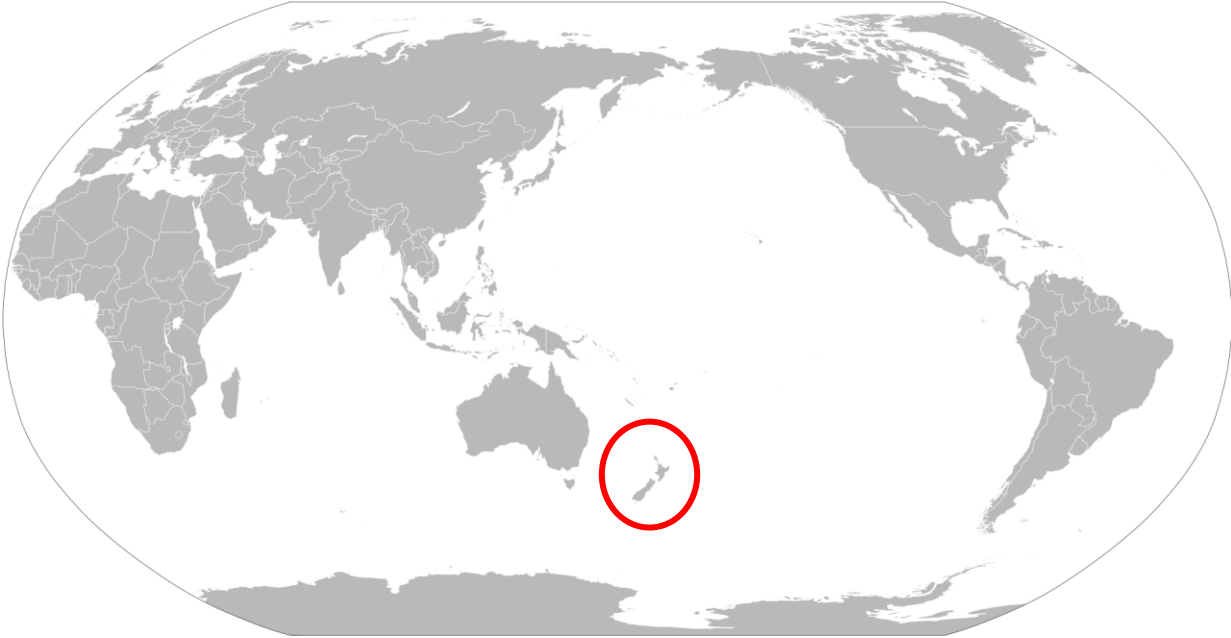
Philip Stevens, Director of Economics & Research,
New Zealand Productivity Commission

6 July 2023

Disclaimer

- The views, findings, and conclusions in the presentation that follows are strictly those of the presenter, and do not represent official government policy. They do not necessarily reflect the views of the New Zealand Treasury or the New Zealand Government.
- The material in the following slides primarily draws on an Analytical Note *Examining New Zealand's increased rate of income growth between the late 1990s and 2019*. The analysis and research in Analytical Notes has been sought by the Treasury to inform policy advice. The Treasury's aim in publishing Analytical Notes is to make analysis and research informing its policy advice available to a wider audience and to inform and encourage public debate.

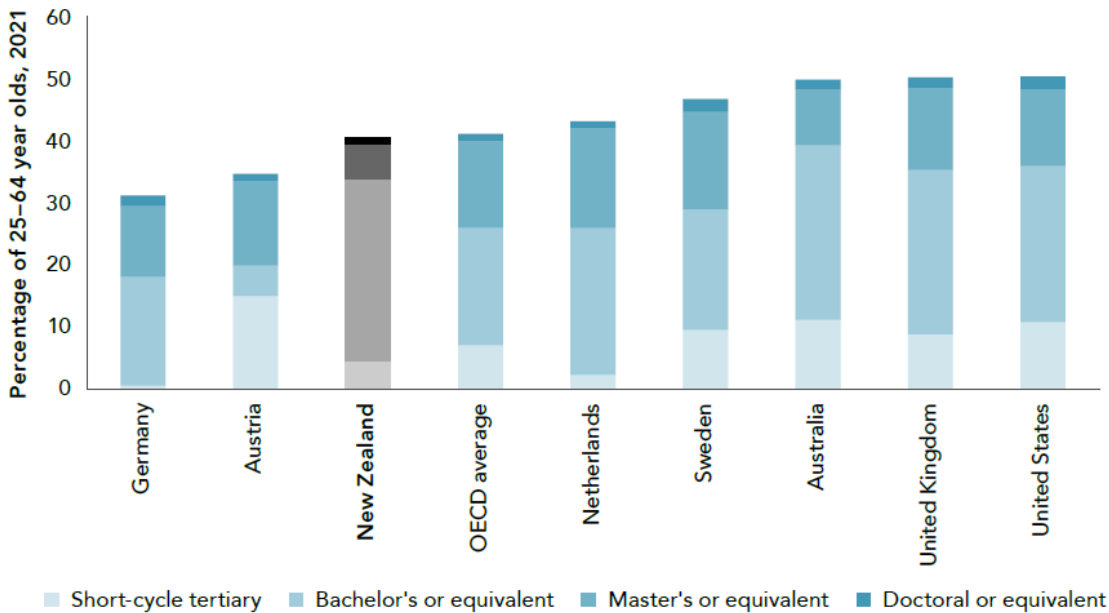
Aotearoa New Zealand's distinct economic context



Source: OECD Economic Surveys: New Zealand 2022, author's calculations.

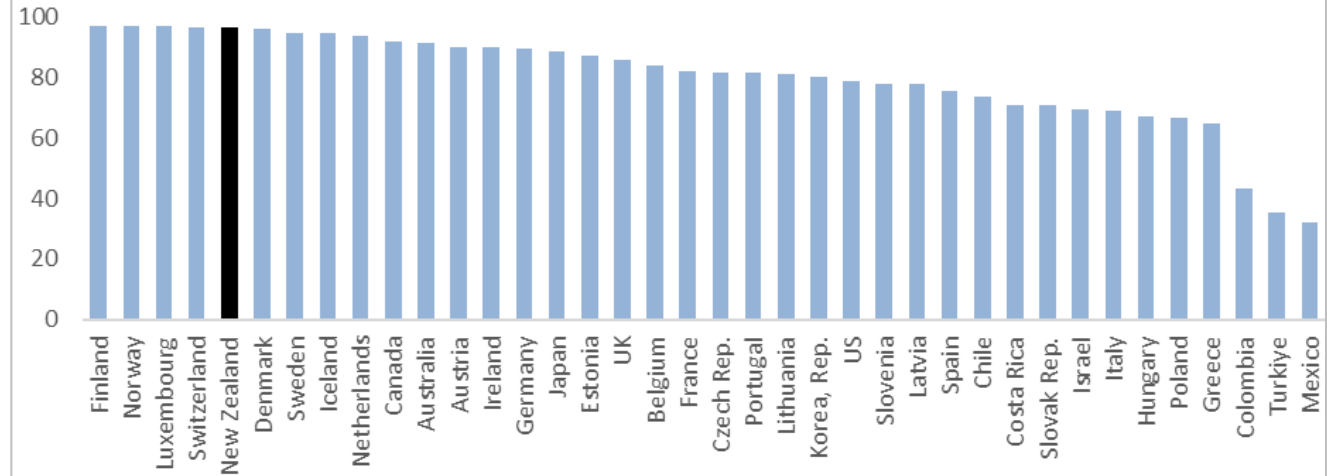
Aotearoa New Zealand's distinct economic context

Figure 4.14 Tertiary qualifications levels are about average in the working-age population
Percentage of 25–64 year olds with tertiary education, 2021



Source: New Zealand Productivity Commission calculations, based on OECD Education Counts.

World Bank World Governance Indicators: percentile rank in 2021 - OECD countries

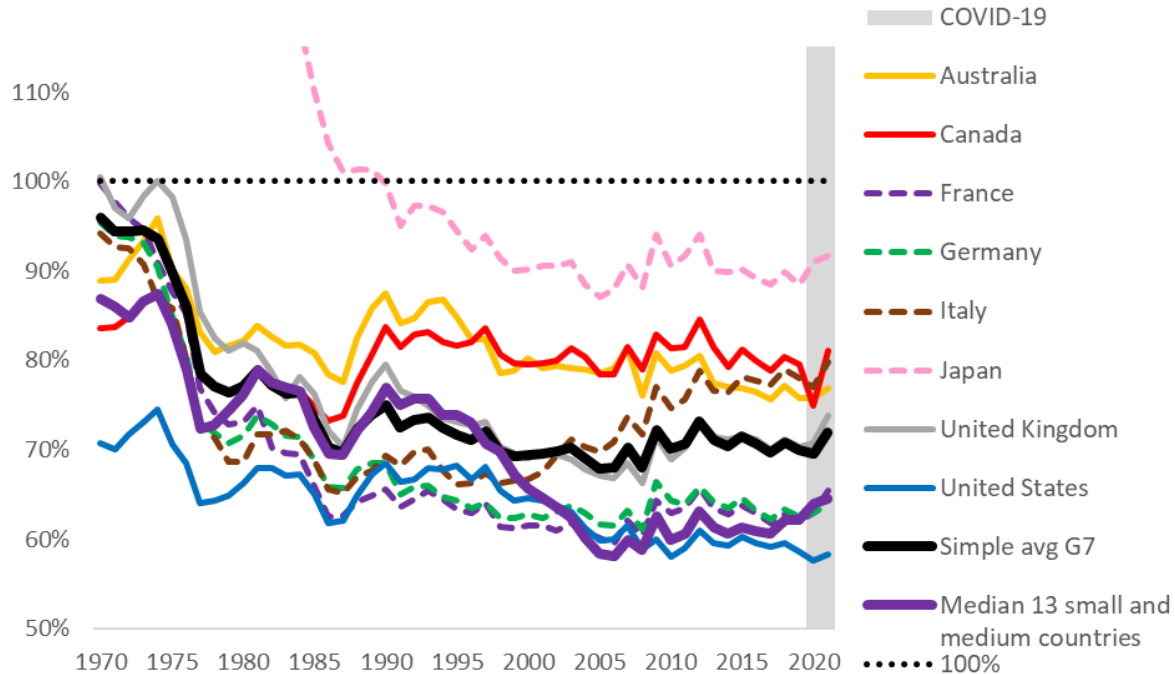


Note: This chart shows the average percentile rank among approx. 200 countries on six dimensions of governance: Voice and Accountability; Political Stability and Absence of Violence/Terrorism; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption.

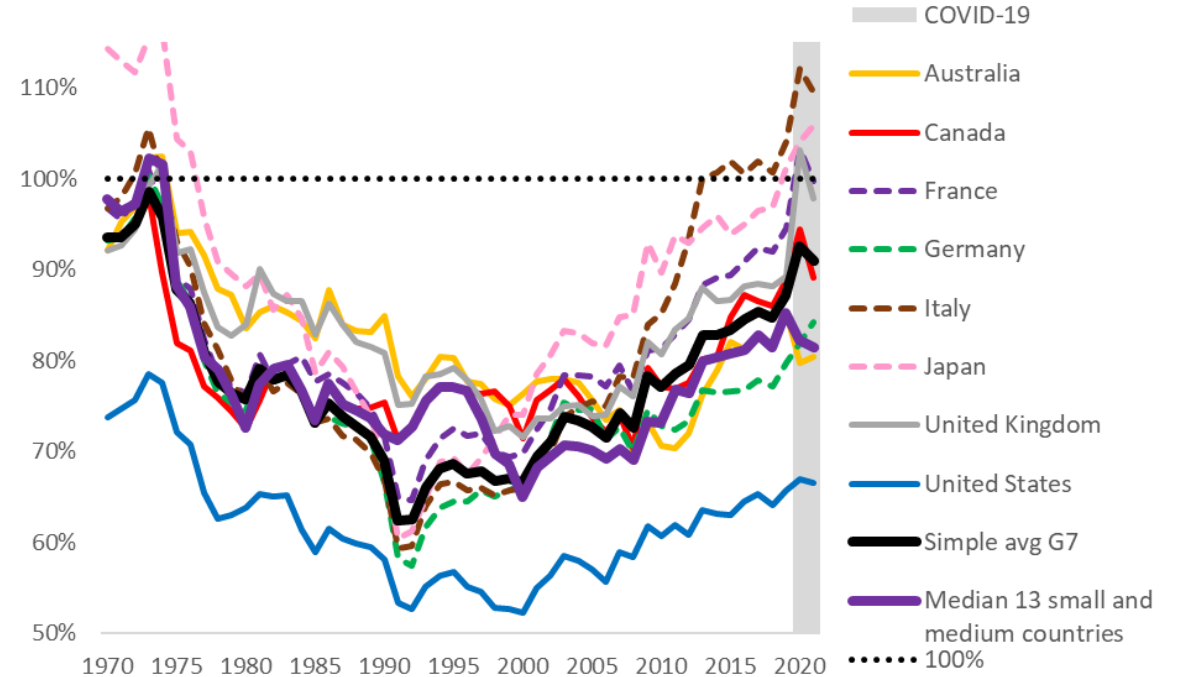
Source: World Bank, author's calculations.

Real GDP per hour worked vs real Net National Income per capita

NZ's Real GDP per hour worked as a % of each country or group (constant prices and 2015 PPPs)



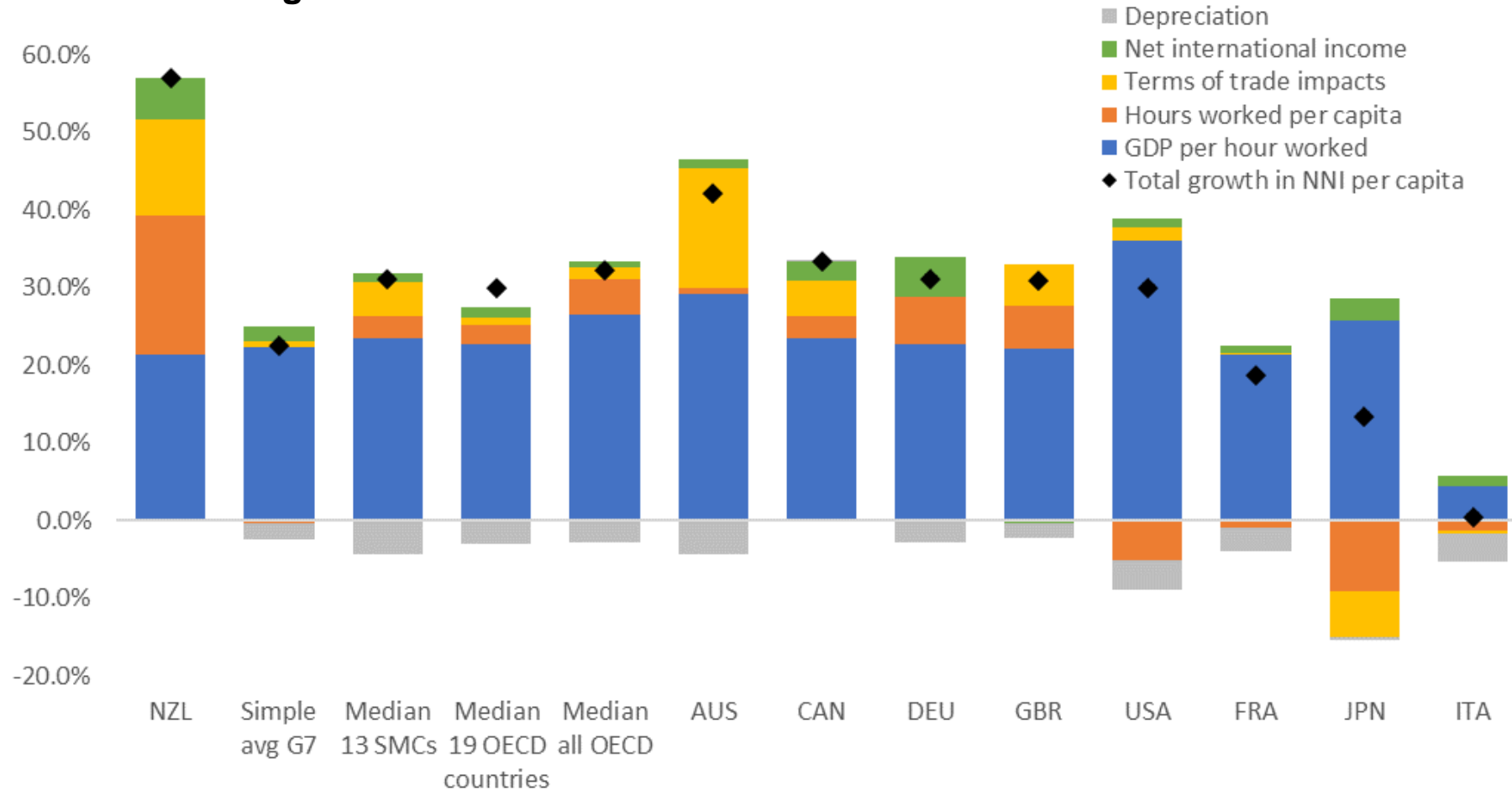
NZ's Real Net National Income per capita as a % of each country or group (constant prices and 2015 PPPs)



Total volume of domestic production per hour worked	Real GDP per hour worked
Plus accounting for annual hours worked per capita	= Real GDP <u>per capita</u>
Plus terms of trade gains	= Real Gross Domestic <u>Income</u> per capita
Plus net international investment and labour income accruing to NZ residents	= Real Gross <u>National</u> Income per capita
Less depreciation of the built capital stock	= Real <u>Net</u> National Income per capita

Real net national income growth

Contributions to growth in real NNI per capita between the 1995-2002 average and 2019

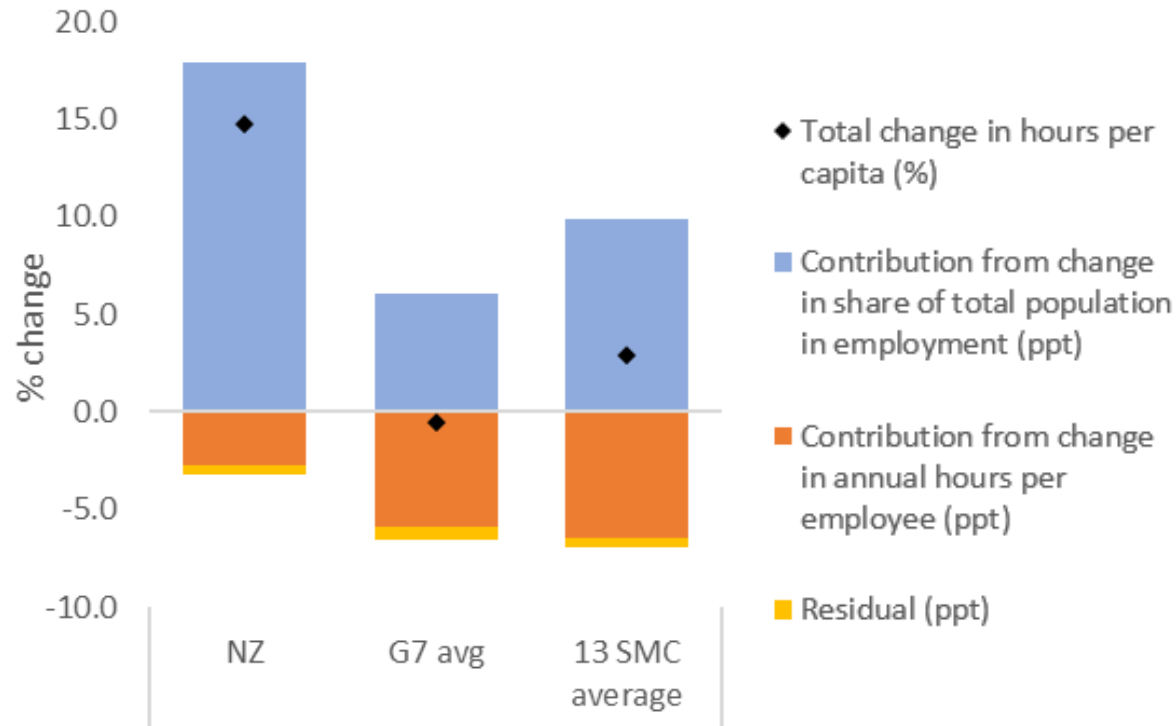


Source: OECD, World Bank, Author's calculations.

Note: the 19 OECD countries are the 13 SMCs plus France, Germany, Italy, Japan, the UK and the US.

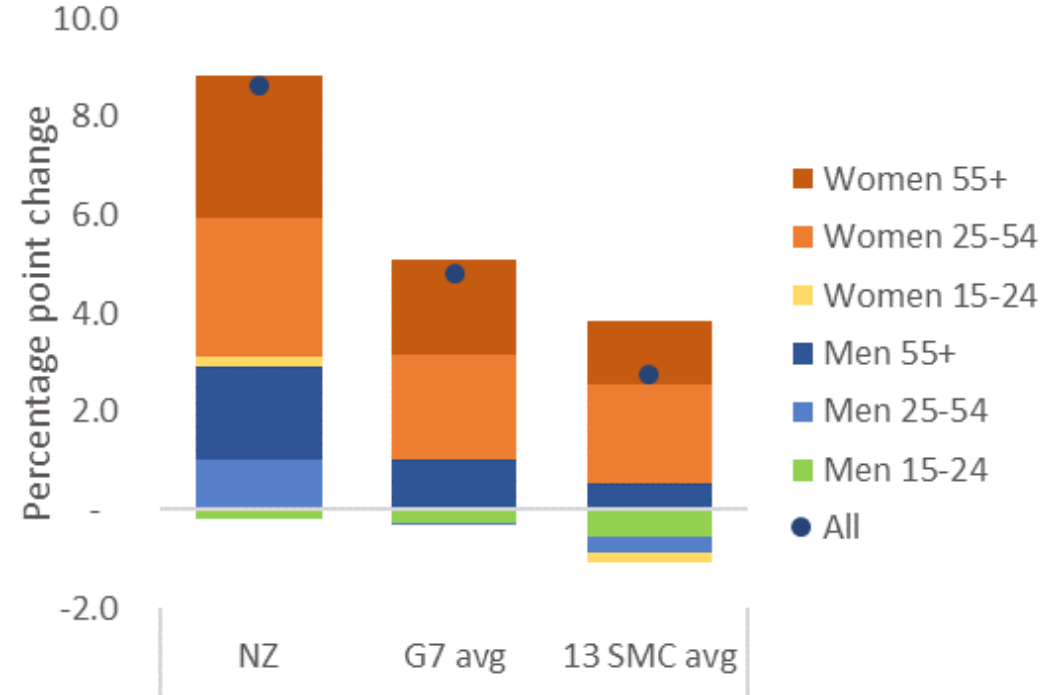
1) Hours worked per capita

Decomposition of the change in hours worked per capita between the 1995-2002 average and 2019



Source: OECD, author's calculations.

Contributions of within-demographic change in employment to the change in the overall employment-to-working-age-population ratio between the 1995-2002 average and 2019 level

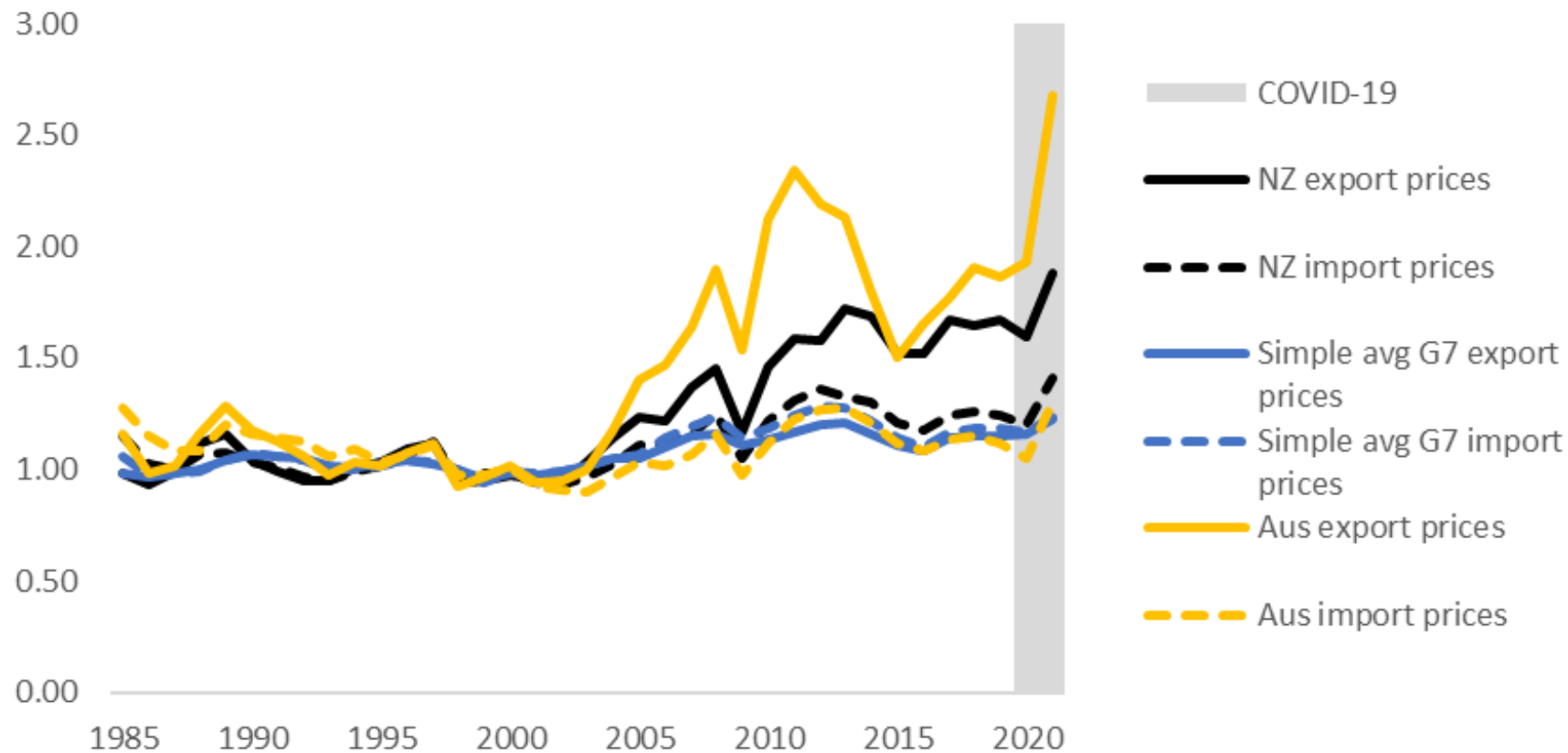


Source: OECD, author's calculations.

Note: Change taken from the 2000-2002 average for the 13 SMCs as data is unavailable prior to this for some countries.

2) The terms of trade

Nominal export and import price indexes of goods and services in world (SDR) terms (1995-2002=1)

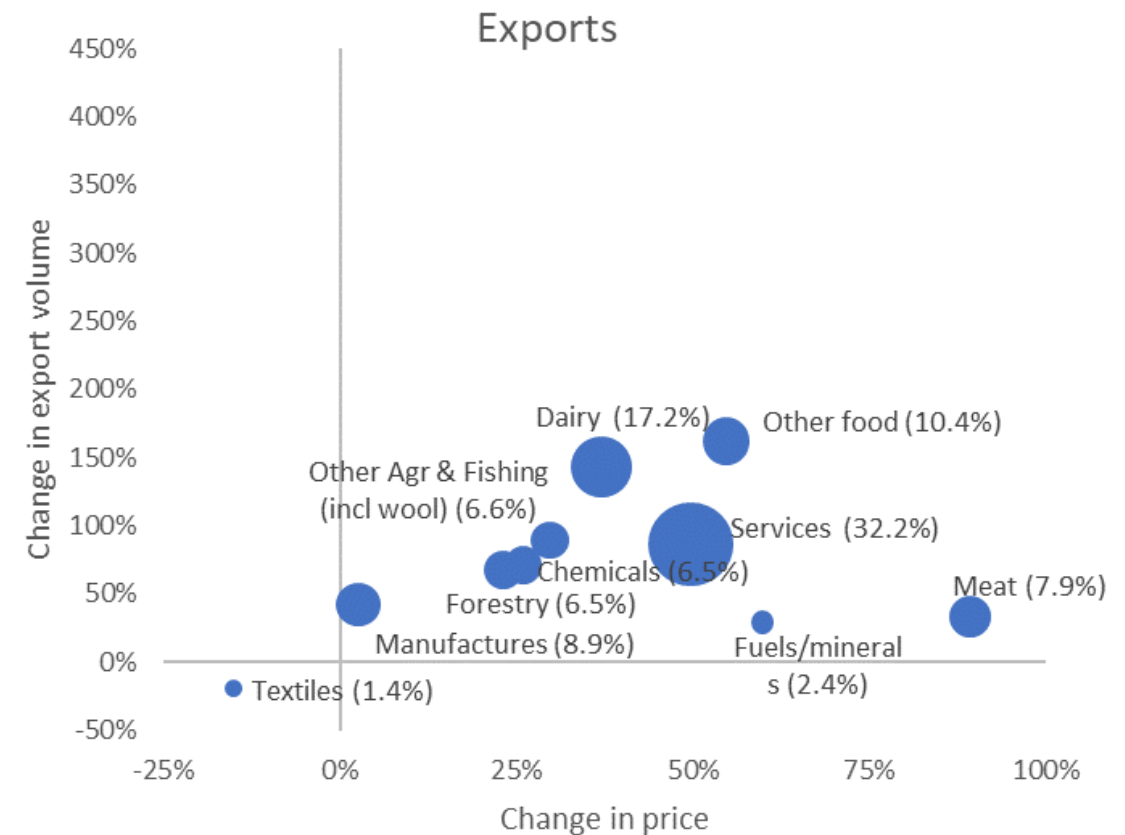
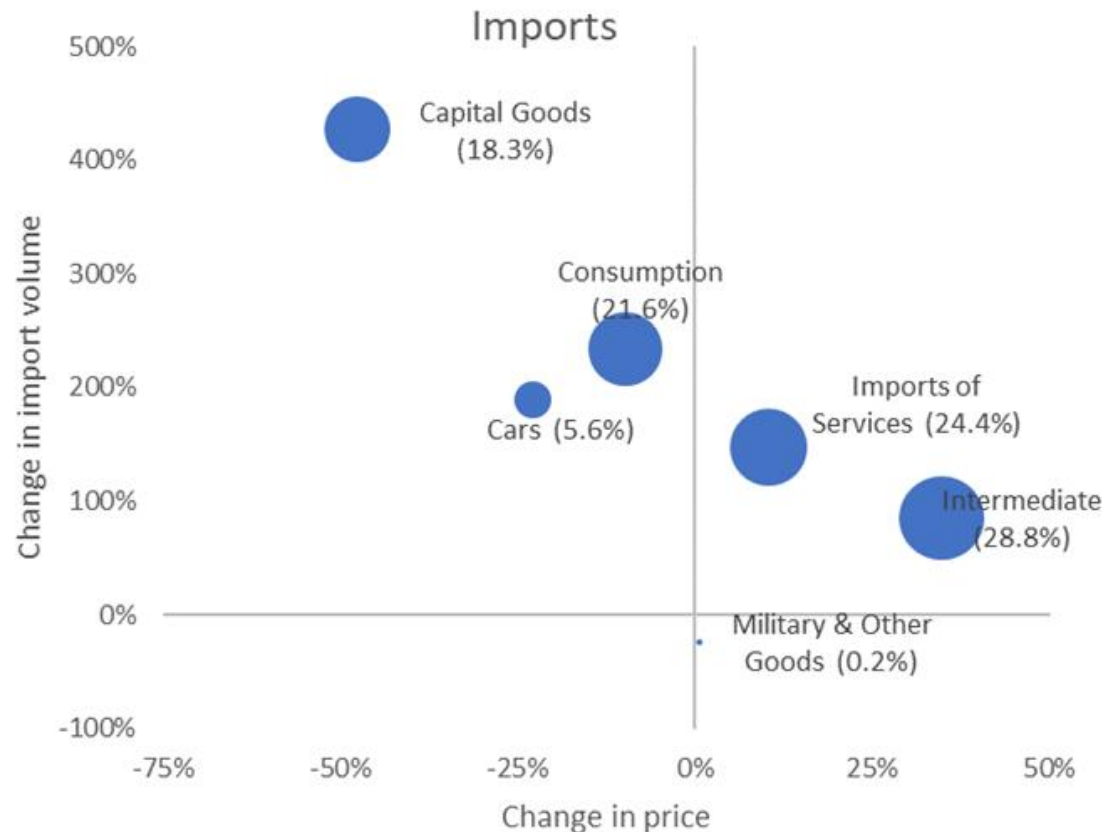


Source: OECD, Haver Analytics, author's calculations.

Import volumes have increased the most for the products that have fallen the most in price

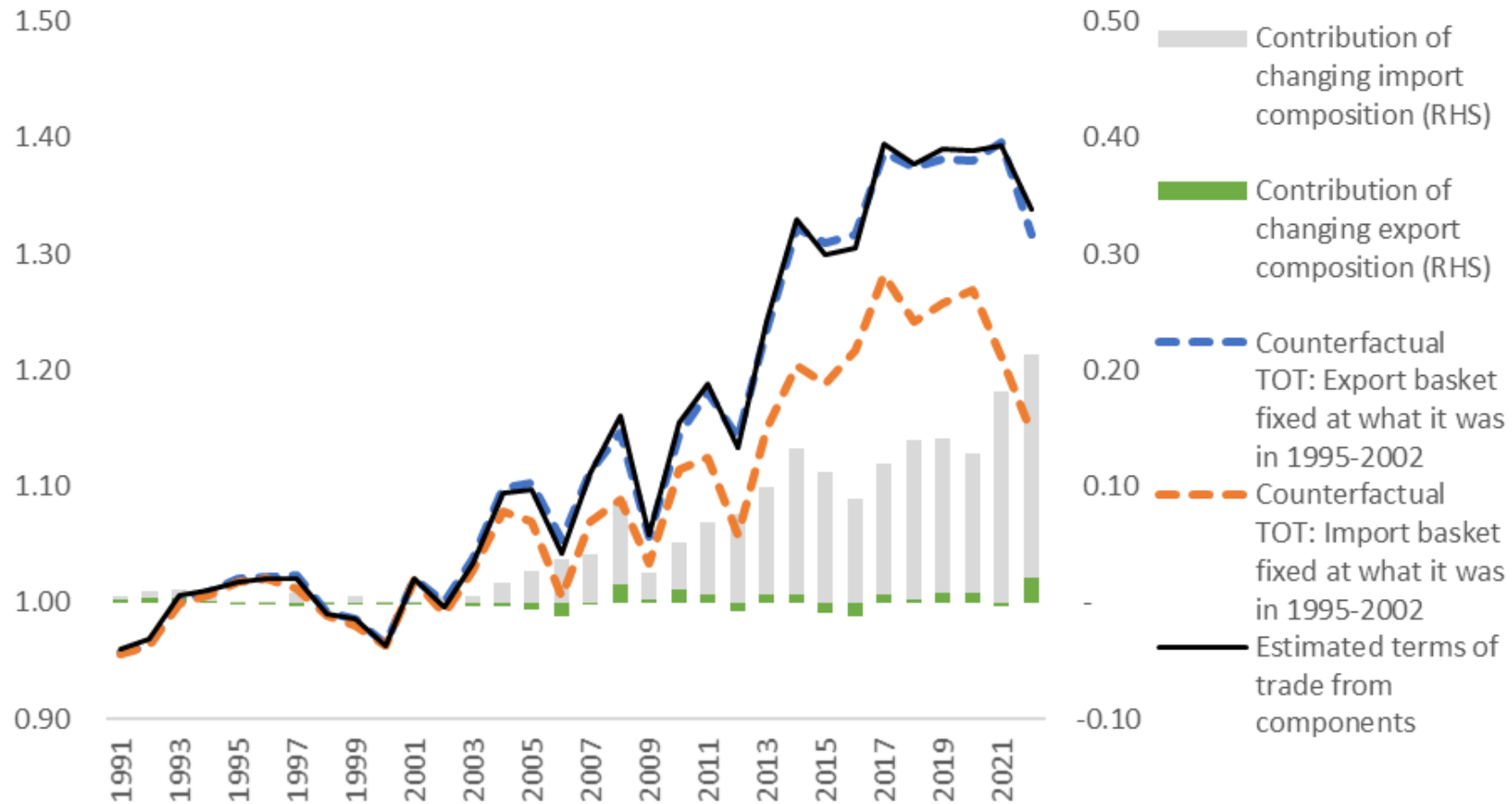
Changes in prices and quantities of New Zealand's main export and import products between the 1995-2002 average and 2019

(The percentage in brackets is each commodity's share of New Zealand's total real exports or imports in 2019)



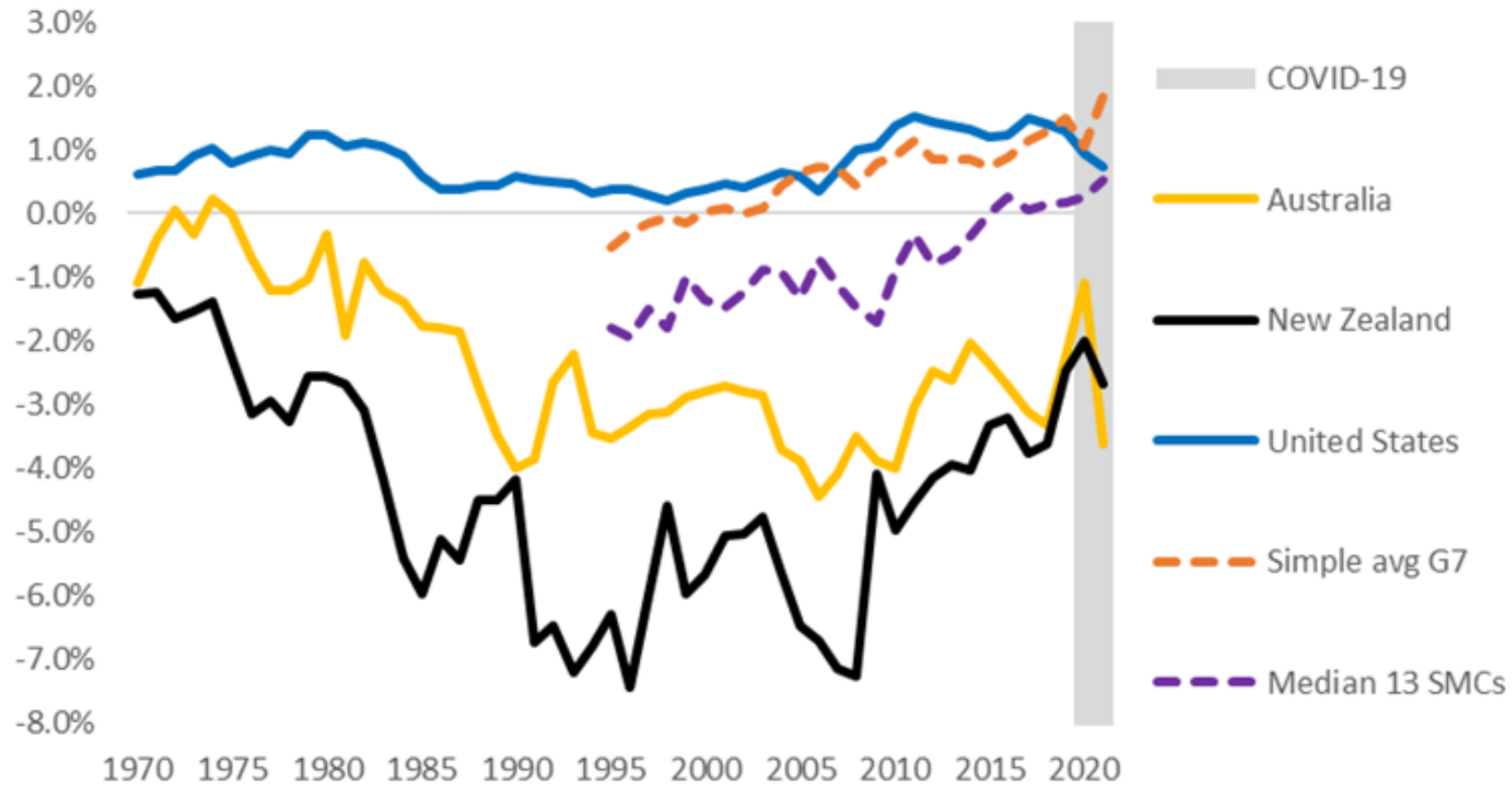
Contribution of changing import mix to the increase in the terms of trade

Terms of trade counterfactuals constructed from prices and quantities of the main import and export products



3) Net international income

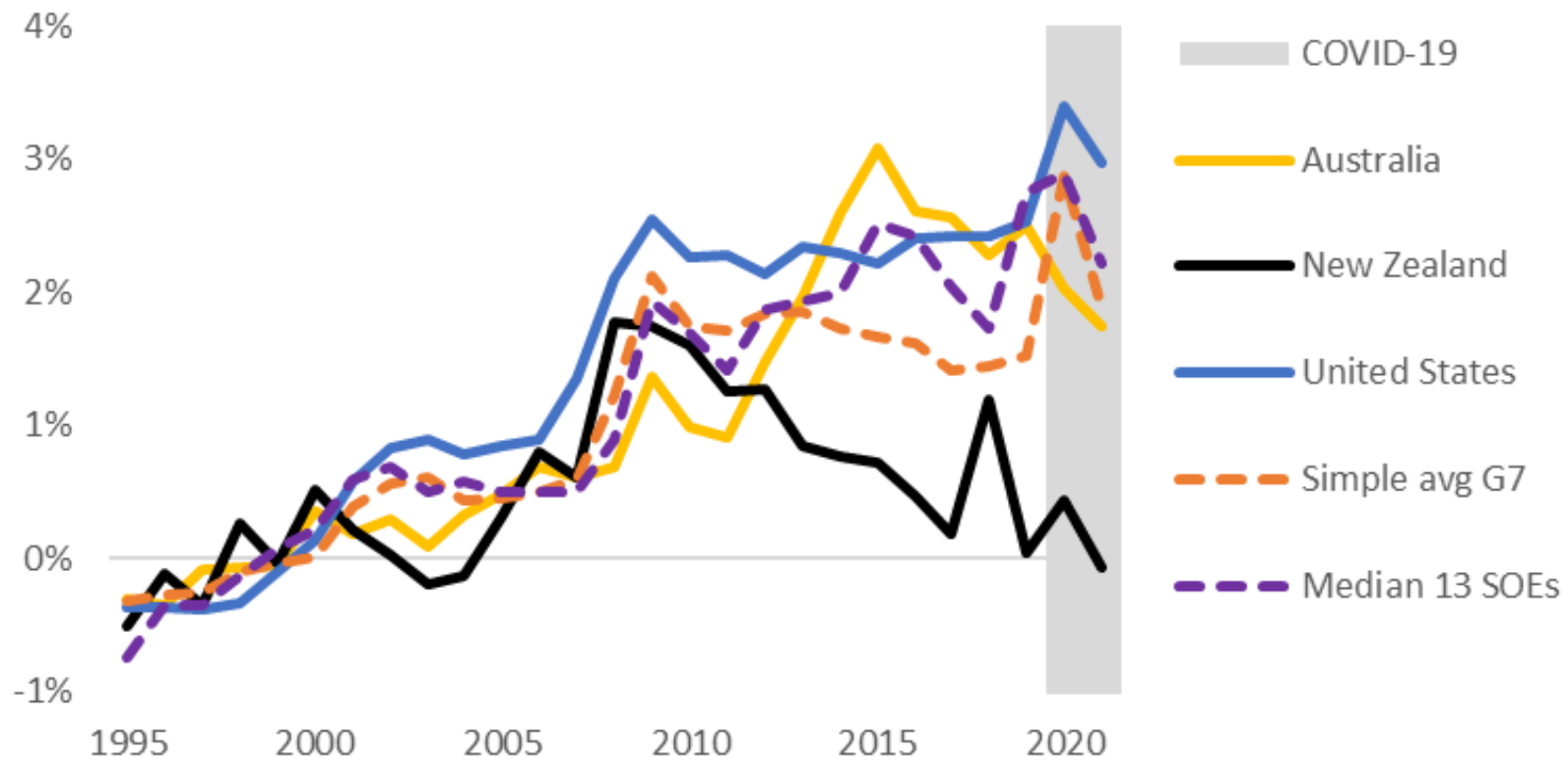
Net international income (% of GNI, nominal terms)



Source: OECD, author's calculations.

4) Depreciation

Change in ratio of real consumption of fixed capital to real GNI ('depreciation burden') relative to the 1995-2002 average (ppt)

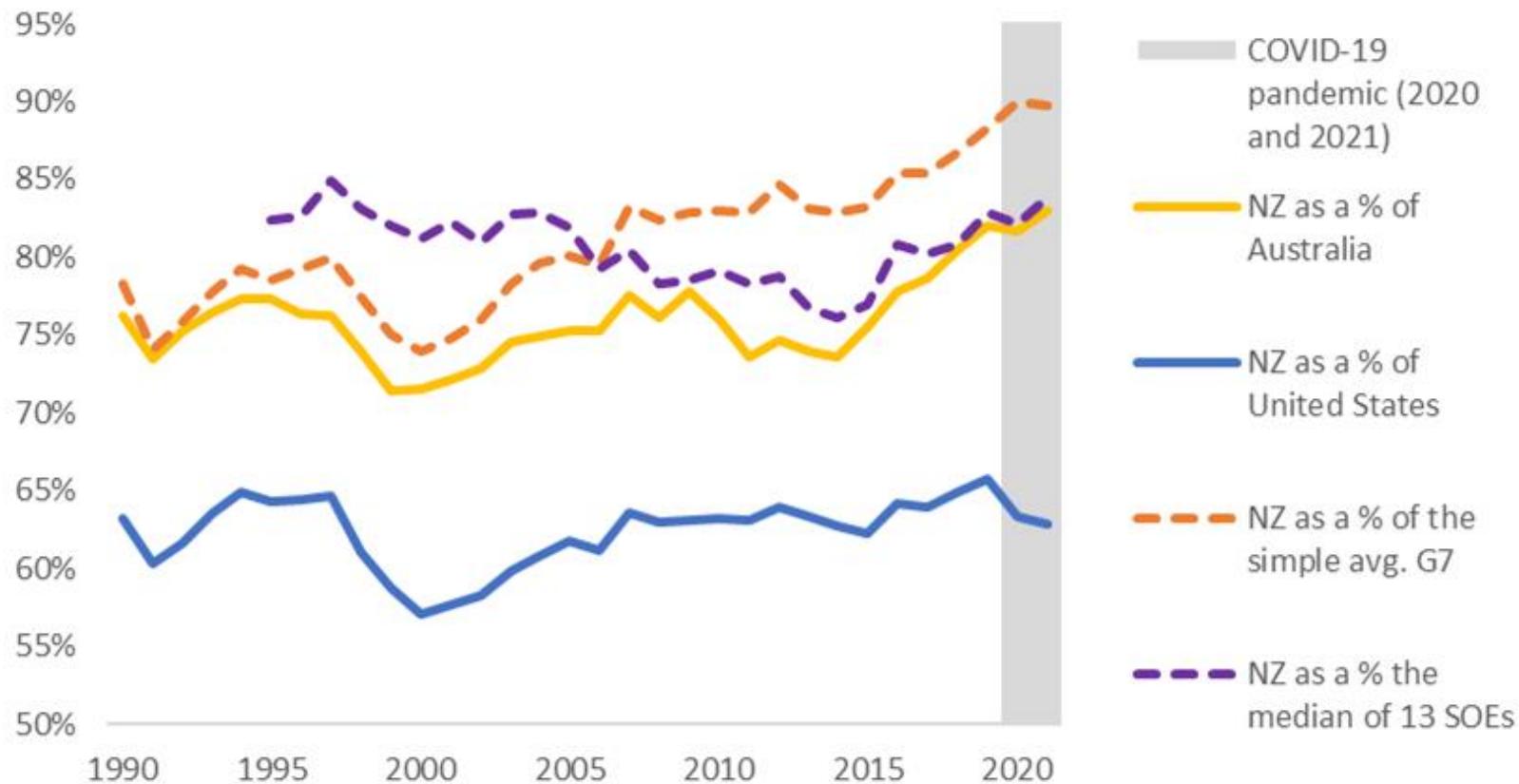


Source: OECD, author's calculations.

Note: The depreciation burden is calculated as real depreciation (nominal consumption of fixed capital deflated by the gross fixed capital formation deflator) as a ratio of real GNI (nominal GNI deflated by the GNE deflator).

Impacts of improved income growth on broader economic outcomes

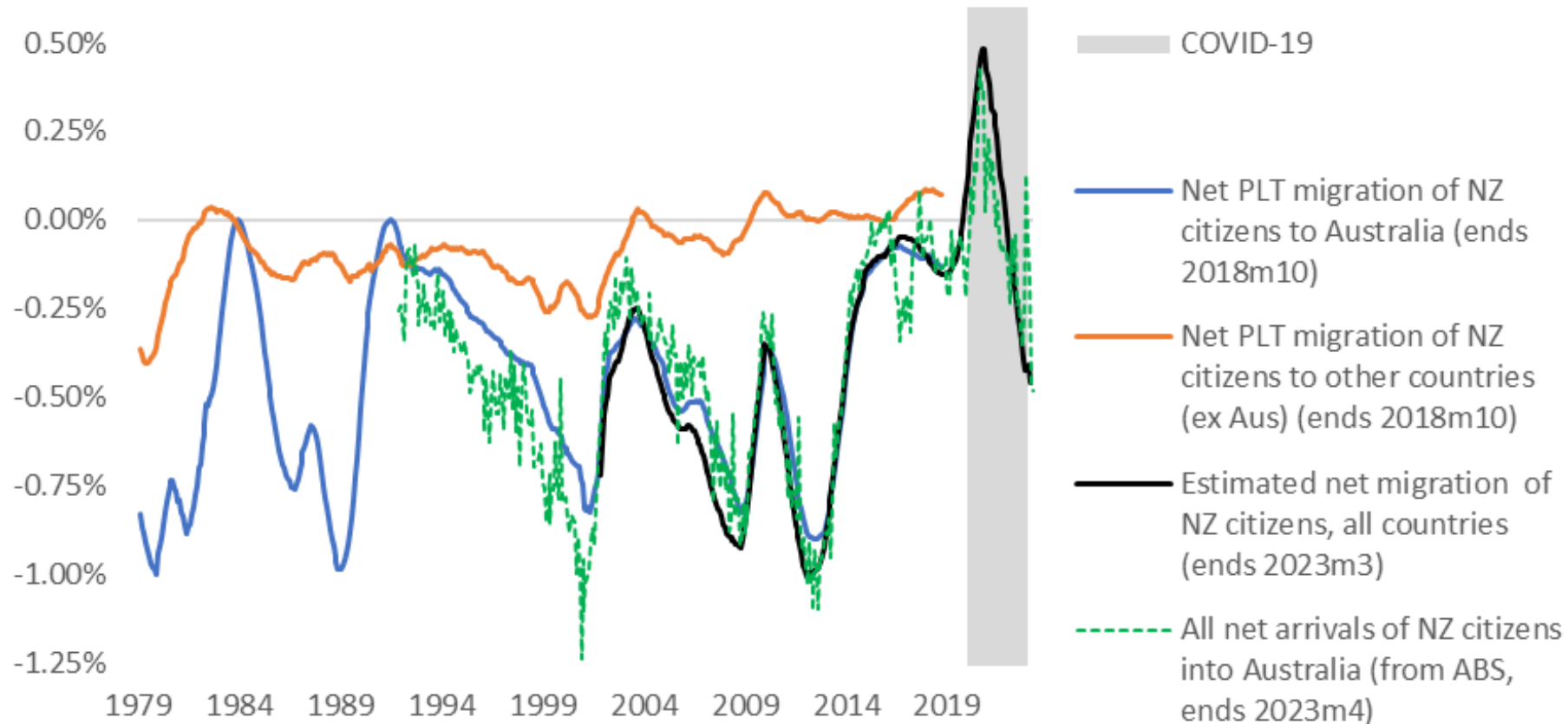
New Zealand's average annual wages for an FTE relative to other countries (constant 2021 prices and PPPs)



Source: OECD, author's calculations.

Impacts of improved income growth on broader economic outcomes

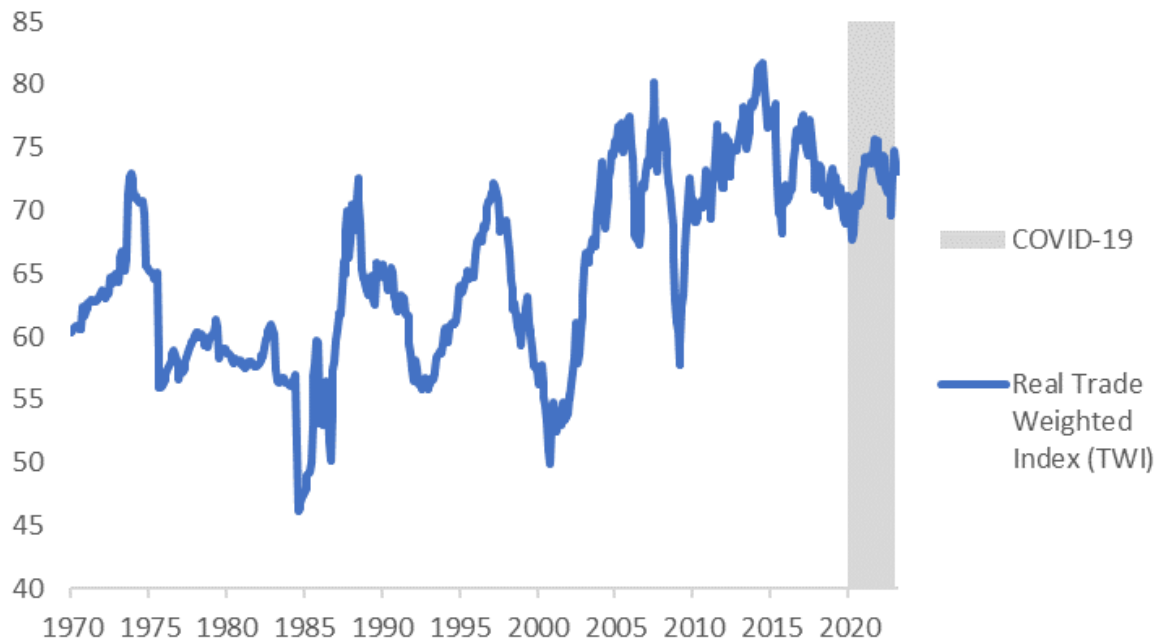
**Measures of net migration of New Zealand citizens
(annual totals, % of New Zealand population)**



Source: Stats NZ, Australian Bureau of Statistics, OECD, author's calculations

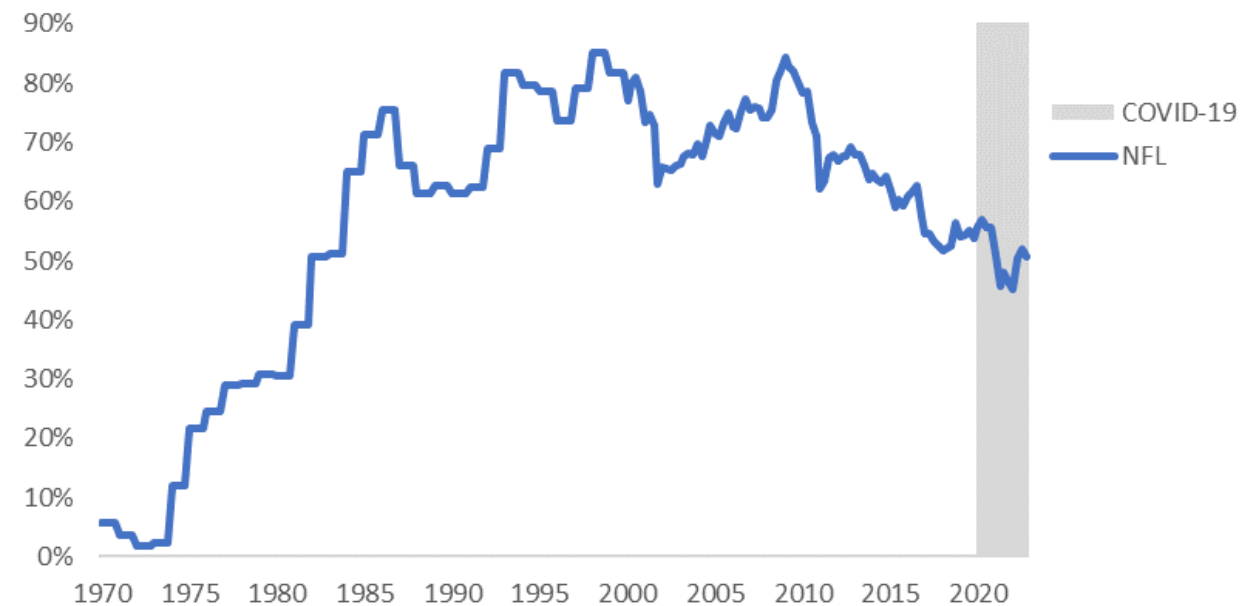
Impacts of improved income growth on broader economic outcomes

New Zealand's real trade-weighted exchange rate



Source: Reserve Bank of New Zealand

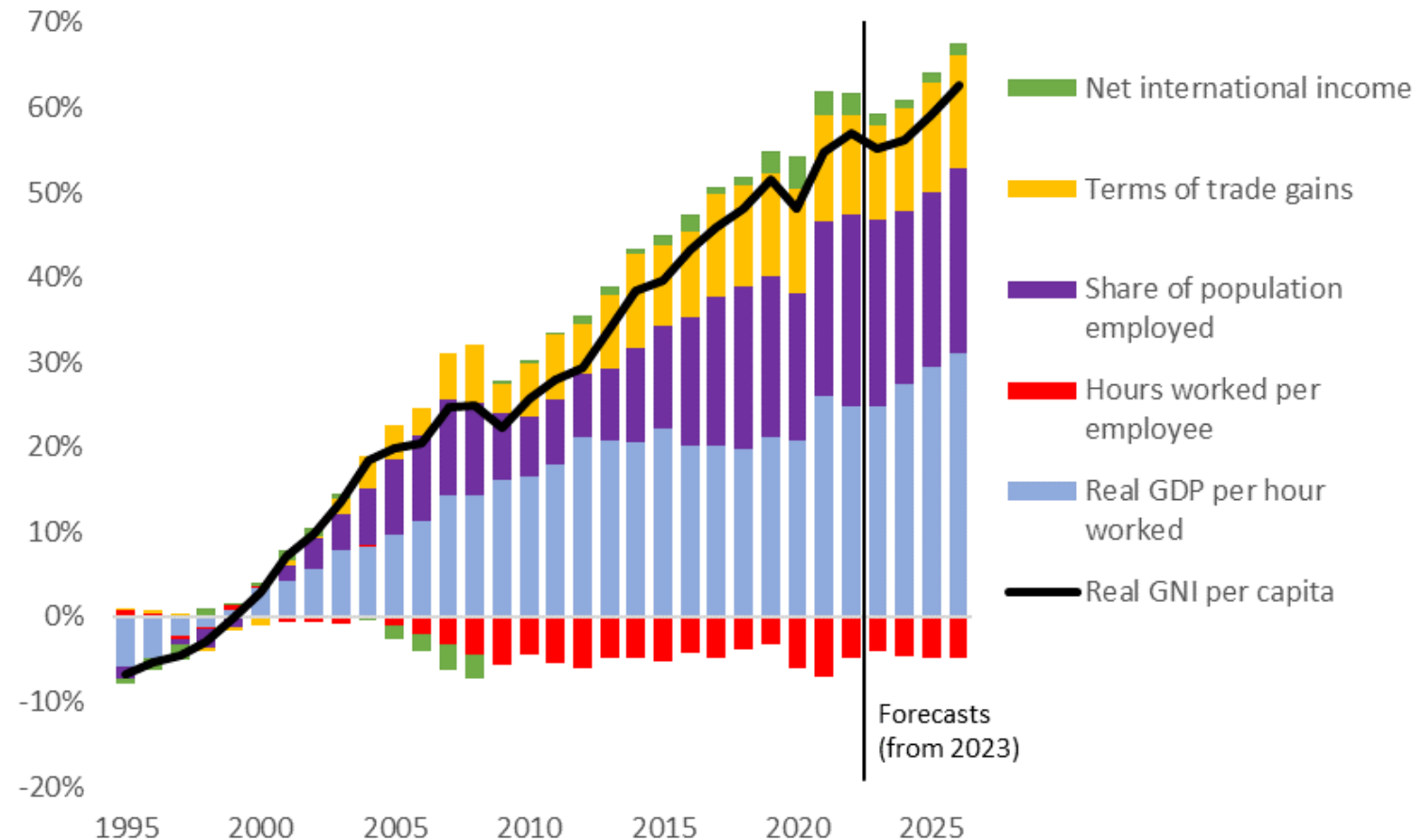
New Zealand's net foreign liabilities (% of GDP)



Source: Haver Analytics/Stats NZ for data from 1989. Data prior to 1989 sourced from Lane & Milesi-Ferretti (2016)

Looking forward

Contributions to New Zealand's cumulative growth in real GNI per capita since the 1995-2002 average: Treasury Budget 2023 forecasts



Source: New Zealand Treasury, Author's calculations

Productivity by the numbers



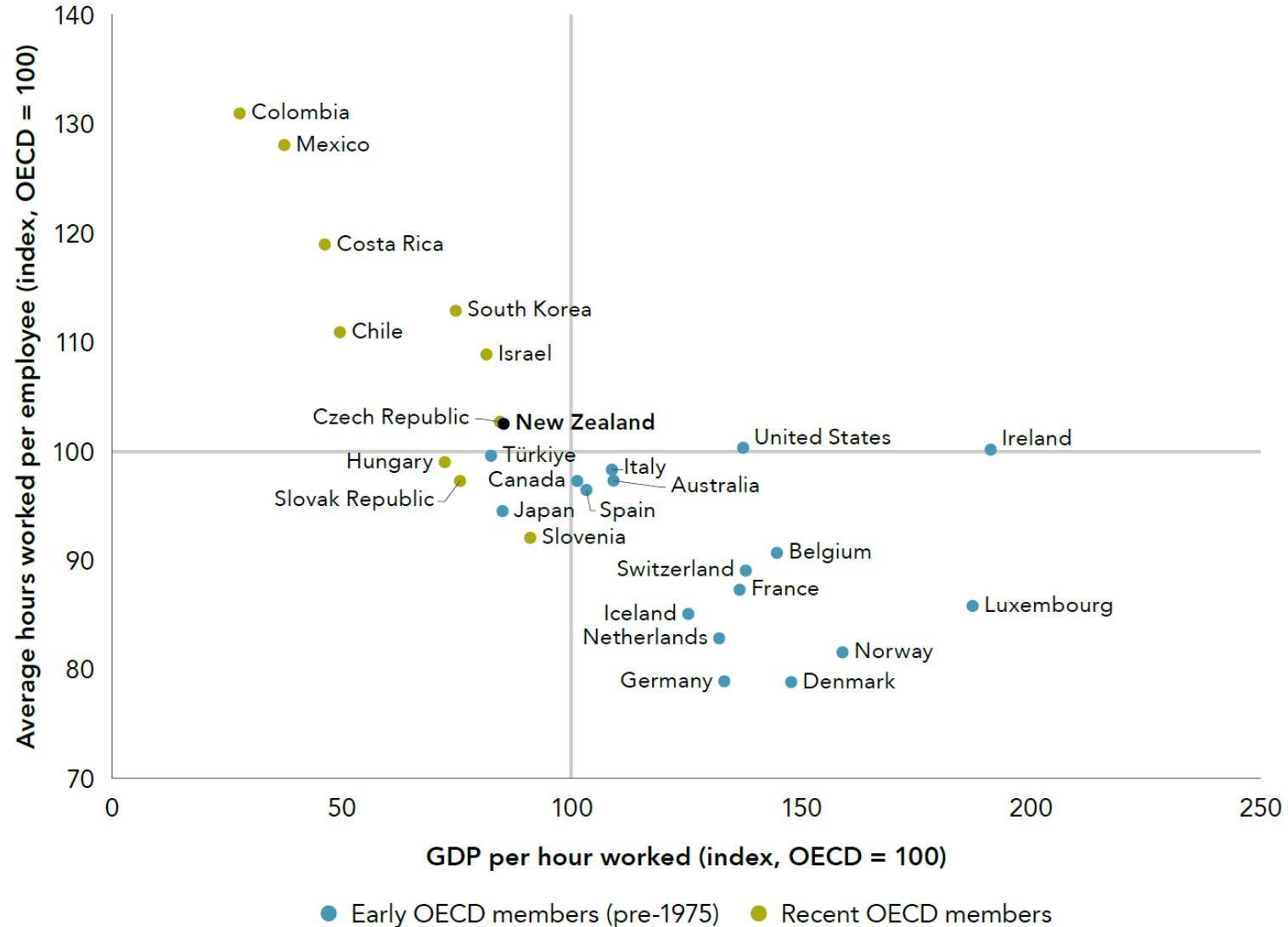
Philip Stevens

Director, Economics & Research

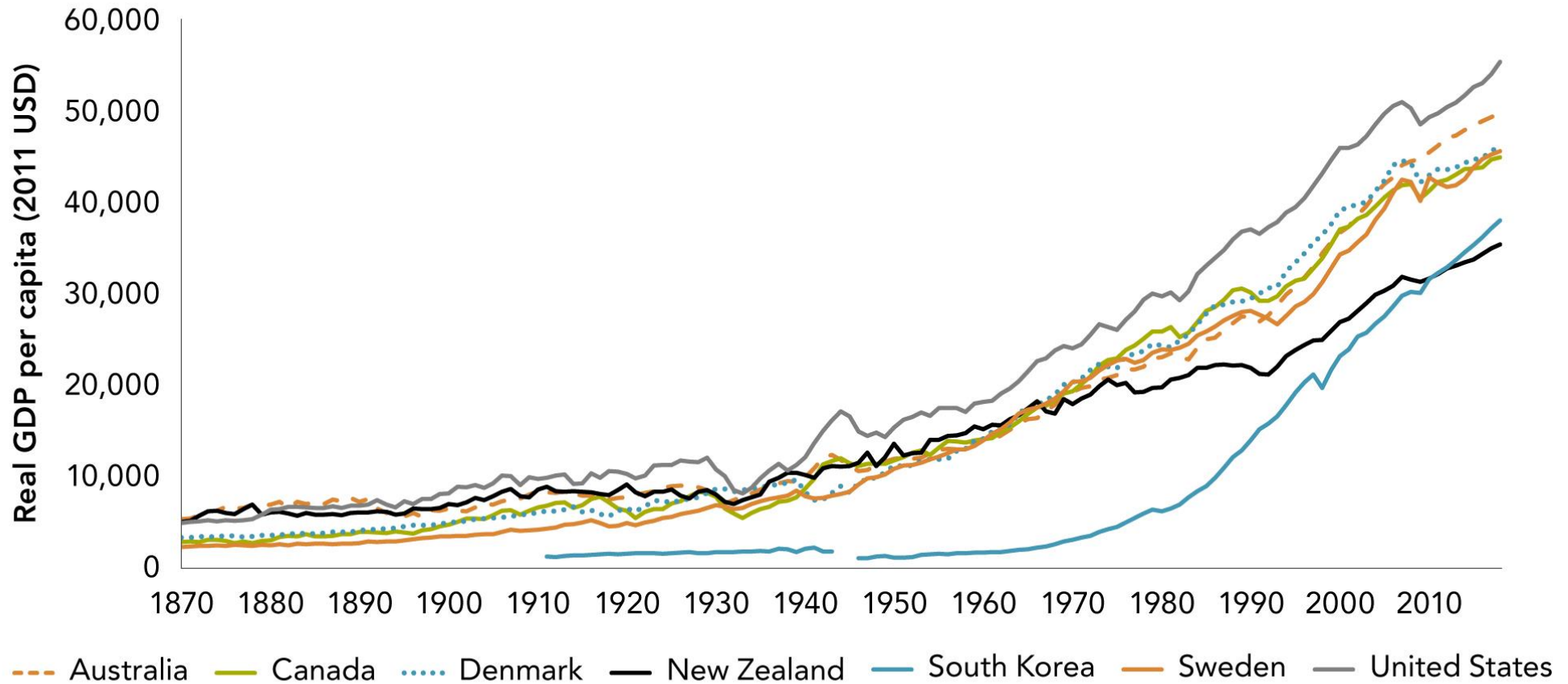
Productivity Commission | Te Kōmihana Whai Hua o Aotearoa



New Zealanders work longer hours and get less output per hour than most OECD countries



It wasn't always like this

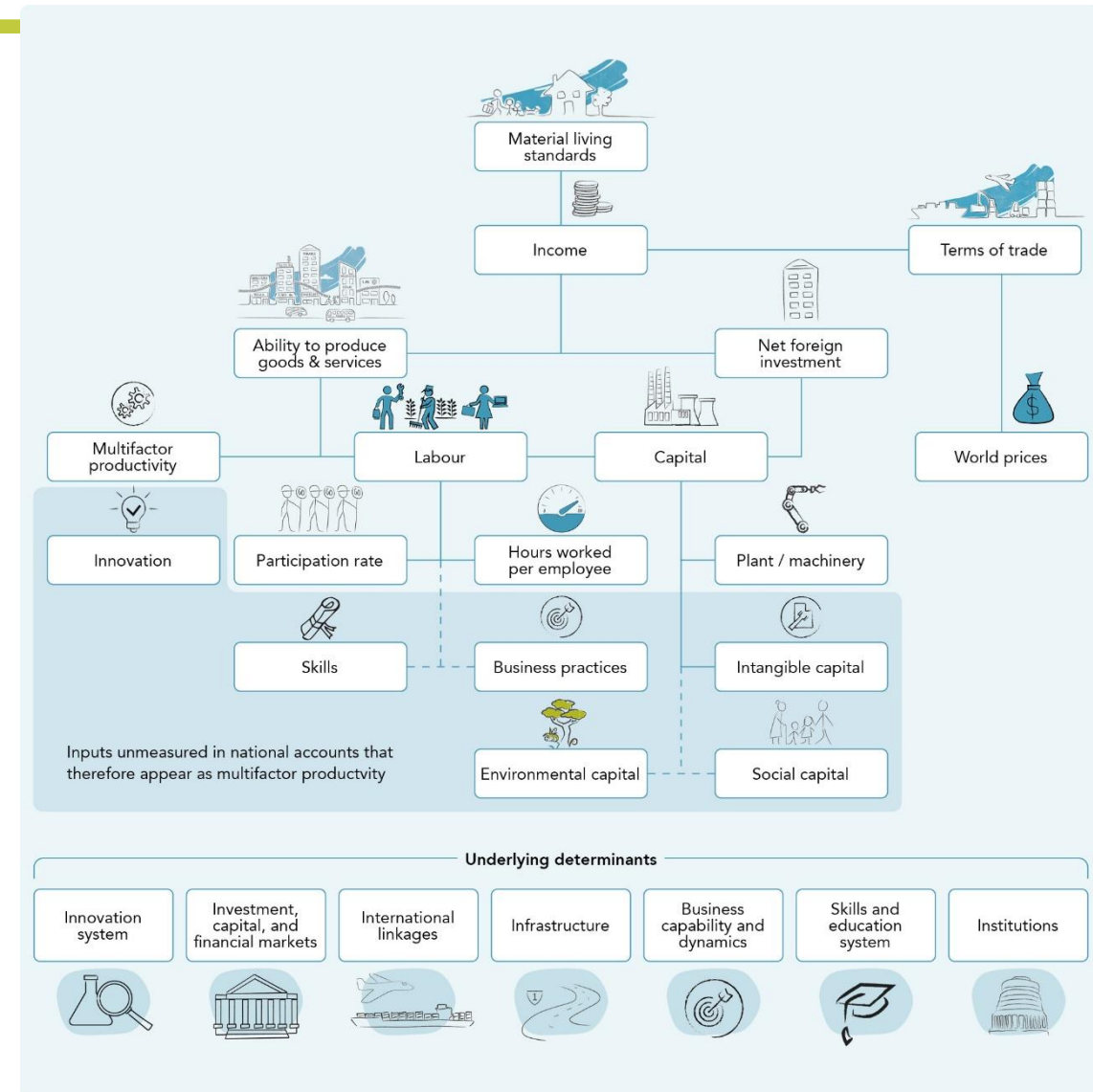


The components of productivity

- Economies-of-scale
- Economies-of-scope
- Technical efficiency
- Allocative efficiency
- Knowledge/technology

And, in reality:

- Mismeasurement



The underlying determinants of productivity

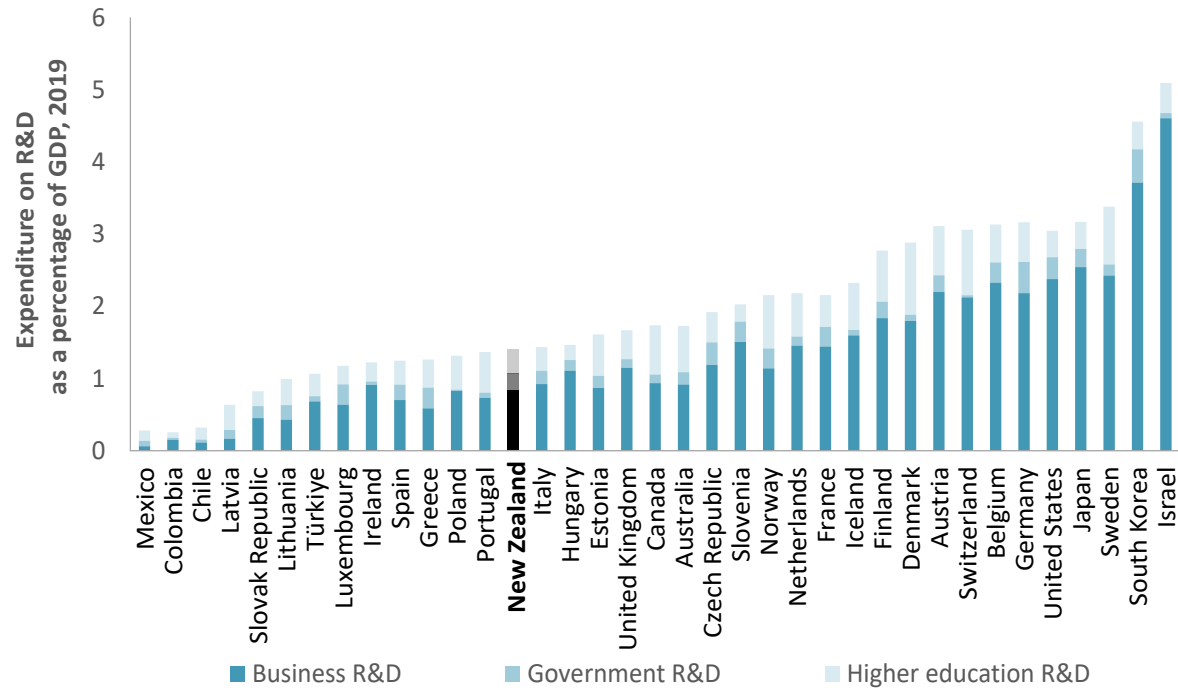
Innovation through research and development helps boost Productivity, and as a country we still under-invest in R&D, both at a business and a Government level, compared to other countries.

Catherine Beard | BusinessNZ

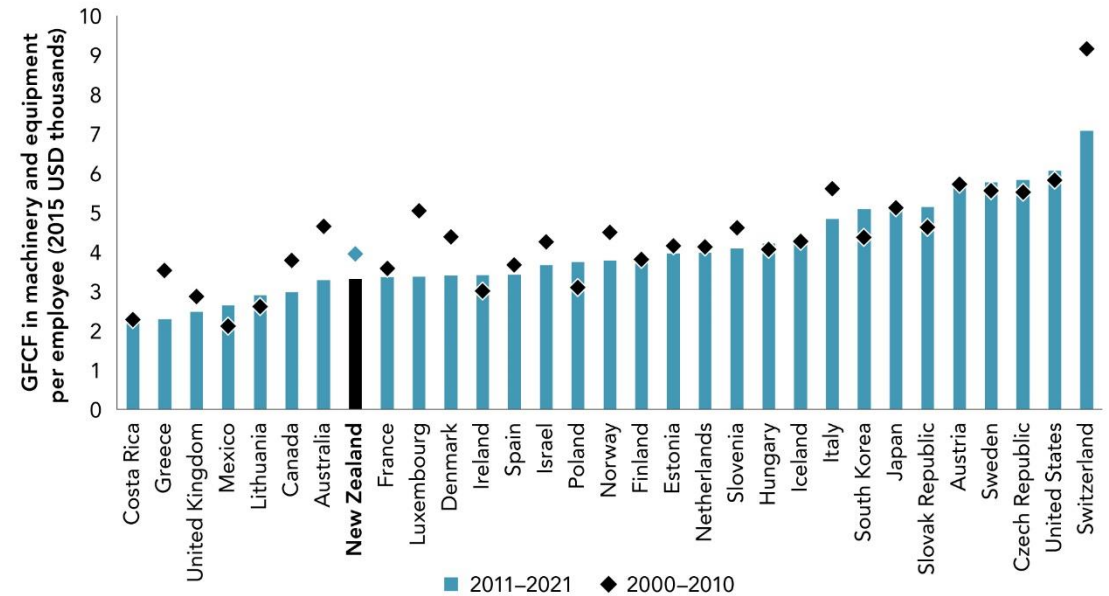


Investment is low

Research & Development

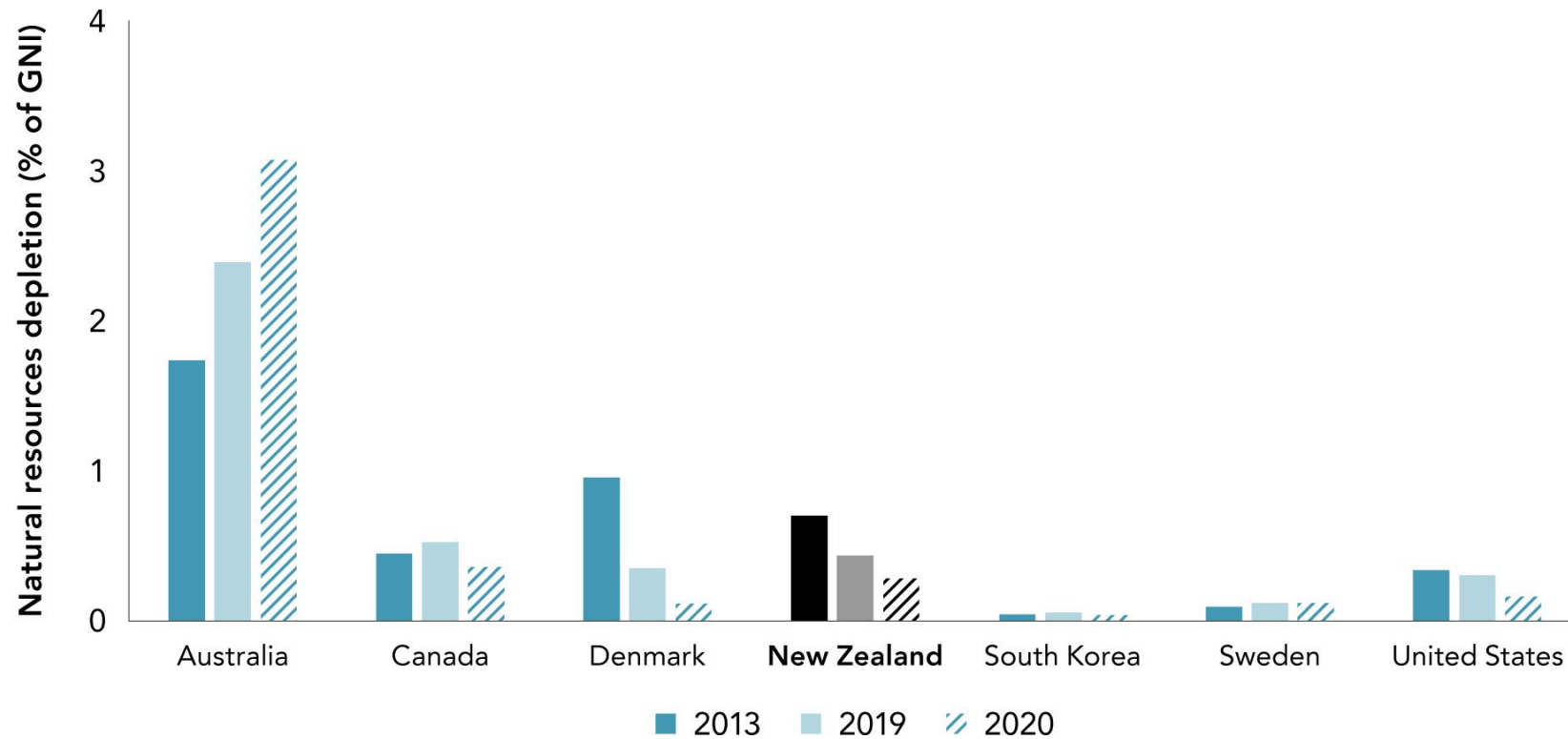


Machinery, equipment & IT

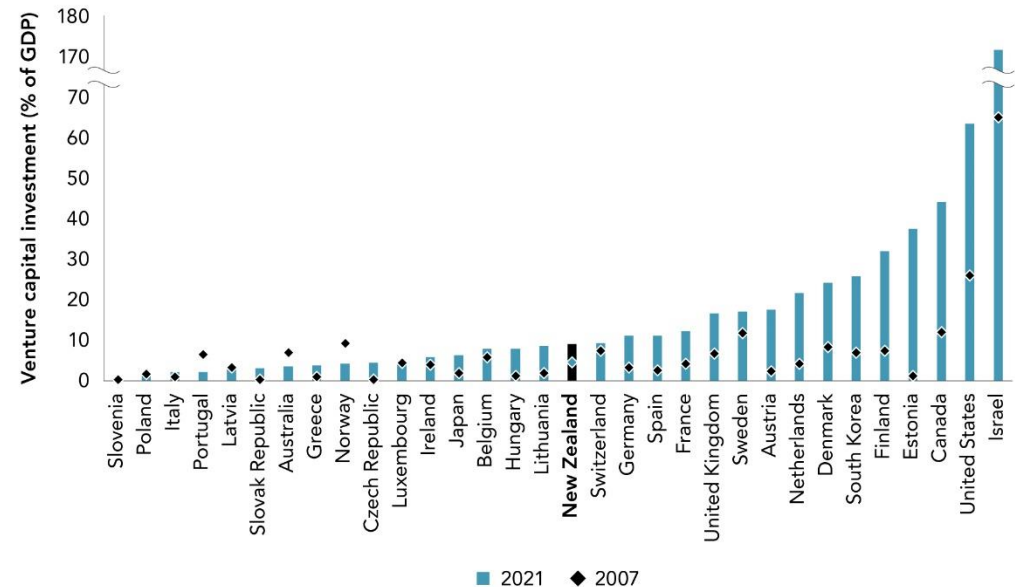
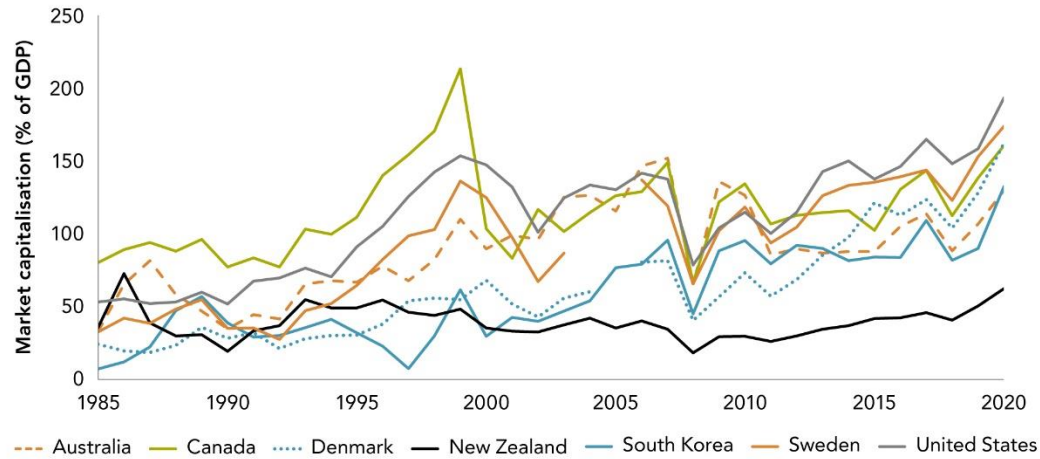


...or negative

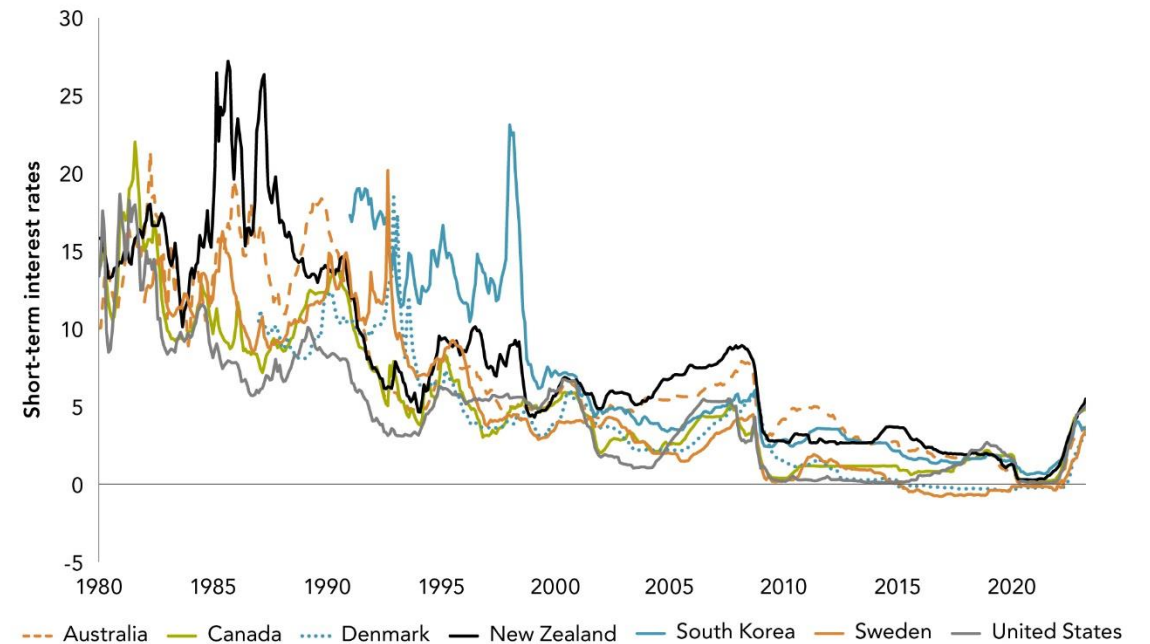
Disinvestment in environmental capital



Share and venture capital markets are small

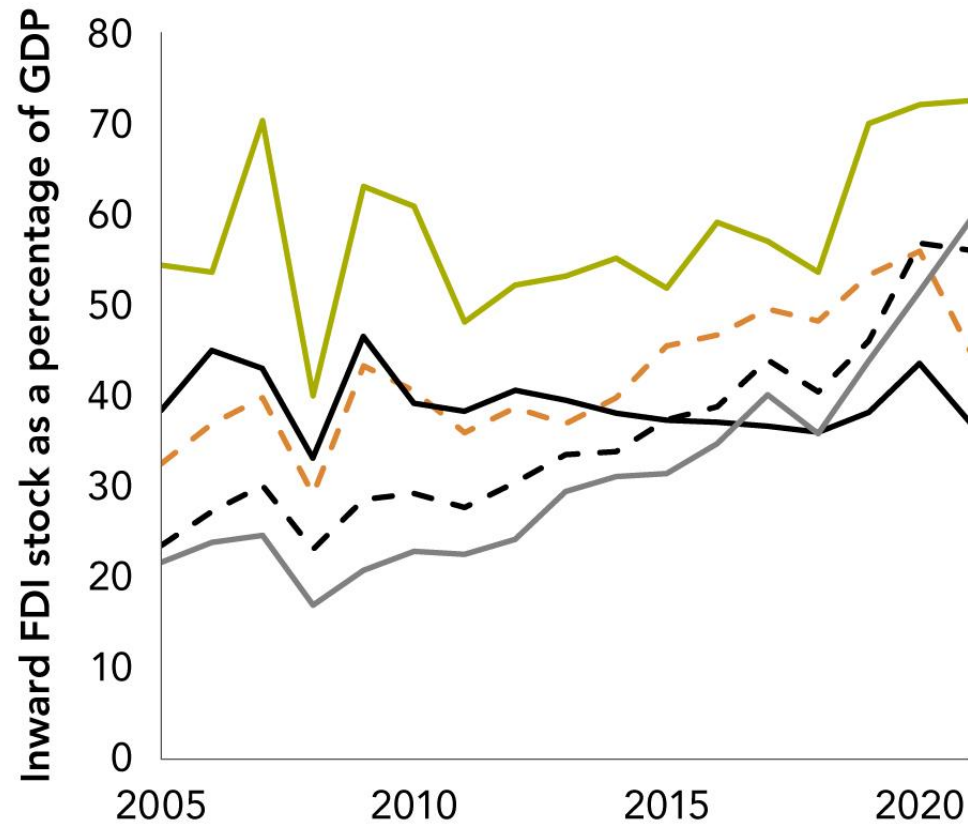


Interest rates have tended to be high

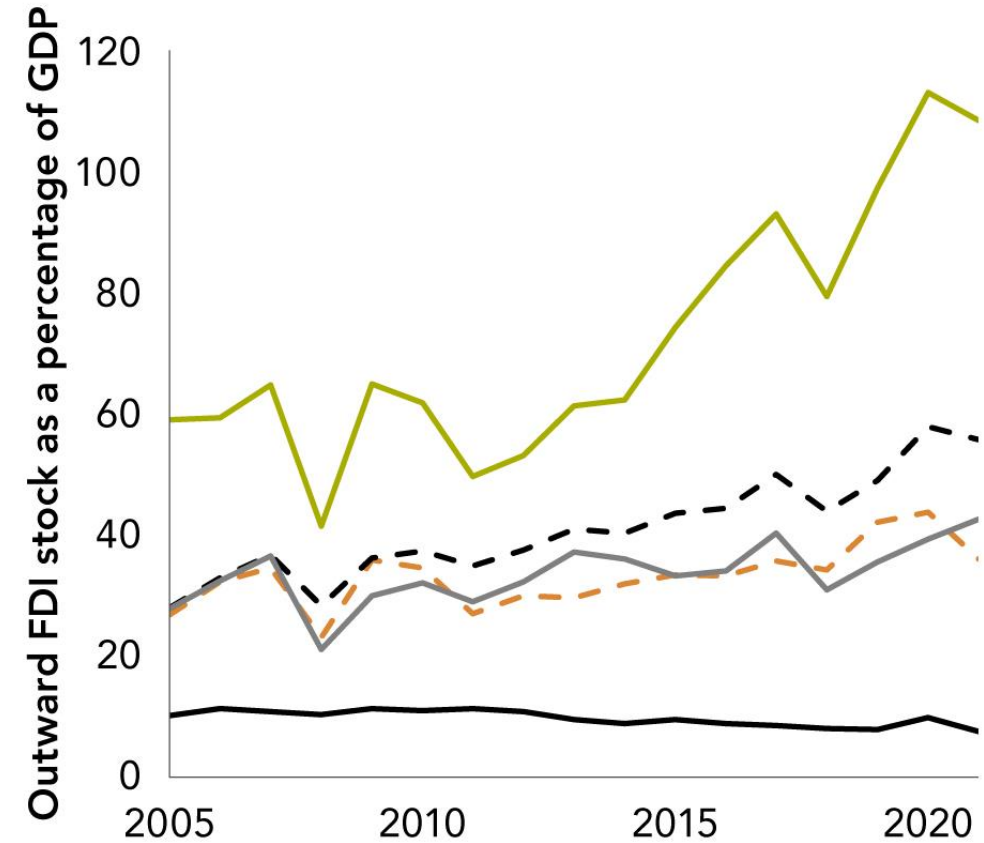


Foreign direct investment

Inward FDI has been falling...

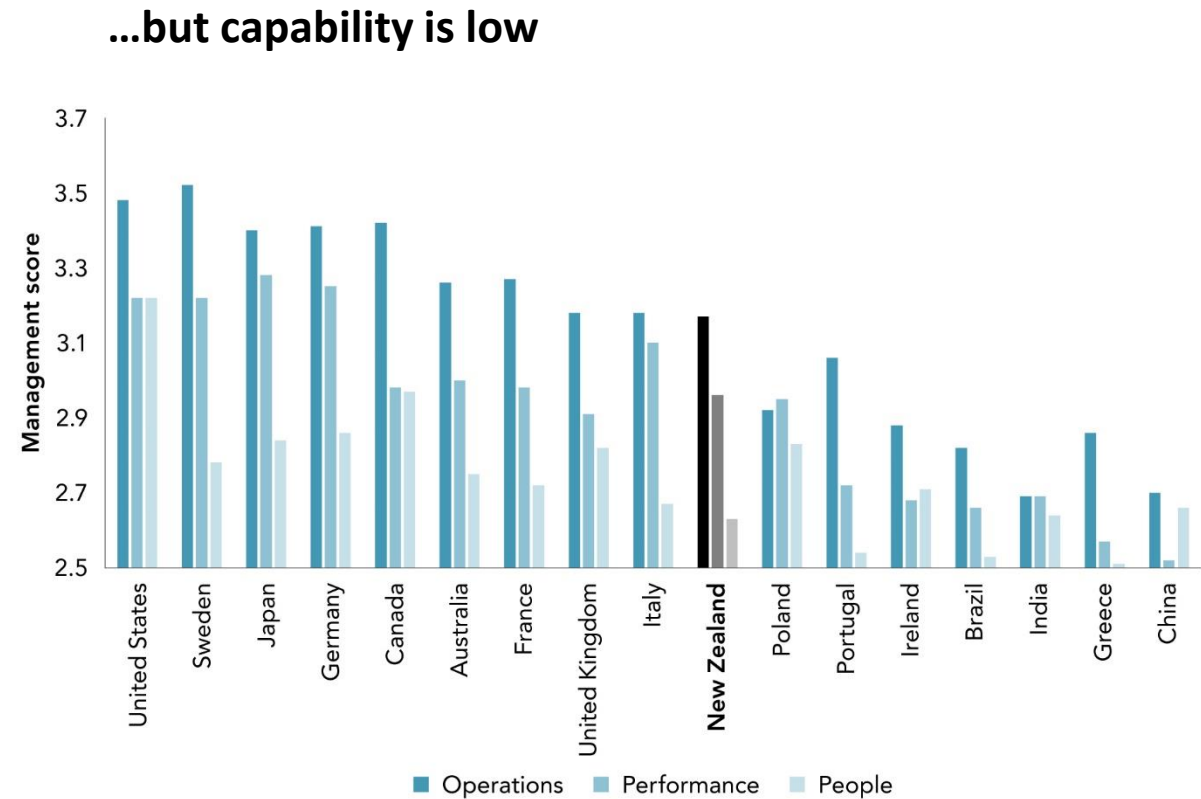
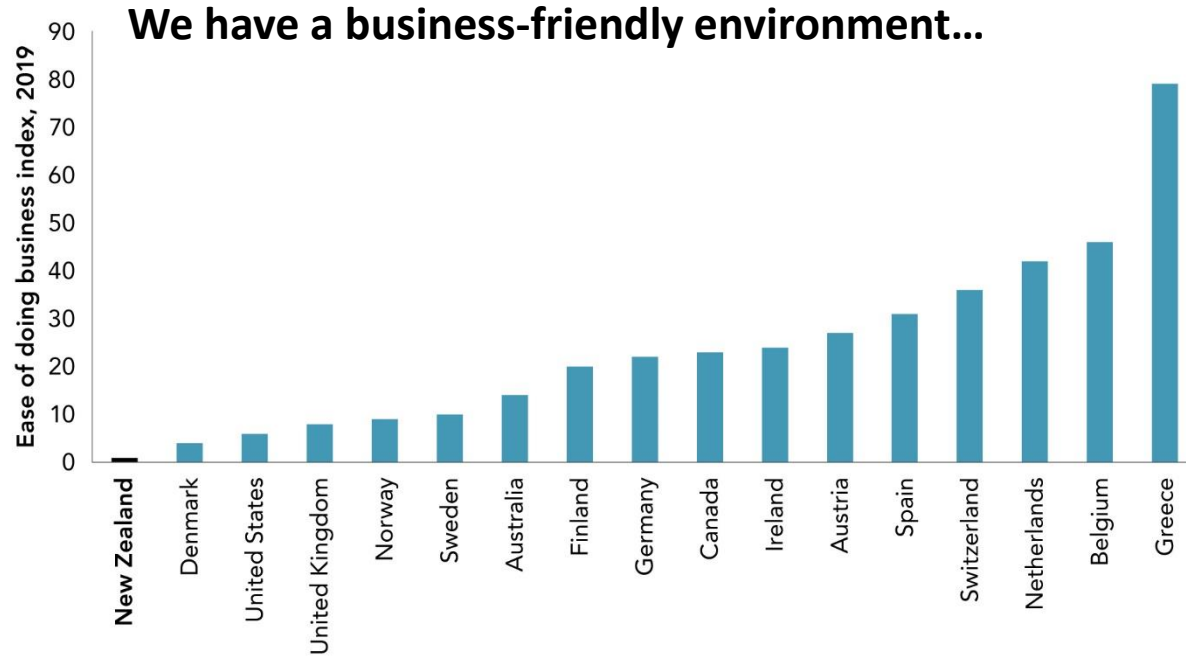


...Outward FDI has always been low



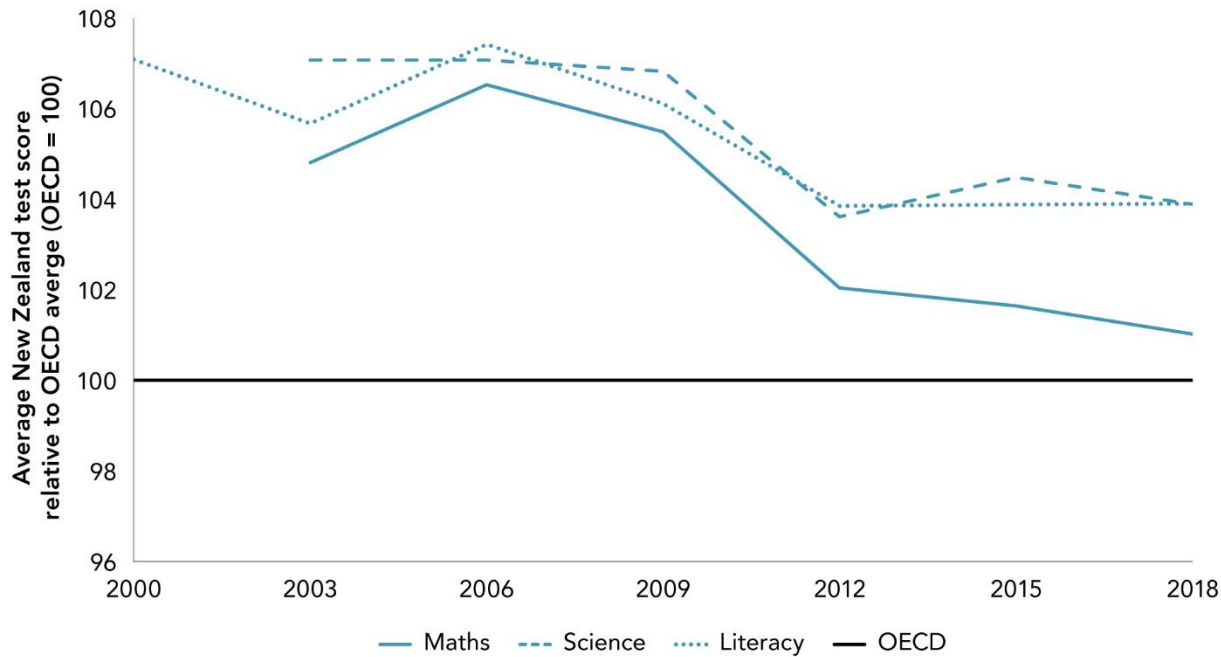
--- Australia — Canada — New Zealand --- OECD — United States

The business environment and capability

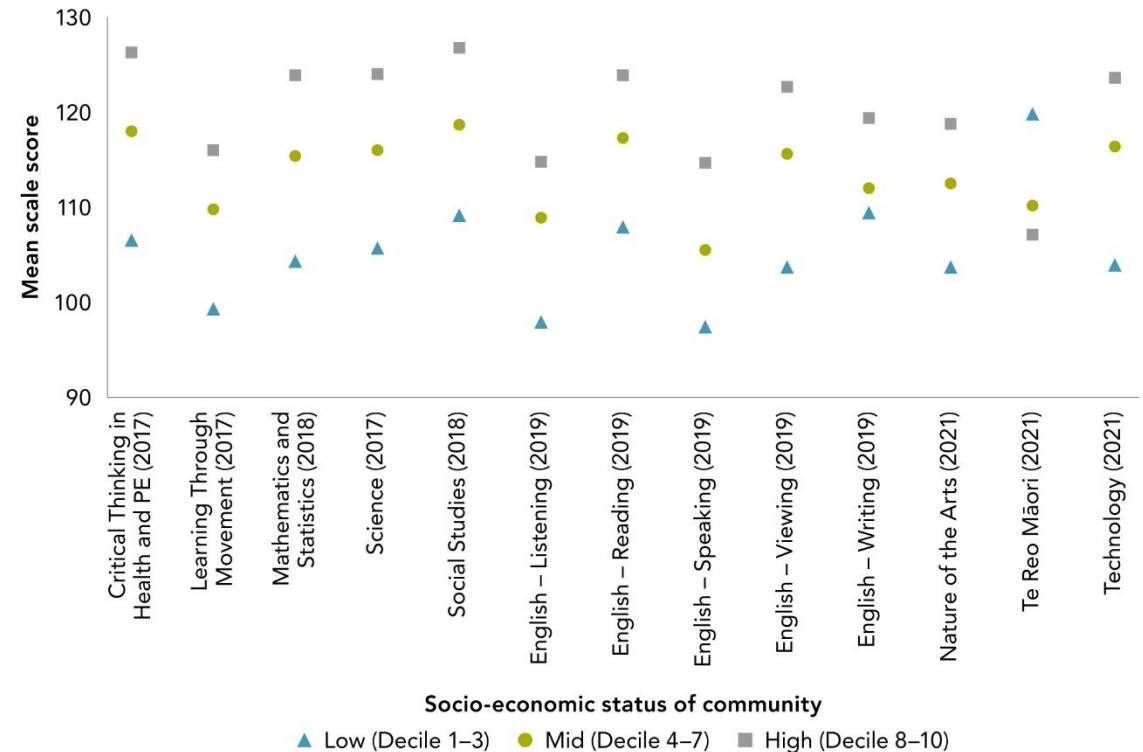


Education and skills are vital

Education outcomes are declining from past levels...

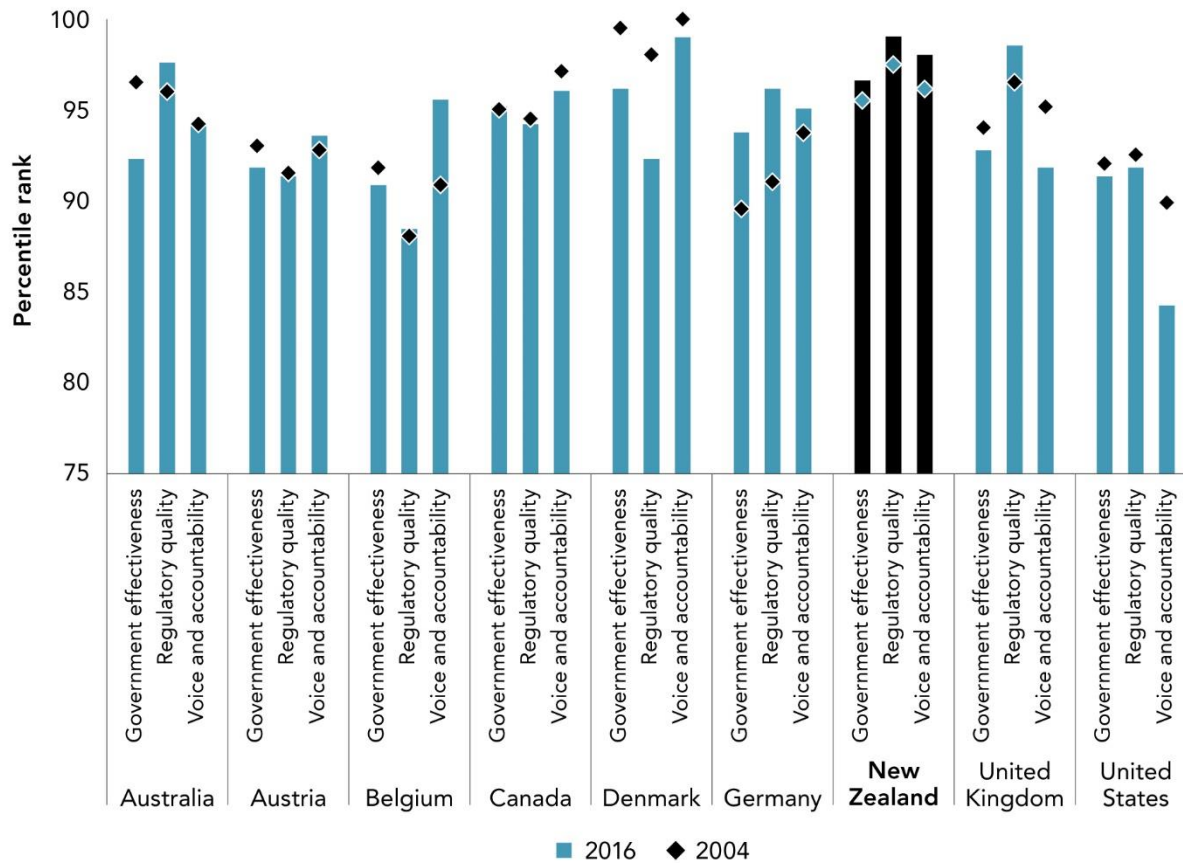


...and there are wide disparities

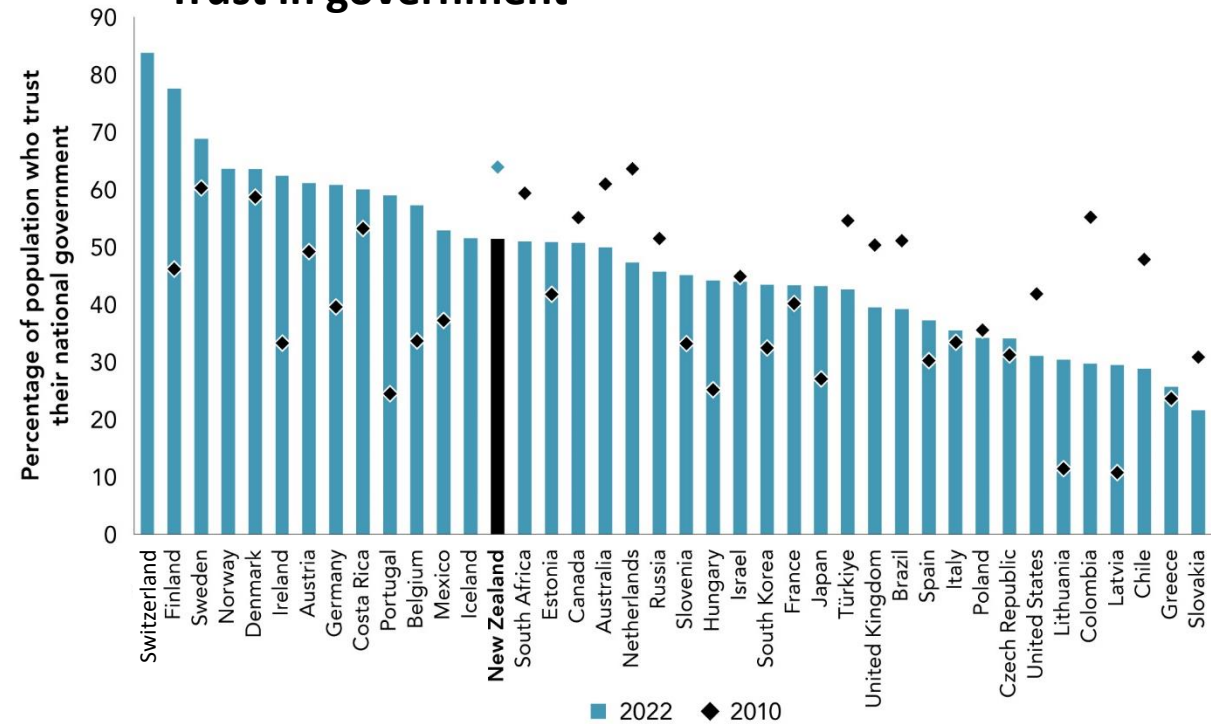


Our institutions are strong

Institutional quality



Trust in government



How to improve productivity

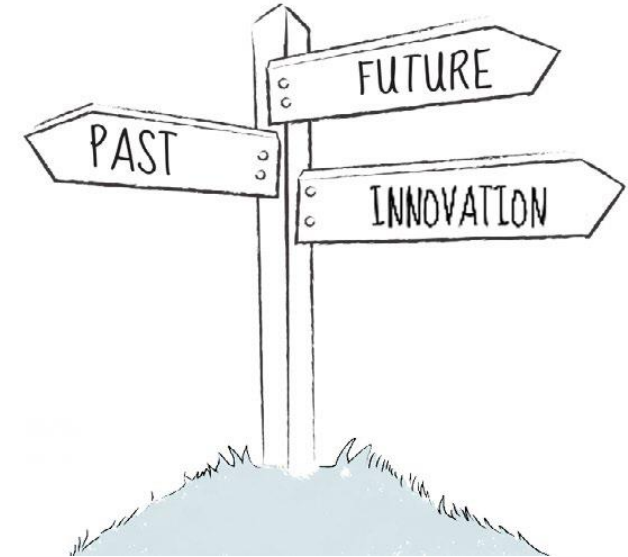
Productivity is the realisation of potential. How might we live within our means individually, as whānau, and as a globe, while still growing and realising our potential? I think this is a real challenge for this and Future generations.

Hinerangi Edwards | Poutama Charitable Trust



Investment is the key to improving productivity

Productivity is a long game. Productivity today depends on investments made in previous years and generations. The choices we make today will influence our productivity and standard of living tomorrow and for future generations.



Innovation is the engine of growth

A better process for selecting focus areas

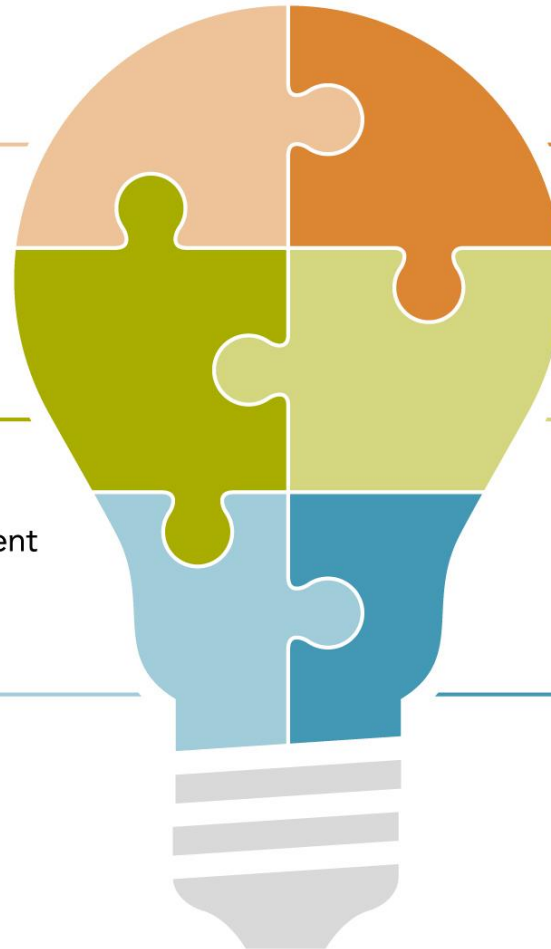
Collaborative, to identify 3–4 areas of strength in innovation and exporting

Significant funding

Material, long-term government funding for each focus area, devolved decision making, industry co-investment

Māori leadership and voice

Māori voice in decisions, Māori leadership, government resources and support



Improved governance

High-level council and devolved ones for each focus area, with right people at the table and a long-term view

Alignment of efforts

Policy alignment, reduced fragmentation, clear direction for research, industry and skills

Monitoring and evaluation

Embedded, transparent, outcomes-focused



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Thank you.

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Analytical Note

June 2023

Examining New Zealand's increased rate of income growth between the late 1990s and 2019

Matthew Galt

Analytical Note 23/04¹

JEL Classifications: E01 – Measurement and Data on National Income and Product Accounts and Wealth, Environmental Accounts; E24 – Employment, Unemployment, Wages, Intergenerational Income Distribution, Aggregate Human Capital, Aggregate Labor Productivity; O47 – Empirical Studies of Economic Growth, Aggregate Productivity, Cross-Country Output Convergence

Staff and teams are writing in their individual capacity, and the views are not necessarily a "Treasury" view. Please see the following web-page for background on analytical notes, including our disclaimer: <https://www.treasury.govt.nz/publications/research-and-commentary/analytical-notes>

Abstract

This paper provides a macroeconomic level cross-country analysis of New Zealand's material economic performance over recent decades. New Zealand's growth on traditional productivity metrics, such as real GDP per hour worked, has been lacklustre. However, its growth on more comprehensive measures, such as real net national income per capita, has been stronger since the 1990s. Consistent with this, New Zealand's real net national income per capita and real wages have somewhat caught up with higher-income countries, and emigration has reduced. The sources of New Zealand's real net national income per capita growth from the late 1990s to 2019 were different to those of most OECD countries. In most countries the bulk of the growth in real net national income per capita was due to growth in real GDP per hour worked (i.e. production volumes per hour worked). In New Zealand, around 60% of cumulative growth was accounted for by a combination of a rising employment rate, a rising terms of trade, a reduced net international income deficit, and an unchanged depreciation burden (while most other OECD countries experienced increases). New Zealand has had broad-based growth in employment compared to other OECD countries. Much of the rise in New Zealand's terms of trade is attributable to rising export prices, although it has also been supported by a changing import mix.

¹ Thanks to many people within and outside the Treasury for their input and feedback on this work, including: John Janssen, Hilary Devine, Bruce White, Bevan Lye, Simon McLoughlin, Bettina Schaar, Geoff Lewis, Arthur Grimes, Richard Sullivan, David Haugh, Axel Purwin, Luca Marcolin, Luke Carne, Isabelle Hermes, James Bibby, Tim Hampton, and Renee Philip. Any remaining errors are my own.



Productivity by the numbers

July (Hōngongoi) 2023



Explore the numbers for yourself with our visualisation tool

[Visualisation tool](#)

New Zealand Government
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PBTN 2023

Productivity by the Numbers 2023

Visualisation tool

Use this visualisation tool to investigate the disaggregating New Zealand's productivity story. The tool is based on data from Statistics New Zealand, the OECD and the World Bank.

Use the menu on the left to choose the and you are interested.
Select the series you are interested in using the drop down menu.
Hover over them to see the values underlying some of the data points.
Click on the three small icons in the top right corner of charts to download a picture or the data.

Key points

105.8
New Zealanders work more hours per week than other OECD countries (Early OECD average 2019)

68.37
New Zealanders produce less output per hour worked than other OECD countries (Early OECD average 2019)

HOURS WORKED PER YEAR VS OUTPUT PER HOUR RELATIVE TO THE OECD AVERAGE, 2019

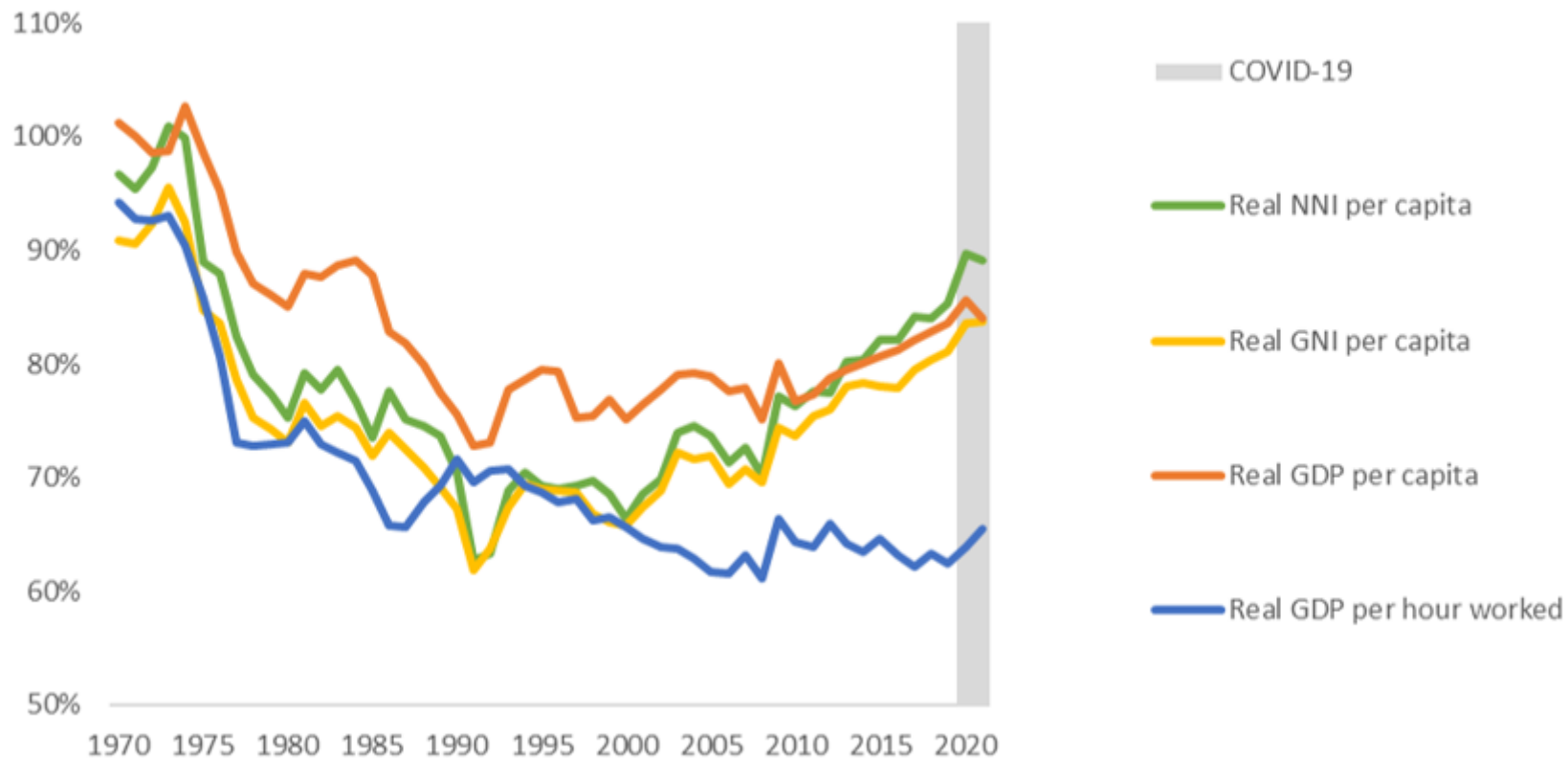
REAL GDP PER CAPITA (USD 2019), 1970-2018

Source: NZSC calculations based on OECD Productivity Database (release of December 2022).
Notes: Figures are relative to the OECD average (GDP per hour worked index). OECD data estimated for Australia. Average hours worked per person employed index. OECD data estimated for Australia. Excludes countries for which the OECD applies the longest component method for hours worked (Australia, A. M. Zaire and 80 developing countries).
Source: Maddison Project Database 2020 (R. & W. 2020)

Annex

NZ compared to 19 countries

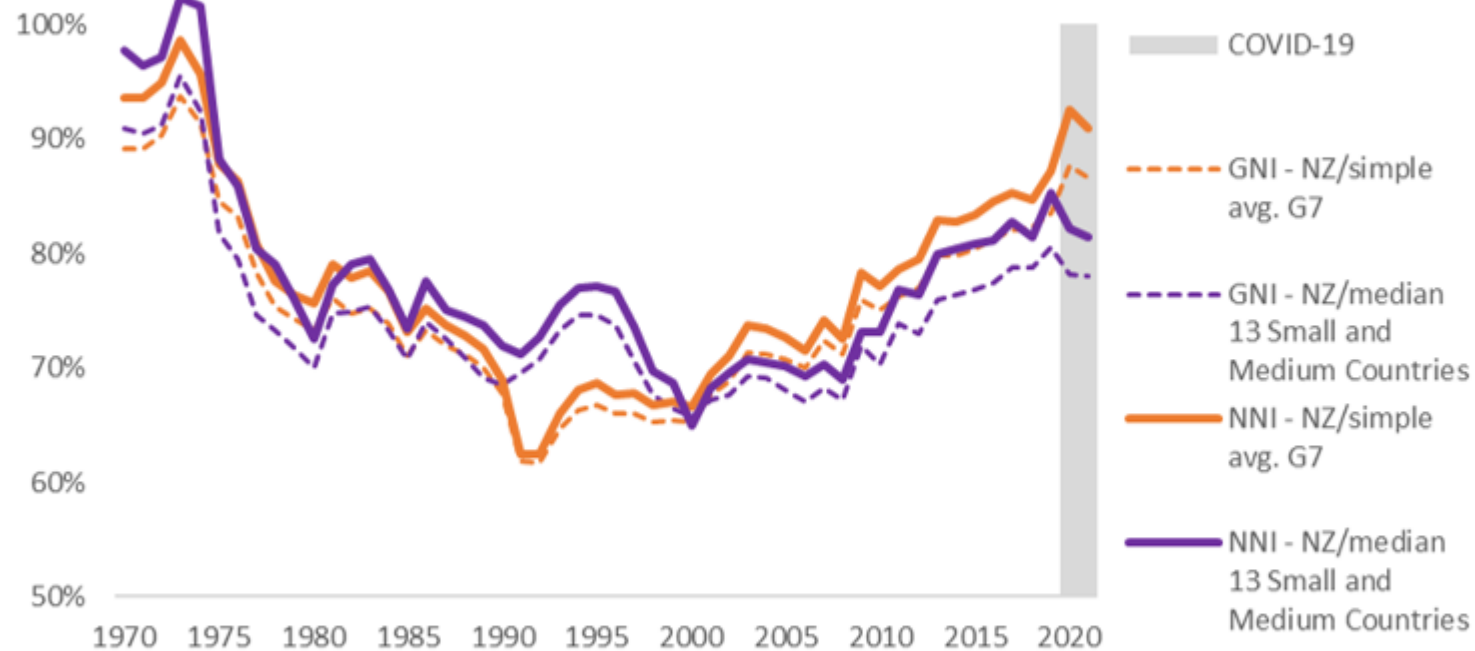
Figure 5: Various metrics for New Zealand as a % of the median of 19 OECD countries with continuous data (constant 2015 prices and PPPs)



Source: OECD, World Bank, Haver Analytics, author's calculations

NNI and GNI

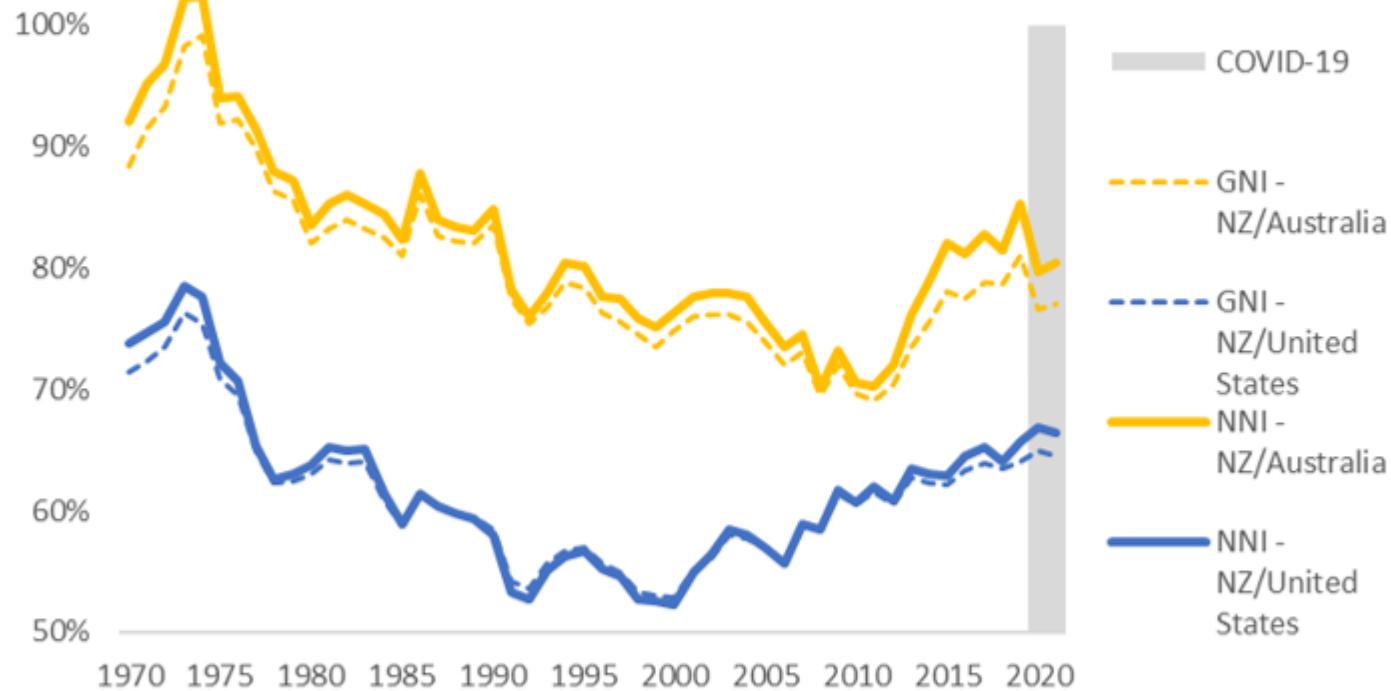
Figure 6: New Zealand's real NNI per capita (solid lines) and real GNI per capita (dashed lines) as a % of other countries (constant 2015 prices and PPPs)



Source: OECD, World Bank, Haver Analytics, author's calculations. See note to Figure 5 for a description of data sources

NNI and GNI

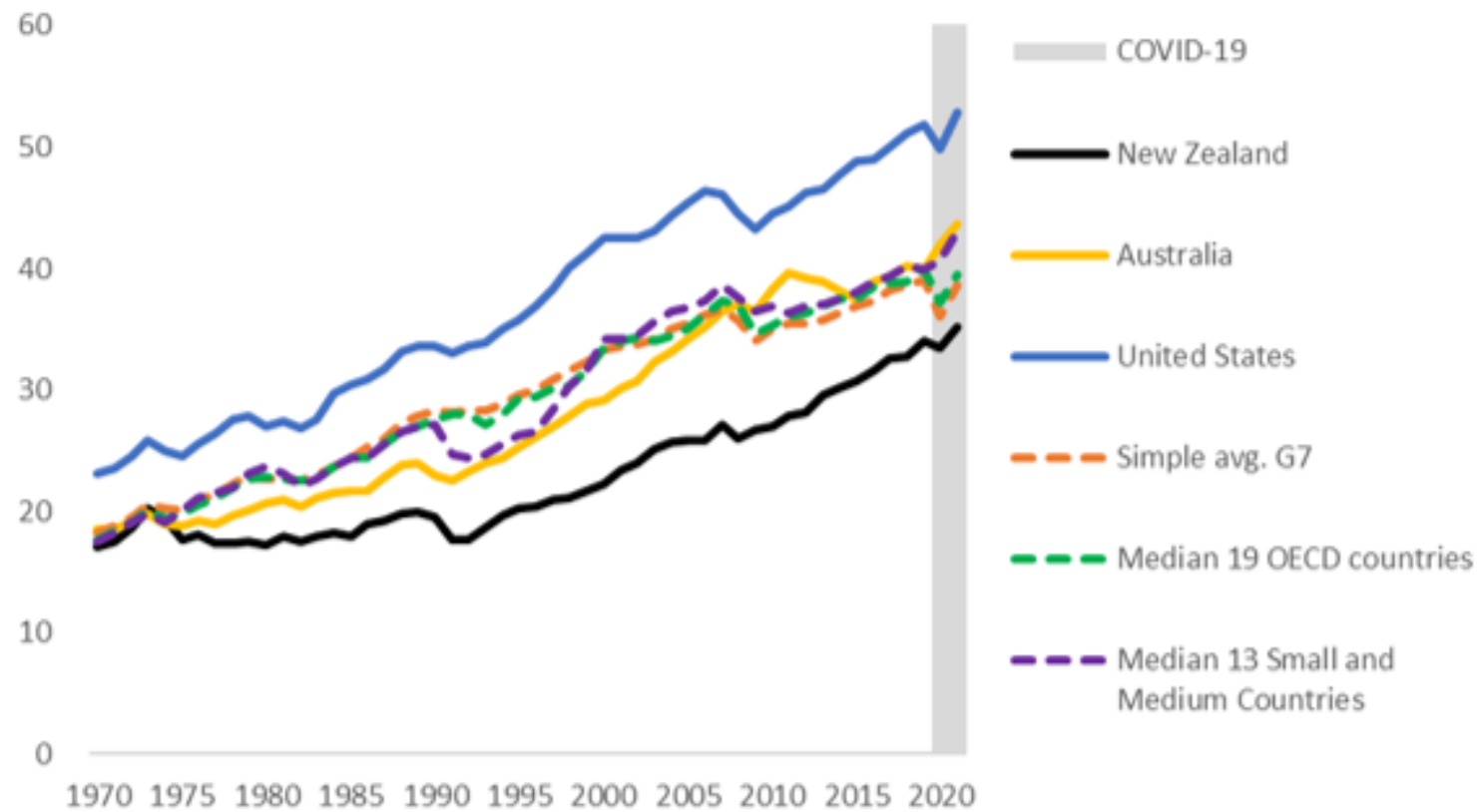
Figure 7: New Zealand's real NNI per capita (solid lines) and real GNI per capita (dashed lines) as a % of other countries (constant 2015 prices and PPPs)



Source: OECD, author's calculations

NNI in levels

Figure 8: Real NNI per capita (USD thousands – constant 2015 prices and PPPs)



Source: OECD, World Bank, Haver Analytics, author's calculations