

New Zealand Productivity Commission
Te Kōmihana Whai Hua o Aotearoa

The wider wellbeing effects of immigration

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NEW ZEALAND
PRODUCTIVITY COMMISSION
Te Kōmihana Whai Hua o Aotearoa



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Note: This working paper is intended both to promote informed debate about immigration policy and to outline the thinking and analysis that has underpinned the New Zealand Productivity Commission's preliminary findings and recommendations for its immigration inquiry. It is a draft and one of six supplementary reports, that may change and be updated, as the Commission prepares its final advice to the Government for April 2022.

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1. The Commission that pursues abundance for New Zealand.

Contents

Key points	1
1 Introduction	2
2 Immigration and infrastructure	3
2.1 Population growth and infrastructure.....	4
2.2 Housing.....	5
2.3 Other infrastructure.....	8
3 The macroeconomic consequences of immigration	12
3.1 Macroeconomic effects may be less visible but are important.....	12
3.2 The Reddell hypothesis: the tilt towards non-tradeables is bad for prosperity.....	15
4 The fiscal impacts of immigration	20
5 Natural capital and immigration	25
6 Social impacts of immigration	30
7 Assessing different types of effects	36
References	40

Tables

Table 2.1 Demand and supply factors that affect house prices.....	5
Table 2.2 Effects of migration on house prices: research studies and results.....	6
Table 5.1 OECD's environmental performance review of New Zealand, 2017, key indicators.....	28
Table 7.1 The main effects of immigration and their impacts on wellbeing.....	37

Figures

Figure 2.1 Sources of New Zealand population change, 2002-21.....	3
Figure 2.2 Average annual population growth rates by country, 1990-2020.....	3
Figure 2.3 Growth of capital per worker and net migration, 1996-2020.....	4
Figure 2.4 New Zealand's projected public infrastructure deficit, 2021-51.....	10
Figure 3.1 Interest rate and exchange rate changes bring about internal balance.....	14
Figure 3.2 The tradeable sector is more productive than the non-tradeable sector, 2003-20.....	18
Figure 4.1 Factors that contribute to the overall fiscal impact (static) from the arrival of new migrants.....	21
Figure 4.2 Factors that contribute to the overall fiscal impact (dynamic) from the arrival of new migrants.....	21
Figure 6.1 Community views of migrants.....	31
Figure 6.2 Perceptions of migrants' contribution to the economy and society.....	31
Figure 6.3 Proportion of respondents who did not want immigrants or foreign workers as neighbours.....	32
Figure 6.4 Gap in the unemployment rate between immigrants and locals, 2019.....	33

Key


F
Finding

Key points

- This report looks beyond the effects of immigration in the labour market to wider impacts on wellbeing such as the need for housing and infrastructure for a larger population, effects on the macroeconomy and economic performance, on government taxation and expenditure, on natural capital, and on social capital including the Treaty of Waitangi.
- New Zealand has experienced high average rates of net migration over recent decades. Population growth adds demand to the current acute shortages of housing and infrastructure. The overall demand effect of net migration exceeds its supply effect in the short run. Repeated waves of immigration can prolong these short-run effects.
- Keeping net migration within “absorptive capacity” can moderate rising house prices and deficits in physical and social infrastructure. Even so, absorptive capacity is not a given. Housing and infrastructure supply can be improved by regulatory changes and investment in advance of demand.
- The demand for residential construction and infrastructure has a large component of goods and services that cannot be traded internationally. When that demand exceeds supply, the Reserve Bank is prompted to raise interest rates and the exchange rate to maintain internal balance in the economy. These price signals increase imports and shift resources and production from exports towards production for domestic use.
- To the extent that expanding exports are a key means to raise productivity and incomes, or if the economy is limited by its geography and natural resource base, high net migration could have been detrimental to New Zealanders’ prosperity. A least-regrets policy would be to moderate the parts of net migration that the government can control.
- The overall fiscal impacts of migrants are generally positive. Net contributions of individual migrants tend to rise over time as they acquire host-country specific skills and networks but turn negative in later life because of lower tax payments, higher pension receipts and greater use of medical services. Younger, more highly skilled and educated migrants, who enter work soon after arrival make the highest net fiscal contributions.
- Population growth increases greenhouse gas emissions but will be responsible for a relatively small share of total emissions if behaviour and technology change in the ways needed to achieve New Zealand’s climate targets.
- New Zealand could choose a future rich in wellbeing by moderating its population, keeping within biophysical limits, and nurturing and celebrating its abundant and diverse natural capital. This could make New Zealand an attractive destination for discerning migrants.
- Surveys indicate that most migrants settle well, and that New Zealanders view migrants positively for their contributions to society and the economy and the cultural diversity that they bring. Yet some instances of exploitation of migrants exist.
- The preamble of the Treaty of Waitangi, and the Crown’s duty of active protection, demonstrate the existence of a Treaty interest in immigration policy, which should be reflected in policy and institutions. Over-representation of Māori in groups that could be adversely affected by immigration reinforce this advice.
- The four key aspects of immigration policy are the quantum of additional people, their speed of arrival, their composition and how well migrants settle. Most negative effects of immigration on wellbeing can be reduced by keeping the speed of arrival within absorptive capacity. Many of the benefits can be enhanced by selecting composition for skill, economic complementarity, and youth; and by improving the quality of settlement.

1 Introduction

Many of the effects on immigration happen through the labour market – the jobs that migrants do, the skills and knowledge that they bring to the host country, the businesses they set up which provide greater product variety and competition, and their economic links to other countries. Yet other effects on productivity and wellbeing can be just as important. This report will examine these wider impacts of immigration – wider because the channels of the influence occur outside the labour market.

The main effects that the report will examine are:

- The pressures that immigration may put on infrastructure – on housing, transport, health and education. More people mean that more houses, infrastructure, schools and hospitals are needed.
- The possible macroeconomic consequences of immigration – impacts on total economic activity, on interest rates and exchange rates, and on economic structure. While New Zealand research is in line with international evidence that immigration has modest positive impacts on productivity and income per head through adding to human capability, a concern exists that overly rapid immigration could have adverse macroeconomic effects.
- The fiscal impacts of immigration. These are the effects of immigrants on the taxes collected by central and local government and the public expenditures required in the form of various benefit payments and publicly funded services. Research indicates that younger and higher skilled migrants are significant net contributors to the fiscal purse.
- The pressures on natural capital - with more people (both residents and tourists) and a fixed amount of natural capital, risks exist of running down natural capital and jeopardising the sustainability of ecosystem services into the future (eg, biodiversity loss, falls in water quality, loss of wilderness, more greenhouse gas (GHG) emissions)
- The effects on social and cultural capital – high rates of immigration can impair social cohesion, create populist political reactions and/or undermine the partnership and bicultural ideals of the Treaty of Waitangi. Yet migrants can also enhance cultural richness and be sources of social innovation and diversity.

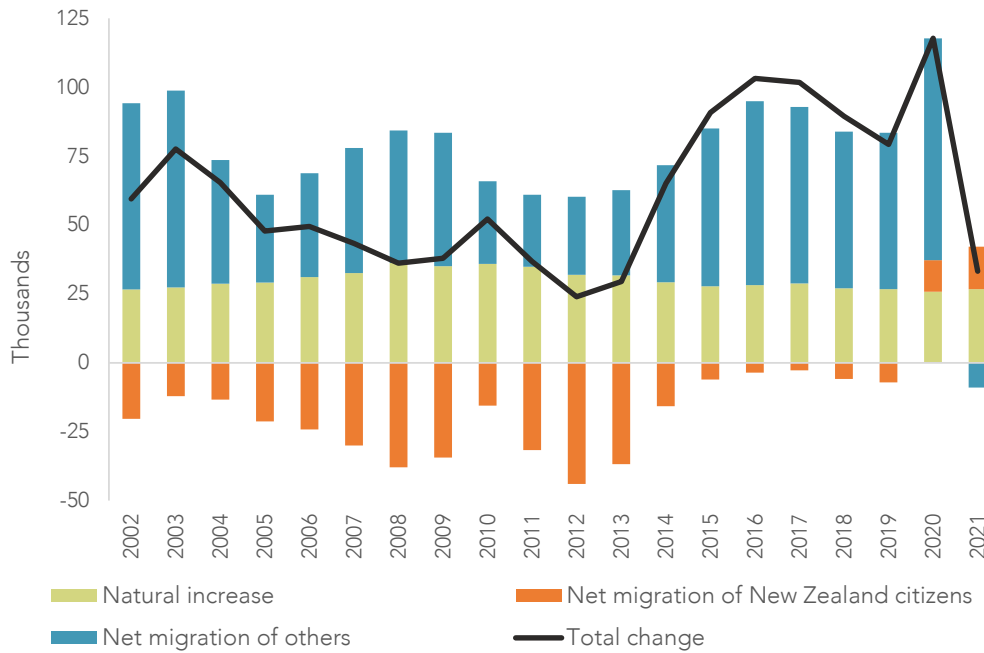
The report also examines the challenge of assessing the wider impacts of immigration alongside its labour-market impacts. Sound policy requires looking at all the benefits and costs of each way of organising and regulating immigration. So, it is necessary to count both sets of impacts to make an overall assessment.

A key conclusion of this report is that most of the wider impacts of immigration that are negative for wellbeing arise when the *rate* of net migration exceeds the country's 'absorptive capacity'. This suggests that policies can maximise the benefits of migration by keeping the net flow of migrants within New Zealand's absorptive capacity. This can include policies that increase absorptive capacity.

2 Immigration and infrastructure

Population growth is the sum of natural increase and net migration. New Zealand’s population growth was especially rapid in the years leading up to the onset of the Covid-19 pandemic in 2020, with most growth arising from the net arrivals of non-citizens. For example, the growth in New Zealand’s population from natural increase (ie, births less deaths) between 2014 to 2020 was around 25 000 people per year. The net migration flows of New Zealand citizens during these years were very small. Yet New Zealand’s overall population grew at an average rate of around 90 000 a year, the additional 65 000 people coming from net inward migration of non-New Zealanders (Figure 2.1).

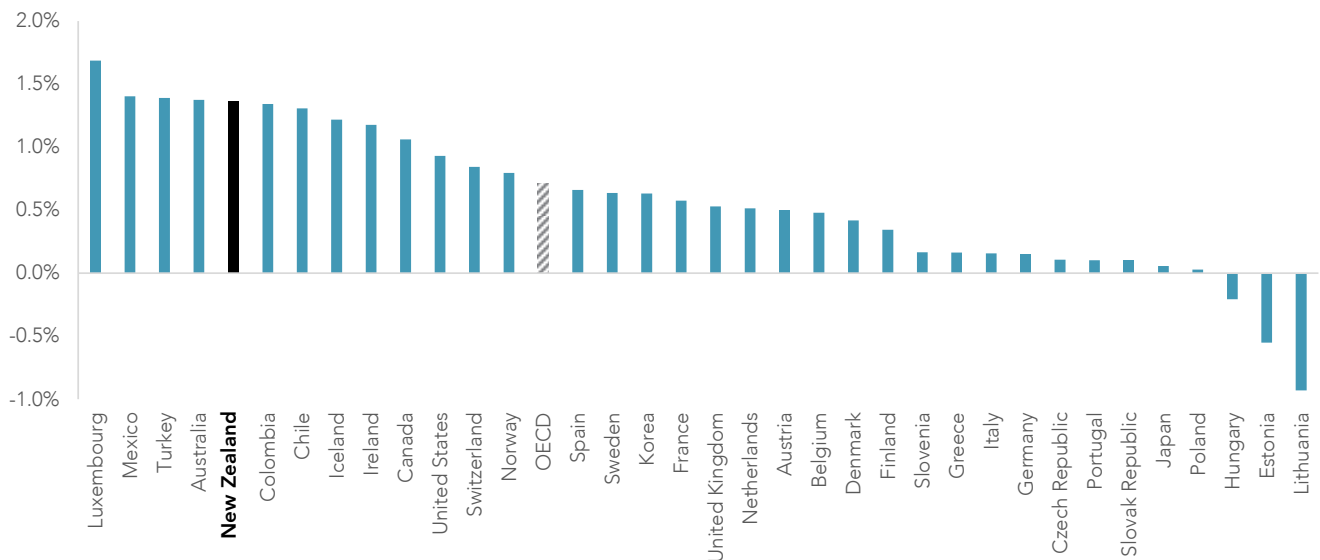
Figure 2.1 Sources of New Zealand population change, 2002-21



Source: Stats NZ (2019). International migration estimates extended back to 2001; Stats NZ (2021a). Estimated Resident Population Change by component.; Stats NZ (2021c). International migration: March 2021.

While New Zealand’s net population growth rates have fluctuated from both variation in the net migration of citizens and the net migration of others, they have been amongst the highest on average in the OECD for many years (Figure 2.2).

Figure 2.2 Average annual population growth rates by country, 1990-2020



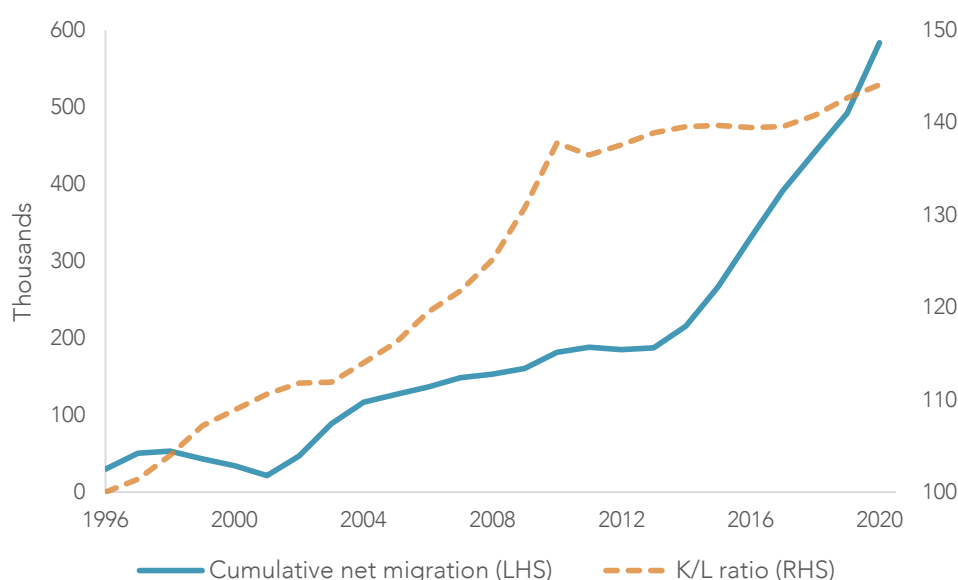
Source: OECD (2021). Population data

2.1 Population growth and infrastructure

Population growth (from net migration or natural increase) requires investment in infrastructure to meet the basic needs of the additional people for housing, water, wastewater, recreation, energy, communications, education, health and transport. New Zealand's net capital stock (infrastructure and housing plus items such as commercial buildings and workplace equipment) is around three times the value of annual output ie, GDP.¹ This means that to equip, say, 1 000 additional people with similar capital per person as the existing population would require three-years worth of their average annual production. Also, this ignores the immediate and ongoing needs of the new people to consume.

Clearly then additional population requires a lot from the economy simply to achieve levels of capital per person (and per worker) equal to existing levels. Even that would not achieve *increases* in capital per worker, which are an important source of growth in labour productivity (NZPC, 2021e). Figure 2.3 shows capital per worker (excluding residential and commercial property) has grown only very slowly in New Zealand for more than a decade. Associated with this (and perhaps partly causing it), net migration numbers have grown rapidly since around 2013.²

Figure 2.3 Growth of capital per worker and net migration, 1996-2020



Source: Stats NZ (2021b); Stats NZ (2021a).

Note: Cumulative net migration started from 1996. Capital to Labour ratio is indexed to 100 in 1996. Capital excludes residential and commercial property.

Housing and infrastructure shortages arising from rapid population growth reduce the wellbeing of the existing population including some vulnerable groups when they result in rapidly rising house prices and rents, overcrowding, homelessness, substandard drinking and wastewater, traffic congestion and lack of affordable accommodation close to jobs. These negative impacts should be considered when immigration policies that impact rates of population growth are being set. While the OECD has called for more research on these impacts in New Zealand, this section reviews the key known features.

...infrastructure and housing supply have not kept pace with the demand generated by high net migration, resulting in traffic congestion, water pollution and large increases in house prices, which has redistributed wealth to property owners from non-property owners, who tend to be less well off ... More research is needed to understand fully the wider well-being impacts of immigration on the local population. (OECD, 2019, p. 122)

¹ For example, New Zealand's net capital stock in 2016 was around \$742 billion and GDP was around \$255 billion in 2016 prices (Janssen, 2018).

² The flatness in capital per worker from 2010 to 2013 almost certainly reflects the impact of the Global Financial Crisis.

2.2 Housing

New Zealand has been suffering a housing crisis for more than a decade – one of the Commission’s first inquiries was “Housing Affordability” published in 2012. Before and after then, not enough houses have been built for this country’s fast-growing population, and sky-rocketing prices have put houses out of the reach of non-property owners, while hugely increasing the wealth of owners of multiple properties. More recently, rents also have increased sharply. These changes have greatly exacerbated wealth inequality in New Zealand and seriously damaged wellbeing.

House prices have risen by nearly 50% since 2017, and rents by 20%. Both have accelerated upwards even as governments have taken steps to contain them. Home ownership rates in 2018 were around 70% for Pakeha, less than 50% for Māori and less than 40% for Pasifika.

In addition to negative impacts on wellbeing through increased wealth inequality, a poorly functioning housing market is bad for wellbeing through the channels of overcrowding, homelessness and as a barrier to people moving to gain access to better job opportunities.

Recent research on the impact of constraints on housing supply that distort house prices illustrates the last aspect. Nunns (2021) found that high house prices in Auckland and Wellington caused by the distortions result in significant numbers of workers choosing to live outside high-productivity locations like these two cities, with many migrating to Australia.

Drivers of house price growth divide into those that increase demand and those that decrease supply. Table 2.1 lists the main ones. Research points to two key drivers - high rates of net migration that drive demand, and restrictive national and local planning and other compliance rules hindering the response of housing supply to the increased demand. Yet it can be difficult to establish accurately the causal relationships and the relative importance of different factors. For example, because the cyclical state of the economy and net migration correlate quite closely, it can be difficult to identify their separate causal influence on house prices.

Table 2.1 Demand and supply factors that affect house prices

Demand factors	Supply factors
Population growth – a combination of natural increase and net migration	Existing dwellings
Interest rates and availability of finance	National and local planning and building compliance rules
The cyclical state of the economy – incomes and jobs	Availability of land for new housing
Expectations about future house prices	Capacity of the construction industry
Rates of household formation	Availability of connecting infrastructure
Investor demand	

Source: Cochrane & Poot (2016).

Recently, including following the onset of Covid-19, building consents have picked up and rates of net migration have fallen. Supply should be up and demand down. Yet house prices have risen ever higher - since the onset of Covid in March 2020, the annual rate has shot up to over 20%. Given that New Zealand’s borders have been largely closed to non-citizen arrivals how could this be consistent with a hypothesis that immigration is an important driver of house prices? These are extraordinary times, very different from what previously passed as normal. This inquiry is looking ahead to when something like normality returns. So, it is a good idea to not take the very recent behaviour of house prices as relevant. They likely reflect a combination of a backlog of demand, further falls in interest rates, psychological factors and the Government’s stimulus measures that have flooded the economy with liquidity to maintain economic activity to offset the depressing influences of Covid.

It is important to note that net migration combines several flows only one of which governments can control – the intake of non-citizen immigrants. The other flows are departing and returning New Zealanders (and modest flows of Australians under freedom-of-travel arrangements between New Zealand and Australia). For example, in the year to June 2012 net migration was an outflow of 3 000 compared to an inflow of 72 000 in the year to June 2017. This large change between the years comprised a net 11 500 more arrivals from Australia in 2017, 29 000 fewer New Zealanders departing, and 37 000 non-New Zealanders arriving (this controllable component comprising a little over half of the total).

Figure 2.1 shows population growth (a primary driver of housing demand) broken down into natural increase, net migration of New Zealand citizens and net migration of non-citizens. As can be seen, most variation is in non-citizen *inflow*, and citizen *outflow*, with natural increase more stable. A big surge in population growth has occurred since 2013 through the combined effect of a rise in the inflow and a fall in the outflow (with more citizens returning than departing in the last two years). Several studies have researched the impact of migration on house prices in New Zealand. The studies vary by time periods, data, methodology, the location of housing markets (national, local, Auckland only) and the type of immigration (eg, permanent or temporary non-citizen, returning citizens). Partly because of this variety, the results are mixed with some studies showing large effects on house prices and others small effects (Table 2.2).

Table 2.2 Effects of migration on house prices: research studies and results

Study	Time period	Research questions	Results
Coleman & Landon-Lane (2007)	1962–2006	Uses a macroeconomic structural vector autoregressive (SVAR) model to analyse relationships between immigration flows, housing construction and house prices.	A net inward migration flow equal to 1% of the population is associated with a 8%-12% increase in house prices after 1 year, with this effect being slightly larger after 3 years (p.43).
Bourassa et al (2001)	1980s and 1990s	Impact of “exogenous” migration on house prices in Auckland, Wellington and Christchurch	Their time-series econometric study suggests that when the population growth rate is 1 percentage point higher than it otherwise would be because of visa-controlled immigration, this triggers an additional 1% growth in house prices.
Stillman & Mare (2008)	1986–2006	How does population change, international migration (including the return migration of New Zealanders abroad), and internal migration affect rents and sale prices of both apartments and houses in different housing markets in NZ?	A 1% increase in an area’s population is estimated to increase its house prices by between 0.2% and 0.5%. Foreign-born migrants have no effect on local prices whereas returning citizens have a large effect – a 1% increase in the local population purely of returning citizens is estimated to lift local prices by 9.1%. The effects vary considerably across sub periods.
BERL (2008)	1991–2006	Uses census data to study the relationships between immigration and the composition of housing demand.	Based on long-term population and household formation trends, BERL concludes that housing supply is unlikely to be a constraint at the <i>national</i> level in the <i>long run</i> , but could be in particular areas and for some dwelling types.
McDonald (2013)		VAR modelling of relationships between different types of immigration and the housing market.	Three main results:

Study	Time period	Research questions	Results
			<ul style="list-style-type: none"> • Net migration inflow equal to 1% of the population leads to an 8% increase in house prices over 3 years. • Arrivals have greater impact on house prices than departures – 1 000 person increase in monthly arrivals pushes up prices by 4% compared to 2% for 1 000 fewer monthly departures. • Origin of migrants seems to matter with 1000 migrants from the UK and Europe pushing up prices more than migrants from Asia (8% vs 6% after 2 years).
Fry (2014)		Reviewed previous studies	On balance, the available evidence suggests that migration, in conjunction with the sluggish supply of new housing and associated land use restrictions, may have had a significant effect on house prices in NZ (pp. 26-27).
Cochrane and Poot (2016)		Used previous studies with some recent trend data to examine effects just on Auckland house prices.	Because NZ and other research does not conclusively and consistently show a large quantitative effect of net immigration on house prices, the authors find that reducing net immigration would not be useful to dampen Auckland house prices. Rather they find that the decrease of citizens leaving in the years leading up to 2016 had a bigger impact on rising house prices in Auckland than the growing number of migrants settling in the city (pp. 21-23).
Hyslop et al (2019)	1986–2013	Uses population, migration, house and apartment prices and quantities, and rents at both national and local levels to analyse size and composition effects of population on prices.	Aggregate population has a more dominant effect on local house prices than local-area population – 9% effect on prices for a 1% increase in aggregate population vs a 0.4%-0.65% for the local effect. Composition of the population makes little difference except that local rents are sensitive to the size of the newly arrived in the area.

As noted by Fry (2014) and Hyslop et al (2019) in Table 2.2, a pattern in the research results is that the effects of immigration on house prices *nationally* are stronger than *local* effects. While national level studies may overstate causal effects, studies using local or regional data may understate them because they do not take sufficient account of how local markets interact, which may offset some of the initial effects (eg, net outward migration of Auckland residents to other regions offsetting initial house price increases associated with net inward international migration) (Fry, 2014).

It is notable that none of these studies, except some of the trend figures in Cochrane and Poot (2016), include the period since 2013 when non-citizen net inflows have increased, and citizen net outflows have decreased to close to zero. Acting together, these have caused rapid population growth 2013-2016/2017 and a further lift in 2020. Over the same period, high and rising house prices have spread from Auckland to the rest of the country. Even if a mid-point estimate (among the research studies) is taken of the impact of net migration on house prices, these strong population increases have contributed significantly (among other drivers) to recent rapid house price increases.

Cochrane and Poot (2016) cite the large variation in the net migration of citizens as reason for that source to have been more responsible for house price rises than visa-controlled non-citizen migration. Not only does this look to be no longer correct since 2013 (both sources have changed a lot), but it also seems not to be the most relevant question. The relevant question is rather how effective would it be to lower controllable flows (ie, visa-controlled immigration) to moderate house prices, given the extremely harmful effects on wellbeing of continued house price increases?

It would be highly desirable for housing supply to be much more responsive to housing demand. For a variety of reasons, some important regional housing markets in New Zealand suffer from low supply responsiveness. Policy efforts are ongoing to try to improve housing supply (eg, major resource management reform, a national policy statement and other measures to increase urban density, and ramping up the construction of state houses). Yet even with a flexible and responsive supply side, housing supply responses can lag unanticipated demand changes by many months.

An alternative approach would be for housing and infrastructure investments to anticipate and precede future net migration. Yet just how this would work – including who would finance these investments and bear the risks of the demand not materialising – is unclear.

Taking all this into account – the evidence on immigration effects, worsening house-price and inequality trends and their serious negative impacts on wellbeing, and the reality of continuing rigidities in housing supply for the next several years – the Government should consider limiting non-citizen migrant inflows to a level consistent with New Zealand's ability to build new houses to materially reduce upward pressures on house prices.

F2.1

Rapidly rising house prices have been a longstanding problem in New Zealand and a major contributor to growing wealth inequality and housing problems such as homelessness, falling home ownership rates and overcrowding. The evidence is that population growth is strongly associated with rising house prices at the national but not the local level.

Scope exists for the Government to reduce population pressure on housing demand and prices by limiting the component of population growth that it can control – the entry of non-citizen migrants – to levels consistent with New Zealand's ability to build new houses.

2.3 Other infrastructure

Publicly owned infrastructure is under strain

Much of New Zealand's infrastructure – particularly that which is the direct responsibility of central or local government – is under strain. The main areas are transport, water and wastewater, and the publicly funded parts of the health system (mainly hospitals) and the education system (mainly schools).³ In addition, the country faces huge challenges to build new or modify existing infrastructure to dramatically lower GHG emissions and adapt to climate change (ie, to cope with more frequent and intense flooding, droughts, and rising sea levels).

Construction (which includes horizontal and vertical infrastructure, residential and non-residential construction) is a large sector – 6.9% of GDP and 10% of total employment. Growth from 2015 to 2019 was faster than the overall economy – vertical construction grew at 4.9% per year and horizontal construction at 4.2% per year compared to GDP average annual growth of 3.5%. The sector has challenges – skill shortages, low productivity, the increasing cost of materials and funding (particularly

³ The New Zealand Infrastructure Commission (Te Waihanga Aotearoa) consulted the public in early 2021 about what people thought were the most important infrastructure issues. Top ones were safe drinking water, ageing hospitals and schools, more transport options, better handling of waste and not keeping up with city growth (New Zealand Infrastructure Commission, 2021).

public funding via local and central government) (New Zealand Infrastructure Commission & Deloitte, 2021, p. 4).

Despite the level of construction activity, investment in public infrastructure in New Zealand has been low in comparison with most other OECD economies (Olsen, 2020; Sense Partners, 2021).

Fast population growth, fuelled by high levels of net migration, is one, but only one, contributor to infrastructure pressures and deficits. The relationship between demand for infrastructure and population growth is less smooth than for housing. Investments in new roads, bridges, hospitals, and water are large and “lumpy” to take advantage of economies of scale. Such investments have the capacity to serve substantial growth in population within a region. Despite this lumpiness, when averaged across the country, over time and different types of infrastructure, the relationship of infrastructure demand to population is roughly proportional. Yet demands for higher-quality services from infrastructure, more stringent regulatory standards, and higher-priced land can push costs per person ever higher over time.

The geography of migrant flows and pressures on infrastructure is complex. Internal migration accounts for most of the new arrivals in some popular high-growth areas such as Tauranga and Queenstown. But this can be a knock-on effect of growth of other places, such as Auckland, due to migration from offshore. Some low-growth places have benefitted from the growth of industries, such as dairy, that have a relatively high proportion of migrants in the expanded workforce. This has been good for the economics and vitality of schools and town centres and the associated local infrastructure. One submitter, Ashburton District Council, expressed concern about the lack of migrants to fill labour shortages and noted that “having less migrants in the district has widespread impacts, for example, reduced number of enrolments in local schools” (sub. 64, p. 2).

Political economy factors constrain investment in public infrastructure

While exceptions exist, infrastructure deficits mostly occur in infrastructure owned and funded by the public sector (eg, water, roads and rail, hospitals). Several political economy factors may explain this.

- Elected politicians often take decisions that reflect popular demands to keep taxes and rates low.
- Existing residents resist change and its costs when change results from a growing local population and urban expansion (the phenomenon of NIMBYism).
- Short terms of elected office encourage myopia about long-term necessary, but largely invisible, investments such as underground pipe networks (and conversely favour shorter-term, ‘vanity’ projects).
- At central government level, the Public Finance Act 2020 and the Fiscal Responsibility Act 1994 have encouraged fiscal conservatism – keeping the budget operating deficit and public debt low rather than adding infrastructure assets to the Crown’s balance sheet.

The relatively newly established New Zealand Infrastructure Commission (Te Waihanga o Aotearoa) has been working to quantify the country’s infrastructure deficit as a first step to tackling it. Box 1 describes the results of work that Te Waihanga commissioned.

Box 1 How big is New Zealand’s infrastructure deficit and what is driving it?

Early in 2021, Te Waihangā asked economic consultants Sense Partners to estimate the size and nature of the country’s current (historical) and projected future public-sector infrastructure deficits. Sense Partners based their estimates on the lag in the growth of public sector infrastructure investment compared to the growth in private sector investment from 1970 to 2020 per household. This method assumes that private sector investment, by and large, keeps up with demand and is a good indicator of the demand for public infrastructure. It is a crude, top-down, macro method but simple and Te Waihangā will eventually replace it with a more detailed bottom-up approach based on stated goals and the need for infrastructure.

Sense Partners estimated the historical deficit in the stock of public infrastructure to be \$104 billion based on accumulated past underinvestment and an allowance of infrastructure for an additional 115 000 homes to eliminate current overcrowding. They project this shortfall to increase by a further \$106 billion (in real 2020 dollars) by 2051 given future investments are made based on current trends.

Figure 2.4 New Zealand's projected public infrastructure deficit, 2021-51

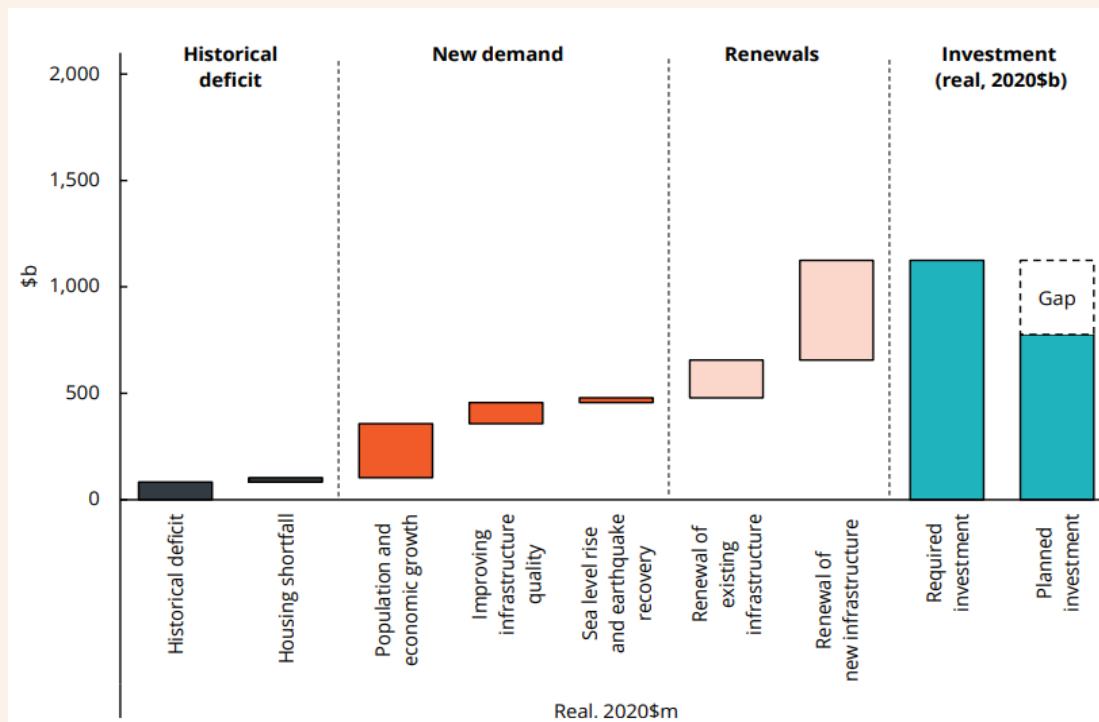


Figure 2.4 shows the estimated component drivers of future infrastructure demand. While population and economic growth is a significant component, it is only around one fifth of the total, but a large proportion of the gap between required and planned investment. The largest components of required investments are for renewals. This suggests that reducing net migration would make a noticeable, but modest, contribution to reducing the growth of the infrastructure deficit.

Sense Partners conclude that fully closing the deficit is unrealistic. Rather, infrastructure strategy needs to pull all four available levers: (i) invest more (ii) manage demand with tools like congestion charging (iii) greater efficiency and (iv) better integrated spatial planning

Source: Sense Partners (2021).

Infrastructure investment requires a large workforce

The workforce required both to build and operate infrastructure is large and requires a wide range of skills many of which are in short supply. Employers often seek to fill these skill gaps with migrant workers. Typical occupations in short supply include construction workers, engineers, planners, inspectors, health workers and teachers. The numbers required can be large. For example, Sense Partners estimate that the number of construction workers that would be required to close New Zealand's infrastructure deficit would have to increase from the current level of around 40 000 to 70 000 by 2036 and 90 000 by 2051. Added to these are construction workers needed to make up New Zealand's housing deficit (which are not included in the above figures) and construction workers needed by the private infrastructure sector.

While Sense Partners argue that the sheer number of workers needed makes completely closing the gap unrealistic, the numbers indicate an order of magnitude of the skill needs. Adding to the challenge of finding enough skilled workers, is that many of these skills are in high demand in Australia where pay is higher and where substantial numbers of workers head to take up jobs. Large construction companies also have the choice of which side of the Tasman to seek work, adding to supply and delivery problems in New Zealand.

To the extent that migrants replace departing New Zealand workers they do not add to population. But beyond that, by becoming temporarily or permanently settled in this country, they contribute to putting more pressure on both housing and infrastructure (two areas already under a lot of pressure) and therefore subtract from wellbeing.

Paradoxically, while a flow of migrants with construction skills will help reduce the housing and infrastructure deficit, in the short run new arrivals add to the pressure. When there is a continuous net stream of arrivals that is too great, the pressure may exceed the existing capacity to provide the additional housing and infrastructure at the time it is needed.

F2.1

New Zealand has large current and estimated future deficits in publicly owned infrastructure. While only around one quarter of the future demand for infrastructure is likely to come from population growth, this is still a significant component.

Investment in housing and infrastructure requires a lot of workers with a range of skills. Many of these are in demand in Australia and elsewhere so some citizens with these skills will depart overseas for better pay and conditions. Migrants will be needed to fill skill gaps, but beyond a certain volume they will add to the already stretched demand for housing and infrastructure.

3 The macroeconomic consequences of immigration

3.1 Macroeconomic effects may be less visible but are important

Alongside the more obvious effects of immigration - migrants filling jobs, studying at tertiary institutions, starting and growing businesses, and creating cultural and ethnic diversity – there can be deeper macroeconomic consequences. This is especially so when immigration leads to rapid population growth.

The ability of the economy to provide jobs for many new people arriving at a rapid rate might seem remarkable and a cause for celebration. Yet the existence of the jobs is not surprising because a larger population must be housed and provided with infrastructure, as the previous chapter has explored. Additional capital will also be needed in the businesses in which migrants work. All these items must be built and building them creates jobs – a lot of them will be in the construction industry and those industries that supply it. So, rapid population growth creates jobs and impacts the composition of economic output – in this case towards industries associated with construction.

Migrants through their work boost the supply capacity of the economy. The interplay between additional demand from more people and the additional supply from their labour lies at the heart of the macroeconomic effects of immigration. The microeconomic details of what jobs individual migrants take and who actually does the construction work is not relevant here. These microeconomic effects are dealt with in a companion supplementary report, which also looks at how a larger population can have positive effects on economic performance by adding to skills, greater competition, economies of scale and knowledge spillovers (NZPC, 2021a).

Demand from migrants typically exceeds what they can supply short term

The new houses and the other infrastructure that net migration requires are long-lived and expensive items of physical capital. They involve investment much greater in value than the typical production of the additional workforce in the short term. For example, Coleman and Karagedikli (2018) find that each additional person in the population demands on average \$60 000 worth of new house construction in 2016 dollars. Yet that person's average productive potential in 2016, measured by GDP per head, was \$54 178. While the person's contribution to GDP will continue for many years, and the capital cost of the house is one-off, a discrepancy exists in the short term.

In addition to housing, new people add to demand through their consumption which is likely to be similar per head to that of existing residents. So, the short-run demand effects of increased migration will exceed their supply effects (Coleman & Karagedikli, 2018; C. McDonald, 2013; Smith & Thoenissen, 2018; Vehbi, 2016). This is also consistent with studies of New Zealand's historical experiences which note that as far back as the 1870s, episodes of large-scale migration led to concerns that the need to house new arrivals diverted investment away from export- and income-generating sectors (NZPC, 2021c, p. 19).

Investments in housing and infrastructure typically require goods and services that are intensive in local production. These items cannot, by and large, be imported because of their bulk or their personalised or customised nature. They are what economists call *non-tradeables*.

To explore the macroeconomic consequences of net migration, imagine that 1 000 new households arrive with the economy operating at full capacity, and with no existing surplus of housing or infrastructure to meet the needs of the new arrivals⁴. Several impacts can be noted:

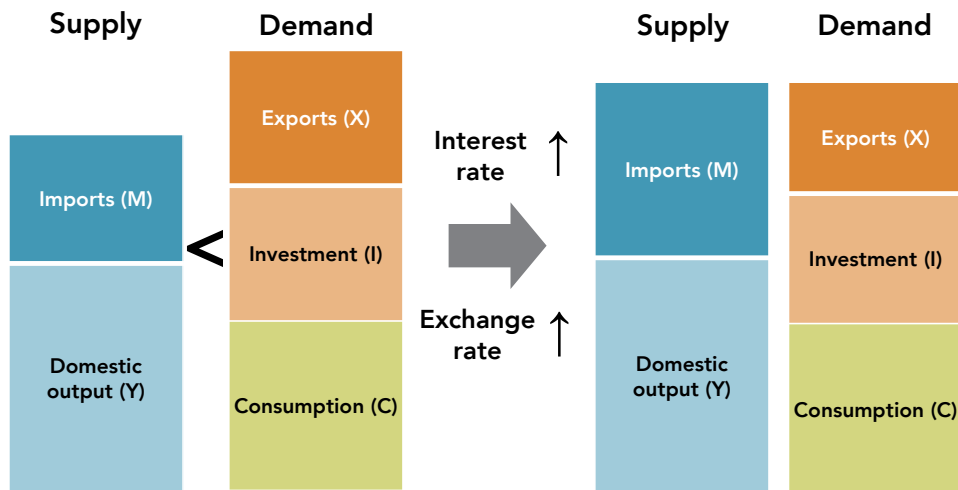
⁴ In fact the current situation is that New Zealand's housing and infrastructure stocks are in deficit (Chapter 2).

- The needs of the new households (their 'demands') will typically significantly exceed what they supply to the economy with their labour in the short term.
- The resources to meet the excess of new demand over new supply will have to be covered (to avoid inflation) by additional saving either from existing residents or foreigners (including from the new arrivals). Some additional saving from residents could be raised through higher taxes. Yet it is likely to come mostly from foreigners because New Zealanders are not strong savers and will likely resist higher taxes to pay for the needs of the new arrivals. This will mean higher external debt (ie, money owed to foreigners).
- The resources to meet the new demand will typically contain a high proportion of non-tradeable goods and services which will put pressure on their prices.
- When the economy is operating at full capacity the composition of output will have to shift towards production of a greater quantity of non-tradeable investment goods to supply the additional houses and infrastructure. The resources could come from lower consumption (which could consist of non-tradeable consumption goods or import substitutes), or from lower production of exports, or a cut in other investment. In the absence of a cut in consumption or other investment, a resource shift must take place from the production of tradeables to the production of non-tradeables.
- The original excess demand created by the new arrivals will be met, in the absence of a cut in consumption or other investment, by some combination of lower export (or import substitute) production and higher imports.

In a market economy like New Zealand's, the resource shifts to bring demand and supply into balance and change the composition of output will happen only when prices signal to economic actors to make changes in their production, saving, consumption, investment, exporting and importing. Under current institutional arrangements, the key price signals are interest rates and exchange rates which are under the influence of the Reserve Bank of New Zealand (RBNZ) through monetary policy. The RBNZ is motivated to send the right signals because it has statutory responsibility to maintain internal balance in the economy – between domestic demand and domestic supply. Without internal balance, general inflation will be either too high (excess demand) or too low (excess supply).

The price signals from a tighter monetary policy are higher interest rates and higher exchange rates. In combination these signals have several effects. Figure 3.1 illustrates a possible set of changes and how they restore internal balance. Also, because New Zealand is an open economy with a floating exchange rate and international financial capital is highly mobile, a small interest rate rise will induce a large flow of inward capital and an upward jump in the exchange rate.

The two left-hand columns illustrate demand for and supply of real goods and services in the economy. Supply is the sum of domestic production and imports while consumption, investment and exports are the sources of demand for them. The slightly higher interest rate and significantly higher exchange rate increase supply (by increasing imports) and reduce demand (by reducing exports and slightly reducing investment). Because non-tradeable production becomes more profitable and tradeable production less profitable, domestic supply re-orientes from tradeables (exports and import-competing production) to non-tradeables. In the illustrated case, consumption, domestic saving and domestic output are assumed to remain the same.

Figure 3.1 Interest rate and exchange rate changes bring about internal balance

Smith and Thoenissen (2018) have built a dynamic stochastic general equilibrium model to examine the macroeconomic effects of a population expansion arising from a migration 'shock'. Their model has somewhat similar elements to the processes described above. When they put New Zealand data on changes in net migration and economic aggregates (such as residential construction, goods production (tradeables), interest rates and the real exchange rate) into their model, it confirms the expected short-run effects. These effects are that net migration is expansionary (demand effects are greater than supply effects), resources shift from tradeable to non-tradeable production and interest rates and the real exchange rate rise. Their data sample runs from 1992 to 2017. This research provides empirical support to the story of net migration shifting the composition of the economy and impacting key prices and economic aggregates.

Another indicator of the shift to non-tradeables is growth in construction-sector employment in response to high population growth. Coleman and Karagedikli (2018) estimate that each percentage increase in New Zealand's population growth rate increases the number of residential construction workers by around 10%. This does not include workers in related industries such as building materials. The fraction of New Zealand's workforce in the construction industry increased from 4.8% in 1992 to 7.7% in 2009 and 8.2% in 2016.

F3.1

Population increases from net migration are expansionary because the demand effects of new migrants exceed their supply effects in the short run. Moreover, the demand has a large component of goods and services that cannot be traded internationally such as residential construction and infrastructure.

To maintain internal balance in the economy under New Zealand's existing macroeconomic policy framework will require real interest rates and the real exchange rate to rise. These changes will increase imports and shift resources and production from exports towards production for domestic use.

If the thought experiment of adding 1 000 new households to the New Zealand economy was a one-off 'shock', the economy could rather easily cope with the shift of resources to build the required additional houses and infrastructure. The households would continue to supply labour over the medium to long term, thereby offsetting their initial excess demand. Any shift in the composition of output towards non-tradeables would be temporary and reversed.

Yet New Zealand has in fact had repeated waves of net migration rather than a one-off shock. This makes a difference – the resource shift to non-tradeables does not reverse but becomes embedded. On one reading of the evidence (set out in the next section), this has adversely affected New Zealand's productivity performance.

3.2 The Reddell hypothesis: the tilt towards non-tradeables is bad for prosperity

Former RBNZ and Treasury economist Michael Reddell has observed that New Zealand's immigration policies over many years have permitted high rates of net inward migration and population growth compared with other developed countries. Despite government hopes and expectations that immigration would significantly boost productivity, he argues that no evidence for this exists and that the opposite has occurred. For example, New Zealand's level and growth rates of productivity have been persistently at the lower end of the rankings among OECD countries (Reddell, 2020, 2021, 2013).

Reddell argues that the primary objective of New Zealand Government policies should be to raise the wellbeing of existing New Zealand citizens, and this should apply no less to immigration policies.

He argues that the damage from repeated waves of substantial net migration to New Zealand's economic performance has occurred through the macroeconomic effect, noted in the previous section, of persistent excess demand tilting the composition of output from tradeables to non-tradeables. These imbalances, he argues, undermine productivity growth and with that the chances of higher incomes for New Zealand citizens.

The problem with this resource shift is that the tradeable sector, and especially exports, are where economies produce the internationally competitive goods and services in which they have a comparative advantage. Economies that are successful in catching up and achieving higher material living standards typically have strong, fast-growing export sectors with high potential for productivity growth.

An important but separate part of the Reddell hypothesis is that New Zealand's prosperity is limited by its natural resource base and its geographic remoteness. The country's exports are dominated by the primary sector and tourism (with well over 70% of the value of exports coming from these sectors) and are based on the country's natural resources of land, water, climate, fisheries and scenery.

He argues that New Zealand's small size and distant location make it difficult to generate much innovation-based wealth in sectors outside the primary sector. New Zealand is just too far away from the high-performing, skill-intensive and research-intensive centres of population in the rich world to make it an attractive location for investment in sophisticated products or to enable it to generate its own agglomeration economies.

Reddell therefore argues that the size of New Zealand's natural resources (water, climate, land and biodiversity) constrains the aggregate income it can produce. Individual prosperity can increase as population grows, but the natural resource base acts as a dragging anchor. Because of this, geography matters – the resource base, market size and distance can constrain productivity and overall economic performance. So, without favourable geography, a limited total 'pie' must be shared among more people if the population is allowed to grow beyond the economy's capacity.

There are many areas of public policy where physical proximity to or remoteness from other countries doesn't appear to matter greatly (one might think of education, health or even taxation), but productivity and overall economic performance appears to be one of the exceptions. Geography matters. For decades, research has highlighted trade happens most intensively between parties located close to each other (the predictions of gravity models appear to be broadly correct). New Zealand is close to nowhere, and yet foreign trade is the lifeblood, central to the prosperity, of any small country (and most larger ones too). Ideas – central to so much of modern economic growth can and do germinate in New Zealand, but more often than not good ideas seem to generate higher rates of return when applied/developed in locations nearer the centres of world economic activity. (Reddell, 2020, p. pp 2-3)

Currently in New Zealand, Reddell sees labour as plentiful relative to opportunities for further development. In contrast, past times in New Zealand and other countries have been characterised by labour being scarce relative to natural resources. Additional labour has therefore been well rewarded. This has attracted rapid population and labour-supply growth and enabled strong economic growth

and rising incomes for all. Examples of such periods are New Zealand through some of its 1850 to 1950 history,⁵ Australia through its recent mining boom, and America through its pioneering centuries.

Reddell contends that no satisfactory way exists to test his hypothesis statistically because too many variables are at play, each country's development has unique features, and there are just not enough observations to make for a satisfactory test. He argues that his hypothesis is a convincing narrative because of its power to explain a substantial list of stylised facts (mainly relating to features of the New Zealand economy) for which, taken together, no more credible explanation exists.

- Slow rates of productivity and income growth despite (i) the substantial reforms to open up the economy and improve institutions and efficiency in the late 1980s and early 1990s and (ii) good endowments of, and investment in, human capital (including via migrants).
- Persistent current account deficits and high external debt (although now largely stable as a percentage of GDP).
- Real interest rates averaging persistently above those in other advanced economies.
- Sustained high real exchange rates despite poor productivity growth relative to other economies, which would normally generate a falling exchange rate.
- The large exodus of New Zealanders who depart to live in other countries (one of the highest as a percentage of population among advanced economies) with many of the emigrants being highly skilled.
- Relatively low national savings rates.
- Persistently low average rates of business investment (as a percent of GDP) despite relatively rapid population growth.
- Flat or falling share of exports to GDP (and of tradeables sector production).
- Exports dominated by relatively unprocessed primary sector products and other location-specific products (notably tourism).
- High and rising house prices (and ratio of prices to incomes).
- Low rates of spending on research and development.
- Low rates of foreign direct investment (especially in the tradeables sector).

The overall picture is sometimes termed a productivity paradox (good policies and institutions but poor outcomes). For Reddell, the explanation of the paradox is the combination of New Zealand's geographical remoteness, its limited natural resource base, and its sustained embrace of high levels of net migration (with consequently high rates of population growth).

While the negative impact of size and remoteness is well established empirically (Boulhol & de Serres, 2010; de Serres et al., 2014; McCann, 2009), the argument that high immigration rates are responsible for New Zealand's lacklustre exports, productivity performance and growth in wages and household incomes is controversial. The story of imbalances explained earlier is consistent with the above list of stylised facts and this consistency gives it some credibility. But direct empirical evidence of causation is lacking. If the hypothesis is correct, it does suggest that overly rapid immigration (and too much immigration in total if the natural-resources part of the hypothesis is accepted) have been negative for the living standards of existing New Zealand residents.

Reddell is not alone in positing that imbalances have been present in New Zealand's economic development and have likely caused headwinds for the tradeable sector and productivity. Grimes (2013) adopts a mock ethnographic lens to examine the actions of the RBNZ in response to the country

⁵ See the Commission's companion supplementary report 'International migration to New Zealand: historical themes and trends' (NZPC, 2021c).

spending more than it produces (referring to this as *The Imbalance* in the economy). While observing that the RBNZ often gets the blame for the outcomes that follow – key among them being New Zealanders becoming poorer relative to their Australian cousins in the “West Island” – he points to the source of the imbalance as the true cause.

Consider what happens if there is an arrival of distant kin from offshore (immigrants) to the Aotearoan settlement. New whares (the indigenous term for houses) must be built for the newly arrived kin. While these whares tend to be of poor quality, they nevertheless require resources to be shifted from production of reciprocal traded cargo to production of cargo for on-shore consumption. Production of cargo destined for far-away islands must therefore decline. (Grimes, 2013, p. 636)

Grimes goes on to describe (in consistently ethnographic language) how the Reserve Bank Governor conducts the Official Cash Rate ‘ritual’ which uses a powerful price lever known as “The Real Exchange Rate” to bring about the resource shift from producing exports to producing for onshore needs. Yet it is not the ritual itself that causes the resource shift or living standards in Aotearoa to fall behind those in the West Island. The cause is the high demand for onshore consumption plus (in a strong echo of Reddell’s natural capital argument) that, unlike the West Island, Aotearoa is not endowed with “large quantities of artefacts that [are] highly valued by far-away tribes.”

Short-term interests support high levels of immigration

From their individual, short-term perspectives, many businesses have much to gain from high levels of immigration – from either or both the demand stimulus brought by immigrants or access to migrant labour. These business interests therefore favour policy settings that allow such levels and exert political influence towards that end. Reddell sees this as part explanation for the persistence of these settings, despite the longer-term damage he argues they are responsible for.

...the structure of the economy has adjusted over the decades to being heavily focused on the non-tradables sector. Many firms do very well out of an economy skewed that way, even if average economywide productivity is poorer as a result: productivity and profitability are rarely the same thing. (Reddell, 2020)

In his submission to the inquiry, Mike Lear (who cites arguments against high rates of immigration very similar to Reddell) sees both governments and business as complicit because of the short-term benefits that immigration provides for them.

Regrettably, Governments (of all stripes) have an incentive to allow and encourage high rates of immigration. This boosts headline GDP numbers, including in comparison to other countries and makes their economic management look good. It also generates higher tax revenues allowing regular headline-grabbing announcements about increases in expenditure on worthwhile causes. The fact that our GDP per capita growth rates are chronically poor compared to most other OECD countries doesn’t often see the light of day.

Similarly, businesses and their lobby groups have strong incentives to keep the immigration pipeline in full flow. This creates multiple profitable opportunities in the relatively sheltered domestic market and keeps costs low by avoiding the need to train and up-skill New Zealand’s own labour force. The costs on the economy of high rates of immigration are borne by the economy as a whole, not individual business. (sub. 32, p. 12)

These arguments draw attention to a possible fallacy of composition. Simply because individual interests favour a policy setting (because they gain individually from it), does not guarantee that the policy is good for the country as a whole.

Lifting productivity growth and material wellbeing through areas of focus

At this stage of its inquiry, the Commission is not taking a definite view on the Reddell story. For example, it notes that policies to improve housing and infrastructure supply and to invest in them prior to migrants arriving, could do much to avoid the problems of ongoing excess demand in those areas.

Also, the Commission is not persuaded that New Zealand’s prospects are limited by its fixed stock of natural resources. Similar to Skilling (2020), it argued in its Frontier Firms inquiry that New Zealand has

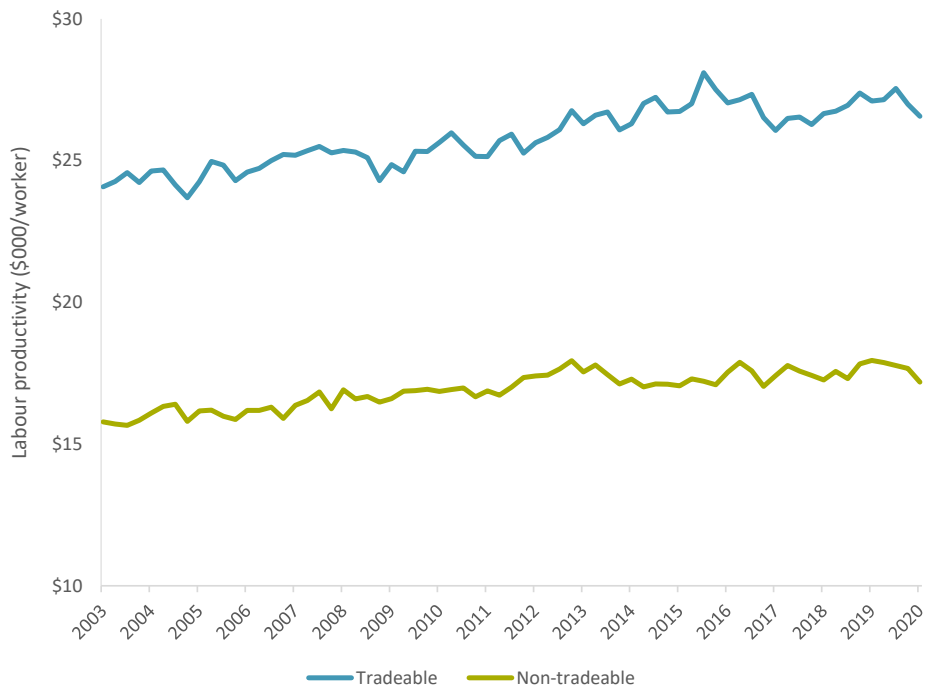
the potential (yet to be realised) to prosper by innovating both within and beyond its primary sector. To do so, it needs to produce specialised, distinctive, high-value products and export them at scale. Producing at scale enables businesses and their employees to earn high returns despite two sets of fixed costs – those arising from innovating and exporting. As with other small successful economies, New Zealand needs to be world-class in what it produces for export, and it cannot expect to achieve this across the board. So it must specialise in what the Commission called selected ‘areas of focus’ by investing in a high-performing innovation eco-system in each of these areas (NZPC, 2021d).

Under this view, New Zealand can escape the drag of its limited natural resources. Yet its best chance of doing so clearly entails success in exporting, so that a central part of the Reddell hypothesis – that exporters are disadvantaged by an elevated exchange rate and competition for resources from a booming housing and related infrastructure sector – is relevant.

Overall, the Commission’s view of New Zealand’s future and its ability to sustain a higher population is less pessimistic than Reddell’s. But for exporters to have the ‘room’ and the resources to thrive, a sensible precaution is to moderate the rate of immigration-driven population increase to avoid high demands for non-tradeable production at the expense of the tradeable sector.

Exports and exporting offer opportunities for productivity growth through specialisation, economies of scale, and escaping competition through developing and selling highly valued and distinctive (but hard-to-replicate) products (NZPC, 2021d). Even looking back rather than forward, the tradeable sector has demonstrated substantially higher productivity performance (Figure 3.2).

Figure 3.2 The tradeable sector is more productive than the non-tradeable sector, 2003-20



Source: Productivity Commission and MFAT analysis of Stats NZ data, described in Bailey and Ford (2018).

Note: Labour productivity calculated in 2009-10 NZ dollars.

The rate of immigration, uncertainty and policy making

The previous chapter documented how New Zealand’s rapid rates of immigration have had adverse effects on house prices and infrastructure. The current chapter has described the potentially negative effects of high rates of immigration on the composition of the economy and economic performance.

Alongside these negative impacts, the effects of immigration on the wages and employment of local workers, and on productivity through channels such as the complementary skills of migrants and agglomeration economies are generally small and positive (Fry, 2014; NZPC, 2021a).

With some effects being negative, others positive, and with uncertainty about the size and seriousness of some effects, the policy maker faces the difficult challenge of finding the right balance. One approach in this situation is to adopt a policy of 'least regrets'. Under this, the policy maker considers not only the probabilities of actions turning out as hoped, or the opposite, but also the benefits and costs of the consequences. A least-regrets course of action is one that avoids consequences that are very costly. Fry (2014) uses a least-regrets lens to weigh the less-than-certain Reddell hypothesis against the evidence of small benefits from immigration through its labour-market effects.

The policy action of continuing the high pre-Covid levels of net migration will have the consequence of continuing pressure on house prices and infrastructure and – if the Reddell hypothesis is correct – of the New Zealand economy remaining unbalanced and struggling to raise living standards through higher productivity growth. This would be an outcome with a high opportunity cost.

The alternative policy action of pulling back on immigration flows would also have costs – the costs to businesses of not being able to fill some vacancies. These costs will be significant for businesses that have become dependent on migrant labour. But the overall costs can be reduced by the right selection of migrants still accepted, signalling policy changes in advance to allow businesses to adjust and transitional assistance for such businesses.

So, continuing with high immigration has a potentially costly regret whereas (whether the Reddell hypothesis is correct or not), it has no offsetting large benefit. Cutting back on migration will cause short-term disruption to some businesses and loss of small benefits but no large regret even if the Reddell hypothesis is incorrect. In the latter case, a small benefit would be discovering that Reddell's hypothesis does not hold the answer to New Zealand's productivity problems. As Fry concludes:

...least regrets suggests that at some point, there may be value in risking the seemingly small benefits from existing immigration targets in order to determine whether larger benefits may be obtained via reduced interest and exchange rates following the adoption of a lower immigration target. (Fry, 2014, p. 26)

F3.2

High levels of net migration can tilt the economy away from exports to meet demands for residential construction and infrastructure investment. This risks New Zealand residents missing out on the wellbeing benefits of higher productivity and productivity growth from exploiting profitable exporting opportunities.

F3.3

Using available levers to slow net immigration compared to its high pre-Covid rate has the elements of a least-regrets policy. It would avoid the risk of large costs from forgoing the substantial productivity benefits from an economy re-balanced towards exports. On the other hand, the potential costs of lowering net migration to more manageable rates of flow appear modest – some short-term disruption and costs for businesses, and small productivity losses.

4 The fiscal impacts of immigration

Migrants pay taxes in the host country and receive government-funded transfers, either in cash (eg, welfare payments) or in kind (eg, free or subsidised health and education services). The difference between what migrants overall pay in taxes and receive in government benefits is termed their fiscal impact. The time period is important since a long-term migrant will, on arrival, typically pay more than they receive and this surplus is likely to increase as the migrant learns to find their way in the new land, improves their productivity and earns a higher income. Yet later in their life, the surplus is likely to reverse and become a deficit as they become eligible for benefits (eg, a state pension) or need more medical services. The whole profile is the lifetime impact of the migrant (and needs to be measured in constant dollars to account for inflation and the discounting of future costs and benefits).

This lifetime pattern of fiscal positives and negatives is not peculiar to migrants. It is also typical of the native-born with the key addition of the period from birth to starting paid work, in which public expenditure typically exceeds revenue collected because of publicly funded education. As the UK Office of Budget Responsibility puts it:

From birth until leaving full-time education, an individual will be a net fiscal cost, due to the costs of providing education and other services. But once an individual enters the labour market they are likely to make a net fiscal contribution, as taxes paid will usually exceed the cost of services consumed. This will depend on the employment rate, level of earnings and amount of services consumed. Finally, upon retirement an individual is likely to be a net burden again, as they are receiving pensions and often require greater use of medical services. (2013, p. 144)

A main reason that migrants are often seen as an attractive fiscal proposition by host governments is that they come ready educated with that cost being borne by the country of origin. On the other hand, it is not uncommon for those opposed to immigration to base it on a perception that immigrants take more from the economy than they put in (Card et al., 2012). These different perceptions and the potential for sizeable effects make it important to understand the fiscal impacts of immigration, both conceptually and using evidence. This understanding then becomes an important input into decision making on immigration policy and settings.

The ways in which immigration can affect public finances

Many factors and interactions between them determine the overall fiscal impact of migrants. They operate within an overall government budget constraint that taxes must be sufficient to fund public expenditure (taking into account other revenue sources such as charges and the ability to borrow to allow spending ahead of receipts).

To simplify the complexity, Figure 4.1 considers only the static fiscal effects of introducing a group of migrants to a population of native-born citizens, whereas Figure 4.2 illustrates the dynamic, lifetime effects. The migrants alter the government budget constraint by bringing in new sources of revenue and new sources of demands on public services but possibly also affect the existing revenue-generating capacity of citizens and the costs of meeting existing demands (Preston, 2014). A positive fiscal impact of immigration, all else being equal, benefits the native born by enabling either more public expenditure with no additional taxes, or the same expenditure with lower taxes.

Figure 4.1 Factors that contribute to the overall fiscal impact (static) from the arrival of new migrants

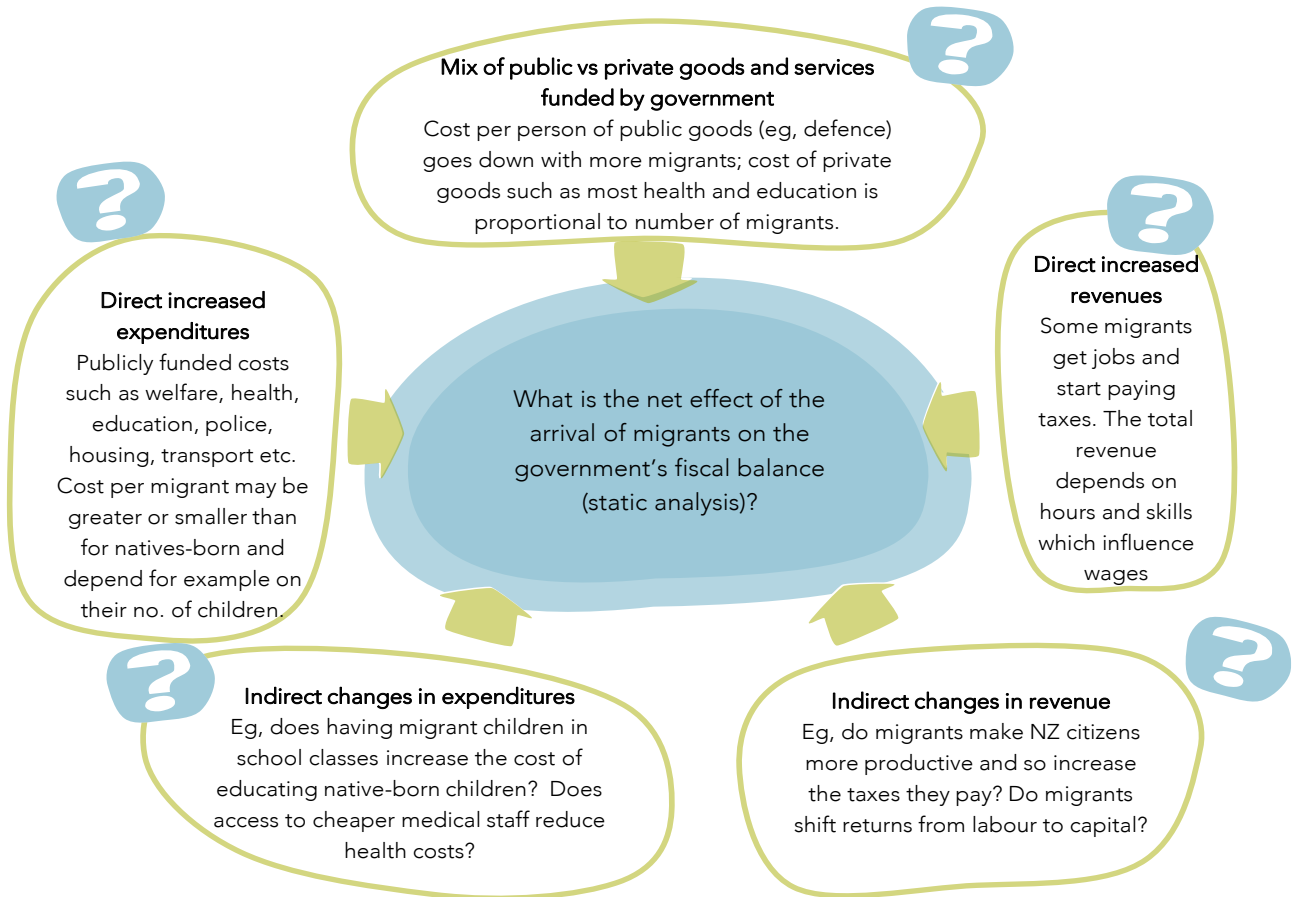
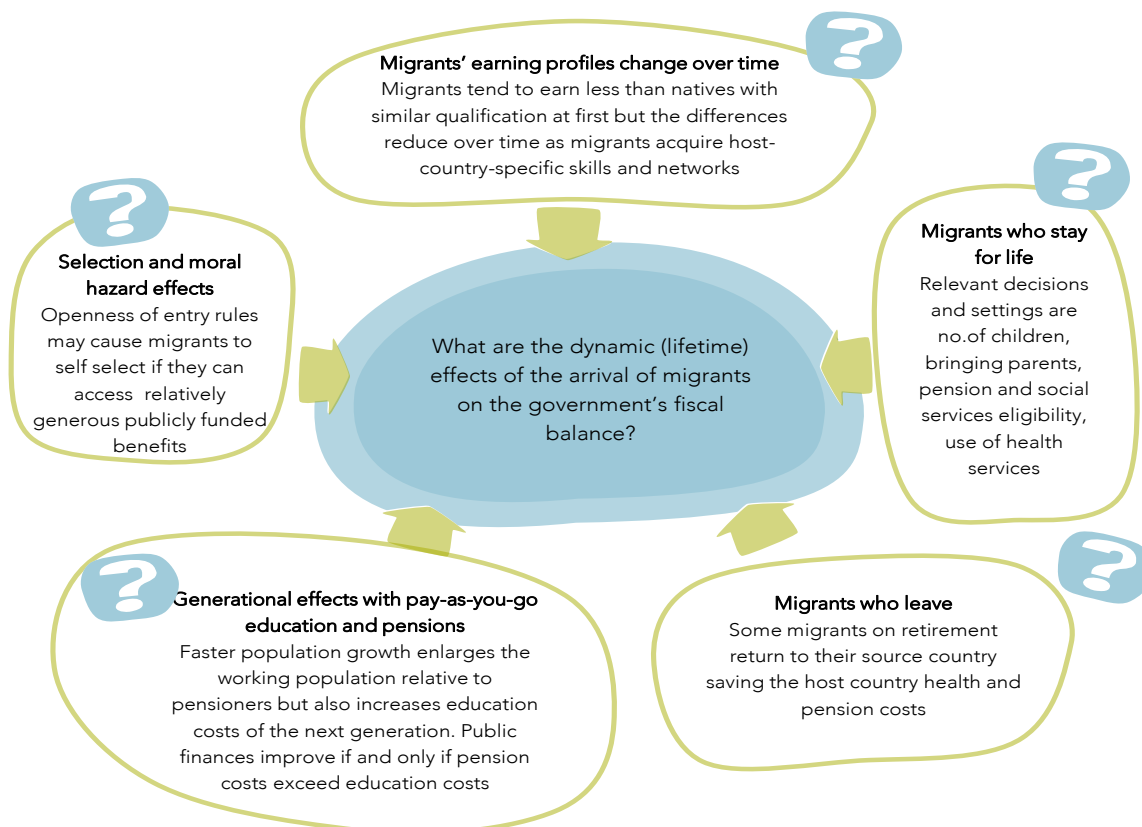


Figure 4.2 Factors that contribute to the overall fiscal impact (dynamic) from the arrival of new migrants



Evidence on the fiscal impacts of immigration

The large number of factors affecting the fiscal impact of immigration means that impacts vary across countries and time. The types of migrants, entry conditions, tax and benefit rules, and eligibility rules for public services are rich sources of variation across countries. Yet some consistent patterns exist and show up in the evidence:

- Younger, more highly skilled migrants have a larger positive fiscal impact. The composition of migrants therefore has a significant influence on fiscal impact (Coates et al., 2021; Picot, 2013).
- From arrival the net positive impact is “increasing with the duration of residence of immigrants, in part because they move to higher paying occupations and therefore pay higher taxes and draw less on unemployment insurance or other transfers” (Dungan et al., 2012, p. 11).
- Migrants are on average healthier than the existing population, but this difference attenuates over time (Antecol & Bedard, 2006; J. T. McDonald & Kennedy, 2004).
- Studies of immigrants and crime have found little or no evidence of immigration increasing crime (Bell & Machin, 2013).
- Most studies confirm that the overall fiscal impact is positive, but those that include dynamic effects show smaller net benefits than studies solely of static effects (Dustmann & Frattini, 2014; Zhang et al., 2020).

Studies show interesting variations across countries. For example, Boeri (2010) finds some evidence across the EU that migrants in countries with more generous welfare provisions and higher social spending were less skilled on average and more likely to be in receipt of benefits than natives. So migrants in the more generous countries (eg, Denmark, Finland, Norway and Sweden) were less likely to be net fiscal contributors, with the reverse true in countries like Austria, Germany, Spain and the UK. Yet, overall, the evidence for this sort of migrant self-selection is not strong. Guilietti and Wahba (2013, p. 502) conclude “it is plausible to conclude that fears about immigrant abuse of welfare systems are somewhat unfounded or at least exaggerated.”

An interesting set of international studies examined evidence on whether an association exists between shares of immigrant students in schools and test scores of native-born students. The findings were mixed with negative associations in a sample of European countries (Brunello & Rocco, 2013), in Israel (Gould et al., 2009) and in Denmark (Jensen & Rasmussen, 2011) but no indication of an impact in The Netherlands (Ohinata & van Ours, 2013) or in the UK (Geay et al., 2013). In reviewing several studies, Card (2013) concluded that “concerns over the negative consequences of immigrant classmates for native academic achievement may be overblown.” (p. F279)

Some studies have used dynamic, generation-accounting models to assess whether greater immigration can mitigate the fiscal challenges of population ageing. Again, findings have been mixed because the characteristics of migrants, natives, institutions and policies vary across countries. Yet a consistent thread is that migrant compositions with more young, higher-skilled migrants with high employment rates moderate population ageing more strongly (Storesletten, 2003). Even then, studies find the effects are typically modest (Schou, 2006), or make essentially no difference to population ageing problems, or would require immigration on a scale that is impractical (Fehr et al., 2004). (The Commission’s companion report on “Future opportunities and challenges” examines population ageing in New Zealand (NZPC, 2021b).)

New Zealand evidence on fiscal impact of immigration

Several New Zealand studies of the fiscal impacts of immigration exist, but none is a dynamic study of full lifetime effects. New Zealand studies find in line with international ones that the fiscal impact of migrants is generally net positive (Carey, 2019a; Nana et al., 2009; Slack et al., 2007).

The OECD Economic Survey of New Zealand (2019) used estimates from one of these studies to illustrate that net fiscal contributions of immigrants were significantly greater than that of the New Zealand-born in the year studied, yet this was a static rather than a life-cycle picture.

Immigrants appear to have a positive effect overall on public finances. Slack et al. (2007) estimate that in FY 2005/06 immigrants contributed 24.7% of government revenue and accounted for 18% of government expenditure; government expenditure included education, health, benefits and allowances and superannuation but not infrastructure, which is difficult to attribute. Their net contribution to the budget balance (NZD 3 288 million) was greater than that of the NZ-born (NZD 2 838 million) despite comprising only 23% of the population. The larger net contribution of immigrants than the native-born is attributable to them being relatively young, often single and usually employed in relatively well-paid jobs.

Unfortunately, no NZ studies taking a life-cycle approach are available. Such studies would give a better indication of contributions to the budget and claims on it by immigrants and their children as they age. However, as Hodgson and Poot (2010) note, the long-run net fiscal contribution on average of an immigrant is likely to be greater than that of a NZ-born person as an immigrant who enters New Zealand at working age will have been educated at another country's expense; for some categories of immigrants, such as elderly parents of immigrants, the opposite would hold. (p. 141)

Fiscal impact studies do not usually examine indirect effects of immigration on public expenditure. One example that is likely to be significant in New Zealand because of the current housing stress is the rising cost of the accommodation supplement to low-income renters and homeowners. The number of people receiving an accommodation supplement increased from 287 776 in the June quarter 2016 to 348 753 in the June quarter 2020 with the annual fiscal cost rising from \$1.19 billion in 2015-16 to \$1.97 billion in 2019-20. (MSD, 2020, 2021)

Australia's immigration policies, its percentage of foreign-born residents and its use of temporary migrants are quite like New Zealand's. A recent major study of immigration in Australia by the Grattan Institute concluded that fiscal impacts should lie at the heart of a re-design of Australia's settings for permanent skilled migration (Box 2).

Box 2 **Rethinking permanent skilled migration in Australia after the pandemic**

With labour-market impacts and productivity effects from immigration being quite small or unclear, researchers at the Grattan Institute in Australia concluded that the fiscal impacts are where potentially big payoffs lie for the wellbeing of existing citizens and permanent residents. The Australian study focused on the question of the optimal composition of a fixed annual volume of migration. It used data on the fiscal contributions and receipts of different types of migrants. These vary greatly in line with other research – net fiscal transfers improve when migrants are more skilled, younger, have good English language and are employed on arrival.

The study analysed the incidence of these characteristics across different permanent migrant categories, and estimated their average lifetime fiscal impacts on the federal budget compared with a citizen from the general population:

- Skilled primary category = + \$319 000
- Skilled secondary category = - \$18 000
- Family category = - \$137 000
- Humanitarian = - \$367 000
- General population = -\$104 000

The study considered the fiscal impacts of changing the composition of migrants by abolishing some schemes and boosting others. One scheme – the Business Innovation and Investment Programme (BIIP) has admitted increasing numbers of permanent migrants in recent years while skilled categories have declined. For fiscal impact, the study found that this is the wrong direction

of travel because the BIIP has been admitting migrants who are older, participate less in work, earn lower incomes and have poor English skills – all pointing to negative fiscal returns.

The study estimated that replacing migrants under the BIIP with skilled migrants would boost the present value of lifetime federal tax receipts by \$3.7 billion.

Source: Coates et al. (2021).

F4.1

The fiscal impact of immigration - the difference between the tax contributions of migrants and the public expenditures which their presence give rise to – can be positive or negative and is an important consideration in the design of immigration policies.

Many factors and interactions between them determine the overall fiscal impact of migrants leading to much variation across migrant types and different countries. Yet a consistent finding is that younger, more highly skilled and educated migrants who enter work soon after arrival make the highest net fiscal contributions.

F4.2

Almost all studies of the fiscal impacts of migrants, both in New Zealand and internationally, find them to be positive overall. Net contributions of individual migrants tend to rise over time as they acquire host-country specific skills and networks but then turn negative in later life because of lower tax payments, higher pension receipts and greater use of medical services.

F4.3

Evidence suggests that immigration can moderate the fiscal challenge of population ageing, but the impact is limited in size and timing because migrants themselves will grow old.

5 Natural capital and immigration

Natural capital

A wider wellbeing approach to immigration requires examining impacts on natural capital. Until recently, natural capital has been largely absent from economic modelling and economic assessments. Now, the damage to the planet's climate from the burning of fossil fuels for energy – an activity at the heart of economic development for the last 250 years - is centre stage. Less centre stage (but still of great concern) are impacts of economic development and its by-products on other forms of natural capital such as biodiversity, the oceans, wilderness areas, freshwater and soil quality and systems.

A fundamental driver of harm to natural capital is the number of humans living on the planet. On the one hand, human wellbeing is inextricably linked to natural capital. On the other hand, human numbers and lifestyles are threatening to destroy nature's capacity to provide for human existence and wellbeing (Dasgupta, 2021). It is a reality that the level of natural-capital services that humans can draw on while still sustaining the stock of natural capital is limited. The stock of natural capital at any one time is fixed and using services above the sustainable level will diminish the stock available to provide services for future generations.

Natural-capital services include *provisioning* services (eg, food, timber, medicines, genetic diversity), *cultural* services (eg, national parks and coastlines), and *regulatory* and *maintenance* services (eg, climate, pollination, filtration, waste assimilation).

Humans have the capacity to conserve nature, to help it heal itself and to use natural-capital services more efficiently. Yet current global population levels and modes of behaviour are depleting the stock of natural capital – many would say at rates that seriously threaten future human wellbeing. A programme of research by the Global Footprint Network has estimated that the current rate of human drawdown of natural-capital services would require 1.6 Earths to be sustainable. (Wackernagel & Beyers, 2019)

Natural capital and immigration

The connection of natural capital to immigration policy is population, its distribution, and its impacts across receiving environments. Other things being equal, a higher population in New Zealand will put more pressure on natural capital. New Zealand is sparsely populated compared with many other parts of the planet where people live. Yet, historically, the pressures and effects of development have destroyed much of the country's natural capital. For example, many native species have become extinct or are threatened, native forests have been logged, water quality degraded and GHG emissions are among the highest per person in the OECD (New Zealand is in the top 5).

GHG emissions – high per head but population growth has limited impact

New Zealanders have an obligation in common with all citizens of the planet to reduce GHG emissions because the climate-regulating properties of the atmosphere are a global public good. New Zealand is pledged to reduce its emissions to net zero by 2050. Several submitters raised concerns about the effect of immigration on its ability to meet its climate change mitigation goals (Box 3).

Box 3 Submitters' concerns about immigration and climate change

- The Climate Change Commission and broader society is making more and more efforts to reduce our carbon footprint however this can all be undone by simply increasing our population as if we grow as a country our carbon footprint will expand (Adam Irish, sub.3, p.3).
- In this respect the climate change targets of net zero absolute emissions also provide a significant disincentive to high population growth which would make the targets harder or more expensive via the Emissions Trading Scheme for NZ Inc to achieve (David Robinson, sub.10, p.8).
- More people means more impact on the environment including higher greenhouse gas emissions. Meeting our zero net carbon emissions target by 2050 will be materially more expensive and difficult with a rapidly growing population (Mike Lear, sub.32, p.11).

Evidence of the impacts of immigration on global GHG emissions suggests that immigration and population growth can have negative effects, but these depend on the source of migration and technology. At a global level, people who move from less developed to wealthier countries tend to adopt the consumption patterns of their host nations, which have higher carbon footprints. Yet nearly half of New Zealand's emissions come from agriculture and are related to exporting rather than population growth.

Increases in population and economic activity undoubtedly contribute to growing emissions from transport, the built environment, heat and industrial processes, and waste (NZPC, 2018). Better management of waste at landfills has seen GHG emissions from waste in this country trend downwards from 2005 (Ministry for the Environment, 2021, p. 13) but transport emissions have risen more than any other New Zealand source since 1990. The latter reflects rapid population growth, high vehicle ownership rates, and a fleet that is old and relatively fuel inefficient (NZPC, 2018).

However, future population growth on its own may make a relatively small contribution to New Zealand's future transport emissions. It will depend on the take up of electric and other low-emission vehicles. While New Zealand's recent emissions are still high per head of population, they have been increasing at a slower rate than population growth (NZPC, 2018). Yet this is far from enough for New Zealand to be on-track to achieve its obligations under the Paris Climate Accord or its net zero by 2050 target for long-lived gases under its Climate Change Response (Zero Carbon) Amendment Act 2019.

The Climate Change Commission (CCC) modelled the impact on emissions of annual population growing 0.4 percentage points faster than official projections (ie, around 20 000 more people each year relative to a population of 5 million). With the higher associated GDP, estimated emissions rose by around 3 million tonnes, or around 2% of projected net long-lived gas emissions in the 2026-2030 emissions budget period and 3% of the net emissions in the 2031-2035 budget period (Climate Change Commission, 2021).

Commenting on the CCC's forecasts and advice, CCC Chair Rod Carr noted that while "it is true that a proportion of all our emissions relates directly to the number of us in the country, it is a relatively small proportion of our total emissions" (Hickey, 2021).

F5.1

Although population growth has contributed to increases in greenhouse gas emissions, it is responsible for a relatively small share of total emissions. The impacts of future population growth on emissions will depend in large part on behaviour and technology uptake (eg, of electric and other low-emission vehicles).

Wilderness, natural quiet and kaitiakitanga of the planet

Prior to the Covid-19 pandemic, international tourism was one of New Zealand's fastest-growing industries. Immigration has been an indirect driver of international tourism growth (through prompting visits to New Zealand from friends and family) and a more direct driver of the numbers of domestic tourists. Growing tourist numbers have put pressure on wilderness areas and sites of high natural amenity and conservation value. Up to a point, these areas and sites are public goods – they preserve unique ecosystems and pristine landscapes, yet they are subject to congestion externalities that undermine these very qualities beyond a certain visitor load.

From 1987 to the pre-Covid-19 tourism peak in 2019, international arrivals increased from fewer than 1 million each year to almost 4 million. Over the same period, New Zealand's population increased from 3.3 million to almost 5 million. A Department of Conservation Survey indicated that 55% of New Zealanders made at least one visit to a protected natural area in 2019 (Parliamentary Commissioner for the Environment, 2021). Despite international tourism's growth, domestic visitors still make up more than half of the total 'tourism load' (56% of total commercial guest nights in 2018) (NZPC, 2019).

New Zealand has the opportunity to make an important contribution to the kaitiakitanga of the planet by preserving and nurturing its unique quantum and quality of natural capital relative to its population. Taking such a goal seriously would require immigration policy to consider it seriously.

New Zealanders are very much aware of the value of natural capital. The country promotes itself as clean, green and 100% pure, and 'bads' like pollution, waste and emissions are taken seriously in government statements and in legislation. Yet the reality all too often falls soberingly short of these aspirations and ideals (Table 5.1). A key question is whether a larger population will help or hinder the care of the environment.

As societies get richer, they tend to care more about the natural environment and look after it better. Compared to a poor country, they are productive enough to afford to apply resources to this purpose. Countries that are populous, but with low or middling incomes, are where natural capital typically suffers the greatest rates of degradation. So, a country can grow in population and prosperity *and* take better care of its natural capital. Yet this is not preordained, and it is still the case that bigger populations put more pressure on nature, other things being equal.

The pressure can be relieved by reducing the per person impact – in other words increasing the efficiency of use of the services of natural capital. Yet at a global level, Dasgupta (2021, p. 33) shows that the rate at which this efficiency would need to improve (to bring the current demands that humanity is making in drawing on nature's ecosystem services into balance with nature's ability to regenerate and maintain its stock of natural capital) is truly challenging. To achieve balance by 2030, his crude estimates indicate efficiency would need to improve at an annual rate of 10%, compared to an actual improvement rate of 3.5% in the period 1992 to 2014.

Environmental quality – how does New Zealand compare?

In a meeting with the Parliamentary Commissioner for the Environment for this inquiry, he made the point that New Zealand's inadequate regulatory protection of the natural environment that is now becoming clear may have its origins in the country's historically low population and population growth. In the past these have meant tolerably low environmental pressure so that a sophisticated protection system was not required. His point was that this is no longer the case.

The OECD's 2017 Economic Survey of New Zealand commented that "[e]conomic and population growth has led to environmental degradation and will continue to do so in the absence of policy development that systematically integrates environmental objectives and strong policy measures to protect the environment" (OECD, 2017b, p. 17).

The OECD Environment Directorate undertakes semi-regular Environmental Performance Reviews (EPRs) of OECD and other countries. These reviews provide a picture of each country's relative

performance. Table 5.1 provides key indicators of New Zealand's 2017 EPR. The EPR's overview sums up how the country is putting its valuable natural capital at risk.

New Zealand's natural environment provides tremendous benefits on several levels. Easy access to pristine wilderness and good air quality heighten quality of life for New Zealanders, while the spectacular landscapes attract millions of visitors ever year. Apart from the economic benefits of tourism, the natural environment provides the basis for the country's large exports of dairy, meat, wool, fruit, vegetables, fish and wood. But New Zealand's growth model is approaching its environmental limits. Greenhouse gas (GHG) emissions are increasing. Pollution of freshwater is spreading over a wider area. And the country's biodiversity is under threat. (OECD, 2017a, p. 3)

Table 5.1 OECD's environmental performance review of New Zealand, 2017, key indicators

Indicator	New Zealand performance	Additional information
GHG emissions	Emissions per capita and per unit of GDP among the top 5 in the OECD.	
Gross GHG emissions, 2000-14	Increased by 6% compared to a fall of 5% in the OECD as a whole.	Gross emissions continued flat up to 2018 (the latest data available).
Road transport emissions per capita	Among the highest in the OECD.	
Biodiversity:	Species extinction rates among the highest in the world.	More than one half of amphibians, and roughly one third of mammals, birds, fish and reptiles are threatened. Main threats are invasive species, predators, and habitat fragmentation and degradation.
Protected areas (% of total, 2016)	Marine area protected (30%) and land area and land waters protected (32%) among the highest in the OECD.	
Air quality	Generally good. Annual average exposure to PM _{2.5} is at the low end in the OECD.	Strong winds help disperse pollutants, even though major air pollutants have increased from road transport, industrial production and power generation.
Water quality	Continues to deteriorate in some regions due to diffuse pollution from agricultural and urban run-off. The main pollutants are nutrients (nitrogen and phosphorus), sediments and pathogens.	75% of water used is for irrigation. Some regions approaching water allocation limits or have already exceeded them.
Waste	No comprehensive, timely and internationally comparable data on waste generation, treatment and disposal.	Waste generation is growing with population and income growth.

Source: OECD (2017a).

New Zealand has an opportunity to celebrate and leverage its natural capital

Much of the motivation for immigration over the ages has been not only migrants taking opportunities to get ahead in a new land, but also host countries welcoming migration as a source of economic stimulus – the notion that an expanding economy is a healthy economy and a stationary or declining one is ailing. Yet material wellbeing is about productivity and income per head, not about the level and growth of total GDP. Now that humans are pushing the planet to its biophysical limits, it seems time to question that all countries must have growing populations to be economically healthy.

As noted, New Zealand has an enviable endowment of natural capital relative to its population. It arguably has an opportunity to demonstrate how a good life is possible without the density of population found in the world's economic hotspots. Rather, it can hope to be rich in wellbeing for its people by keeping within biophysical limits and earning high returns, both economic and non-economic, from its abundant and diverse natural capital. New Zealand already attracts migrants because of its open spaces and natural beauty. It could do this even more in future by enhancing its attractiveness to selected and high-quality migrants who want to come precisely because New Zealand is distinctively different from other host-country options.

F5.2

New Zealand has an opportunity to choose a future rich in wellbeing by keeping within biophysical limits and nurturing and celebrating its abundant and diverse natural capital. To achieve such a future, immigration policy will need to ensure that population pressures do not undermine environmental quality and sustainability.

A future of this kind could make New Zealand an attractive destination for migrants who want to come precisely because it would make the country distinctively different from other host-country options.

6 Social impacts of immigration

Another possible impact of immigration on the wellbeing of New Zealand is its effect on social cohesion. Social cohesion has been defined in a number of ways, but typically refers to the extent to which a society “works towards the well-being of all its members, fights exclusion and marginalisation, creates a sense of belonging, promotes trust, and offers its members the opportunity of upward social mobility” (OECD, 2011, p. 53).

As the Terms of Reference for this inquiry direct the Commission to focus on the wellbeing of New Zealanders, this report concentrates on the impacts on New Zealand citizens and residents. However, these impacts and the wellbeing of migrants may be related, as successfully integrated migrants may encounter less resistance from prior residents.

Trust and tolerance

Hypotheses differ about the impacts of immigration (and the resulting increase in cultural diversity) on social trust. On the one hand, some have argued that engagement between people of different backgrounds can increase intergroup tolerance and solidarity (Allport, 1954; Stouffer, 1949). This has been referred to as the ‘contact hypothesis’. Studies testing this hypothesis suggest that the effects can vary, depending on the age of the participants and the nature of diversity (eg, disabilities, as opposed to ethnic differences) (Paluck et al., 2019).

Others argue that immigration may erode levels of trust in a community and support for the provision of public goods and services (also known as the ‘conflict hypothesis’). Putnam (2007, pp. 149–150), drawing primarily off US data, found that areas with high levels of ethnic diversity exhibited: lower levels of confidence in local government and media; lower voter registration rates; less likelihood of volunteering, working on community projects or giving to charity; lower expectations that others in the community would cooperate to solve collective problems; and fewer friendships. Later work has highlighted that the negative effects on trust in the US were mainly found in white communities, implying that increased diversity may not reduce trust in the general population (Abascal & Baldassarri, 2015).

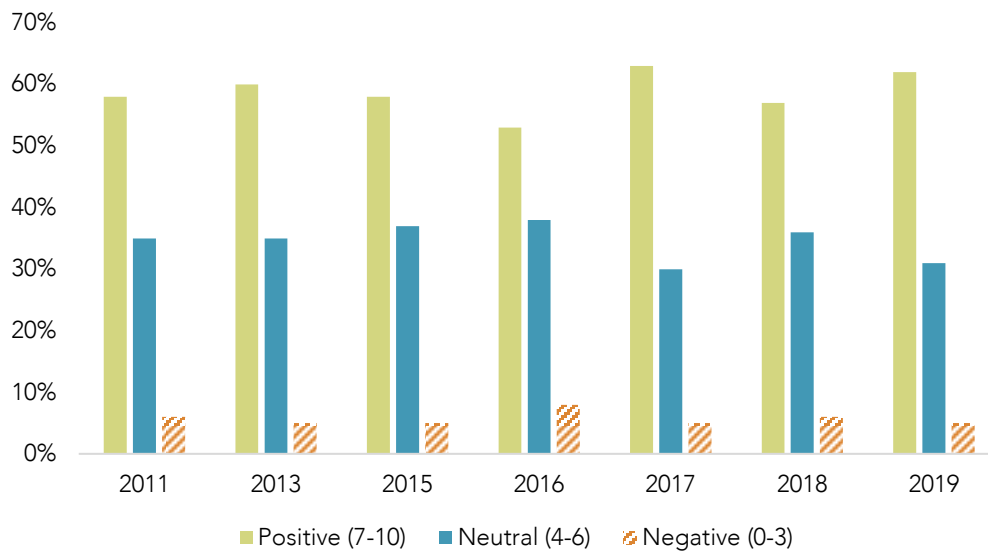
The two hypotheses are not necessarily mutually exclusive. Putnam distinguished between short-run and longer-run effects of immigration and diversity on trust.

In the short to medium run...immigration and ethnic diversity challenge social solidarity and inhibit social capital...In the medium to long run, on the other hand, successful immigrant societies create new forms of social solidarity and dampen the negative effects of diversity by constructing new, more encompassing identities. Thus, the central challenge for modern, diversifying societies is to create a new, broader sense of ‘we’ (2007, pp. 138–139).

New Zealand data

The impacts of immigration on social trust and tolerance in New Zealand appear to have varied over time. As Peace and Spoonley note, the “politicisation of immigrants and immigration in the 1970s and again in the 1990s had been very disruptive and had undermined interethnic community trust and respect” (2019, pp. 102–103). This politicisation and disruption occurred during periods of relatively high migrant inflows and poor economic performance (NZPC, 2021c).

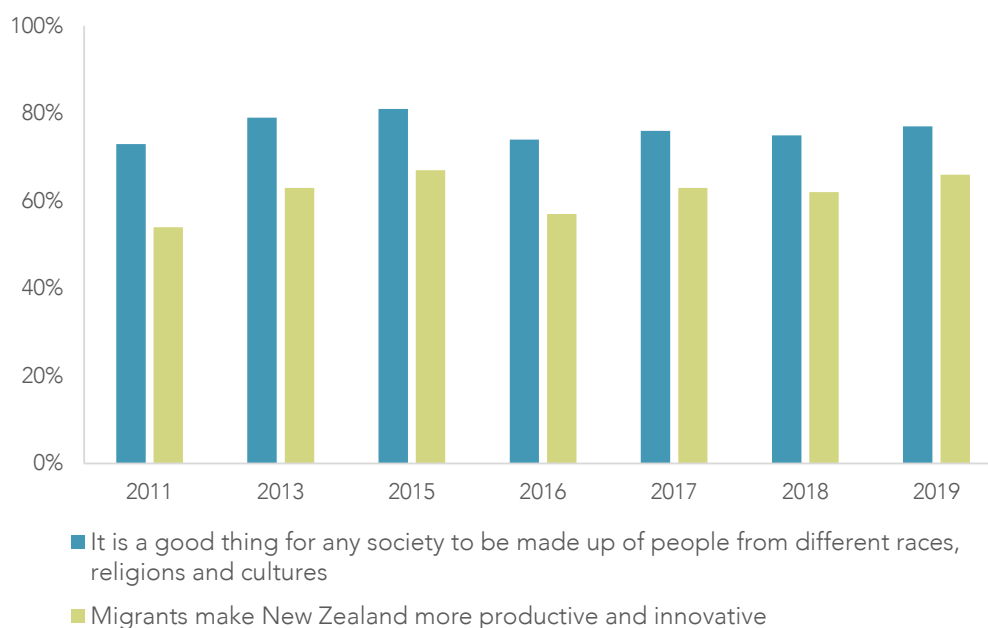
More recent information suggests that New Zealanders are broadly comfortable with immigration, with variations within the community. MBIE runs semi-regular surveys of community views of immigration, and these consistently show very low negative attitudes in aggregate (Figure 6.1).

Figure 6.1 Community views of migrants

Source: MBIE (2020).

Note: The question asked was "Overall, if you were to describe your general views of migrants on a scale from 0 to 10, where 0 is not at all positive and 10 is very positive, what would your rating be?"

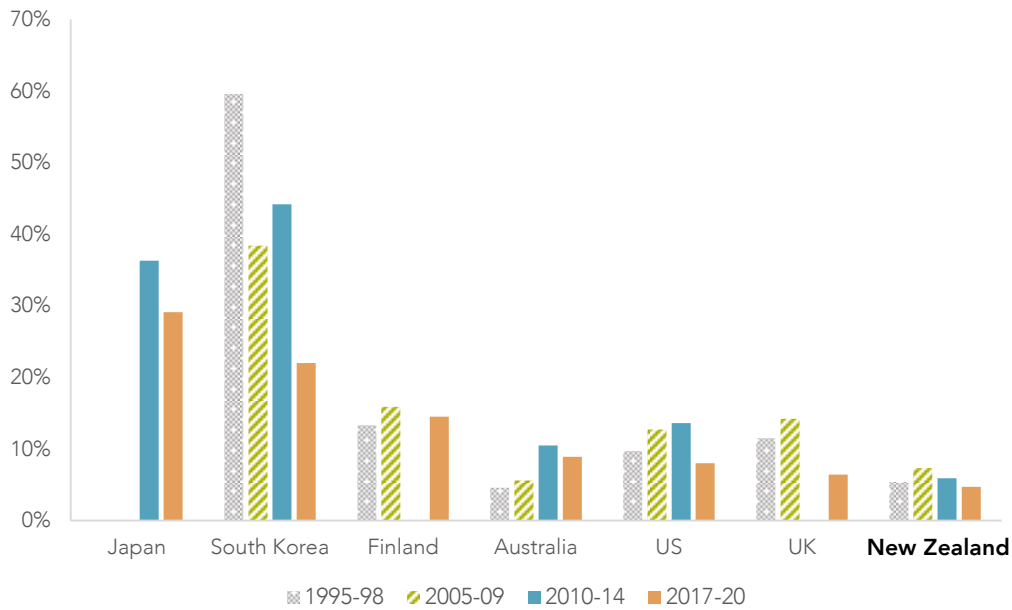
Relatively high proportions of respondents either agreed or strongly agreed with statements about the benefits of cultural diversity and the contribution of migration to productivity and innovation (Figure 6.2).

Figure 6.2 Perceptions of migrants' contribution to the economy and society

Source: MBIE (2020).

Positive sentiments towards migrants and migration were generally highest amongst people of Asian ethnicity, Wellington residents and people born overseas and were lowest amongst New Zealanders who had no friends born outside New Zealand (MBIE, 2020).

Another source of data is the World Values Survey. New Zealanders showed similar levels of comfort with migrants as other high-migration countries (eg, Australia, Canada, the US) and higher levels than low-migration countries (eg, Japan, South Korea) (Figure 6.3).

Figure 6.3 Proportion of respondents who did not want immigrants or foreign workers as neighbours

Source: World Values Survey Association (n.d.).

F6.1

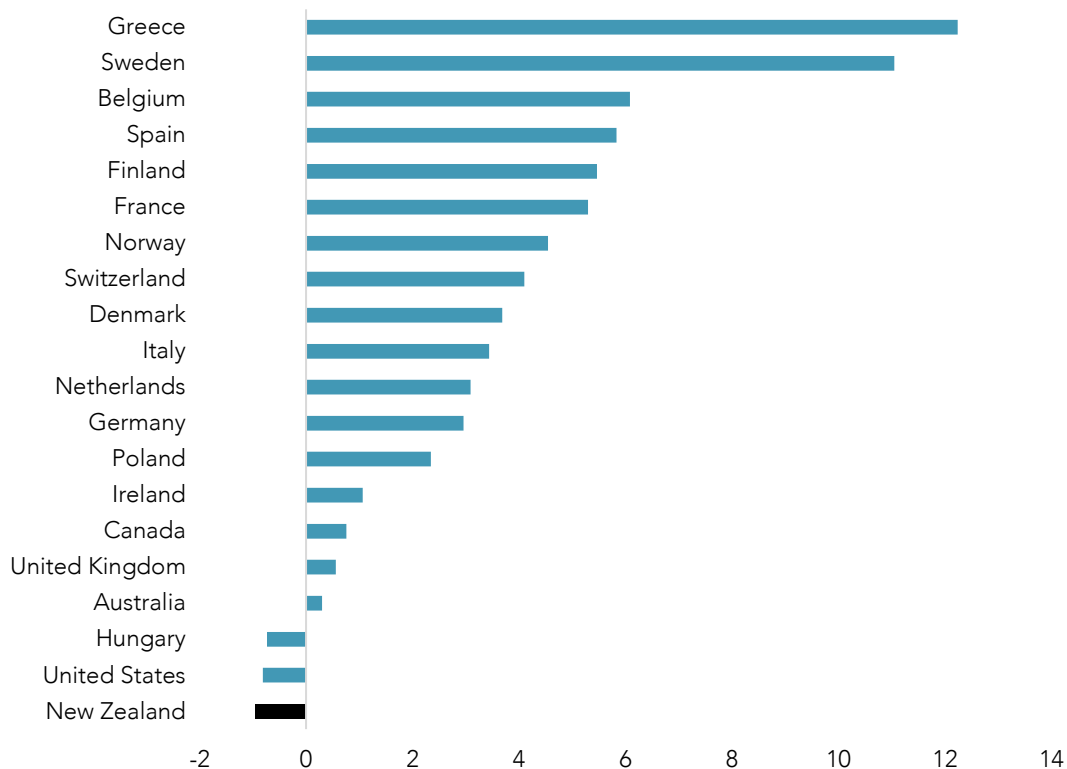
The impacts of immigration on social trust and tolerance in New Zealand appear to have varied over time. Yet surveys indicate that community views of migrants are positive about their contributions to society and the economy and the cultural diversity that they bring.

Integration

Another measure of social cohesion is the extent to which immigrants enjoy the same rights and opportunities as locals, such as access to employment, education, good incomes and participation in government. By the standards of OECD countries, migrants in New Zealand have comparatively high overall levels of integration and wellbeing, with some gaps. Carey comments that:

In contrast to the experience in most other OECD countries, where immigrants have mostly worse outcomes than the native-born, immigrants in New Zealand tend to experience similar well-being outcomes. In particular, NZ immigrants have similar levels of well-being outcomes to the native-born for life satisfaction, PISA scores, perceived health and having a say in government. They are more likely to feel safe than the native-born but are also more likely to express loneliness and to experience discrimination and tend to have slightly lower literacy scores. Immigrants in New Zealand also report relatively low participation rates in elections relative to those for the native-born, which is a sign of weak civic engagement and hence social integration. (2019b, pp. 22–23)

Also in contrast with many other OECD countries, migrants in New Zealand tend to fare slightly better than locals on unemployment (Figure 6.3). This may reflect the strong emphasis placed in policy (eg, the points system) on employability.

Figure 6.4 Gap in the unemployment rate between immigrants and locals, 2019

Source: OECD (2020).

Note: A positive result indicates that immigrants are less likely to be unemployed than locals and a negative result the opposite.

For their part, migrants consistently report very high levels of overall satisfaction with life in New Zealand and high levels of belonging (Palmer & Varcoe, 2021). Satisfaction is lowest with the cost of living and quality of housing.

High degrees of reported overall satisfaction may partly reflect 'survivor bias'. In other words, those who are unsatisfied with life in New Zealand may simply leave. A significant proportion of people with permanent residence re-migrate to other countries within a short period of time. Krassoi-Peach (2013) found that one-quarter of New Zealand's skilled migrants leave within five years of arrival, with exit rates highest amongst the young, people with higher degrees, and people from the US, China and Canada. Although Krassoi-Peach concluded that remigration rates were on the low end of developed countries, this still represents a large loss of talent.

As noted in the Commission's companion report on the impacts of immigration on the labour market and productivity, migrants in New Zealand sometimes encounter difficulties finding work that matches their skills and experience (NZPC, 2021a). But, in aggregate, migrants tend to report positive experiences with their employers, with 84%-90% of respondents to MBIE surveys over 2016-2019 agreeing that they are fairly treated at work (Palmer & Varcoe, 2021, p. 24).

However, smaller (but still significant) proportions of respondents in 2019 reported concerning experiences, such as feeling threatened by their employer's behaviour (6%), having had their entitlements withheld or threatened to have them withheld (3%), or employers asking workers to pay money to get or hold on to a job (2%) (Palmer & Varcoe, 2021, p. 21). There are also well-documented examples of migrant workers being exploited by unscrupulous employers (NZPC, 2021a).

F6.2

By the standards of OECD countries, migrants in New Zealand have comparatively high overall levels of integration and wellbeing, with some gaps. Unusually, they fare slightly better than locals on unemployment.

Satisfaction is lowest with the cost of living and the quality of housing. A very small proportion of migrants report concerning exploitative behaviour by employers.

The Treaty and tangata whenua

One important New Zealand-specific social impact of immigration is the effects on the Treaty and the place of tangata whenua. Historic immigration took little account of the Treaty and partly aimed to undermine Māori. As noted in a companion inquiry report, large-scale immigration following the signing of the Treaty rapidly and radically changed the size and composition of New Zealand's population, with non-Māori becoming the majority in less than two decades (NZPC, 2021c). Mass immigration in the mid-19th century was designed in part to ensure Pākehā dominance and to break the back of Māori resistance during the New Zealand Wars (ibid).

The Treaty remains absent from current immigration law and policy. The Immigration Act 2009 defines immigration policy solely in terms of the Crown's interests.

The purpose of this Act is to manage immigration in a way that balances the national interest, as determined by the Crown, and the rights of individuals [3(1)].

Others have noted the lack of attention paid to the Treaty or the bicultural nature of New Zealand in settlement processes and citizenship ceremonies, and the failure to consider the manaakitanga obligations placed on iwi by new arrivals, and the pressures these can create on (often limited) iwi resources (Fry & Wilson, 2018; Kukutai & Rata, 2017; The Māori Party, 2017). Māori have also expressed concerns about the pressures that migration may create on Māori access to housing and jobs (Kukutai & Rata, 2017; The Māori Party, 2021).

How to think about the role of the Treaty in immigration

The issue of the interaction between the Treaty and immigration policy has been raised in the past (The Maori Party, 2007; Turia, 2007; Walker, 1994), but not definitively settled. Although claims have been made to the Waitangi Tribunal on immigration matters, these have not made it to a hearing or report stage.

As input for this inquiry, the Commission sought advice on what the courts, the Waitangi Tribunal and Parliament have said about how to understand the Treaty and Māori interest in specific issues, and obligations to consult.⁶ The advice made several relevant points.

- **The absence of a Treaty clause in legislation does not mean the Treaty or tikanga obligations are irrelevant or do not apply at law.** The courts have previously found that the Treaty is "part of the fabric of New Zealand society" and can be used to interpret a statute even where there is no explicit reference. The courts have also found that "the tikanga Māori that defines and governs the interests of tangata whenua in the taonga protected by the Treaty is an integral strand of the common law of New Zealand" (*Trans-Tasman Resources Limited v Taranaki-Whanganui Conservation Board*, 2020, NZCA 86, at 177).
- **The Crown has a duty to consult with Māori in a number of circumstances and these are not limited "to policies that impact on or connected directly to taonga (such as land), but can include matters of general public policies that impact Māori interests"** (Whaia Legal, 2021, p. 5). The greater the impact of the issue on the Treaty, Treaty principles or Māori interests, the greater the degree of consultation required.

These points raise the question of what the Māori interest is in immigration policy. On one level, this is not a judgement the Commission can make. As the Waitangi Tribunal has previously noted:

...it is for Māori to say what their best interests are, and to articulate how they might best be protected...As a requirement of good governance there is an onus on the Crown to assess whether its policy processes are sufficiently informed by Māori knowledge and opinions to render further consultation unnecessary. (Waitangi Tribunal, 2017, p. 28)

⁶ While the Waitangi Tribunal is not a court of law and the courts are not bound to give effect to Tribunal findings, the Court of Appeal has stated that the opinions of the Tribunal are of "great value" and are given considerable weight in court judgments (*New Zealand Maori Council v Attorney-General/CA 54/87, 1987, NZCA 60 at 661*).

However, there are at least two issues that point to a Māori interest in immigration policy. The first is the preambular text of the Treaty itself, which states that the agreement was:

...necessary in consequence of the great number of Her Majesty's Subjects who have already settled in New Zealand and the rapid extension of Emigration both from Europe and Australia which is still in progress to constitute and appoint a functionary properly authorized to treat with the Aborigines of New Zealand for the recognition of Her Majesty's Sovereign authority over the whole or any part of those islands. [English text]

The Māori text refers to a transfer of rangatiratanga to protect Māori interests:

Victoria, the Queen of England, in her concern to protect the chiefs and the subtribes of New Zealand and in her desire to preserve their chieftainship and their lands to them and to maintain peace and good order considers it just to appoint an administrator one who will negotiate with the people of New Zealand to the end that their chiefs will agree to the Queen's Government being established over all parts of this land and (adjoining) islands and also because there are many of her subjects already living on this land and others yet to come. So the Queen desires to establish a government so that no evil will come to Māori and European living in a state of lawlessness. [Translation of the Māori text by Professor Sir Hugh Kawharu, cited in Waitangi Tribunal (2016)]

This section has been interpreted by some as placing immigration “squarely in Article 1 of the Treaty, as a core function of newly established government” (White, 2005, p. 3). However, it can also be read as indicating a Treaty interest in immigration based on the protection of rangatiratanga (Whaia Legal, 2021, p. 12).

The second point is the duty on the Crown to actively protect Māori interests. As noted in a companion report on the labour-market impacts of immigration (NZPC, 2021a), while immigration has very minor effects on wages, employment and conditions in aggregate, the situation is less clear at an industry or local level. In particular, in some cases, immigration may depress wages, conditions or opportunities, particularly for the young, beneficiaries or those lacking formal qualifications. Māori are overrepresented in these groups. Similarly, pressures on housing and the resulting rises in prices and rents bear more heavily on people on lower incomes – another cohort where Māori are overrepresented (NZPC, 2012, 2017). As the Legislation Design Advisory Committee (2018, p. 27) notes, a Māori interest may “arise in issues where Māori are disproportionately affected.”

Of course, the impacts of immigration on Māori do not only go one way. The Commission heard about the contribution that migrant workers had made to the growth and development of iwi-owned businesses. However, the Government may, in the interests of protecting wellbeing, wish to take a precautionary approach and set rules and objectives for immigration to minimise harmful distributional effects and harmful impacts on Māori.

F6.3

The preambular text of the Treaty of Waitangi, and the duty of active protection, demonstrate that there is a Treaty interest in immigration policy, which should be reflected in policy and institutions. Overrepresentation of Māori in groups that could be adversely affected by immigration reinforce this obligation.

7 Assessing different types of effects

This inquiry is examining “immigration settings for New Zealand’s long-term prosperity and wellbeing.” Fulfilling that mandate, requires making judgements that consider the many different effects of immigration.

In NZPC (2021a), the Commission has set out its assessment of the labour-market effects of immigration such as on employment, wages, and how productivity might be impacted through channels like economies of scale, knowledge spillovers, international linkages and skill enhancement. This report has assessed very different types of impacts such as on the macroeconomy, house prices, infrastructure pressures, fiscal balances, natural capital and social capital, including the Treaty.

Any set of recommendations about this country’s immigration system – its level, the rate of net migration and the type of migrants that New Zealand targets – will need to consider these different types of effects. Even with a clear overarching objective for immigration, and a good knowledge of the size of the effects in each domain it will be a difficult task because of the need to weigh their various impacts on prosperity and wellbeing. For example, how should filling skill gaps in the IT or dairy industries be weighed against aggravating the size of New Zealand’s housing and infrastructure deficits?

A wellbeing framework for immigration

In their book *Better Lives; migration, wellbeing and New Zealand*, Fry and Wilson (2018) draw on recent economics thinking and research on wellbeing and apply a wellbeing framework to immigration.

Approaches include: Amartya Sen’s thesis that wellbeing is about improving people’s capabilities “to lead the kinds of lives they value and have reason to value”; the OECD’s *Better Life Initiative* (based on indicators of quality of life, material living conditions and sustainability of wellbeing over time); and the subjective wellbeing approach (based on how people judge their own wellbeing). Several points are worth noting before facing the challenge of assessing the different effects of immigration on wellbeing.

- These approaches are superior to using a crude measure such as GDP, GDP per person or even Net National Income per person because they include important other influences on wellbeing such as quality of life, social cohesion and environmental quality and sustainability. The broader approaches can also capture the distribution of wellbeing over individuals and groups. Yet they are more complex and difficult to use and can be less objective.
- In Aotearoa New Zealand a wellbeing framework must include the extent to which policies honour the Treaty of Waitangi and the mana of Māori.
- Wellbeing research across these approaches has shown a remarkably consistent set of factors that are positive for wellbeing across individuals, cultures and countries: health, family and friends, income, physical security and satisfying work.
- Treasury’s Living Standards Framework is similar to the OECD’s *Better Life Initiative* in that it is based on multiple indicators and uses the four capitals – physical, social, human and natural – to assess and measure sustainability.
- Eminent economics scholars have explained how subjective wellbeing could form the basis of a new kind of cost-benefit analysis with ‘units of wellbeing’ used to assess proposals.

Whose wellbeing and over what timescale?

Guided by the inquiry’s Terms of Reference and the Productivity Commission Act 2010, the Commission is focusing on the wellbeing of New Zealanders and is taking that to be the wellbeing of citizens and permanent residents who currently live in this country. This focus does not directly encompass the wellbeing of temporary migrants. But to ignore their wellbeing would be unethical and would be likely to undermine societal wellbeing indirectly. Considering this, the Commission believes

that the immigration system must achieve acceptable minimum standards of wellbeing for temporary migrants.

In assessing the broader wellbeing impacts of New Zealand immigration system, the Commission is also taking a long-term view (eg, what sorts of changes would best support prosperity and wellbeing over the next 10-30 years. Among other things, this must include New Zealand's commitment to make large reductions in its GHG emissions⁷.

The main choices for immigration policy are about volumes, speed, composition, and settlement

When looking at the effects of immigration on wellbeing, the policy choices boil down to settings in four high-level areas:

- the volume, or total number, of migrants to add to the existing population;
- the speed at which migrants can be absorbed;
- the composition of migrants to be selected for residence and temporary visas; and
- the settlement of migrants.

The policy choices in each of these areas will affect wellbeing. By choosing wisely the good effects of immigration will be magnified and effects that subtract from wellbeing will be minimised. As a first step, Table 7.1 is a preliminary list of the main effects of immigration, how they impact wellbeing and the rough size and seriousness of the impacts. It notes how each of the four capitals is likely to be affected which is important for gauging future wellbeing.

Table 7.1 The main effects of immigration and their impacts on wellbeing

Effect	Aspect of wellbeing impacted	Impact on the four capitals	Rough magnitude of effect
Addition to skills and capabilities of the workforce	Rise in productivity and incomes especially where skills are specialised and complementary.	Rise in amount and diversity of human capital.	Small positive impact but cumulative with continuing intakes of high-skill migrants.
Larger population	Economies of scale in public goods, potential for stronger competition, and more innovation in the economy and society.	Potential for more efficient use of public and private physical capital; and for higher quality capital including intangibles.	Small positive impacts. Need a large population increase for significant effects.
Fiscal contribution	Government capacity to carry out its functions.	Young, skilled migrants add to financial capital; older, non-working migrants subtract from it.	Medium positive impact from selecting for skills and age.
Fast growth of population	Macroeconomic imbalance.	High demand for housing and infrastructure crowds out investment in tradeable sector.	Significant shifting of resources to non-tradeable sector. Potentially large, but unknown, effects in dampening export industries and productivity growth.
Fast growth of population	Housing and infrastructure put under pressure. Increased deprivation and inequality.	Rapid price rises of existing stock. Housing and infrastructure deficits. Social capital impaired.	Large negative effects exacerbated by constraints on supply and low levels of investment.

⁷ New Zealand legislation commits it to reducing all GHG gases except biogenic methane to net zero by 2050. Biogenic methane emissions must be reduced by 24% to 47% relative to its 2017 level by 2050.

Effect	Aspect of wellbeing impacted	Impact on the four capitals	Rough magnitude of effect
Larger population	Pressure on the natural environment – the limited stock of natural amenities and nature services.	Risk of depletion of natural capital that will impair its capability to provide ongoing services.	Risk of larger negative effects as population grows. But not inevitable if care is taken to manage and protect.
Fast growth of population	Strain on social cohesion. Risk of politicisation of immigration.	Negative for social capital. Risk of poor settlement for migrants.	Surveys of native-born and migrants report low levels of concern. Yet concern likely to rise with high migration rates.
Fast growth and large size of population	Both negative if they undermine the place of Māori and the importance of the Treaty of Waitangi.	The Treaty and the bicultural nature of Aotearoa New Zealand are integral to the nation's social capital.	Risk of a negative impact on wellbeing for as long as the Treaty remains absent from immigration law and policy.
A larger, more diverse population	Migrants from diverse backgrounds add cultural and ethnic richness and enhance international connections.	Positive influence on cultural capital (as part of social capital). Diverse experiences and networks add to human capital.	Surveys indicate a generally positive attitude to the diversity that migrants bring.
Rapid growth of temporary migrants relative to acceptance rate of residents	Contributes to fast growth of population. Risks of migrants feeling let down and/or strung along. Risks of exploitation of migrants.	Could worsen physical capital deficits. Exploitation and giving false hope of residence undermines trust and social capital.	Exploitation occurs but not widely. Rapid growth of temporary migrants is leading to significant disappointment and frustration.

Some of the effects in Table 7.1 are positive for wellbeing, and others negative, and trade-offs exist. For example, the benefits of adding rapidly to human capabilities in the workforce, as expressed by businesses with acute skill shortages, conflict with the negative effects of rapid population growth on housing, infrastructure, and macroeconomic balance. The positives of adding many different cultures and backgrounds by increasing the size of the non-Māori population could conflict with the spirit of the Treaty and the mana of te ao Māori.

Sometimes good policy can resolve conflicts across the different aspects of wellbeing and sometimes trade-offs need to be made. If the latter, then the size of the positive or negative effects becomes important.

In eyeballing the range of effects in the table, several aspects stand out. Considering these aspects can help design immigration settings (volume, speed, composition and settlement) to enhance wellbeing.

- Many of the large, or potentially large, negative effects are caused not by migration itself but by its speed. The negative effects can be avoided by moderating the speed of migration to within the absorptive capacity of the economy, while noting this capacity is not a constant but can be enlarged with appropriate planning and investment.
- The positive effects tend to be small such as gains to productivity, but they can cumulate over time. The fiscal effects are more significant. These positive effects can generally be enhanced by choosing higher-skilled (and younger) migrants and migrants who can enhance opportunities for local workers. So, this relates to the composition of migrants that New Zealand chooses.
- Some negative effects relate to settlement and ways that the temporary migrant system operates. For example, better settlement and integration can lead to migrants participating more fully as

New Zealanders and it reduces the risk of diminishing the constitutional and political importance of the Treaty.

- A larger population, as distinct from the population growth rate, has potentially important impacts on natural and social capital, the Treaty and the economy. Therefore, the matter deserves separate serious consideration when applying a wellbeing lens to assess immigration settings.

F7.1

Immigration has important wider wellbeing effects beyond adding to the skills and capabilities of the workforce. The effects have impacts spanning the four capitals – physical/financial, human, natural and social – and together impact overall wellbeing.

F7.2

Most immigration policy comes down to settings in four areas – the volume of additional people, their speed of arrival, their composition and how well migrants settle. Most of the negative effects of immigration can be greatly reduced by keeping the speed of arrival within absorptive capacity. Many of the benefits can be enhanced by selecting the composition for skill, complementarity, and youth, and by improving the quality of settlement.

References

- Abascal, M., & Baldassarri, D. (2015). Love thy neighbor? Ethnoracial diversity and trust reexamined. *American Journal of Sociology*, 121(3), 722–782. <https://doi.org/10.1086/683144>
- Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.
- Antecol, H., & Bedard, K. (2006). Unhealthy assimilation: Why do immigrants converge to American health status levels? *Demography*, 43(2), 337–360. <https://doi.org/10.1353/dem.2006.0011>
- Bailey, P., & Ford, D. (2018). *Estimating New Zealand's tradeable and non-tradeable sectors using input-output tables* [MFAT Working Paper]. Ministry of Foreign Affairs and Trade.
- Bell, B., & Machin, S. (2013). Ch 19: Immigration and crime. In A. Constant & K. Zimmermann (Eds.), *International handbook on the economics of migration* (pp. 353–372). Edward Elgar. <https://doi.org/10.4337/9781782546078.00028>
- BERL. (2008). *The impacts of immigration on housing in New Zealand 1991—2016*. www.mbie.govt.nz/dmsdocument/1093-economic-impact-immigration-housing-nz-1991-2016-pdf
- Boeri, T. (2010). Immigration to the land of redistribution. *Economica*, 77(308), 651–687. <https://doi.org/10.1111/j.1468-0335.2010.00859.x>
- Boulhol, H., & de Serres, A. (2010). Have developed countries escaped the curse of distance? *Journal of Economic Geography*, 10(1), 113–139. <https://doi.org/10.1093/jeg/lbp015>
- Bourassa, S. C., Hendershott, P. H., & Murphy, J. (2001). Further evidence on the existence of housing market bubbles. *Journal of Property Research*, 18(1), 1–19. <https://doi.org/10.1080/0959991001004110>
- Brunello, G., & Rocco, L. (2013). The effect of immigration on the school performance of natives: Cross country evidence using PISA test scores. *Economics of Education Review*, 32, 234–246. <https://doi.org/10.1016/j.econedurev.2012.10.006>
- Card, D. (2013). Peer effects of immigrant children on academic performance of native speakers: Introduction. *Economic Journal*, 123, F279–F280. <https://doi.org/10.1111/eoj.12053>
- Card, D., Dustmann, C., & Preston, I. (2012). Immigration, wages, and compositional amenities. *Journal of the European Economic Association*, 10(1), 78–119. <https://doi.org/10.1111/j.1542-4774.2011.01051.x>
- Carey, D. (2019a). *Improving well-being in New Zealand through migration* (Economics Department Working Papers No. 1566). OECD Economics Department. [www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP\(2019\)35&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2019)35&docLanguage=En)
- Carey, D. (2019b). *Improving well-being in New Zealand through migration* [Economics Department Working Paper No.1566]. OECD. <https://doi.org/10.1787/18151973>
- Climate Change Commission. (2021). *Ināia tonu nei: A low emissions future for Aotearoa*. www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaiia-tonu-nei-a-low-emissions-future-for-aotearoa/
- Coates, B., Sherrell, H., & Mackey, W. (2021). *Rethinking permanent skilled migration after the pandemic* [Report No. 2021-06]. Grattan Institute. <https://grattan.edu.au/wp-content/uploads/2021/05/Rethinking-permanent-skilled-migration-Grattan-Report.pdf>
- Cochrane, B., & Poot, J. (2016). *Past research on the impact of international migration on house prices: Implications for Auckland*. MBIE. <https://hdl.handle.net/10289/10715>
- Coleman, A., & Karagedikli, Ö. (2018). *Residential construction and population growth in New Zealand: 1996-2016* [DP2018/02]. Reserve Bank of New Zealand. www.productivity.govt.nz/assets/Documents/pop-growth/5741cbdb41/DP-201802-Andrew-Coleman-and-Ozer-Karagedikli-16-February-2018.pdf

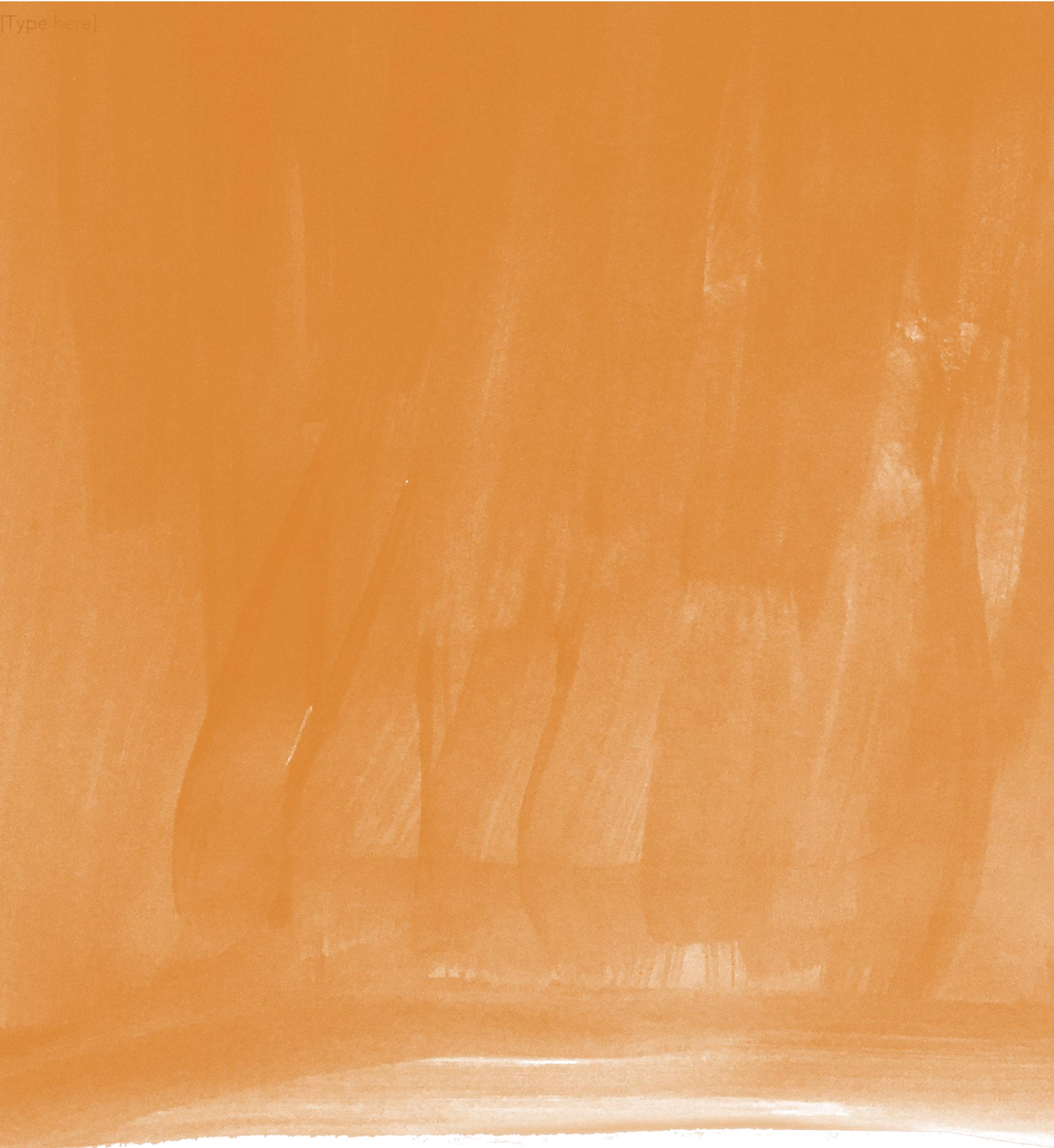
- Coleman, A., & Landon-Lane, J. (2007). *Housing markets and migration in New Zealand, 1962-2006* [DP2007/12]. Reserve Bank of New Zealand. <https://ideas.repec.org/p/nzb/nzbdps/2007-12.html>
- Dasgupta, P. (2021). *The economics of biodiversity: The Dasgupta review* [Abridged version]. HM Treasury. www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review
- de Serres, A., Yashiro, N., & Boulhol, H. (2014). *An international perspective on the New Zealand productivity paradox* [Working Paper 2014/01]. NZPC. www.productivity.govt.nz/assets/Documents/an-international-perspective-on-the-nz-productivity-paradox-6/8eba14c657/An-International-Perspective-on-the-New-Zealand-Productivity-Paradox.pdf
- Dungan, P., Fang, T., & Gunderson, M. (2012). *Macroeconomic impacts of Canadian immigration: Results from a macro-model* [Discussion Paper No. 6743]. IZA – Institute of Labor Economics. <https://doi.org/10.1111/j.1467-8543.2012.00905.x>
- Dustmann, C., & Frattini, T. (2014). The fiscal effects of immigration to the UK. *The Economic Journal*, 124(580), F593–F643. <https://doi.org/10.1111/eoj.12181>
- Fehr, H., Jokisch, S., & Kotlikoff, L. (2004). The role of immigration in dealing with the developed world's demographic transition. *FinanzArchiv*, 60(3), 296–324. <https://doi.org/10.1628/0015221042396104>
- Fry, J. (2014). *Migration and macroeconomic performance in New Zealand: Theory and evidence* [Working Paper 14/10]. The Treasury. www.treasury.govt.nz/sites/default/files/2014-04/twp14-10.pdf
- Fry, J., & Wilson, P. (2018). *Better lives: Migration, wellbeing and New Zealand*. Bridget Williams Books.
- Geay, C., McNally, S., & Telhaj, S. (2013). Non-native speakers of English in the classroom: What are the effects on pupil performance? *The Economic Journal*, 123(570), F281–F307. <https://doi.org/10.1111/eoj.12054>
- Gould, E. D., Lavy, V., & Paserman, M. D. (2009). Does immigration affect the long-term educational outcomes of natives? Quasi-experimental evidence. *The Economic Journal*, 119(540), 1243–1269. <https://doi.org/10.1111/j.1468-0297.2009.02271.x>
- Grimes, A. (2013). Monetary policy and economic imbalances: An ethnographic examination of central bank rituals. *Journal of Economic Surveys*, 27(4), 634–640. <https://doi.org/10.1111/joes.12024>
- Guilietti, C., & Wahba, J. (2013). Ch 26: Welfare migration. In *International Handbook on the Economics of Migration* (pp. 489–504). Edward Elgar. <https://EconPapers.repec.org/RePEc:elg:eebook:4026>
- Hickey, B. (2021, August 21). Would another unplanned-for population surge wreck our climate change plans? *The Kākā by Bernard Hickey*. <https://thekaka.substack.com/p/would-another-unplanned-for-population>
- Hyslop, D. R., Le, T., Maré, D., & Stillman, S. (2019). *Housing markets and migration—Evidence from New Zealand* [An executive summary of Motu Working Paper 19-14]. Motu.
- Janssen, J. (2018). *The start of a conversation on the value of New Zealand's financial/physical capital* (Discussion Paper No. 18/07; Living Standards Series, p. 34). The Treasury. <https://www.treasury.govt.nz/sites/default/files/2018-07/dp18-07.pdf>
- Jensen, P., & Rasmussen, A. W. (2011). The effect of immigrant concentration in schools on native and immigrant children's reading and math skills. *Economics of Education Review*, 30(6), 1503–1515. <https://doi.org/10.1016/j.econedurev.2011.08.002>
- Krassoi-Peach, E. (2013). *How permanent is permanent migration?: Identifying the determinants of remigration for skilled migrants in New Zealand*. MBIE. www.mbie.govt.nz/dmsdocument/2737-how-permanent-is-permanent-migration-pdf
- Kukutai, T., & Rata, A. (2017). From mainstream to Manaaki: Indigenising our approach to immigration. In D. Hall (Ed.), *Fair borders? Migration policy in the twenty-first century* (pp. 26–44). Bridget Williams Books. <https://doi.org/10.7810/9780947518851>

- Legislation Design Advisory Committee. (2018). *Legislation guidelines—2018 edition*. www.ldac.org.nz/assets/documents/Legislation-Guidelines-2018-edition-2020-06-25.pdf
- MBIE. (2020). *Community perceptions of migrants and immigration*. www.mbie.govt.nz/dmsdocument/14732-community-perceptions-of-migrants-and-immigration-dec-2020
- McCann, P. (2009). Economic geography, globalisation and New Zealand's productivity paradox. *New Zealand Economic Papers*, 43(3), 279–314. <https://doi.org/10.1080/00779950903308794>
- McDonald, C. (2013). *Migration and the housing market* [AN2013/10]. Reserve Bank of New Zealand. www.rbnz.govt.nz/research-and-publications/analytical-notes/2013/an2013-10
- McDonald, J. T., & Kennedy, S. (2004). Insights into the 'healthy immigrant effect': Health status and health service use of immigrants to Canada. *Social Science & Medicine*, 59(8), 1613–1627. <https://doi.org/10.1016/j.socscimed.2004.02.004>
- Ministry for the Environment. (2021). *New Zealand's greenhouse gas inventory 1990-2019*. <https://environment.govt.nz/assets/Publications/Greenhouse-Gas-Inventory-1990-2019/New-Zealands-Greenhouse-Gas-Inventory-1990-2019-Volume-1-Chapters-1-15.pdf>
- MSD. (2020). *Pūrongo ā-tau Annual Report 2019/2020* [Annual Report 2019/20]. www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/corporate/annual-report/2019-2020/msd-2019-20-annual-report.pdf
- MSD. (2021). *Benefit fact sheets: Snapshot—June 2021 quarter* (p. 10). <https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/statistics/benefit/archive-2021.html>
- Nana, G., Sanderson, K., & Hodgson, R. (2009). *Economic impacts of immigration: Scenarios using a computable general equilibrium model of the New Zealand economy* [Economic impacts of immigration Working Paper series]. Department of Labour. www.gtap.agecon.purdue.edu/resources/download/4659.pdf
- New Zealand Infrastructure Commission. (2021). *Infrastructure for a better future* (p. 13) [Report on results of a survey]. https://infracom.govt.nz/assets/Uploads/TeWaihanganga_Aotearoa2050_Report.pdf
- New Zealand Infrastructure Commission, & Deloitte. (2021). *A better way forward—Building the road to recovery together* (p. 61) [Construction sector Covid-19 recovery study]. <https://www.tewaihanganga.govt.nz/assets/Uploads/Construction-Sector-Covid-19-Recovery-Study.pdf>
- Nunns, P. (2021). The causes and economic consequences of rising regional housing prices in New Zealand. *New Zealand Economic Papers*, 55(1), 66–104. <https://doi.org/10.1080/00779954.2020.1791939>
- New Zealand Productivity Commission (NZPC). (2012). *Housing affordability inquiry*. www.productivity.govt.nz/inquiries/housing-affordability/
- NZPC. (2017). *Better urban planning: Final report*. www.productivity.govt.nz/inquiries/better-urban-planning
- NZPC. (2018). *Low-emissions economy* [Final report]. New Zealand Productivity Commission. <https://www.productivity.govt.nz/assets/Documents/4e01d69a83/Productivity-Commission-Low-emissions-economy-Final-Report.pdf>
- NZPC. (2019). *Local government funding and financing*. www.productivity.govt.nz/inquiries/local-government-funding-and-financing/
- NZPC. (2021a). *Impacts of immigration on the labour market and productivity* [Working Paper 2021/05]. www.productivity.govt.nz/immigration-labour
- NZPC. (2021b). *International migration in New Zealand: Future opportunities and challenges* [Working Paper 2021/09]. www.productivity.govt.nz/inti-migration
- NZPC. (2021c). *International migration to New Zealand: Historical themes & trends* [Working Paper 2021/04]. www.productivity.govt.nz/intl-migration-history

- NZPC. (2021d). *New Zealand firms: Reaching for the frontier*. www.productivity.govt.nz/inquiries/frontier-firms
- NZPC. (2021e). *Productivity by the numbers*. www.productivity.govt.nz/assets/Documents/productivity-by-the-numbers/Productivity-by-the-numbers.pdf
- OECD. (2011). *Perspectives on global development 2012: Social cohesion in a shifting world*. OECD Publishing. https://doi.org/10.1787/persp_glob_dev-2012-en
- OECD. (2017a). *Environmental performance reviews: New Zealand 2017* (OECD Economic Performance Reviews). OECD Environment Directorate. www.oecd.org/env/country-reviews/Highlights_OECD_EPR_NewZealand.pdf
- OECD. (2017b). *OECD economic surveys: New Zealand 2017*. OECD Publishing. https://doi.org/10.1787/eco_surveys-nzl-2017-en
- OECD. (2019). *OECD economic surveys: New Zealand 2019*. OECD. <https://doi.org/10.1787/b0b94dbd-en>
- OECD. (2020). *Table 2.1: Immigrants' labour market outcomes in OECD countries in 2019*. <https://stat.link/w2e3u1>
- OECD. (2021). *Population (indicator)*. <https://doi.org/10.1787/d434f82b-en>
- Ohinata, A., & van Ours, J. C. (2013). How immigrant children affect the academic achievement of native Dutch children. *The Economic Journal*, 123(570), F308–F331. <https://doi.org/10.1111/eoj.12052>
- Olsen, B. (2020, June 24). *New Zealand infrastructure spending lags international partners*. Infometrics. <https://www.infometrics.co.nz/new-zealand-infrastructure-spending-lags-international-partners/>
- Palmer, C., & Varcoe, J. (2021). *Settling in New Zealand: Migrant survey trends from 2015 to 2019*. Premium Research.
- Paluck, E. L., Green, S. A., & Green, D. P. (2019). The contact hypothesis re-evaluated. *Behavioural Public Policy*, 3(2), 129–158. <https://doi.org/10.1017/bpp.2018.25>
- Parliamentary Commissioner for the Environment. (2021). *Not 100%—But four steps closer to sustainable tourism*. www.pce.parliament.nz/publications/not-100-but-four-steps-closer-to-sustainable-tourism
- Peace, R., & Spoonley, P. (2019). Social cohesion and cohesive ties: Responses to diversity. *New Zealand Population Review*, 45, 98–124.
- Picot, G. (2013). *Economic and social objectives of immigration: The evidence that informs immigration levels and education mix*. Citizenship and Immigration Canada. www.researchgate.net/publication/330335968_Economic_and_Social_Objectives_of_Immigration_The_Evidence_that_Informs_Immigration_Levels_and_Education_Mix
- Preston, I. (2014). The effect of immigration on public finances. *The Economic Journal*, 124(580), F569–F592. <https://doi.org/10.1111/eoj.12180>
- Putnam, R. D. (2007). E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte Prize lecture. *Scandinavian Political Studies*, 30(2), 137–174. <https://doi.org/10.1111/j.1467-9477.2007.00176.x>
- Reddell, M. (2020). Economic performance: A prosperous, very distant economy. In E. Berman & G. Karacaoglu (Eds.), *Public policy and governance frontiers in New Zealand*. Emerald Publishing. <https://doi.org/10.1108/S2053-769720200000032023>
- Reddell, M. (2021). *Re-thinking immigration policy for a post-Covid New Zealand*. Wellington North Rotary Club, Wellington. <https://croakingcassandra.files.wordpress.com/2021/06/rethinking-immigration-policy-for-a-post-covid-new-zealand-june-2021.pdf>
- Reddell, M. (2013). *The long-term level "misalignment" of the exchange rate: Some perspectives on causes and consequences*. <https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Seminars%20and%20workshops/Mar2013/5200823.pdf?la=en>

- Schou, P. (2006). Immigration, integration and fiscal sustainability. *Journal of Population Economics*, 19(4), 671–689. <https://doi.org/10.1007/s00148-005-0027-x>
- Sense Partners. (2021). *New Zealand's infrastructure challenge: Quantifying the gap and the path to close it* (p. 36) [Final report]. <https://www.tewaihang.govt.nz/assets/Uploads/Infrastructure-Challenge-Report.pdf>
- Skilling, D. (2020). *Frontier firms: An international small advanced economy perspective*. Landfall Strategy Group. www.productivity.govt.nz/research/frontier-firms
- Slack, A., Wu, J., & Nana, D. G. (2007). *Fiscal impacts of immigration, 2005/06*. Business and Economic Research Limited. www.mbie.govt.nz/dmsdocument/2644-fiscal-impacts-migrants-new-zealand-2005-2006-pdf
- Smith, C., & Thoenissen, C. (2018). *Migration and business cycle dynamics* (DP2018/07). Reserve Bank of New Zealand.
- Stats NZ. (2019, October 30). *International migration estimates extended back to 2001*. www.stats.govt.nz/news/international-migration-estimates-extended-back-to-2001
- Stats NZ. (2021a). *Estimated resident population change by component (1991+) (Annual-Mar)*. Stats NZ Infoshare. <http://infoshare.stats.govt.nz>
- Stats NZ. (2021b). *Productivity statistics—Productivity indexes—Industry level (ANZSIC06) (Annual Mar)*. Stats NZ Infoshare. <http://infoshare.stats.govt.nz>
- Stats NZ. (2021c, May 17). *International migration: March 2021*. www.stats.govt.nz/information-releases/international-migration-march-2021
- Stillman, S., & Maré, D. C. (2008). *Housing markets and migration: Evidence from New Zealand* [Motu Working Paper 08-06]. Motu Economic and Public Policy Research. <https://doi.org/10.2139/ssrn.1146724>
- Storesletten, K. (2003). Fiscal implications of immigration—A net present value calculation. *The Scandinavian Journal of Economics*, 105(3), 487–506. <https://doi.org/10.1111/1467-9442.t01-2-00009>
- Stouffer, S. (1949). *American soldier*. Princeton University Press.
- The Maori Party. (2007). *Maori concerns cannot be brushed aside*. www.scoop.co.nz/stories/PA0702/S00047.htm
- The Māori Party. (2017). *Immigration policy*. https://d3n8a8pro7vhmx.cloudfront.net/maoriparty/pages/2379/attachments/original/1503301922/Immigration_Policy_2017.pdf?1503301922
- The Māori Party. (2021). *Whanau Build*. www.maoriparty.org.nz/whanau_build
- Turia, T. (2007, August 16). *Immigration Bill—First Reading*. New Zealand Parliament. www.parliament.nz/en/pb/hansard-debates/rhr/document/48HansS_20070816_00001015/turiana-immigration-bill-first-reading
- UK Office for Budget Responsibility. (2013). *Fiscal sustainability report* (p. 166). Office for Budget Responsibility. <https://obr.uk/fsr/fiscal-sustainability-report-july-2013/>
- Vehbi, T. (2016). *The macroeconomic impact of the age composition of migration* [AN2016/03]. Reserve Bank of New Zealand. www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Analytical%20notes/2016/an2016-03.pdf?revision=a570225d-27a5-4df6-8693-0c88bf8862d1
- Wackernagel, M., & Beyers, B. (2019). *Ecological footprint: Managing our biocapacity budget* (K. Rout, Trans.). New Society Publishers. <https://newsociety.com/books/e/ecological-footprint? ga=2.47672164.2142304283.1634011789-743185830.1634011789&sitedomain=row>
- Waitangi Tribunal. (2016, September 19). *Translation of the te reo Maori text*. <https://waitangitribunal.govt.nz/treaty-of-waitangi/translation-of-te-reo-maori-text/>

- Waitangi Tribunal. (2017). *Tu mai te rangi! Report on the Crown and disproportionate reoffending rates* (p. 124) [Waitangi Tribunal Report].
https://www.google.co.nz/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwitu4f83unzAhUTSX0KHcPSAdoQFnoEAgQAO&url=https%3A%2F%2Fforms.justice.govt.nz%2Fsearch%2FDocuments%2FWT%2Fwt_DOC_121273708%2FTu%2520Mai%2520Te%2520Rangi%2520W.pdf&usg=AOvVaw16QtRK3Ifitgh-6c9hdEw5
- Walker, R. J. (1994). New Zealand immigration and the political economy. *The Social Contract*, 4(2), 86–97.
- Whaia Legal. (2021). *Legal advice on immigration policy and Te Tiriti o Waitangi*. Productivity Commission | Immigration settings
- White, N. (2005). *Immigration and the Treaty of Waitangi: Background paper prepared for the Department of Labour*. Institute of Policy Studies, School of Government Victoria University of Wellington.
- World Values Survey Association. (n.d.). *World Values Survey*. Retrieved 3 September 2021, from www.worldvaluessurvey.org/wvs.jsp
- Zhang, H., Zhong, J., & de Chardon, C. (2020). Immigrants' net direct fiscal contribution: How does it change over their lifetime? *Canadian Journal of Economics/Revue Canadienne d'économique*, 53(4), 1642–1662. <https://doi.org/10.1111/caje.12477>



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