

Case study: Construction industry and migration

Dr Aaron Schiff | May 2022



Note: The aim of this paper is to describe the role and use of migration within the construction sector and how this has impacted or facilitated the productivity of the industry. This paper is intended to inform the Productivity Commission’s inquiry into immigration settings for long-term prosperity and wellbeing, see www.productivity.govt.nz/inquiries/immigration-settings/

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Case study: Construction industry and migration

Summary

Construction activity in New Zealand increased from around 5% of real GDP to around 7% between 2000 and 2021. Total employment in the sector approximately doubled to around 285,000 workers over the same period and now accounts for around 10% of all jobs. However, this overall growth was volatile and was affected by external factors including the Global Financial Crisis, Christchurch earthquakes reconstruction work, urban planning changes such as Auckland's Unitary Plan, net migration to New Zealand and associated demand for housing, changes in public sector infrastructure investment levels, and the COVID-19 pandemic. The construction sector also displayed relatively low productivity growth at the industry level during this period, reflecting low capital intensity and limited technological improvements, although firm-level analysis suggests that some firms achieved strong productivity growth.

Over the past ten years there was a rise in the number of migrant workers in the construction sector, most of whom were on short-term work visas. This was associated with rapid increases in construction activity due to the Christchurch earthquakes reconstruction and higher levels of residential construction activity in Auckland driven by population growth and enabled by the Unitary Plan. Unemployment was relatively low when construction activity increased and training new workers via education and apprenticeships takes time, so shortages of skilled labour were a recurring theme in the sector over the past decade. In addition, some large public infrastructure projects such as Auckland's City Rail Link have relied on migrant workers with certain skills that are uncommon in New Zealand.

Evidence suggests that the construction sector uses migrant workers as a flexible source of labour when activity increases faster than the domestic labour market can provide new workers such as when unemployment is low. However, migrant workers on short-term visas and permanent migrants who have been in New Zealand for less than five years make up a relatively small proportion of the construction workforce (6.8% in 2012 increasing to 13.7% in 2019). This proportion also varies across regions, with migrant workers representing almost a quarter of the construction workforce in Auckland in 2019.

It does not appear that the use of migrant workers prevented the domestic construction workforce from increasing substantially at the same time as the number of migrants working in construction increased, or significantly altered the trend in wages of construction workers. However, more research is needed to isolate the impacts of migration from other factors that may have affected these outcomes. There is also evidence that some migrant construction workers have experienced various types of exploitation by their employers.

Empirical research into the relationship between the use of migrant labour and productivity of construction firms found that firms that used more migrant workers tended to be less productive, but that this was likely due to characteristics of those firms rather than of the workers. Industry analysis of the causes of low productivity in construction found that this was due to various entrenched practices and inefficient business and project management processes, rather than workforce characteristics. However, there has been little detailed study of productivity at the firm or project level in construction, and more research is

needed to determine whether access to migrant labour affects the incentive of construction firms to improve productivity.

Government policy has also influenced the use of migrant labour in the construction sector. Long term analysis by the Reserve Bank found that total net migration of construction workers between 1962 and 2018 was negative, due to the economic downturn of the mid-1970s, followed by changes to immigration policy in the 1990s that favoured university graduates. More recently, skills shortages lists have been used to facilitate migrant workers to support the Christchurch earthquakes rebuild and as a short-term measure to address labour shortages caused by the combined effects of high construction activity and low unemployment. A broader set of policy changes in the form of the 2019 Construction Sector Accord and financial support for apprenticeships seek to address structural and productivity issues in the sector, and to increase the skilled workforce, which may reduce the demand for migrant workers over time.

Industry context

Construction activity grew faster than total economic activity between 2000 and 2020 but was more volatile

Construction activity grew from around 5% of New Zealand’s real gross domestic product (GDP) in the early 2000s to around 7% in 2021. Construction activity was much more volatile than overall economic activity, with pronounced cycles of growth and slowdowns or contraction around the longer-term trend (Figure 1). Even during periods of strong overall growth (such as from 2012 to 2019) there were cycles of faster and slower growth in construction activity that were not due to predictable seasonal factors. As will be discussed below, construction firms responded to this volatility by varying the number of workers in proportion to output, which also affected the use of migrant labour.

Figure 1 Percentage change of quarterly seasonally-adjusted real GDP versus the same quarter in the previous year

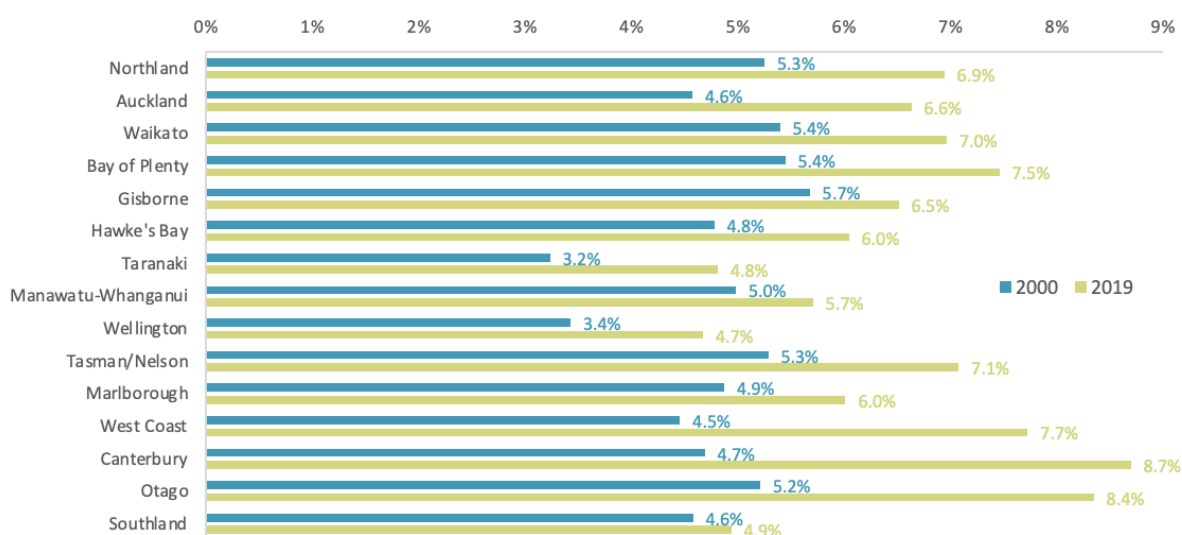


Source: Stats NZ National Accounts

Across all New Zealand geographic regions, construction increased as a proportion of regional GDP between 2000 and 2019 (Figure 2). There are substantial differences across

regions in both the proportion of regional GDP accounted for by construction and the size of the increase between 2000 and 2019. Construction nearly doubled as a proportion of regional GDP in Canterbury between 2000 and 2019, and most of this increase occurred after 2011 due to rebuild work following the Christchurch earthquakes in 2010/11. Otago also had a large proportionate increase in construction activity associated with new residential construction.

Figure 2 Construction as a percentage of regional GDP



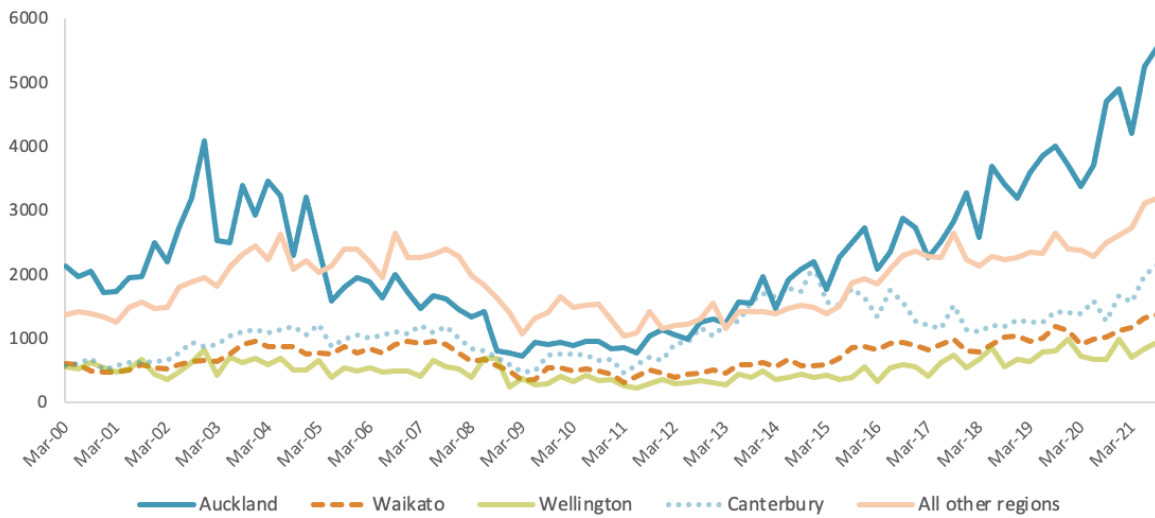
Source: Stats NZ Regional GDP

Residential construction activity increased substantially since 2012

Building new residential dwellings is a major driver of construction activity. Following a slump associated with the Global Financial Crisis (GFC) from 2008 to 2012, construction of new residential dwellings steadily increased from 2013 to 2021, especially in Auckland (Figure 3). In the five years to September 2021, just under 185,000 consents for new dwellings were issued, compared to only around 88,000 consents in the five-year period from 2007 to 2012. This increase in dwelling construction followed an undersupply of new dwellings relative to population growth over the previous decade.¹

¹ In 2017, MBIE estimated an accumulated shortfall of around 45,000 dwellings in Auckland. *Briefing for the Incoming Minister of Housing & Urban Development*, MBIE, 25 October 2017, available at <https://www.mbie.govt.nz/dmsdocument/12737-briefing-for-the-incoming-minister-of-housing-urban-development-2017>.

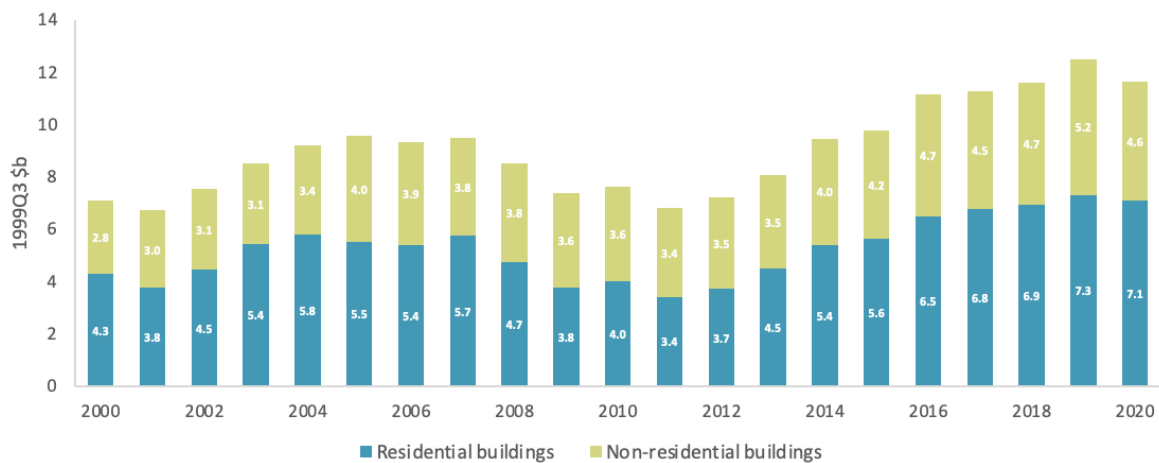
Figure 3 Quarterly number of building consents issued for new residential dwellings.



Source: Stats NZ Building Consents

Results from Stats NZ’s Building Activity Survey reinforce the fact that residential construction is a significant driver of construction activity. On average between 2000 and 2020, the total volume of residential building activity was about 1.4 times greater than the volume of non-residential building activity, and this ratio was relatively stable over time (Figure 4). In real terms, the value of residential building activity was around \$3.4 billion greater in 2020 than it was on average in the three years post-GFC between 2009 and 2012 (measured in 1999Q3 prices). Non-residential building activity increased by around \$1 billion per year in real terms over the same period.

Figure 4 Annual real value of building activity (measured in 1999Q3 prices)



Source: Stats NZ Building Activity Survey

Migration itself has an impact on the demand for housing, via its contribution to population growth. Stats NZ resident population estimates show that the New Zealand population increased by 1.25 million people between 2000 and 2020, of which 44% or around 548,000 people was accounted for by net migration, with the remainder coming from natural

increase (births less deaths).² Analysis by Hyslop, Le, Maré and Stillman (2019) showed that migration increases the demand for housing to the extent that it causes population growth, but that there was no apparent difference in the impacts on housing prices from population growth due to migration or due to natural increase.³

The third major source of activity in the construction sector is infrastructure investment and renewals by both the public and the private sectors. Infrastructure is not clearly defined as a sector or as an activity, but Te Waihanga New Zealand Infrastructure Commission's 'pipeline' of infrastructure projects includes public sector investment in healthcare facilities, social housing, roads, highways, rail, and other transport projects, corrections facilities, electricity and energy networks, education facilities, and so on.⁴ The pipeline also includes private-sector investments such as electricity generation plant and upgraded telecommunications networks. Investment in new infrastructure and/or renewals of existing infrastructure generates some construction activity to build the associated facilities.

Some infrastructure construction is driven by or is necessary to enable construction of new residential dwellings (e.g., roads, power networks, water networks, etc), and thus is closely related to the level of residential construction activity. Other infrastructure investment may be to improve service quality (e.g., grid upgrades to improve electricity network reliability) which does not directly relate to residential construction activity.

Public and private infrastructure expenditure has not been consistently tracked over time, but gross fixed capital formation (GCF) from the national accounts can be used as a proxy.⁵ Figure 5 shows annual total government GCF and private sector GCF on non-building construction and land improvements only. By this measure, public sector investment reached \$17.3 billion in 2020, which was the highest level for 20 years in real terms. Between 2015 and 2020, public sector investment was around double the annual level from 2000 to 2005 in real terms (Figure 5). Private sector investment in non-building construction and land improvements (i.e., excluding capital equipment and construction of residential and non-residential buildings) also increased steadily over time, more than doubling in real terms between 2000 and 2020 to reach \$11.1 billion.

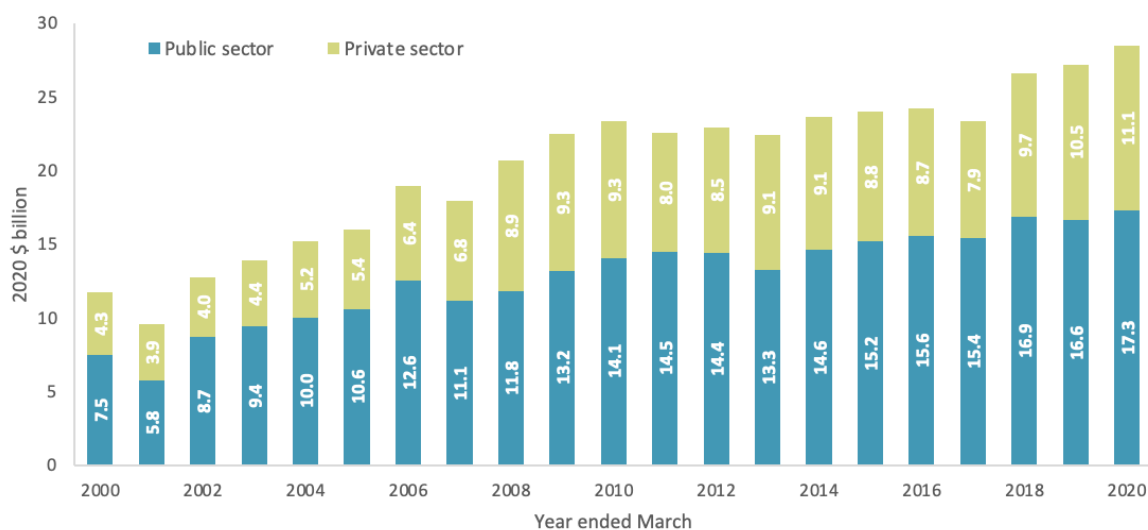
² Stats NZ International Travel and Migration data indicates total net migration to New Zealand of around 585,000 people between 2001 and 2021. This was comprised of a net outflow of around 345,000 NZ citizens (688,000 arrivals less 1.03 million departures) offset by a net inflow of around 930,000 citizens of other countries (1.75 million arrivals less 817,000 departures).

³ Dean Hyslop, Trinh Le, David Maré and Steven Stillman, *Housing markets and migration – Evidence from New Zealand*. Motu Working Paper 19-14, available at <https://www.motu.nz/our-research/population-and-labour/migration/housing-markets-and-migration-evidence-from-new-zealand/>.

⁴ <https://www.tewaihanga.govt.nz/projects/pipeline/>

⁵ GCF is the acquisition of assets (purchases and production of assets less disposals) that are intended for the production of other goods and services for one year or more. GCF does not include the purchase of land and natural resources as these are not produced assets. In Figure 5, construction of non-residential buildings is excluded from the private sector GCF figures to better reflect infrastructure investment. In the national accounts, private sector GCF is decomposed into: intangible fixed assets, land improvements, non-residential buildings, plant machinery and equipment, residential buildings, transport equipment, weapons systems, and other construction. In Figure 5, only non-residential buildings and other construction are included in the private sector figures. Public sector ('general government') GCF is not broken down in the national accounts data and Figure 5 shows total public sector GCF.

Figure 5 Gross fixed capital formation as a proxy for real annual infrastructure investment. Private sector values include non-building construction and land improvements only, and exclude construction of residential and non-residential buildings.



Source: Stats NZ National Accounts

Te Waihangā New Zealand Infrastructure Commission estimates that as at January 2022 there are 2,700 public and private sector infrastructure projects in the ‘pipeline’, valued at \$65.6 billion.⁶ Of this, \$25.4 billion worth of projects are currently under construction, \$9.7 billion are being procured, and \$30.7 billion are in the planning stage.

Research for Te Waihangā has also found that New Zealand has a substantial public sector infrastructure deficit, attributed to low levels of public-sector investment in the 1980s and 1990s.⁷ While public sector investment is higher now, there is an estimated accumulated infrastructure deficit of \$104 billion, and an additional \$106 billion is estimated to be required to keep up with renewals and future demand over the next 30 years (in today’s prices).⁸ While Te Waihangā notes that it may not be feasible to completely bridge this gap due to the level of investment required, even partially addressing the infrastructure deficit would lead to significant additional construction activity.

Construction was an important source of new employment between 2000 and 2020

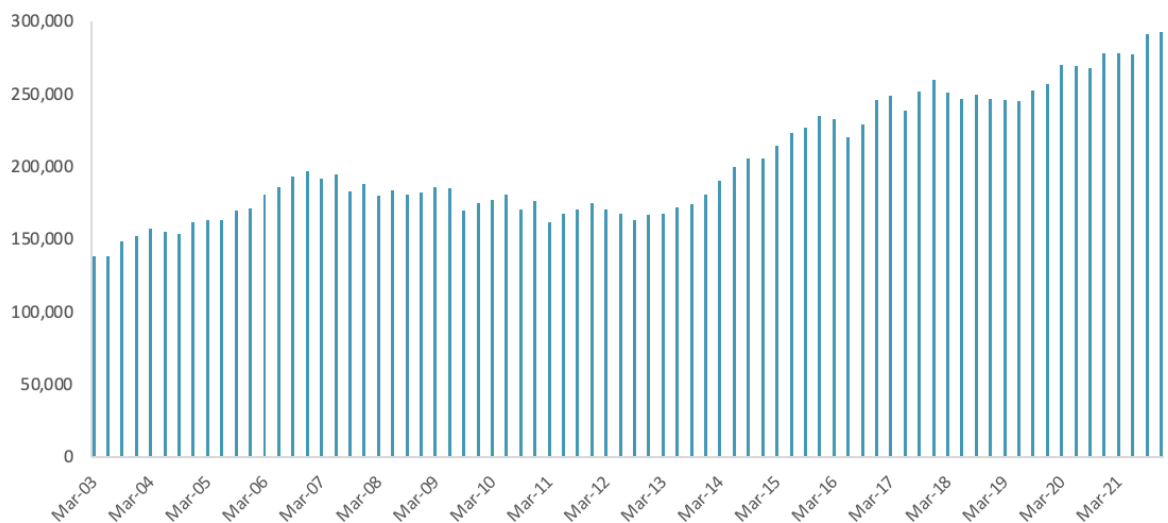
According to the Stats NZ Household Labour Force Survey, the proportion of all New Zealand workers employed in construction increased from around 7.5% in 2003 to around 10% in 2021. Construction was an important source of new jobs over this period, and between 2003 and 2021, total employment in construction approximately doubled from around 144,000 to around 285,000 workers (Figure 6).

⁶ Te Waihangā *Infrastructure Quarterly – January 2022*. Available at <https://www.tewaihangā.govt.nz/projects/infrastructure-quarterly/>. Te Waihangā describes projects in the pipeline as having some degree of certainty around delivery.

⁷ *New Zealand’s infrastructure challenge: Quantifying the gap and path to close it*. Sense Partners report for Te Waihangā, October 2021. Available at <https://www.tewaihangā.govt.nz/strategy/reports/new-zealand-infrastructure-challenge/>.

⁸ The population growth assumptions underlying these estimates do not appear to be specified, but population and economic growth combined are estimated to require investment in new infrastructure equal to 1.8% of GDP between 2021 and 2051.

Figure 6 Total number of people employed in the construction industry



Source: Stats NZ Household Labour Force Survey

Labour constraints and skills shortages are a recurring theme in construction

Labour and skills shortages are recurring and current issues in the construction sector. BDO's 2021 Construction Sector Report noted this is due to the cyclical nature of construction activity (see Figure 1 above) and in 2021 this was compounded by high levels of building activity combined with the economic aspects of the COVID-19 pandemic (specifically, low unemployment, materials shortages, and restrictions on migration).⁹

BDO survey results from the construction sector found that around 53% of respondents were actively looking for on-site staff in 2021, up from around 35% in 2020, and described the industry as being "desperately short of labour capacity" and "heavily reliant on immigration to fill our needs and provide a buffer to assist managing the cyclical nature of the industry". Possibly reflecting these labour shortages, real average hourly wages for construction workers increased by 0.8% in 2021 relative to 2020, compared to a decline of 0.1% for real average hourly wages across all industries.¹⁰ However, further analysis is needed to understand the extent to which wages respond to labour shortages in the construction sector.

Another 2021 industry report documented the extent of current skill shortages in the construction sector and the role of migration in filling these gaps.¹¹ Survey responses from 135 construction industry firms indicated that 90% of respondents had difficulty recruiting in New Zealand, and two-thirds stated they had received no domestic applicants for recent job openings. The authors noted current initiatives to grow the skilled construction workforce

⁹ *Rethinking Construction: 2021 BDO New Zealand Construction Report*, available at <https://www.bdo.nz/en-nz/insights/construction/rethinking-construction-2021-bdo-new-zealand-construction-sector-report>.

¹⁰ Based on Stats NZ Quarterly Employment Survey data, taking the simple average of hourly wages (including overtime) across the four quarters in each year and adjusting for inflation using the CPI.

¹¹ *Skills shortage, recruitment & immigration challenges in the construction sector*, report by ACE New Zealand, Te Kāhui Whaihanga New Zealand Institute of Architects, Civil Contractors NZ and Registered Master Builders Association, July 2021. Available at https://www.acenz.org.nz/skills_shortage_recruitment_immigration_challenges_in_the_construction_sector.

within New Zealand via education and apprenticeships but characterised these as medium to long-term solutions and argued that immigration would remain an important source of skilled labour.

Te Waihanga New Zealand Infrastructure Commission also identified construction labour shortages as a major driver of increasing construction costs and a limiting factor in addressing New Zealand's infrastructure deficit. Te Waihanga noted that New Zealand currently faces "an historic workforce shortage across all aspects of infrastructure delivery", with construction labour shortages being at their highest level since 1975.¹² It estimated that an additional 57,000 workers would be needed over the next 30 years to fully address New Zealand's infrastructure deficit.¹³ At least some of these workers have skills that could be used for other types of construction activity, hence addressing the infrastructure deficit could exacerbate construction labour shortages in general.

In response to construction labour shortages, the government has made policy changes including the Construction Skills Action Plan and Apprenticeship Boost scheme (described further below). These are intended to address skill shortages in the medium term, given the time it takes to recruit and train new workers. Accordingly, the Construction Skills Action Plan specifically recognises the role of immigration to fill skilled labour shortages in construction, and a Construction and Infrastructure Skill Shortage List was established to facilitate short-term visas for workers in construction-related occupations.¹⁴

Numbers of migrant workers have increased but remain a relatively small proportion of the construction workforce

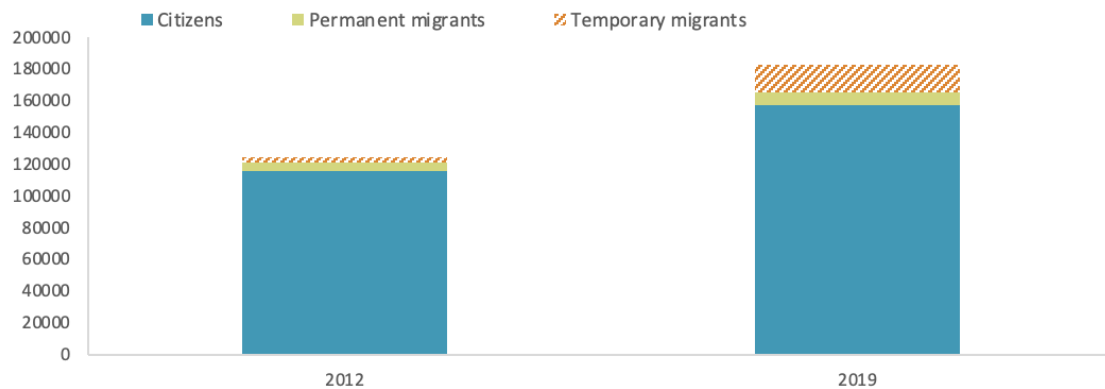
Analysis of IDI data by the Productivity Commission (Figure 7) suggests that temporary and permanent migrants accounted for 6.8% of New Zealand's construction workforce in 2012, and by 2019 this proportion increased to 13.7%. In these figures, temporary migrants are those on short-term work visas, while permanent migrants are new permanent residents who have been in New Zealand for less than five years. Permanent residents who have been in New Zealand for more than five years are included in the same category as citizens.

¹² New Zealand Infrastructure Commission Te Waihanga, *Draft New Zealand Infrastructure Strategy*, 23 September 2021. See Figure 33 of their report.

¹³ Sense Partners, *New Zealand's infrastructure challenge: Quantifying the gap and path to close it*, report for New Zealand Infrastructure Commission Te Waihanga, October 2021.

¹⁴ <https://www.skillsinconstruction.govt.nz/construction-skills-action-plan-programme/immigration-settings/>

Figure 7 Migration status of the construction sector workforce in 2012 and 2019. Permanent residents who have been in New Zealand for more than five years are included in the Citizens category.



Source: Productivity Commission analysis of IDI data

Based on this data, 28% of the growth in the construction workforce was accounted for by temporary and permanent migrants combined, and 72% accounted for by citizens and permanent residents who have been in New Zealand for more than five years. Most of the increase in migrant workers was accounted for by temporary migrants, i.e. those on short-term work visas, rather than newly-arrived permanent residents.¹⁵

As noted above, construction sector activity between 2000 and 2020 tended to be volatile. As shown in Figure 8, between 2001 and 2020, construction employment (measured by the number of filled jobs) changed relatively closely with construction sector activity (measured by real GDP). While only a shorter timeseries is available for short-term visas issued, these also appear to track broad activity and employment trends between 2011 and 2020.

In particular, visa numbers were low when construction activity growth was weak in 2011 and 2012, then increased quickly between 2012 and 2018 when activity growth was relatively strong. To some extent, this increase was facilitated by special arrangements for short-term work visas to support reconstruction activities in Christchurch (see below). As activity growth slowed between 2018 and 2020, employment growth and visa numbers also declined. This is consistent with the construction sector using short-term migrant workers as a flexible source of labour supply when construction activity grew strongly at the same time as overall unemployment was relatively low.

¹⁵ These figures reflect the net changes in construction workers between 2012 and 2019. Since some workers will have left the industry and some migrants will have left New Zealand, the gross numbers of new construction workers and new migrants will be greater. This is discussed further below.

Figure 8 Relationships between construction activity, employment, and short-term migration.



Source: Stats NZ (National Accounts and Quarterly Employment Survey); [MBIE Migration data explorer](#).

Skilled migrants may also be used to provide specialist skills for specific projects and/or where large construction projects are delivered by foreign firms. For example, Auckland’s City Rail Link is being delivered by a consortium of international firms and local firms.¹⁶ The project relies on migrant workers with specialised tunnelling and railway skills that are hard to obtain in New Zealand due to the lack of such projects.¹⁷ Similarly, Watercare’s Central Interceptor project in Auckland has been affected by shortages of workers with certain skills and relies on migrant workers to fill specialised roles.¹⁸

There is also at least one recent example of less-skilled migrant labour being used extensively on a large construction project delivered by a foreign firm (Auckland’s Park Hyatt hotel).¹⁹ However, this is not always the case for projects developed by foreign firms. For example, the China-based developers of Auckland’s Seascape apartments (Shundi Customs) are reported to not be using migrant construction workers.²⁰

Other characteristics of the construction sector

There are relatively few large construction firms, and many workers are self-employed

Stats NZ Business Demography data indicates there were around 70,600 enterprises in the construction sector in 2021, compared to around 41,600 in 2000. Around 94% of construction enterprises have fewer than ten employees, which is almost the same as the proportion of small enterprises across all industries in New Zealand (Figure 9). However, in construction there are proportionately fewer large firms with 100 employees or more. In 2021 there were 135 such firms which accounted for 0.19% of construction enterprises. In

¹⁶ <https://www.cityraillink.co.nz/crl-procurement>

¹⁷ <https://www.nzherald.co.nz/business/infrastructure-counting-the-cost-crls-battle-with-the-pandemic/RRVVTRAH2BJW6ZFNTCNAMW7ULE/>

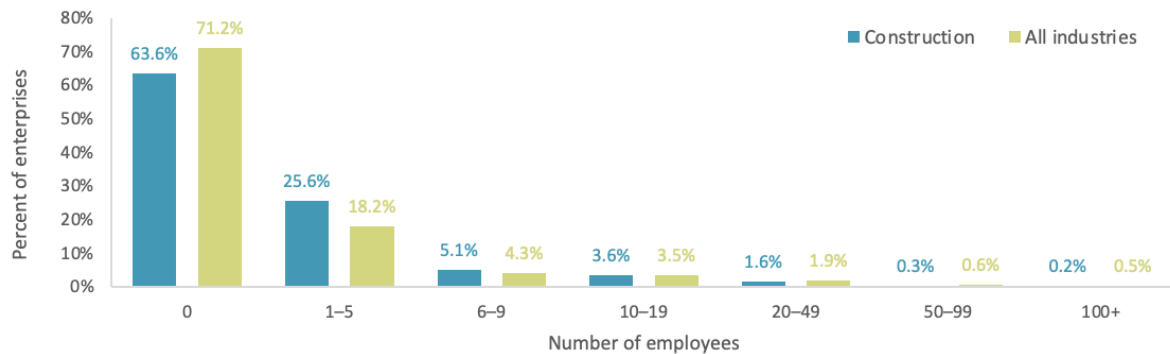
¹⁸ <https://www.rnz.co.nz/news/national/455107/auckland-infrastructure-projects-under-pressure-due-to-skills-shortages-covid-19>

¹⁹ <https://www.rnz.co.nz/news/national/349897/200-chinese-tradies-to-complete-akl-hotel>

²⁰ <https://www.nbr.co.nz/article/no-foreign-workers-or-bank-funding-countrys-biggest-residential-tower-sl-p-213289>

comparison, across all industries, 0.46% of enterprises have 100 employees or more. Stats NZ Annual Enterprise Survey data indicates that the 0.2% of construction firms with 100 employees or more account for around 20% of industry revenues, which is similar to the proportion of revenue accounted for by the 60% of construction firms with no employees.

Figure 9 Enterprises by number of employees, at February 2021



Source: Stats NZ Business Demography

Stats NZ Household Labour Force Survey data indicates that around 20% of people who worked in the construction sector in 2021 were self-employed with no other employees, and this rate was generally stable between 2010 and 2021. This rate is higher than the overall self-employment rate across all industries of 12.5% in 2021 and likely reflects the prevalence of self-employed tradespeople in construction.

Sub-contracting is a common feature of construction projects

Smaller construction firms and self-employed tradespeople often sub-contract to medium and large firms to deliver construction projects. New Zealand has a relatively small number of construction firms that can deliver the largest and most complex construction projects – a 2018 media report lists only four such firms (Fletcher, Hawkins, ICON, and China Construction), plus a further 17 second-tier firms.²¹ These large firms engage smaller sub-contractors to provide certain services, and these sub-contractors may in turn sub-contract to smaller firms or self-employed tradespeople.

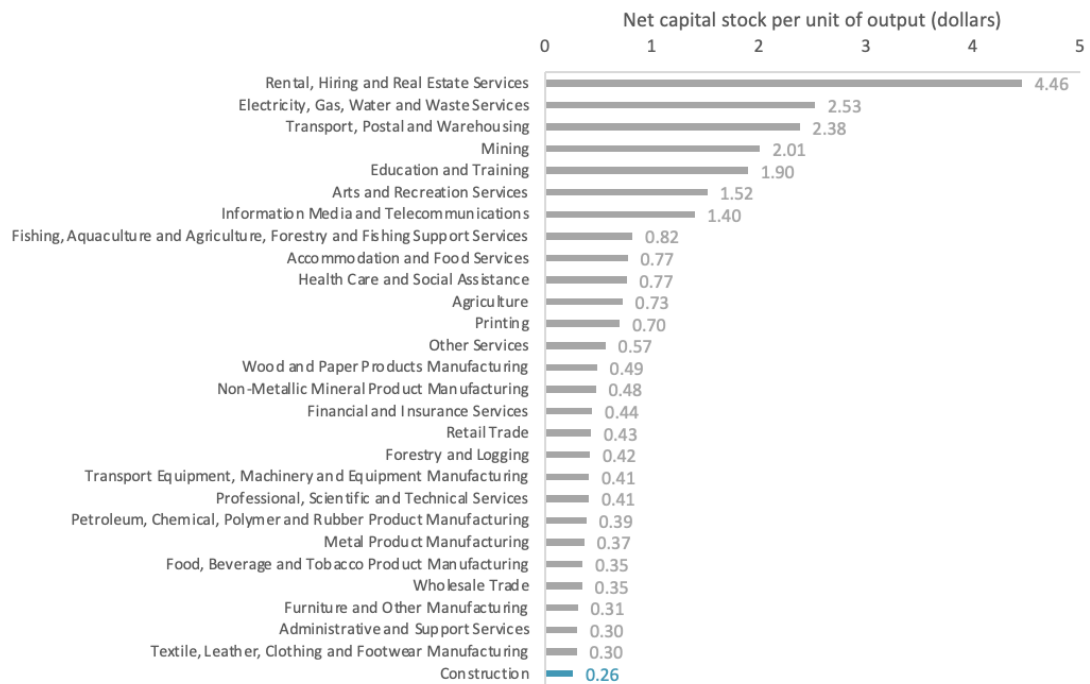
This structure means that there are relatively few New Zealand firms capable of competing for the largest or most complex construction projects, although such projects may also attract foreign firms alone or in collaboration with New Zealand firms (such as Auckland’s City Rail Link project, discussed below). To the extent that this means there is less intense competition within the construction sector, it may affect outcomes such as the incentives of firms to innovate or to improve productivity.

Construction has low capital intensity but a relatively high rate of return on assets

On average from 2000 to 2020, construction was the least capital intensive of 28 industry sectors, with an average \$0.28 of net capital stock per dollar of output according to Stats NZ National Accounts data (Figure 10). This relatively low capital intensity reflects the reliance on labour input in the construction sector.

²¹ <https://www.nzherald.co.nz/business/in-a-vice-grip-construction-sector-grasped-by-turmoil/NFZTHO6YDKKEX6Q7AVED7WFJ6M/>

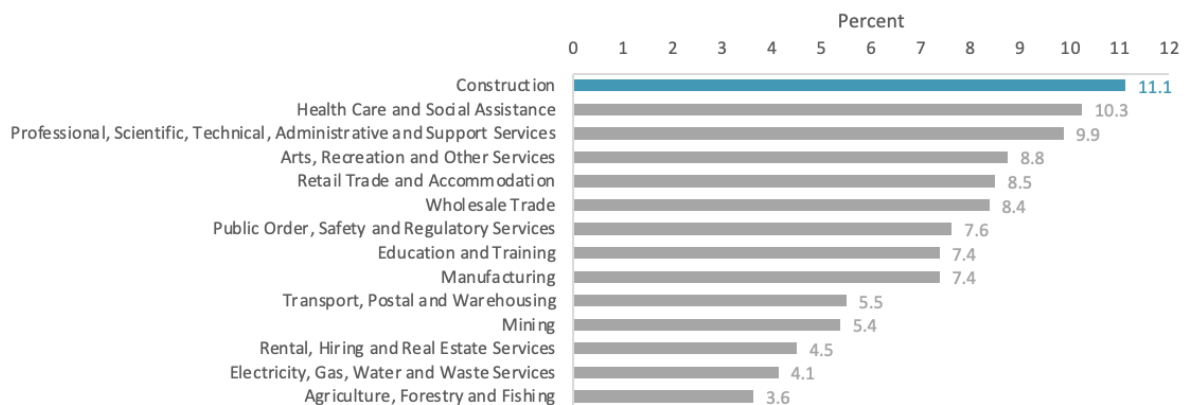
Figure 10 Average capital intensity, 2000 to 2020 (net capital stock / output)



Source: Stats NZ National Accounts

In recent times, the construction sector has shown a relatively high rate of return on assets. Over the period from 2013 to 2020 for which consistent data is available, construction was the most profitable of 14 sectors in the Stats NZ Annual Enterprise Survey in terms of return on total assets (Figure 11). This was a period of growth in construction activity (see Figure 1 above) and may not reflect the longer-term rate of return of the sector.

Figure 11 Average return on total assets, 2013 to 2020



Source: Stats NZ Annual Enterprise Survey

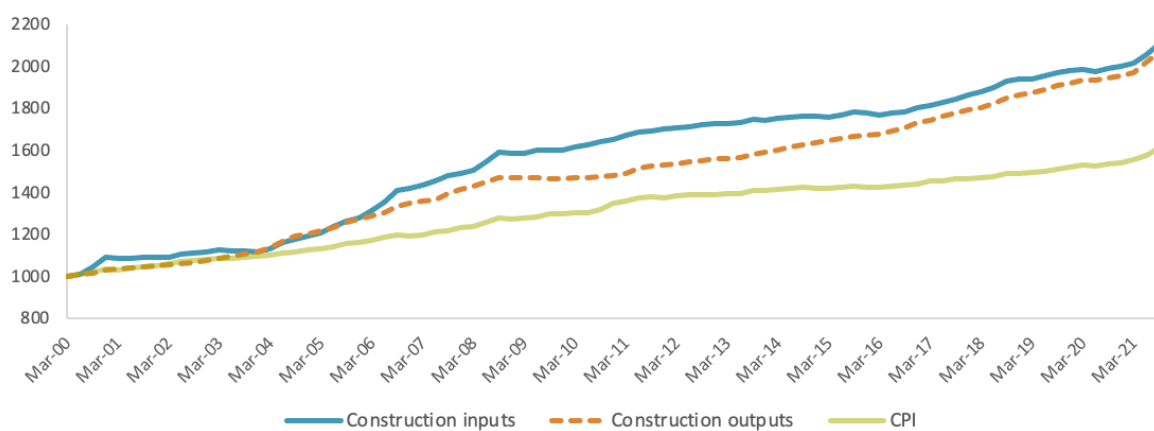
Construction input and output prices increased substantially faster than overall inflation

Most services produced by the construction sector are consumed within New Zealand. According to the Stats NZ Business Operations Survey, on average between 2007 and 2019, 93% of firms in the construction sector had no export revenues and no firms obtained more than a quarter of their revenues from exports. In contrast, in manufacturing, only 56% of firms had no export revenues and exports accounted for more than three-quarters of

revenues for 7% of firms. However, many of the materials used in construction are traded on international markets and so are affected by international prices. Key examples include framing timber, plasterboard, electrical and plumbing fittings, and cement.

Between 2000 and 2021, both input and output prices in construction grew faster than the overall Consumer Price Index (Figure 12). Overall, between March 2000 and March 2021, the CPI increased at a compound annual rate of 2.1% while construction input and output prices increased at 3.4% and 3.3% respectively. Since 2013, sustained growth in construction activity was associated with price increases well beyond CPI inflation. Between March 2013 and September 2021, consumer prices increased by 15%, while construction inputs and outputs prices increased by 22% and 33% respectively.

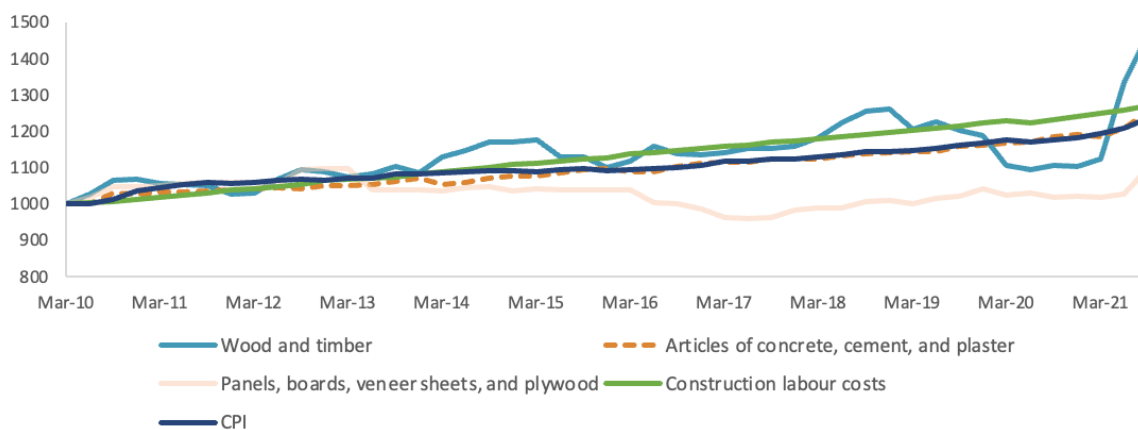
Figure 12 Construction input and output price indexes, and the consumer price index (March 2000 = 1000)



Source: Stats NZ Producer Price Index and Consumer Price Index

Data on costs of key construction sector inputs is available for the shorter period from 2010 to 2021 (Figure 13). During this period, the cost of construction labour increased by 27%, compared to a 24% increase in the CPI. The volatility of prices for wood and timber reflects that these are traded in international markets. These prices increased by 32% in the year to September 2021, due to pandemic-related supply shortages and a building boom.

Figure 13 Cost indexes for selected construction inputs (March 2010 = 1000)

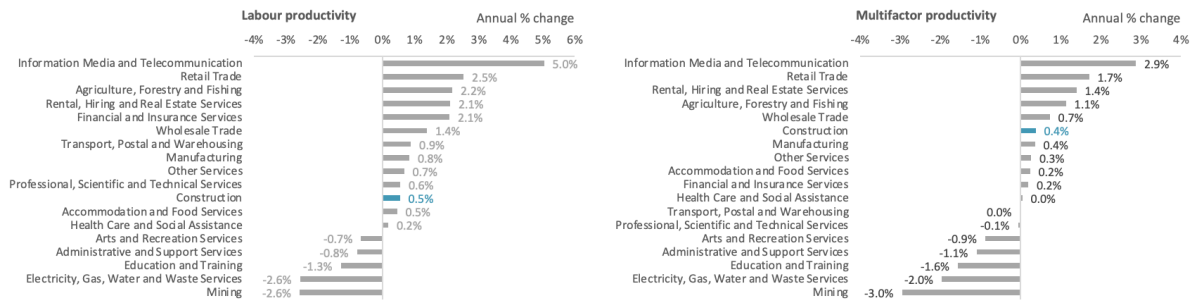


Source: Stats NZ Producer Price Index, Labour Cost Index, and Consumer Price Index

Slow industry-level productivity growth but better performance at the firm level

Industry-level productivity data shows that construction sector productivity increased relatively slowly between 2000 and 2020 (Figure 14). Labour productivity increased at a rate of 0.5% per annum during this period and construction was among the lower-performing sectors. Similarly multifactor productivity in construction increased at an annual rate of 0.4%, which was higher than many other industries but substantially lower than the top performing industries.

Figure 14 Annual percentage change in labour and multifactor productivity by industry, 2000 to 2020.



Source: Stats NZ Productivity data

These findings of relatively low improvements in construction productivity at the industry level are reflected in several industry studies:

- Page and Norman (2014) found that construction labour productivity increased by only 23% over the 33 years from 1978 to 2011, compared to an increase of 96% for overall labour productivity in New Zealand.²²
- Curtis (2018) noted that the growth rate of labour productivity in construction between 1978 and 2015 was lower than comparator industries including manufacturing and agriculture, but that productivity growth had started to trend upwards from 2010.²³ In a later update, Curtis (2020) noted that construction labour productivity growth was 1.4% between 2012 and 2018 but fell to 0.7% in 2019.²⁴

The above results are based on productivity in the construction sector as a whole and essentially reflect the weighted average performance of all construction firms. Somewhat different results have been found in studies of productivity using firm-level microdata:

- Jaffe, Le and Chappell (2016) found that between 2001 and 2012, labour productivity for the average construction firm grew by 1.7% per year, and multi-factor productivity grew by 0.5% per year, which was substantially greater than productivity growth rates for

²² Ian Page & David Norman, *Measuring construction industry productivity and performance*, BRANZ Study Report SR310, available at <https://www.branz.co.nz/pubs/research-reports/sr310/>.

²³ Matthew Curtis, *Productivity in the construction industry 2017*, BRANZ Study Report SR388, available at <https://www.branz.co.nz/pubs/research-reports/sr388/>.

²⁴ Matthew Curtis, *Construction industry performance update 2019*, BRANZ Study Report SR446, available at <https://www.branz.co.nz/pubs/research-reports/sr446/>.

firms in the overall measured sector (0.5% and 0.1% per year respectively).²⁵ Newer firms and firms located in Auckland were found to be more productive. Firms consisting of self-employed people with no employees were slightly less productive on average, and such firms were estimated to account for around two-thirds of construction firms, but account for only around 20% of total construction sector revenues.²⁶

- In a follow-up study, Jaffe and Chappell (2018) found a relatively high rate of job churn in construction, with around 60% of jobs in any given year either not existing in the past or future, on average between 2001 and 2013.²⁷ They found that this churn was an important positive driver of productivity growth, and that construction firms with new employees tended to be more productive than those with no change in workforce, partly due to knowledge flows between firms. New entrant firms were also found to be more productive than pre-existing firms, with firms that enter and do not quickly exit having an initial 6% productivity advantage on average over existing firms, and this advantage tends to grow over time.

A construction industry group investigated the reasons for relatively poor productivity at the industry level and found that it was due to a complex set of entrenched behaviours and practices relating to business and regulatory processes, rather than on-site construction practices.²⁸ Consistent with results from other empirical research about the relationship between the use of migrant labour and firm-level productivity (summarised below), this industry review did not identify the use of migrant workers as a cause of low productivity. It is possible that the availability of migrant labour weakened the incentive of construction firms to improve labour productivity, but more research is needed to test this hypothesis.

Relatively low rates of innovation and limited opportunities for labour-saving technology

Innovation does not appear to be a significant area of focus for New Zealand construction firms. As one measure of innovation, Figure 15 shows the proportion of firms in each industry that introduced new products or services to New Zealand markets or to world markets, on average from 2007 to 2019. The proportion of construction firms that introduced new products in this period is relatively low compared to many other industries, with only 28% and 6% of construction firms introducing new products or services to New Zealand and the world respectively.

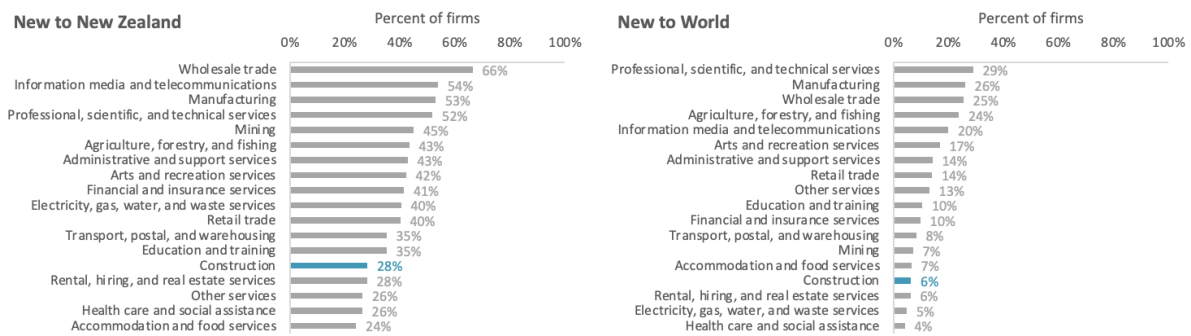
²⁵ Adam Jaffe, Trinh Le and Nathan Chappell, *Productivity distribution and drivers of productivity growth in the construction industry*. Motu Working Paper 16-08, available at <https://www.motu.nz/our-research/productivity-and-innovation/firm-productivity-and-performance/productivity-distribution-and-drivers-of-productivity-growth-in-the-construction-industry/>.

²⁶ The revenue breakdown is based on Stats NZ Annual Enterprise Survey data from 2015 to 2020.

²⁷ Adam Jaffe and Nathan Chappell, *Worker flows, entry, and productivity in New Zealand's construction industry*, Motu Working paper 18-02, available at <https://www.motu.nz/our-research/productivity-and-innovation/firm-productivity-and-performance/worker-flows-entry-and-productivity-in-new-zealands-construction-industry/>.

²⁸ *Improving New Zealand Construction Industry Productivity*, Construction Productivity Group report, November 2021, available at <https://nziob.org.nz/assets/CPG-Abridged-version-Final-30-Nov.pdf>.

Figure 15 Proportion of firms that introduced new products or services (average for 2007 to 2019).



Source: Stats NZ Business Operations Survey

Current areas of innovation in the New Zealand construction sector include:²⁹

- Smart and ‘green’ buildings. More energy-efficient building designs and technologies to help address climate change issues.
- Pre-fabrication of complete buildings or building components off-site, which can reduce construction time, costs, and waste.
- Building information modelling (BIM) to enable collaboration on building design between architects, engineers, builders, and contractors. BIM can help to increase efficiency in building design and construction, reduce costs, and reduce delays in project management. BIM can also enable greater opportunities for pre-fabrication in construction.
- Introduction of new building materials such as engineered timber, e.g. cross-laminated timber as a replacement for structural steel. These new materials can reduce construction costs and time.

Of these new areas for innovation, pre-fabrication and BIM have the greatest potential to affect the labour requirements and productivity of the construction sector. Building components in factories using standardised processes may require less skilled labour per unit of output than building on-site, due to economies of scale in production and greater use of technology and automation. Similarly, BIM can make project management processes more efficient on larger-scale projects.

The construction sector is affected by regulatory and policy changes

Key regulatory frameworks that affect construction activity and costs include:

- **Building standards:** All building work in New Zealand must comply with the Building Code. This sets standards that ensure buildings are sufficiently safe, healthy, and

²⁹ *Building and Construction Sector Trends: Annual Report 2021*, MBIE Building Performance, available at <https://www.mbie.govt.nz/building-and-energy/building/building-system-insights-programme/sector-trends-reporting/annual-reports/>.

durable.³⁰ The Building Code is updated annually and changes to the Code can affect feasible construction methods and costs. For example, the 2021 update required improved insulation standards for residential dwellings (among other changes).³¹

- *Resource management and land-use planning:* Local authorities have responsibility for land use planning within their district, as provided for by the Resource Management Act and associated regulations such as the National Policy Statement on Urban Development (NPS-UD). These decisions affect the number, types and locations of dwellings and other buildings that can be built in any area, which can affect construction activity levels and costs.³² For example, Greenaway-McGrevy and Phillips (2021) estimated that Auckland's Unitary Plan (finalised in 2016) enabled around 20,000 additional consents for new dwellings by 2020,³³ and the number of building consents for new residential dwellings in Auckland continued to increase since then (see Figure 3 above).
- *Health & safety:* This is a significant issue in the construction sector with an average of around 156 work-related injuries (including fatal injuries) per 1,000 fulltime-equivalent employees per year between 2016 and 2020.³⁴ This was the third-highest injury rate across 19 industries, behind agriculture, forestry, and fishing (184 injuries per 1,000 FTE per year) and arts and recreation services (175 injuries per 1,000 FTE per year). Health and safety regulations can affect construction site work practices and costs.

The construction sector is also the subject of other government interventions aimed at improving the performance of the sector. Current policy initiatives include the Construction Sector Accord (see box below), as well as:

- *Construction Skills Action Plan:* This plan was announced in October 2018 and promotes collaboration between government and industry to increase the size of the skilled construction workforce in New Zealand.³⁵ Specific initiatives include encouraging people to enter construction training, including skills training as part of government procurement of construction works, providing industry training for job seekers, and establishing jobs and skills hubs (free recruitment services). The Action Plan also included creating the Construction and Infrastructure Skill Shortage List to simplify the process of granting temporary work visas to construction and infrastructure workers to

³⁰ <https://www.building.govt.nz/building-code-compliance/>

³¹ <https://www.building.govt.nz/building-code-compliance/annual-building-code-updates/2021-building-code-update/>

³² A 2015 study estimated that the total impact of residential planning-related regulations in Auckland was between \$32,500 and \$60,000 per new dwelling in a subdivision, and between \$65,000 and \$110,000 for an apartment. Arthur Grimes and Ian Mitchell (2015), *Impacts of Planning Rules, Regulations, Uncertainty and Delay on Residential Property Development*. Motu Working Paper 15-02, available at https://motu-www.motu.org.nz/wpapers/15_02.pdf.

³³ Ryan Greenaway-McGrevy and Peter C. B. Phillips (2021), *The impact of upzoning on housing construction in Auckland*. University of Auckland Centre for Applied Research in Economics working paper no. 009. Available at <https://cdn.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/CARE/The%20Impact%20of%20Upzoning%20on%20Housing%20Construction%20in%20Auckland.pdf>.

³⁴ Stats NZ injury statistics (work-related claims), 2020, available at <https://www.stats.govt.nz/information-releases/injury-statistics-work-related-claims-2020>.

³⁵ <https://www.skillsinconstruction.govt.nz>

fill identified shortages (see below). Over three years, these initiatives (excluding the changes to immigration settings) were expected to result in up to 4,000 more people pursuing construction-related careers, qualifications, and apprenticeships.³⁶

- *Apprenticeship Support Programme*: This was developed as part of the COVID-19 response in 2020 to increase the number of apprentices in construction and other sectors.³⁷ This support programme includes \$381 million funding for Apprenticeship Boost payments to help employers take on new apprentices, until August 2022.³⁸ Other initiatives include an \$80 million Mana in Mahi programme to support at-risk people into industry training, \$40 million for Regional Apprenticeships to support displaced workers into new jobs, and \$19 million to support existing Group Training Schemes that helps to fund apprenticeships primarily in small construction businesses.

Construction Sector Accord 2019

This is an overarching agreement between the government and the construction industry that aims to improve the overall performance of the construction sector.³⁹ The goals of the Accord are to increase productivity, raise skills and capability of workers, improve resilience of businesses, and restore confidence, pride, and reputation in the sector. Intended outcomes include improving the quality of buildings and infrastructure in New Zealand, providing safe, secure and rewarding careers for construction workers, improving the efficiency and competitiveness of the construction market, and creating more sustainable and successful construction businesses.

The first major initiative of the Accord was to develop a Construction Sector Transformation Plan to lift the performance of the sector over three years.⁴⁰ The Transformation Plan aims to create change in six areas: leadership, business performance, people development, health and safety, regulation, and procurement and risk. Within each of these areas, programmes and initiatives have been developed jointly between the government and industry to address existing issues identified in the sector. For example, initiatives so far under the business performance workstream include improving the visibility and certainty of the infrastructure and public housing construction pipeline, providing information to construction firms about best practices, and creating an education programme focussing on managing commercial risks in construction.⁴¹

Other specific initiatives under the Accord include development of the Construction Skills Action Plan to increase the skilled labour force (see above), improvements to government construction procurement processes, and establishment of Te Waihanga New Zealand Infrastructure Commission to coordinate a long-term plan for government infrastructure projects and publish a pipeline of upcoming public and private sector infrastructure projects.

³⁶ <https://www.mbie.govt.nz/assets/7b96257cf6/cabinet-paper-action-plan-construction-skills-strategy.pdf> at paragraph 30.

³⁷ <https://www.workandincome.govt.nz/work/apprentice-support/index.html#null>

³⁸ <https://www.education.govt.nz/our-work/information-releases/issue-specific-releases/apprenticeship-support-programme/>

³⁹ <https://www.constructionaccord.nz>

⁴⁰ <https://www.constructionaccord.nz/transformation-plan/>

⁴¹ <https://www.constructionaccord.nz/transformation-plan/business-performance/>

Construction labour market outcomes and the role of migrant labour

Summary of relationship between migration and the construction labour market

Construction sector activity over the past 20 years was characterised by long-term growth (particularly over the past 10 years) overlaid with short-term volatility and the impacts of external events (see Figure 1 and Figure 3 above). Given the labour-intensive nature of construction and limited development of new labour-saving technologies, construction firms responded to these variations in output by varying the amount of labour used (see Figure 8 above).

During periods of sustained growth such as the due to the Christchurch earthquakes reconstruction or the more recent high levels of housing construction and public infrastructure investment, shortages of construction labour were commonly reported by the industry. While numbers of construction apprentices have increased substantially in recent years in part due to government policy changes (see Figure 22 below), it takes time for new workers to be trained and to gain on-the-job experience. Migrants on short-term work visas therefore became an increasingly important source of construction workers over the past ten years, in line with the general growth in construction activity and employment (see Figure 8 above and Figure 20 below). In addition, migrant workers have been essential to fill specialist roles in large-scale infrastructure projects where it is hard to find people in New Zealand with suitable skills, such as tunnelling or railway construction.

Although the number of migrant workers in construction increased substantially, migrant workers remain a relatively small proportion of the overall construction workforce, and the non-migrant workforce increased by a much larger number of workers at the same time (see Figure 7 above). While it is not known what would have happened to the construction workforce if the number of migrants had been smaller, it does not appear that the use of migrant workers prevented the non-migrant workforce from expanding substantially, i.e., there is no clear evidence that migrant workers displaced domestic workers to a significant extent.

Instead, evidence from industry reports suggests that construction firms turned to migrant workers when the domestic labour supply was constrained relative to output growth, such as when construction activity expanded quickly at the same time as unemployment was relatively low between 2012 and 2018. In addition, some highly skilled migrant workers such as those used for infrastructure construction projects appear to be complementary to the use of domestic workers in less skilled roles.

Similarly, it does not appear that increased use of migrant workers significantly changed the trends in wages and weekly pay of construction workers (see Figure 16 below). It is possible that construction wages would have increased faster in earlier years if fewer migrant workers were permitted to enter New Zealand, but more robust econometric analysis is needed to determine the impacts of migration on construction sector wages.

Empirical research (summarised below) and industry analysis (discussed above) also identify firm characteristics and industry practices and processes as the underlying causes of relatively low industry-level productivity growth in the construction sector. A review of construction productivity analysis by Jiang and Rossouw (2020) noted that further detailed study of productivity at the firm and project levels was needed to determine the specific

practices that affect construction sector productivity.⁴² More generally, there are several factors that could affect the incentives of construction firms to improve productivity, such as the intensity of competition as discussed above, and further research is needed to separate the impacts of these from the use of migrant labour.

The remainder of this section summarises key trends in the construction labour market including the use of migrant labour.

Hourly wages of construction workers are lower than the average across all industries, but weekly pay is higher

Real average hourly earnings (including overtime) of construction workers increased from around \$26 in 2000 to around \$33 in 2021 (in 2021 dollars) but remained consistently below the average hourly earnings across all industries (Figure 16 left panel). In contrast, average real weekly earnings of construction workers (including overtime) remained consistently above the average across all industries and increased from around \$1,070 in 2000 to around \$1,200 in 2021 (Figure 16, right panel).

Figure 16 Real hourly and weekly earnings of construction workers (2021 dollars; CPI adjusted)



Source: Stats NZ Quarterly Employment Survey and Consumer Price Index

The difference between hourly and weekly earnings of construction workers relative to the overall average is explained by higher average working hours per week in the construction sector. Stats NZ Quarterly Employment Survey data indicates that the average construction worker was paid for around 40 hours per week in 2021, while the average across all industries is around 34 hours. On average over the past 20 years, overtime made up around 5% of weekly pay of construction workers, compared to around 3% of pay for all workers, suggesting that overtime is slightly more common in construction work. The greater number of hours worked in construction therefore also likely reflects fewer part-time workers compared to other industries.

⁴² Nan Jiang and Stephanie Rossouw (2020), *A stocktake of performance measures in building and construction: A systematic review across different countries*. BRANZ External Research Report ER47, available at <https://www.branz.co.nz/pubs/research-reports/er47/>.

Changes in the composition of the construction workforce over the past 20 years

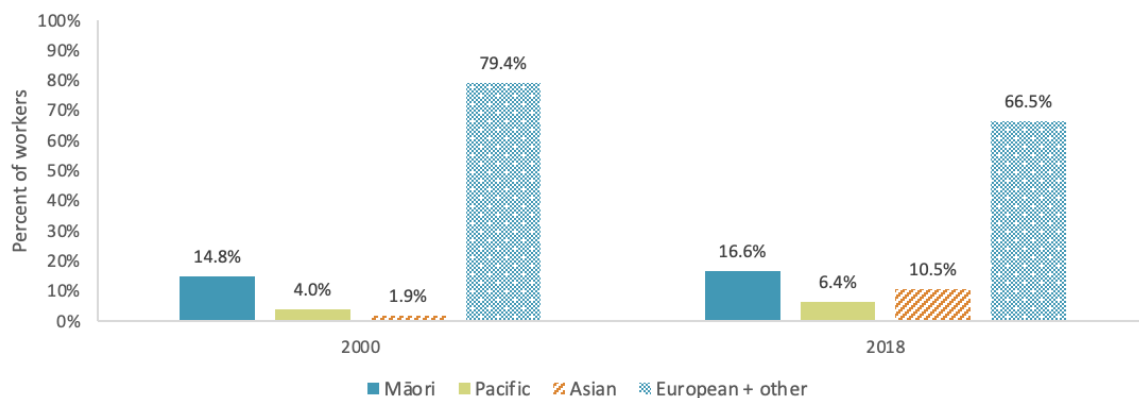
Strong growth in the number of female workers

In 2021, Household Labour Force Survey data shows that around 86% of construction industry workers were male and 14% were female. However, from 2003 to 2021 the female construction workforce increased at a faster rate than the male workforce. Around 40,000 women now work in construction, compared to around 16,600 in 2003.

Workers of European ethnicity have reduced as a proportion of the workforce

Over the past 20 years, the proportions of people that are Māori, Pacific, and Asian increased while the proportion of people of European and other ethnicities declined from 79.4% in 2000 to 66.5% in 2018 (Figure 17). The most notable change is the increase in the proportion of people of Asian ethnicity in the construction sector, which increased from 1.9% in 2000 to 10.5% in 2020. This change is even more pronounced in Auckland, where the proportion of Asian people working in construction increased from 0.5% in 2000 to 7.5% in 2020. To some extent this change reflects migration patterns, with a relatively large proportion of construction migrant workers coming from countries in Asia (see below). These changes may also reflect changes in New Zealand population demographics that occurred over the same period. For example, the proportion of the resident population that are Asian increased from 6.5% in 2001 to 15.1% in 2018.

Figure 17 Ethnic composition of people working in the construction industry (employees + employers)

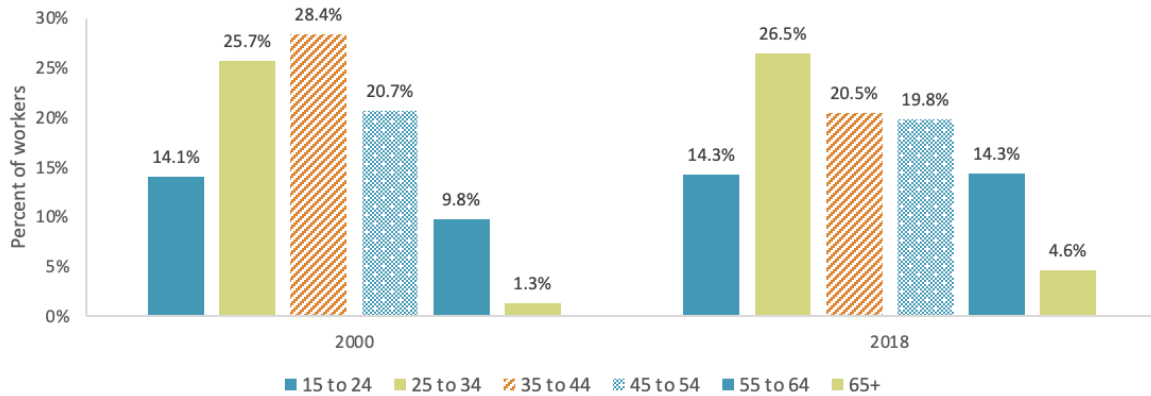


Source: [Sweet Analytics Construction Workforce Dashboard](#), based on analysis of IDI data

The construction workforce is ageing

The construction workforce aged somewhat between 2000 and 2018 (Figure 18). Around 18.6% of construction workers were aged 55 or over in 2018, compared to 11.1% in 2000. The proportion of workers aged under 24 has remained relatively constant at around 14%. These trends are also likely to reflect general changes in the demographics of the New Zealand workforce.

Figure 18 Age distribution of people working in the construction industry (employees + employers).

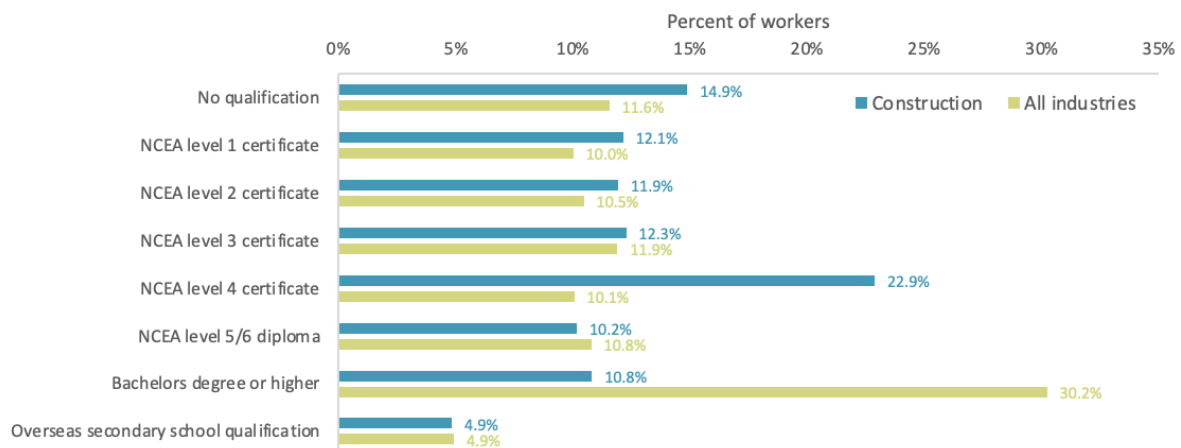


Source: Sweet Analytics Construction Workforce Dashboard, based on analysis of IDI data

Tertiary qualifications are less common in construction, but the number of tertiary qualified workers has grown relatively quickly

Workers in construction tend to have fewer formal qualifications than workers in other industries. In 2018, just under 15% of workers in construction had no formal qualification, compared to 11.6% across the whole workforce (Figure 19). Trade qualifications are prevalent among construction workers, reflected in the high rate of attainment of NCEA level 4 certificates. Only 10.8% of construction workers had a tertiary qualification in 2018, compared to 30.2% of all workers. However, the proportion of workers with tertiary qualifications has increased relatively quickly in construction, more than doubling from 4.7% in 2006 to 10.8% in 2018. Over the same period, the proportion of tertiary qualified workers in all industries increased by about 1.5 times from 19.8% to 30.2%.

Figure 19 Highest qualifications of workers in 2018.



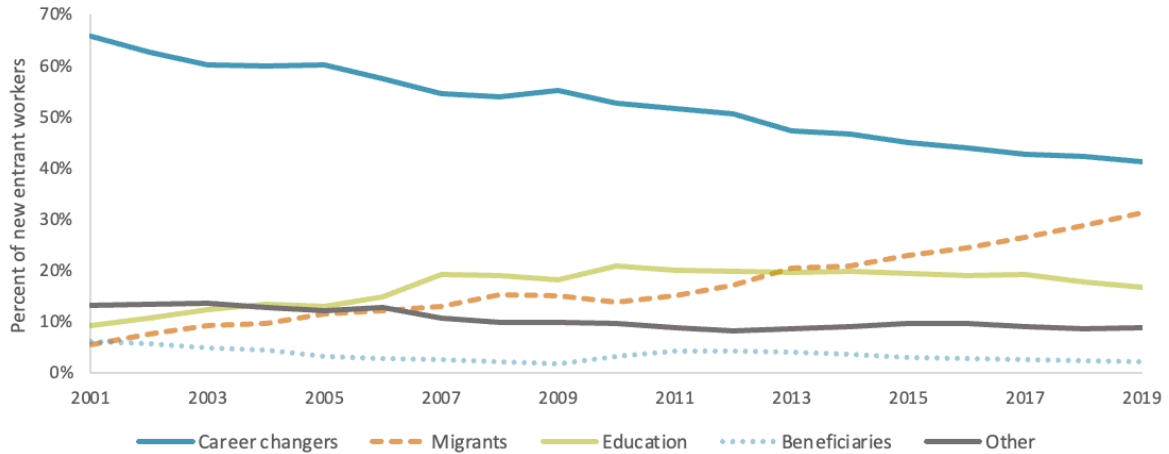
Source: Stats NZ Census 2018

Migrant workers and apprentices have become more important sources of new construction workers over the past 20 years

Analysis of the employment history of workers in the construction sector suggests that migrants became an increasingly important source of new workers in the sector over the past two decades, rising from 5.6% of gross new workers in 2001 to 31.3% in 2019 (Figure

20).⁴³ At the same time, workers who entered construction for the first time by changing career fell from 65.7% of new workers in 2001 to 41.4% in 2019, while the contributions of other sources of new workers (such as education pathways) remained roughly constant.

Figure 20 Source of new entrant workers in the construction sector.

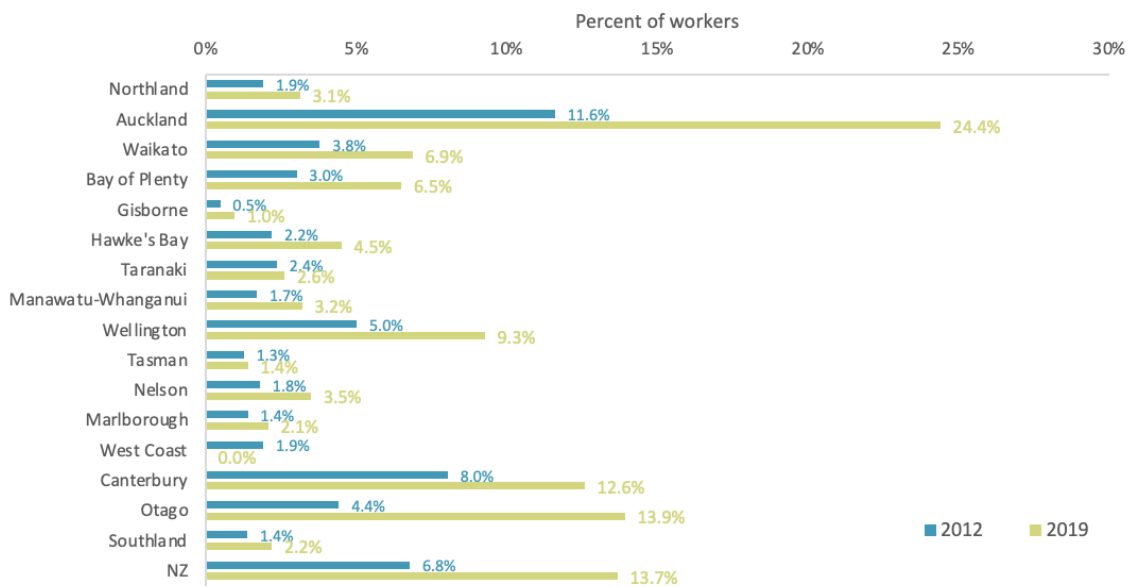


Source: Sweet Analytics Construction Workforce Dashboard, based on analysis of IDI data

Across regions, migrant workers increased as a proportion of the construction sector workforce between 2012 and 2019 in all regions except West Coast (Figure 21). The largest absolute change was in Auckland, where the migrant workforce increased by around 10,800 people during this period and accounted for nearly a quarter of the construction workforce in 2019. A large proportionate increase also occurred in Otago, with the migrant workforce increasing from 4.4% to 13.9% of the total construction workforce between 2012 and 2019.

⁴³ This analysis is based only on workers *entering* the construction sector who have not previously worked in the sector. Some workers also exit the sector each year, hence this analysis does not reflect changes in the characteristics of the construction workforce at any given point in time.

Figure 21 Proportion of migrant workers in the construction sector workforce by region. These figures include workers on short-term work visas and permanent residents who have been in New Zealand for less than five years.



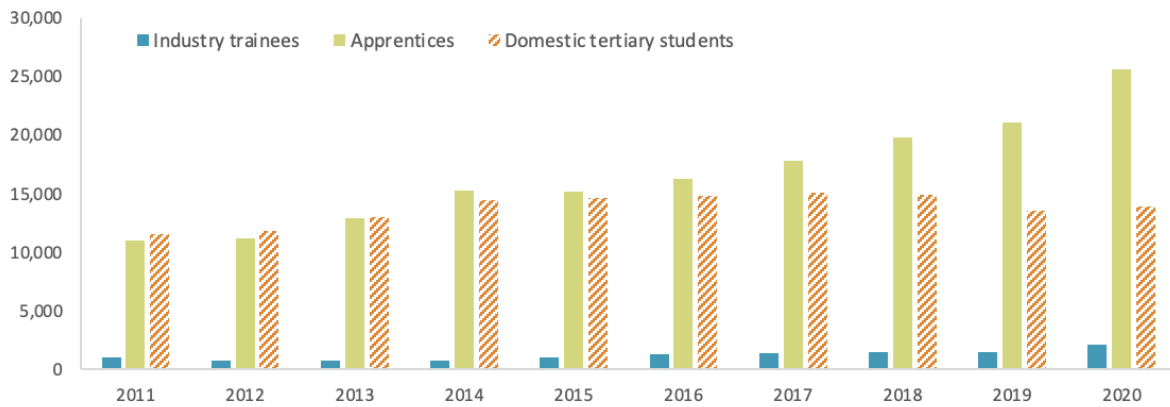
Source: Productivity Commission analysis of IDI data

The number of construction apprentices more than doubled between 2011 and 2020

New Zealand citizens and residents can enter the construction industry through industry training programmes, formal apprenticeships, or tertiary education.⁴⁴ The number of people in apprenticeship programmes increased substantially from around 11,000 in 2011 to 25,700 in 2020, with much of this increase occurring after 2016 (Figure 22). The significant increase in the number of apprentices in 2020 is likely related to the Apprenticeship Support Programme and Apprenticeship Boost payments described above that were part of the COVID-19 policy response. While updated data for 2021 is not yet available, these recent government initiatives are likely to have increased these numbers further. In contrast, the number of domestic students enrolled in construction-related tertiary education has not changed significantly since 2014. Numbers of industry trainees have increased but remain relatively small compared to apprentices.

⁴⁴ Industry trainees and apprentices do their training in the workplace. Trainees do short programmes that often cater for existing workers who need to learn new skills. Apprenticeships are more substantial training programmes at NCEA level 4 and above. Some apprentices are enrolled at subsidiaries of Te Pūkenga (New Zealand Institute of Skills and Technology). These are counted as tertiary education students rather than industry apprentices.

Figure 22 Number of people enrolled in building-related education and training programmes.

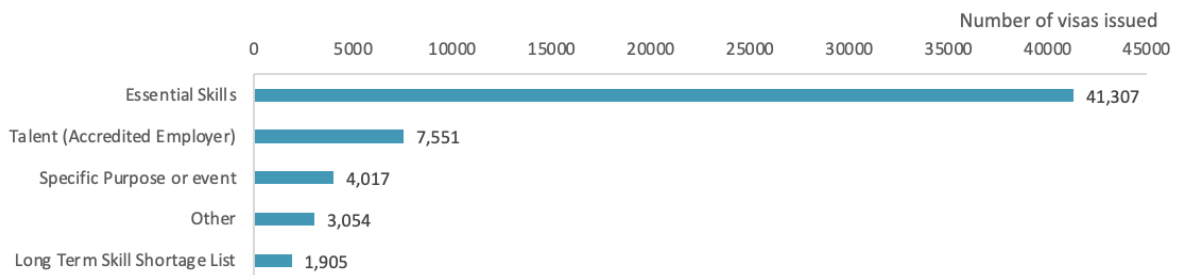


Source: Ministry of Education

Short-term visas issued to construction workers increased by more than four times between 2011 and 2018 but have subsequently declined

Between 2011 and 2020, a total of around 58,000 short-term work visas were issued to people in construction-related occupations (Figure 23).⁴⁵ About 70% of these were under the Essential Skills category.

Figure 23 Total number of short-term work visas issued to people in construction-related occupations from 2011 to 2020.

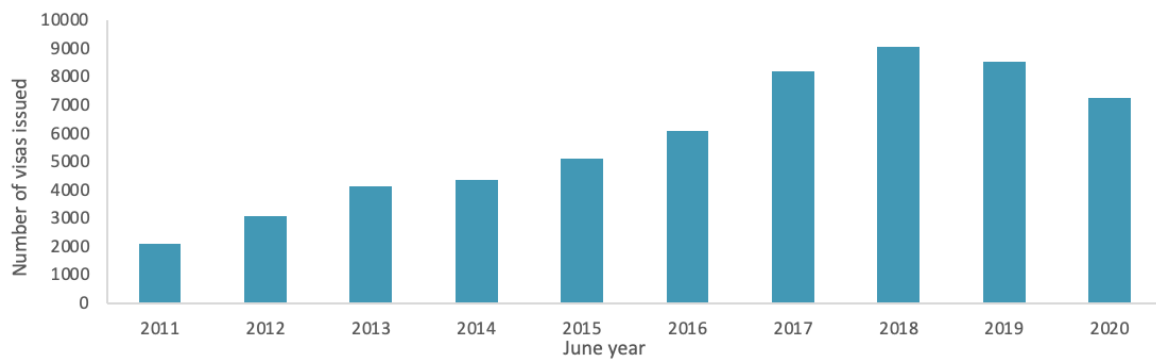


Source: MBIE Migration data explorer

Across all categories, the number of temporary visas issued to workers in construction-related occupations increased from around 2,100 in 2011, peaking at around 9,100 in 2018 before declining (Figure 24). Many such short-term work visas for construction-related occupations between 2011 and 2020 were issued for work in Auckland (41%) and Canterbury (26%).

⁴⁵ Short-term work visa categories included in this analysis are Essential Skills, Long Term Skill Shortage List Occupation, Specific Purpose or Event, Talent (Accredited Employer), and Approved In Principle. Visas issued as a variation of conditions (of an existing visa) are excluded (there were around 11,000 such variation visas issued for construction-related occupations between 2011 and 2020). A further 750 visas for construction-related occupations in the Crew of Foreign Fishing Vessel category are also excluded.

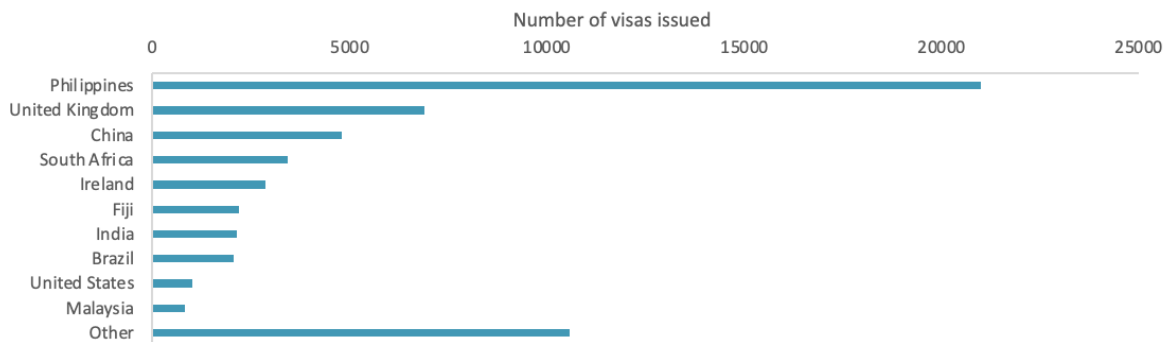
Figure 24 Annual number of short-term work visas issued to people in construction-related occupations.



Source: [MBIE Migration data explorer](#)

The Philippines was the single largest source of migrant construction workers between 2011 and 2020, accounting for 36% of short-term work visas issued for construction-related occupations during this period (Figure 25). Beyond the top 10 nationalities, all other nationalities combined accounted for 18% of short-term visas issued, indicating that migrants came from a relatively diverse set of countries.

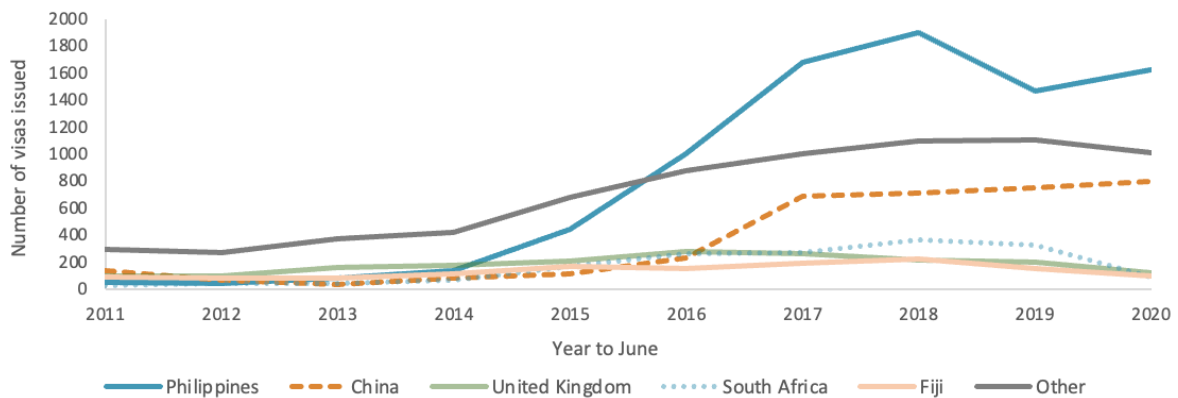
Figure 25 Nationality of people who received short-term work visas in construction-related occupations from 2011 to 2020.



Source: [MBIE Migration data explorer](#)

The number of short-term work visas issued for construction-related occupations in Auckland increased substantially between 2015 and 2020, coinciding with increased residential construction activity (Figure 26). In total between 2011 and 2020, 40% of visas issued to workers from the Philippines and 75% of visas issued to workers from China were to work in Auckland. Together, China and the Philippines accounted for 50% of short-term work visas issued to construction workers to work in Auckland between 2011 and 2020.

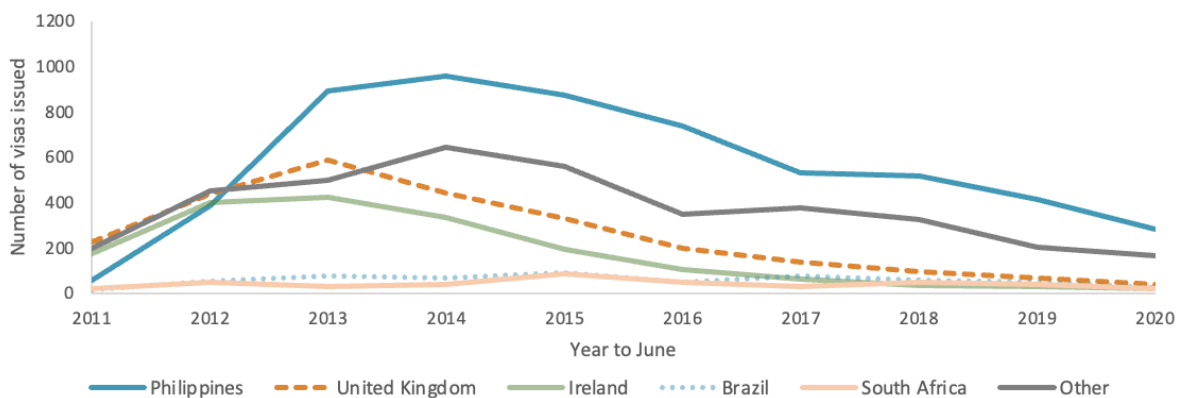
Figure 26 Top five nationalities of people who received temporary work visas in construction-related occupations for work in Auckland.



Source: [MBIE Migration data explorer](#)

In Canterbury, the number of short-term work visas issued for construction-related occupations increased rapidly from 2011 to 2013 in response to the increased demands of Christchurch earthquakes rebuild activities (Figure 27). Visa numbers peaked in 2014 and have subsequently declined. As with Auckland, the Philippines was an important source of these migrants, accounting for 38% of visas issued to work in Canterbury between 2011 and 2020. The United Kingdom and Ireland were also key sources of migrant construction workers in Canterbury, accounting for 17% and 12% of visas issued between 2011 and 2020 respectively.

Figure 27 Top five nationalities of people who received temporary work visas in construction-related occupations for work in Canterbury.



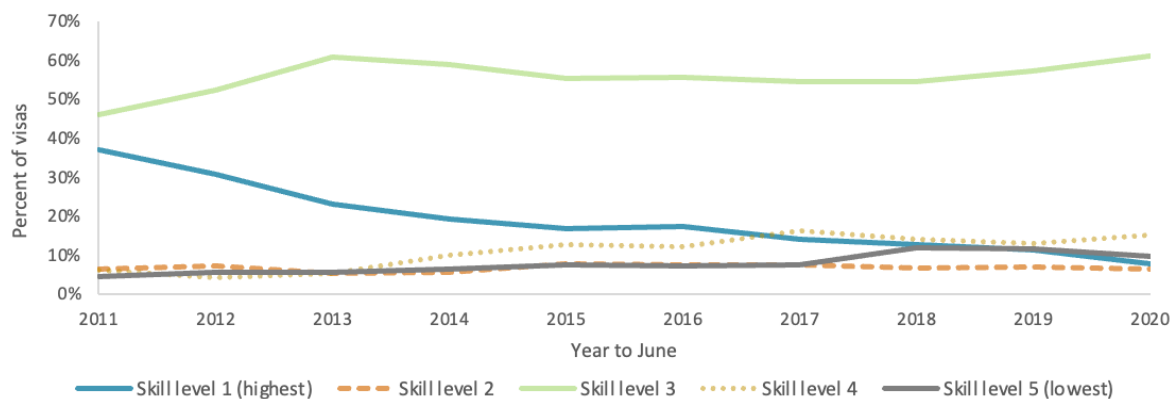
Source: [MBIE Migration data explorer](#)

Short-term work visas can be categorised into skill levels from 1 (highest skill) to 5 (lowest skill) depending on the occupation involved.⁴⁶ Over time the proportion of visas issued for the highest skill occupations declined from 37% in 2011 to 8% in 2020 while the proportion for medium to low skill (levels 3 to 5) increased from 57% in 2011 to 86% in 2020 (Figure 28). Most of these changes occurred between 2011 and 2013. Around 55% of short-term

⁴⁶ Examples of skill level 1 occupations in construction include construction managers, civil engineers, and quantity surveyors. Examples of skill level 5 occupations include labourers, concreters, and insulation ladders.

work visas issued between 2013 and 2020 were for medium skill occupations (skill level 3), while visas issued for the highest skill occupations (skill level 1) have declined to less than 10% in 2020. In terms of simple numbers of workers, this suggests that the main driver of using short-term migrants is to fill shortages in medium-skill occupations, rather than to recruit highly skilled workers for specific projects.

Figure 28 Skill level of occupations for construction-related short-term work visas issued between 2011 and 2020.



Source: [MBIE Migration data explorer](#)

Drivers and impacts of the use of migrant labour

In addition to the relationship between migrant labour and construction sector activity (see Figure 8 above), the use of migrant labour in construction is affected by other drivers, which are reviewed in this section. This section also summarises research into the impacts of migrant labour on productivity in the construction sector.

The New Zealand and Australian construction labour markets are linked

Most trans-Tasman migration is not captured in the analysis of short-term work visas above given that Australian citizens and permanent residents do not need a visa to work in New Zealand and vice versa. In general terms, research by the Reserve Bank found that this ease of movement means the labour markets in the two countries are linked, and relative unemployment rates in New Zealand and Australia are a driver of New Zealand's overall net migration.⁴⁷

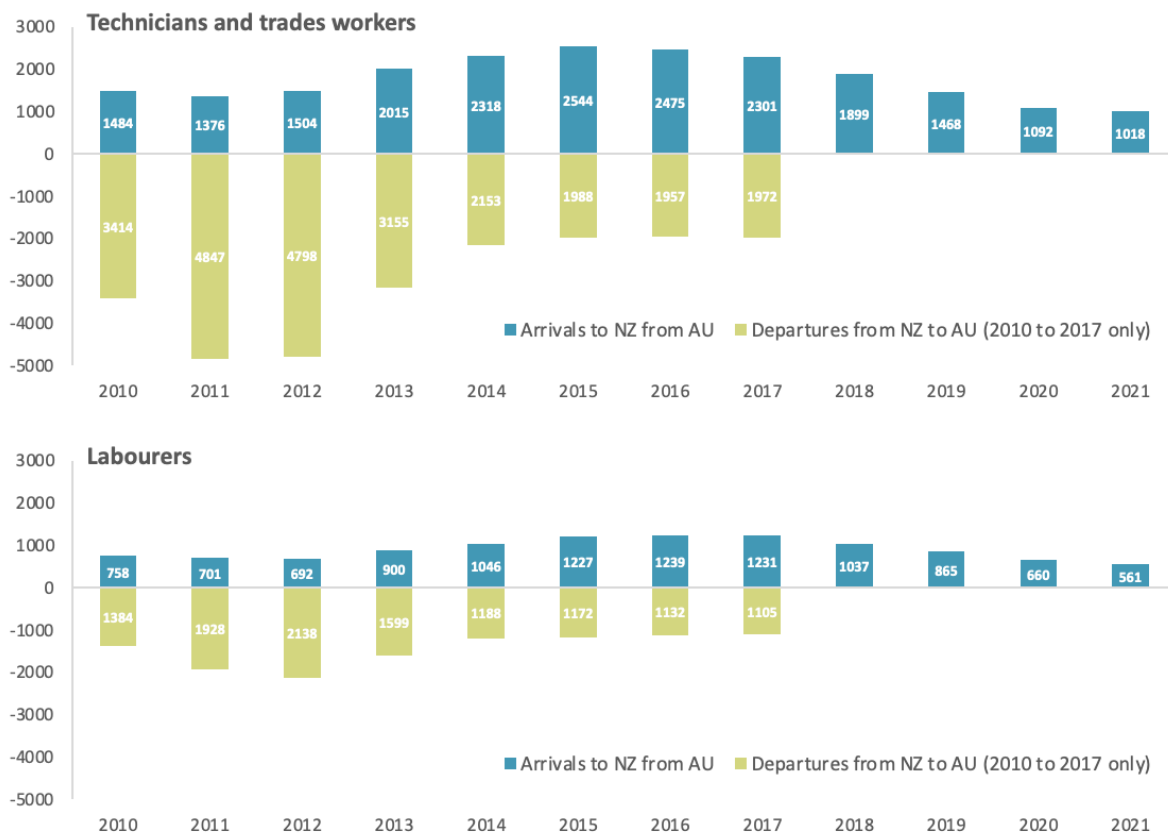
In terms of trans-Tasman movements of construction workers, information is available about arrivals to New Zealand from 2010 to 2021 and about departures from New Zealand for the shorter period from 2010 to 2017, for high-level occupation categories including technicians and trades workers, and labourers.⁴⁸ These flows of workers are shown in Figure 29. There was a net outflow of around 9,800 technicians and trades workers from New Zealand to Australia between 2010 to 2013, and a net outflow of 4,100 labourers between 2010 and 2014. This coincided with the tail-end of the mining activity boom in Australia

⁴⁷ Jed Armstrong and Chris McDonald, *Why the drivers of migration matter for the labour market*. RBNZ analytical note AN2016/02, available at <https://www.rbnz.govt.nz/-/media/reservebank/files/publications/analytical%20notes/2016/an2016-02.pdf>.

⁴⁸ These two high-level categories cover most people working in construction-related occupations, but also include other occupations such as telecommunications technicians, automotive trades workers, cleaners, factory workers, and farm and forestry labourers.

while residential construction activity in both countries was relatively low following the GFC (see Figure 3 above for New Zealand). Subsequently there was a net inflow of around 1,600 technicians and trades workers from 2014 to 2017 and a net inflow of around 300 labourers from 2015 to 2017. This coincided with a slowdown in mining activity in Australia while residential construction activity in New Zealand increased.

Figure 29 Trans-Tasman migration of New Zealand and Australian residents in construction-related occupations. Data on departures by occupation is not available for 2018 to 2021.



Source: Stats NZ international travel and migration data

Construction firms also report facing competition from Australia to attract and retain skilled labour. Examples of this cited in industry reports include:

- The executive director of Watercare’s Central Interceptor project in Auckland was recently quoted as saying that *“We are also facing heavy competition with our Australian neighbours when it comes to attracting and retaining staff, with the lure of higher salaries in the construction industry, and fewer restrictions.”*⁴⁹
- The 2021 BDO Construction Report noted that it will become tougher to attract skilled workers once COVID-19 travel restrictions with Australia are removed.⁵⁰

⁴⁹ See previous footnote.

⁵⁰ *Rethinking Construction: 2021 BDO New Zealand Construction Sector Report*, at page 13.

- Te Waihanga New Zealand Infrastructure Commission noted that competition for labour from an infrastructure boom in Australia where wages are higher would lead to skills shortages and cost pressures in New Zealand.⁵¹

Taken together, this suggests that trans-Tasman movements of construction workers are affected by general economic conditions in both countries as well as activity levels in construction and sectors such as mining that construction workers can transfer to relatively easily. To the extent that New Zealand and Australian economic conditions and construction activity are correlated, this may create additional difficulties for New Zealand construction firms to obtain workers during upturns.

Immigration policy shapes the use of migrant workers in construction

Longer term analysis by the Reserve Bank found that total net migration of construction workers between 1962 and 2018 was negative, due to the economic downturn of the mid-1970s, followed by changes to immigration policy in the 1990s that favoured university graduates.⁵² The authors noted that this likely contributed to shortages of construction workers and capacity constraints observed after 2010, particularly among workers in lower-skill occupations.

The increase in short-term visas issued for construction-related occupations between 2010 and 2018 (see Figure 24 above) was also accommodated to some extent by specific changes to immigration policy. The Canterbury Skill Shortage List, including many construction-related occupations, was established to support migrant workers required for post-earthquake rebuild activities (see Figure 27 above). Subsequently, the increase in short-term visas coincided with increased residential construction activity in Auckland and some other regions (see Figure 3 and Figure 26 above). Reflecting this, in early 2018, seven building-related occupations were added to the Immediate Skill Shortage List,⁵³ and in late 2018 these occupations were moved to the Construction and Infrastructure Skill Shortage List (which also replaced the Canterbury Skill Shortage List).⁵⁴

Migrant workers are not less productive than domestic workers

The potential impacts of migrant workers on firm-level productivity in construction were examined by Jaffe and Chappell (2018).⁵⁵ They found that firms with more workers who were recent migrants tended to be around 8% to 14% less productive, but that this appeared to be due to characteristics of the firms rather than characteristics of the migrant workers. Thus, there may be some characteristics of firms that cause them to both be inherently less productive and to choose to use relatively more migrant labour than other firms. However, it does not appear that a firm that chooses to use more migrant labour will suffer a loss of productivity as a result.

⁵¹ Te Waihanga New Zealand Infrastructure Commission, *Draft New Zealand Infrastructure Strategy*, page 28.

⁵² Andrew Coleman & Özer Karagedikli, *A note on construction worker migration to New Zealand 1962-2018*, Reserve Bank of New Zealand AN2018/08.

⁵³ <https://www.beehive.govt.nz/release/building-occupations-added-skill-shortage-list>

⁵⁴ <https://nzil.co.nz/new-construction-shortage-list-unlikely-to-alleviate-skill-shortage/>

⁵⁵ Adam Jaffe & Nathan Chappell (2018), *Worker flows, entry, and productivity in New Zealand's construction industry*, Motu Working Paper 18-02.

Jaffe and Chappell did not examine the reasons for relatively low productivity in construction at the industry level and whether this was related to the use of migrant labour. However, if a firm's productivity does not reduce if it uses more migrant labour, the increase in migrant labour in construction observed over the past ten years seems unlikely to be the main reason for persistently poor productivity at the industry level. As noted above, further research is needed to further understand the relationship between use of migrant labour and productivity in the construction sector, including whether this affects the incentive of firms to increase productivity.

Some migrant construction workers have experienced exploitation

Several studies have examined the experiences of migrant construction workers in New Zealand, with a focus on potential exploitation of these workers. A 2019 comparison of exploitation of temporary migrant workers in New Zealand, Australia, Canada, and the UK found general similarities in the types and extent of exploitative practices faced by some migrant workers to New Zealand as in the other countries.⁵⁶ Across industries within New Zealand, exploitation of migrant workers was found to be most common in hospitality and occurred to a lesser extent in agriculture and construction. Within construction, common exploitative practices identified included lack of written employment contracts and low rates of pay, while the 90-day trial period could make workers reluctant to report employment law violations due to potential loss of employment.

Other studies documented cases of some poor experiences of migrant workers in the New Zealand construction sector, but did not compare the prevalence of such experiences in construction with other sectors or across countries:

- A 2015 MBIE study focussed on Filipino migrant workers in Canterbury and noted that while such workers tended to be well paid compared to average workers on short-term Essential Skills work visas, some migrants were affected by exploitative practices such as excessive recruitment charges, contractual obligations not being met, health and safety concerns, substandard accommodation, and minimum legal employment standards not being met.⁵⁷ However, MBIE noted that the extent to which these practices occurred was difficult to determine.
- A 2021 study of the determinants of job satisfaction among Chinese migrant construction workers found that reported satisfaction levels were independent of gender, marital status, and length of stay in New Zealand, but that age and educational background could affect satisfaction.⁵⁸ Specifically, middle-aged workers reported being

⁵⁶ Christina Stringer and Snejina Michailova (2019), *Understanding the exploitation of temporary migrant workers: A comparison of Australia, Canada, New Zealand and the United Kingdom*. University of Auckland Business School report for MBIE, available at <https://www.mbie.govt.nz/dmsdocument/7110-understanding-the-exploitation-of-temporary-migrant-workers-a-comparison-of-australia-canada-new-zealand-and-the-united-kingdom>.

⁵⁷ MBIE, *Vulnerable temporary migrant workers: Canterbury construction industry*. July 2015, available at <https://www.mbie.govt.nz/dmsdocument/2681-vulnerable-temporary-migrant-workers-canterbury-construction-pdf>.

⁵⁸ James Olabode Bamidele Rotimi, Chamil Dilhan Erik Ramanayaka, Oluwole Alfred Olatunji and Funmilayo Egun Rotimi (2021), *Migrant construction workers' demography and job satisfaction: A New Zealand study*, Engineering, Construction and Architectural Management (preprint).

happier than younger or older workers, and workers with lower education levels reported greater satisfaction than more educated peers.

- A report for labour union E tū examined experiences of Filipino migrant construction workers in Christchurch and Auckland in 2017/18 and found that migrants tended to be paid less than local workers with similar experience, commonly lived in crowded accommodation, and some had apparently illegal deductions from their pay.⁵⁹
- A 2021 Stuff investigation documented exploitation of Chinese migrant construction workers in Auckland such as low rates of pay, high working hours, and substandard accommodation.⁶⁰ Other media reports have also documented smaller-scale exploitation of Chinese migrant construction workers.⁶¹

⁵⁹ Catriona MacLennan, *Migrant Filipino workers in the construction industry*, report for E tū, July 2018, available at <https://www.etu.nz/wp-content/uploads/2018/08/Migrant-Filipino-Workers-in-the-Construction-Industry-Report-for-E-tu.pdf>.

⁶⁰ Steve Kilgallon and Lucy Xia, 'It's all fake': Chinese migrant builders sold a dream, left exploited and hungry, Stuff, 21 February 2021, available at <https://www.stuff.co.nz/business/industries/124279195/its-all-fake-chinese-migrant-builders-sold-a-dream-left-exploited-and-hungry>.

⁶¹ <https://www.stuff.co.nz/auckland/300322905/immigration-nz-charges-employer-with-using-10-illegal-chinese-construction-workers> and <https://www.newshub.co.nz/home/new-zealand/2019/01/chinese-workers-in-new-zealand-allegedly-left-without-passports-food-toilet-paper.html>.