

Housing in Aotearoa: 2020

Updated 2021



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Stats NZ Tatauranga Aotearoa
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Contact

Stats NZ Information Centre: info@stats.govt.nz

Phone toll-free 0508 525 525

Phone international +64 4 931 4600

www.stats.govt.nz

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Purpose and summary

Purpose

Housing in Aotearoa: 2020 brings together a range of housing information – from official and government administrative statistics – to address some of the key questions identified in the [Review of housing statistics report 2009](#) (Stats NZ, 2009).¹ Our analysis in 2020 (based primarily on data from 2018) focuses on how housing intersects with people. How well does New Zealand’s housing stock provide suitable, affordable, warm, safe, and secure shelter for its citizens? Where are the gaps and inequalities? Housing can act as a visible manifestation of inequality but can also act as a medium to address it. Also included is a brief discussion on how housing interacts with the environment, and the relationship of housing with climate change.

Data about New Zealand housing has improved greatly since 2009. This report realises the benefits of those improvements by presenting the most recent data available, in particular from the Census of Population and Dwellings, general social survey (GSS), and household economic survey (HES), on key housing domains. We hope this will support and inspire others to use existing datasets and undertake further research that contributes to better housing policy in Aotearoa New Zealand.

The report is arranged in seven parts. The introduction provides an overview of the *Review of housing statistics report 2009* (Stats NZ, 2009) and some of the key questions raised, along with information on the main data sources used in this report. This is followed by an introduction to New Zealand housing stock, before examining the four key elements of housing adequacy: tenure and tenure security – namely trends in homeownership and renting; housing affordability; housing habitability; and housing suitability. Finally, we look at the impact of housing on the environment, and examine some of the issues around housing demand and supply. Certain themes emerge throughout the report, particularly that housing suitability, affordability, and habitability differ markedly by tenure, to some extent by region, and also by ethnicity.

What is new about this version

We have updated links and made some minor corrections. Information has also been updated in two places:

- to reflect the correction made to ‘New data shows 1 in 9 children under the age of five lives in a multi-family household’
- to include updated severe housing deprivation figures after these were revised and republished in June 2021.

Inclusions

The report largely focuses on dwellings. That is, buildings designed and intended for private accommodation, such as detached houses, townhouses, and apartments. It also considers temporary accommodation, such as caravans, being used as long-term private dwellings, although the structure itself was not designed or intended for it. The report excludes non-private dwellings like motels, hotels, and institutions, except where temporary accommodation is being used as long-term, private dwellings for people who would otherwise be without shelter. The report also

¹ The purpose of the 2009 review was to identify the enduring research and policy needs relating to housing statistics and ascertain the extent to which housing statistics are adequate for current and prospective information needs.

considers housing in its spatial context, with a particular focus on the neighbourhoods in which housing is located, and access to infrastructure and social services.

Summary of key points

Housing in Aotearoa: 2020 brings together housing information from a number of different sources, to address some of the key questions identified in *Review of housing statistics report 2009* (Stats NZ, 2009). The review identified the key areas of information required to better understand housing in New Zealand as tenure and tenure security, affordability, habitability, suitability, and housing supply and demand. Key findings from the report are summarised below:

Our housing stock

- At the time of the 2018 Census, there were over 1.8 million dwellings in Aotearoa New Zealand. Of these, just under 1.7 million were privately occupied, housing around 4.3 million people.
- While the oldest dwellings in New Zealand date from the 1840s, fewer than 10 percent of current dwellings were built prior to the 1940s. Around one third of New Zealand's homes have been built in the last 20 years.
- Dwellings built since 2000 tend to be larger than ones built prior to the 1990s. A third of houses now have four or more bedrooms compared with one-fifth in 1991.
- Larger dwellings have a greater carbon footprint, which has implications for New Zealand's climate change obligations.
- While dwellings have increased in size, section sizes have become smaller. As a consequence, houses are taking up an increasing proportion of their land area.
- Houses have changed in appearance as well – the majority of houses pre-1900 were clad in timber weatherboards, by 1981, fewer than half were clad in timber.
- There is increasing diversification of housing stock, with more multi-unit dwellings being built, including units built as part of retirement complexes. Around 40 percent of all new dwellings consented since mid-2019 were multi-unit.
- Dwelling stock varies by tenure – with rental houses tending to be smaller and older.

Housing tenure and tenure security

- At the time of the 2018 Census, New Zealand's homeownership rates were at their lowest since the 1950s.
- Homeownership peaked in the 1990s, at 73.8 percent of households, but by 2018, homeownership had fallen to 64.5 percent of households. Homeownership rates have fallen in every region since 1991, with the largest falls in the Auckland region, which has well-documented affordability and supply issues.
- Homeownership continues to be higher outside the main centres – for example, 8 out of 10 households in Waimakariri and Selwyn districts lived in an owner-occupied dwelling. Homeownership rates in our major cities in 2018 were generally well below the national average.
- There were considerable disparities in homeownership rates by age, with homeownership rates higher for older people.

- Pacific peoples and Māori were less likely to own their home or hold it in a family trust than other ethnic groups. They were also more likely, along with people with Asian, Middle Eastern, Latin American, or African (MELAA) ethnicity, to live in public housing.
- By 2018, just over 1.4 million people lived in houses they did not own, including 120,000 children under five years of age. Although private renting predominated for all age groups, almost one-third of renters aged 65 and over lived in social housing.
- Owners tended to have higher income levels and were more likely to be partnered than non-owners.
- Non-owner-occupiers had less security of tenure. They moved more often than owner-occupiers and were much less likely to have lived in their house for long periods of time.
- In 2018, the most common reason given by renters who had moved to another rental in the last five years was because their landlord ended their tenancy.

Housing affordability

- Housing costs – rent, mortgage payments, rates, and insurance – are a significant part of expenditure for many households.
- Renting households (non-owner-occupied) generally spent a higher proportion of their income on housing costs than owner-occupiers in 2018; and the proportion of renting households that spent more than 30 percent of income on housing costs increased rapidly from less than 20 percent of renters in 1988 to over 40 percent in 2019.
- Auckland households face the greatest housing costs burden of any region – with median equivalised income after housing costs in the year to June 2019 at \$30,100.
- In New Zealand, house prices have been rising at a faster rate than wages over the past five years. The Auckland median house sales price in mid-2020 was about 11.5 times the median household income.
- While rising property prices generated wealth for homeowners, they have also made it harder for aspiring homeowners to get onto the property ladder.
- Lower mortgage rates in recent years have benefited existing mortgage-paying homeowners. This means that mortgage interest payments (repayment affordability) are estimated to be similar in 2020 to those in 2010, despite the increase in property prices.
- In the 2018 GSS, people were asked to rate the affordability of their housing. Sole parents, recent migrants, Pacific peoples, Māori, low income earners, non-owner-occupiers, Aucklanders, the unemployed, disabled people, and those with no qualifications, were the most likely to rate their housing as unaffordable.

Housing habitability

- 2018 provided the most comprehensive look to date at the state of New Zealand housing, with new questions in the 2018 Census and 2018 GSS, and a detailed inspection of over 800 houses from the 2018–19 pilot housing survey (PHS).
- Dampness and mould were common in New Zealand homes. Around 1 in 5 homes were damp sometimes and 1 in 6 had mould larger than A4 size.
- 1 in 5 New Zealanders lived in a home that was always or often too cold in winter, but this rose to around 2 in 5 Pacific peoples.

- Housing problems, such as cold, damp, and mould, were more common among households that were not owner-occupiers, did not have enough money for everyday needs, and had four or more household members.
- Owner-occupier households were more likely to have efficient heating appliances, such as heat pumps and wood burners, than non-owner-occupier households. Owner-occupied households were also less likely to use portable gas heaters, or not to heat their dwellings at all.
- The 2018–19 PHS showed that rental houses were more likely to be smaller, and to be in need of major repair, and were less likely to have double glazing. However, there was no significant difference in insulation between owned and non-owned dwellings.
- The PHS assessed the extent of visible mould in all rooms of the house. The results show visible mould was most frequently observed in bathrooms (57 percent) and bedrooms (54 percent), compared with kitchens (28 percent) and living spaces (37 percent).
- The PHS found that 1 in 10 New Zealand houses did not have any working smoke alarms, 1 in 3 had tap water that was too hot in their bathrooms, and 1 in 5 houses had trips and falls hazards.
- Poor quality housing affects people's wellbeing. Just over half of people who reported four key housing quality problems rated their overall life satisfaction poorly.
- People living in damp, cold, and mouldy houses had more frequent colds and flu and were more likely to suffer from asthma. They also tended to have poorer mental wellbeing than people who lived in homes without these problems.

Housing suitability, crowding and homelessness

- In 2018, most New Zealanders found their home and neighbourhood suitable for their needs. However, non-owner-occupiers, people living in crowded housing, Māori, Pacific peoples, the unemployed, and sole parents tended to be less satisfied with their housing.
- Size (too large/too small) was the most common reason that people rated their dwelling as unsuitable.
- Housing suitability also has an impact on people's wellbeing. Data from the 2018 GSS showed that people who thought their housing was unsuitable or very unsuitable rated their life satisfaction worse, on average, than those with suitable or very suitable housing.
- In 2018, around 1 in 9 New Zealanders lived in a crowded house, with the highest rates of crowding among Pacific peoples.
- Household crowding was highest in Auckland and Gisborne regions, and within Auckland, 1 in 4 households in Mangere-Otahuhu and Otara-Papatoetoe were crowded.
- Just under one percent of the population was estimated to be severely housing-deprived (homeless) in 2018.
- Rates of severe housing deprivation were highest among young Pacific peoples and young Māori, while overall, severe housing deprivation prevalence rates for Pacific peoples and Māori were close to four and six times the European rate.

Housing and the environment

- The New Zealand construction sector is a dominant contributor to New Zealand's consumption-based greenhouse gas emissions (which takes into account greenhouse gas

emissions from products and services imported into New Zealand), representing 16 percent of total emissions in 2018.

- Timber construction and renewable energy can help reduce the impact of housing on climate change.
- New Zealand's largely inadequate housing stock contributes to greater energy inputs for heating (and cooling).
- The trend towards larger houses increases the carbon footprint of dwellings – some larger houses use more emissions due to the amount of materials used, the type of construction, replacement and the number of people living in the dwelling. Some stand-alone houses currently being designed and built in New Zealand can exceed their allowable carbon budget by seven to ten times.
- In Auckland and Wellington, it is estimated that almost half of the (simulated) energy demand comes from the household's use of appliances such as refrigerators, with water and space heating making up a significant fraction of the rest.
- Space heating used an estimated 27 percent of operational energy in Christchurch in 2018, compared with only 4 percent in Auckland with its milder winter temperatures.

Housing supply and demand

- Since 1981, the New Zealand population increased by almost 2 million people, to reach a usually resident population of just over 5 million people, as at 30 June 2020. Between 2013 and 2018 Censuses, the population increased by close to half a million people.
- The number of private occupied dwellings increased by an average 1.3 percent per year between 2013 and 2018, compared with an annual average of 0.9 percent for the seven years from 2006 to 2013. However, population growth between 2013 and 2018 outstripped growth in the number of private occupied dwellings.
- Our ageing population has contributed to an increase in couple-only and one-person households.
- New Zealand also has an increasing number of larger households, including over 55,000 multi-family households in 2018. This reflects a changing and diversifying population, but also increased pressures on housing.
- Household numbers are expected to continue to increase, whilst the number of people per household is expected to fall slightly.
- Many young people are taking longer to leave their parental home and set up home by themselves.

Introduction

This report has been shaped by the *Review of housing statistics 2009*, (Stats NZ, 2009). This section gives an overview of the review and some of the key questions it posed, along with an introduction to the key data sources used in the report.

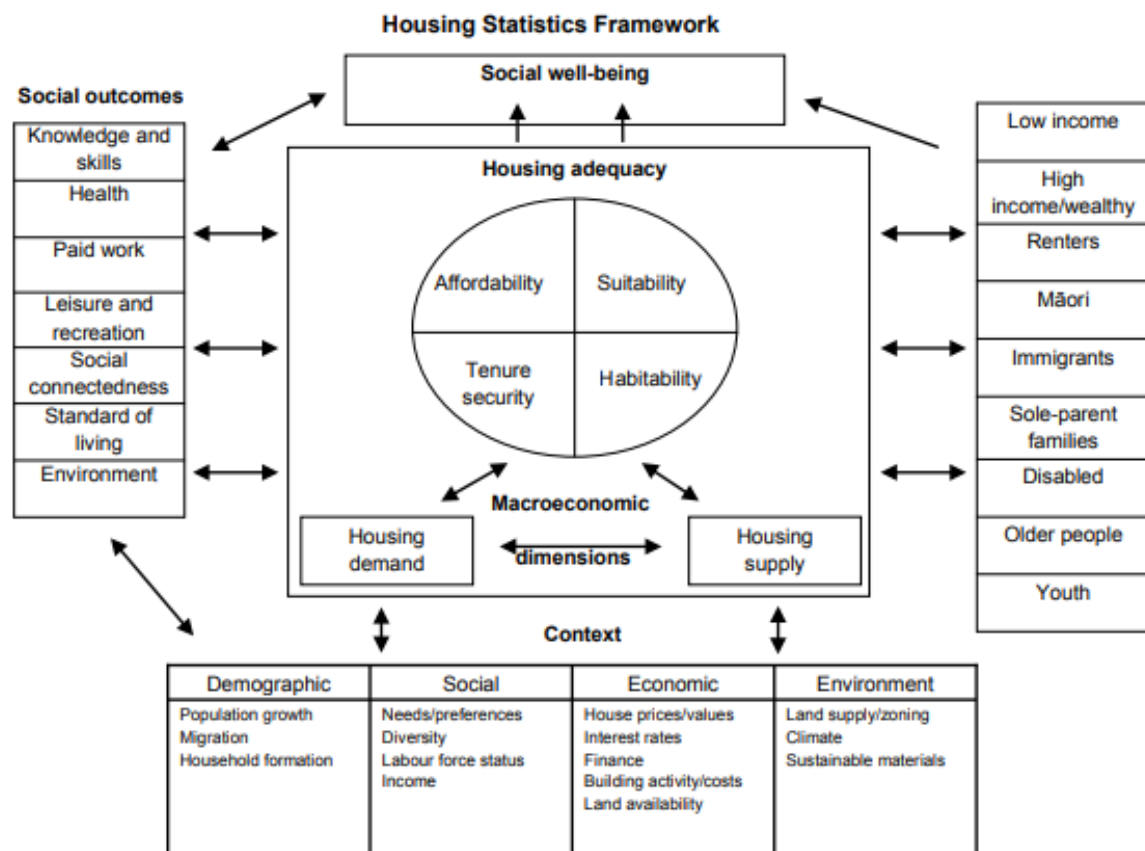
Review of housing statistics 2009

The *Review of housing statistics 2009* identified the key areas of housing information required to better understand housing in Aotearoa New Zealand, after consultation with a range of agencies. The aim of the review was to provide a framework for housing statistics in order to “identify the enduring research and policy needs relating to housing statistics, [and] ascertain the extent to which housing statistics are adequate for current and prospective information needs”.

The review drew on the work of the United Nations, which identified four elements as being crucial to the measurement of housing adequacy: affordability, suitability, habitability, and tenure security. In addition, two further key areas were identified that needed better statistical information: housing supply and housing demand.

Figure 1 shows the housing statistics framework and the interaction between different housing domains, social and economic wellbeing, and population groups.

Figure 1



Review of housing statistics 2009

The review posed the following key questions:

- **Housing demand** – what are the factors driving housing demand?
- **Housing supply** – what are the characteristics of the existing (and emerging) stock of housing? How is the housing stock changing and what factors affect housing supply in New Zealand?
- **Housing affordability** – do people living in New Zealand have access to affordable housing?
- **Housing habitability** – what is the physical condition of New Zealand dwellings and how does this affect people's health and lives? How many people live in housing where physical problems exist? How many do not have access to basic household amenities such as cooking, washing, and heating? How do sustainable and energy efficient improvements affect the habitability of New Zealand dwellings?
- **Housing suitability** – how many people live in housing unsuitable for their needs? How do people access housing that is suitable for their needs? How does crowded housing affect health and education?
- **Tenure security** – how does the nature of tenure (homeownership or rental) affect security?

Since 2009, there have been significant developments, particularly in the measurement of housing habitability, of homelessness, and of household crowding and affordability. However, in all these areas there is scope for further work.

Data sources

In most cases, the most recent data in this report is from 2018. Data has been selected from a variety of Stats NZ and external sources. These include the following (with time period of the most recent data used in this report):

- Census of Population and Dwellings (census) (2018)
- general social survey (GSS) (2018)
- pilot housing survey (PHS) (2018–19)
- household economic survey (HES) (2019)
- quarterly employment survey (QES) (2020).

Census of Population and Dwellings

The New Zealand Census of Population and Dwellings (census) provides the official count of people and dwellings in New Zealand. Every five years, in March, the census surveys everyone in New Zealand on census night, capturing a snapshot of those living in the country. There was a seven-year gap after 2006, as the 2011 Canterbury earthquakes resulted in the postponement of the 2011 Census to 2013.

Census includes questions relating to entire households, such as housing quality, access to household amenities, and household composition. These questions are asked of people residing in occupied, private dwellings. Other questions are asked of individuals within households (in private and non-private dwellings), and include demographic indicators such as age, sex, ethnicity, and disability status, as well as economic indicators such as income, education, and employment details.

[Data quality ratings for 2018 Census variables](#) has more information around census data.

General social survey

The general social survey (GSS) produces statistics about the social wellbeing of New Zealanders. The survey, of around 8,500 people, is carried out every two years, during the April to March year. The survey combines objective information about a person's circumstances, such as labour force status and income, with a personal assessment of different aspects of their lives, such as life satisfaction, health, housing, human rights, and relationships. In particular, the survey provides a view of how wellbeing outcomes vary across different groups within the population.

In 2018, the GSS included a housing and physical environment supplement. This collected additional information on housing habitability, heating, ventilation, and tenure security. Respondents were also asked for permission for a one-off temperature measurement in their home, and whether they would consent to an inspection carried out by the Building Research Association of New Zealand (BRANZ).

Pilot housing survey

The pilot housing survey (PHS) 2018–19 involved a physical assessment of 832 dwellings throughout New Zealand, selected from GSS respondents. While based on methods used by BRANZ in its house condition survey (HCS), which has been carried out every five years since 1994, the survey trialled a number of different approaches including:

- new survey content
- new data collection methods
- partnering with the GSS – a large, national household survey
- a larger sample size of around 800 houses (making it the largest national survey of its type undertaken in New Zealand since 1937).

Household economic survey

The household economic survey (HES), collects data on household income and expenditure, and is one of the best sources for statistics on housing affordability. The survey has run nearly every year since 1974, apart from a period when it ran every three years (from 1998 to 2007). Over that time, it achieved a sample size of about 3,000–5,000 households each year, but this has risen to 20,000 households since 2019. Statistics are reported annually for the year to June and include information about the proportion of income spent on housing, as well as indicators of material wellbeing and poverty.

Quarterly employment survey

The quarterly employment survey (QES) is a survey of businesses that provides statistics on average hourly and weekly earnings, average weekly paid hours, and the number of filled jobs and full-time equivalents, by industry.

The survey is collected quarterly, which allows timely comparisons of changes in wages with changes in rental prices and house prices.

About New Zealand's housing stock

Housing is important not only for the basic need for shelter, but to provide a foundation for social and economic wellbeing. Housing is also a key determinant of health. In 2018, the World Health Organization published healthy housing guidelines that identified the key areas for improvement in housing: reducing crowding; and improving indoor air environment and insulation, air quality, home safety, and accessibility.

This section gives an overview of New Zealand's housing stock in 2018, and how it has changed over the past century.

The 2018 Census recorded over 1.8 million private dwellings in Aotearoa New Zealand. Of these, almost 1.7 million (around 90 percent) were occupied private dwellings, and almost 200,000 were unoccupied. The proportion of unoccupied dwellings has remained consistent over the last three censuses. Dwelling occupancy status was determined via responses to the census, evidence gathered during field operations, and administrative data sources. For more information see [Census information by variable](#).

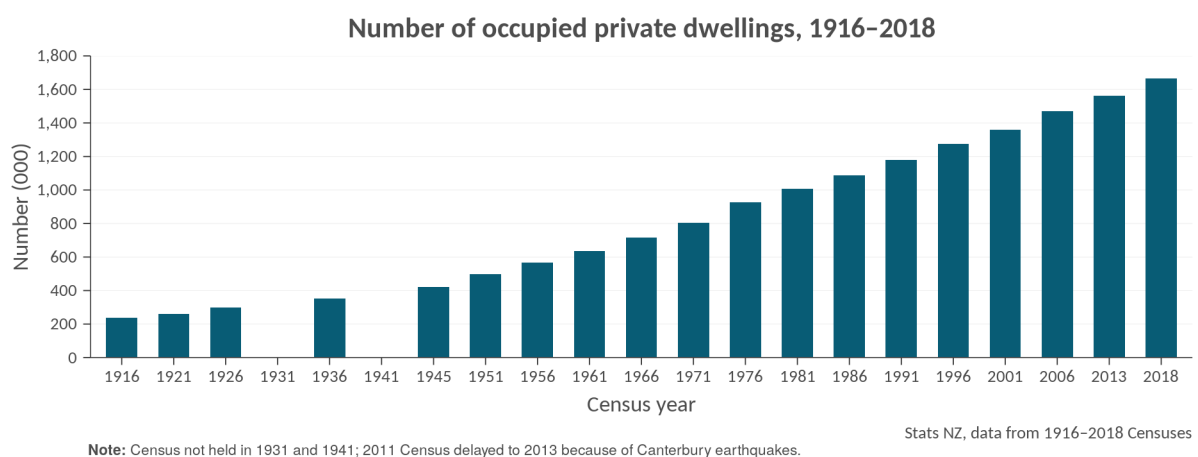
A **private dwelling** accommodates a person, or a group of people, and is not generally available for public use. The main purpose of a private dwelling is as a place of habitation; it is usually built (or converted) to function as a self-contained housing unit.

For census use, a dwelling is defined as **occupied** if it is:

- occupied at midnight on the night of the data collection, or
- occupied at any time during the 12 hours following midnight on the night of the data collection unless the occupant(s) completed a form at another dwelling during this period.

Figure 2 shows how the number of occupied private dwellings has steadily increased since the early 20th century, rising from around 240,000 in 1916 to just over 1,664,000 in 2018.

Figure 2



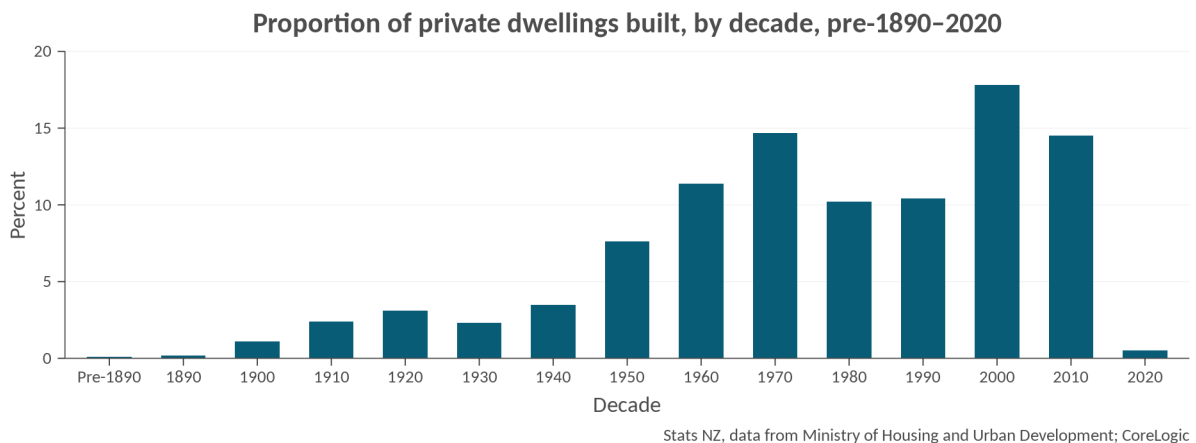
A third of New Zealand's houses built in the last 20 years

Just over half (53.5 percent) of New Zealand homes were built in the last 40 years, with around a third built since the beginning of the 2000s (figure 3). Just 1.4 percent were built before 1910. It is estimated that while housing built between 1890 and 1910 was warm, dry, and well ventilated,

poorer quality construction from the 1930s onwards led to New Zealand housing increasingly having problems with cold, damp, and mould (Isaacs, 2007).

Changes to the building code in 1977 meant dwellings built after 1978 were required to have some insulation, and standards for the thermal envelope of the house (such as insulation and double glazing) have been further updated.

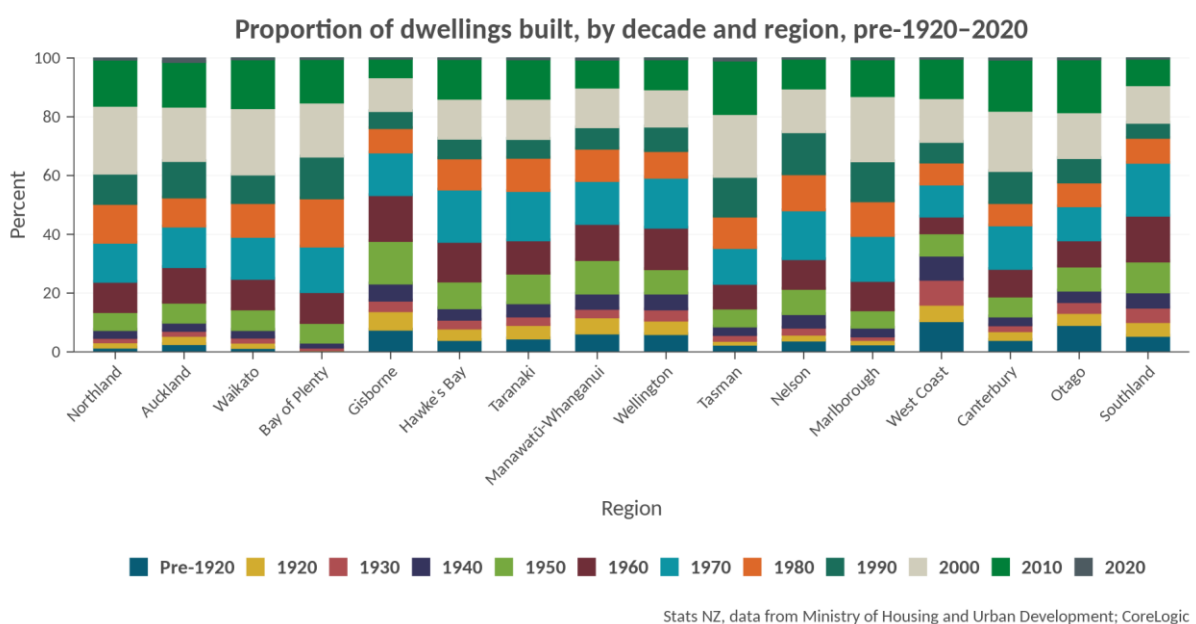
Figure 3



More new homes in Tasman, Waikato, Northland and Canterbury

Figure 4 shows the distribution of home construction dates by region. Tasman, Waikato, Northland, and Canterbury regions have the highest proportions of dwellings built since 2000, at around 4 out of 10 houses

Figure 4



In contrast, the West Coast has the highest proportion of older housing, with almost a third of houses there built in the 1940s or earlier. In the Tasman and Bay of Plenty regions almost two-thirds of dwellings were built after 1979 (at 64.5 and 64.1 percent, respectively). In contrast, around one third of homes (32.0 percent) in Gisborne have been built in the same period.

The areas with higher proportions of newer dwellings tend to coincide with areas of faster population growth.

House sizes growing, but section sizes shrinking

Much of the 1970s housing boom was centred around smaller homes (at around 110m²). Until 1979, the State Advances Corporation made low interest loans available for households to build new housing. Families could also apply to capitalise their family benefit to use as a deposit for a house. This helped to provide a market for more modest starter homes (Saville-Smith, 2019; Bassett & Malpass, 2013). These economies of scale benefitted construction companies. However, once the restriction on loans for new housing was removed, the market for smaller homes declined and construction companies shifted their focus to more lucrative building projects. The productivity commission (2012) showed there had been a significant shift away from building low cost, lower quartile value housing to high cost, higher quartile housing.

Covenants may restrict smaller homes

Other factors have also contributed to the shift away from small starter homes. While council planning regulations play a part, recent research (Fredrickson & Saville-Smith, 2018) suggests that land covenants can act as a barrier to more affordable housing. A land covenant can be imposed to control land use and development. In residential developments, covenants often restrict aspects such as:

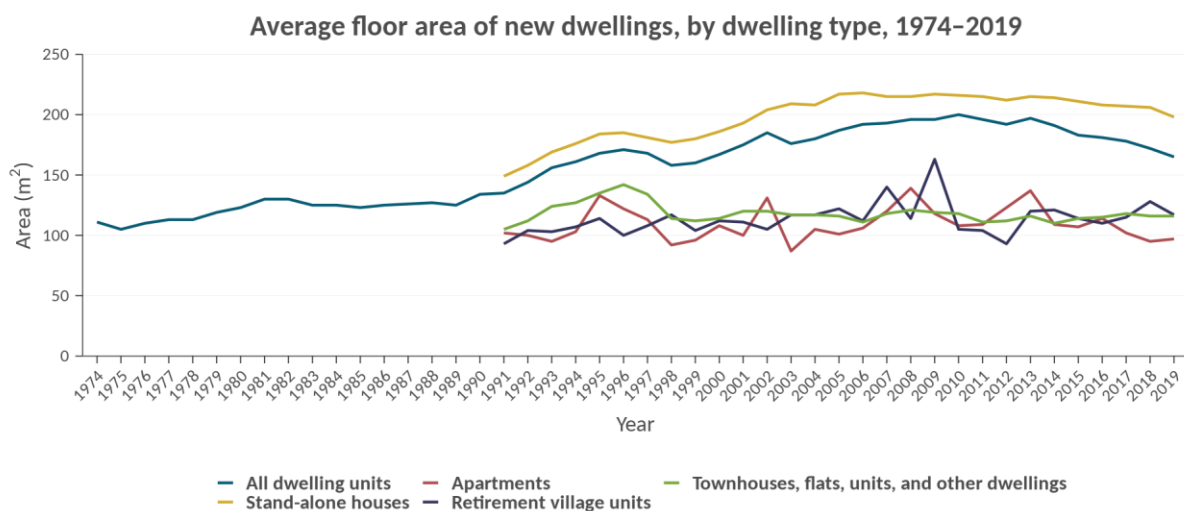
- the building of lower-cost housing, two-storey dwellings, or smaller houses
- the use of lower-cost materials
- visible solar energy systems
- placement of utility structures such as washing lines, storage sheds, garages, and ramps.

Sometimes developers require designs, materials, and values-to-market be approved by them.

Throughout New Zealand, 16 percent of titles have a covenant, with rates much higher in rapidly growing territorial authorities such as Selwyn, Waimakariri, and Queenstown-Lakes (48, 40, and 36 percent respectively). In Auckland, covenants have increased from 9 percent of residential titles in 1980 to 55 percent of residential titles struck in 2017 (Fredrickson & Saville-Smith, 2018).

Dwelling sizes peaked in 2010

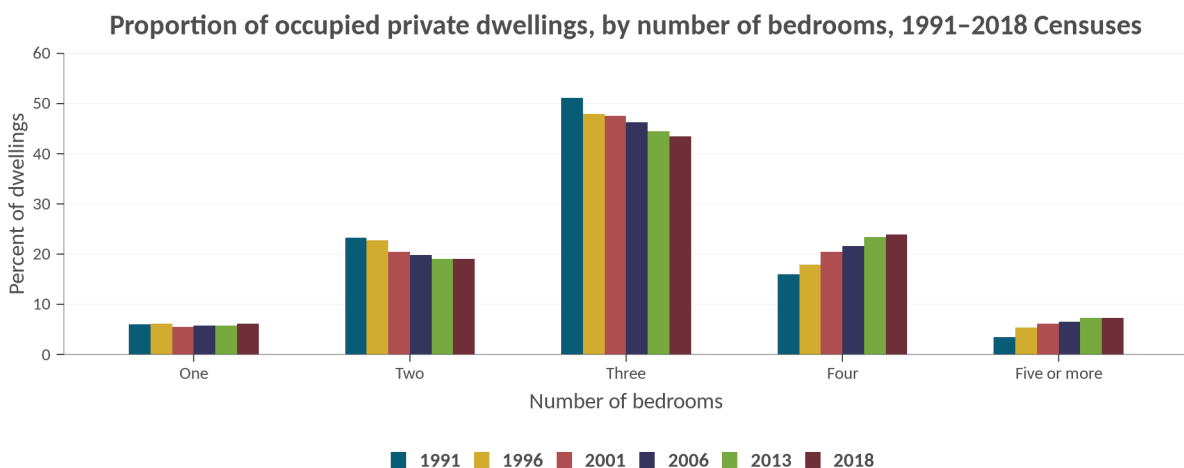
New Zealand dwellings have been getting larger. The average floor area per dwelling gradually increased from the 1990s to a peak of around 200 m² in 2010 (see figure 5), before falling back to around 160 m² for dwellings consented in 2019. Data from building consents shows that the increase in size is largely due to an increase in the size of houses rather than apartments, which have seen little change in size since the early 1990s.

Figure 5

Stats NZ, data from building consents issued statistics

Recently consented houses are more likely to include additions such as attached garages than those consented in the 1970s, so this may also contribute to some of the size increase seen. However, even taking this into account, today's houses are larger, on average, than those built in the 1990s.

This growth is reinforced by data on number of bedrooms. Census data shows that since the 1990s there has been a small but steady increase in the proportion of four- and five-bedroom dwellings, whilst the proportion of two- and three-bedroom dwellings has fallen (figure 6).

Figure 6

Stats NZ, data from 1991–2018 Censuses

In 2018, almost a third (31.2 percent) of occupied private dwellings had four or more bedrooms compared with less than a fifth in 1991 (19.5 percent). These dwellings also tend to have a larger floor area, with average four-bedroom houses measuring around 186 m², and five-bedroom houses almost 253 m² (Saville-Smith et al, 2017).

Joined dwellings tend to be smaller than stand-alone houses. Over two-thirds of joined dwellings in the 2018 Census (69.5 percent) had either one or two bedrooms, compared with just 17.0 percent of stand-alone houses.

Housing sizes also varied regionally. The traditional three-bedroom home was most common in Southland (52.4 percent) and Taranaki (49.7 percent). Auckland had more varied housing than elsewhere with the lowest percentage of three-bedroom homes (39.0 percent), and the highest proportion of homes with five or more bedrooms (9.9 percent). One-bedroom dwellings were most common in the West Coast (8.2 percent) and Wellington (8.1 percent).

Sections getting smaller

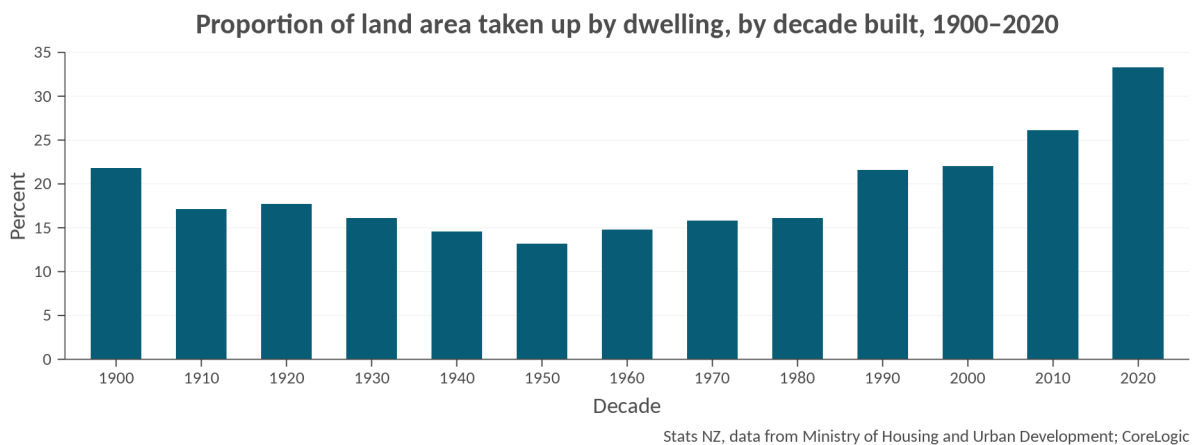
Whilst dwelling sizes have increased, the parcels of land they sit on have been getting smaller.

Territorial authorities in New Zealand hold information about residential properties, which includes the area of the land, and the size and age of the dwelling on it. This information is compiled by CoreLogic, and further developed by the Ministry of Housing and Urban Development (HUD) who supplied the data used here. Where actual year of construction is not available, a value has been imputed for either the beginning, middle or end of the relevant decade (Das, 2018).

For dwellings built in the 20th and early 21st century, the median size of a land parcel in New Zealand was over 700 m², but for dwellings built between 2000 and 2010, it fell to 681 m². The most recent data for 2020 has a median land parcel size of 451m². This figure includes all types of houses, so each land parcel may have more than one dwelling on it. Note that properties may have been subsequently subdivided, so the land area may not always reflect the land area when the house was first built.

Within New Zealand there is considerable difference between regions, with land parcels remaining large in more rural regions, such as Northland, but decreasing in size in highly urbanised regions such as Auckland. For stand-alone dwellings built between 2010 and 2019, the median land parcel size was 492m² in Auckland, 600m² in Wellington, and 645m² in Canterbury. Data for 2020 shows the median land parcel size has fallen to 388m² in Auckland, 562m² in Wellington, and 554m² in Canterbury.

With dwelling sizes increasing and land parcels getting smaller, dwellings are taking up increasingly high proportions of the available land. Figure 7 shows median dwelling size as a proportion of the median land area of the section for New Zealand, by decade of construction.

Figure 7

Housing built from the 1910s to the 1980s occupied less than 18 percent of the section, but from the 1990s this began to grow, to reach over 25 percent in the 2010s. Data for the current decade, beginning 2020, shows new houses taking up almost a third of their section.

Most New Zealanders have access to outdoor space

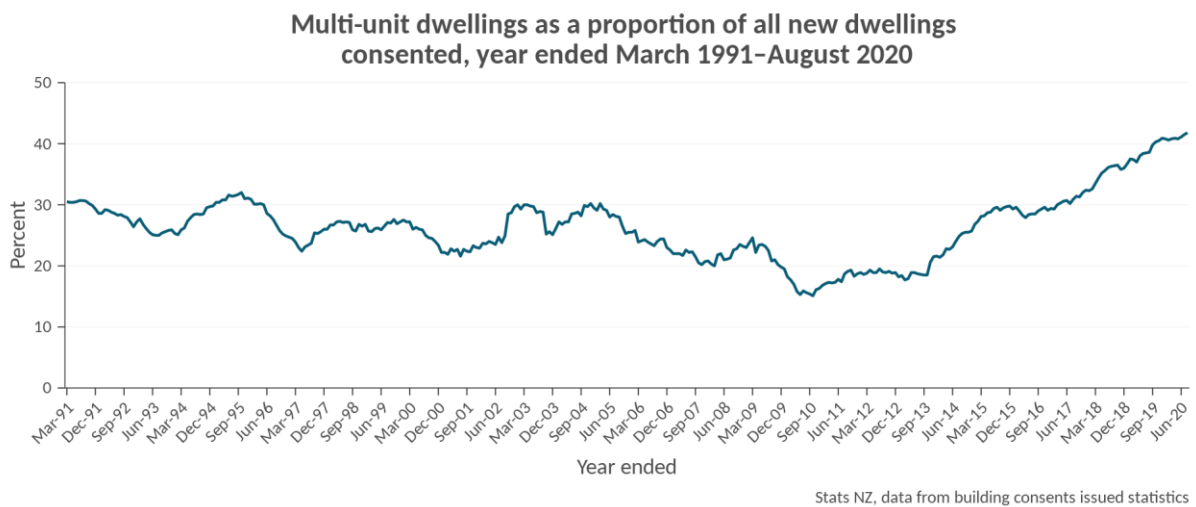
Despite smaller section sizes, in 2018 most people lived in homes with some outdoor space. In the 2018 GSS, people were asked what type of outdoor area their house or flat had. Nationally, 84.5 percent of people lived in homes with their own garden, although this fell to 76.8 percent in Auckland. Just 2.9 percent had no outdoor area at all. Having no outdoor area was more common in Auckland, and among young people aged 15-24, recent migrants, Māori, Asian and Pacific people. In comparison, 1 in 8 (12.5 percent) British households had no access to a garden in 2020, which included around 1 in 5 (around 20 percent) of those living in London (Office of National Statistics, 2020).

Farewell to the quarter-acre pavlova paradise?

New Zealand has often been described as a ‘quarter-acre pavlova paradise’, the title of an ironic look at New Zealand life by Austin Mitchell. As demand for dwelling intensification increases (Boyack, 2019), the larger sections of the past are lamented by commentators (Marriage 2016).

Dwelling intensification in our largest cities

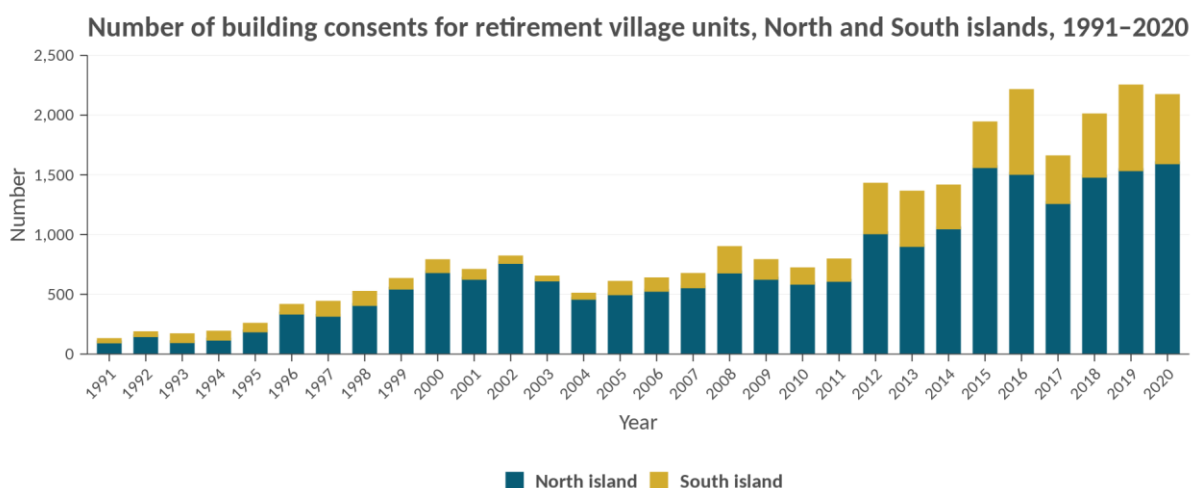
Using data from building consents, figure 8 shows the proportion of new dwellings consented that were multi-unit dwellings since 1991. Thirty-one percent of all new residential dwellings consented in the year ended March 1991 were multi-unit dwellings – comprising apartments, townhouses, flats, units, or retirement village units. There has been some fluctuation over the years, falling to a low of 15 percent around the time of the global financial crisis, however, over the last decade there has been an increasing trend for multi-unit dwellings.

Figure 8

By the year ended August 2020, consents for multi-unit homes rose to over 40 percent of all new homes consented.

Retirement villages on the rise

The proportion of new homes that are retirement village units has also increased significantly in recent years, see figure 9. These may or may not be connected with a rest home facility. Between 1991 and 2020, there have been a total of 27,786 consents for retirement village units, with over half of these consented since 2012. Figure 9 shows annual consents for retirement villages from 1991 to 2020 (year to June).

Figure 9

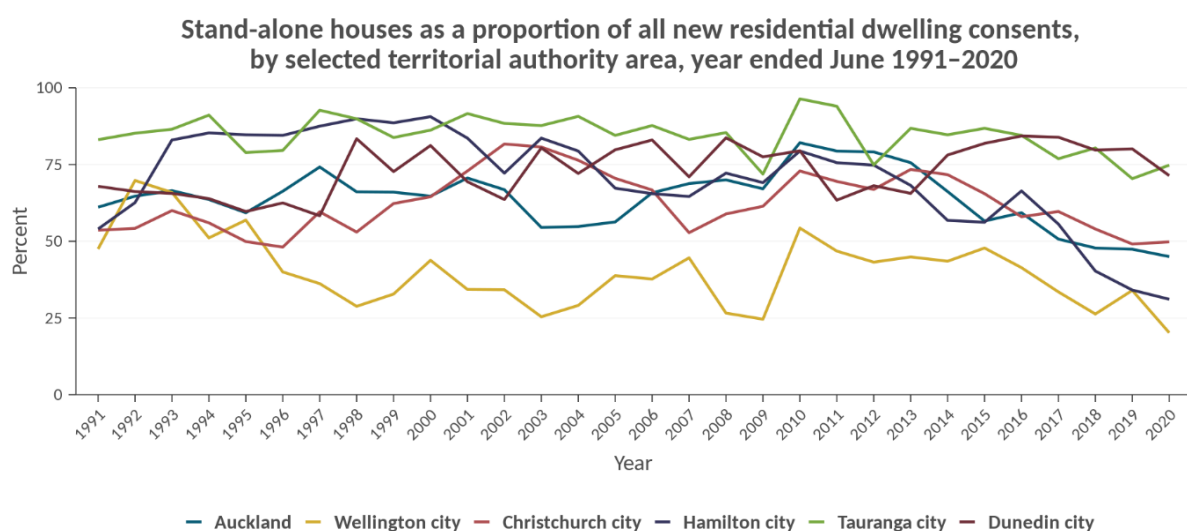
Stats NZ, data from building consents issued statistics

Fewer stand-alone houses in urban areas

Increasing intensification has led to decreasing levels of new stand-alone dwellings in more urban areas. Figure 10 shows the proportion of stand-alone houses in selected territorial authority areas since 1991. Whilst there is some fluctuation, rates in our largest cities have all fallen over the last decade. Wellington and Hamilton cities have the lowest rates of new stand-alone houses consented in recent years (at 20.2 percent and 31.1 percent, respectively, in the year ended June 2020).

Within the Auckland region there was considerable variation. In the most recent data (year to June 2020), only 2.4 percent of new residential building consents in the Waitemata local board area were for stand-alone houses, compared with 85.5 percent in Rodney, and 92.7 percent in Waiheke local board areas.

Figure 10



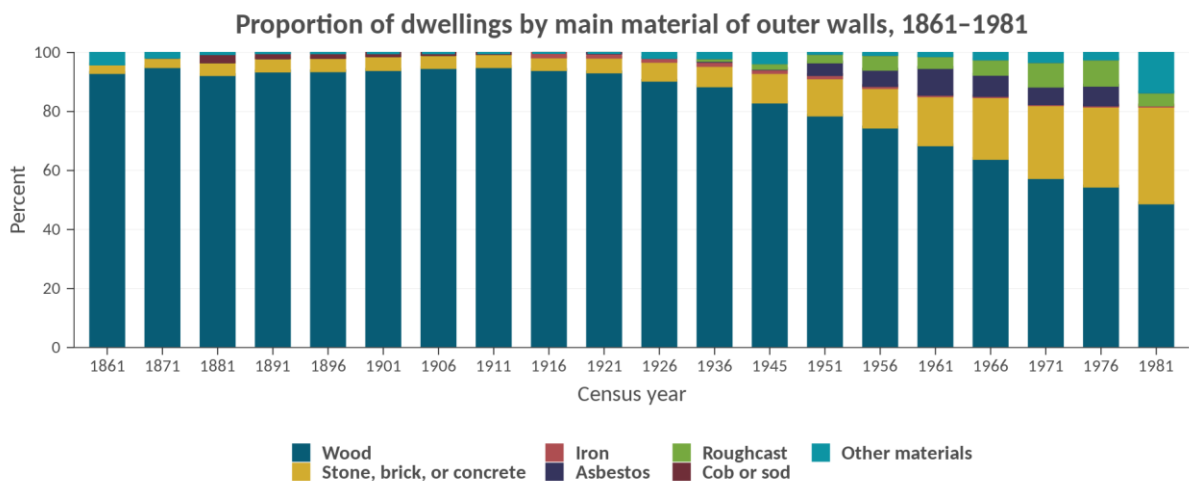
Stats NZ, data from building consents issued statistics

The changing face of New Zealand homes

Dwelling size and type are not the only changes to our housing stock. Dwelling construction and preference around styles have also changed over time.

Wood no longer the main external wall material

From 1861 to 1981, census collected information about the main construction materials for the external walls of New Zealand houses (see figure 11). Wood was the most common material for much of this time period, with around 9 out of 10 New Zealand dwellings clad in timber weatherboards during the 19th and early 20th centuries (Stats NZ, 2015a).

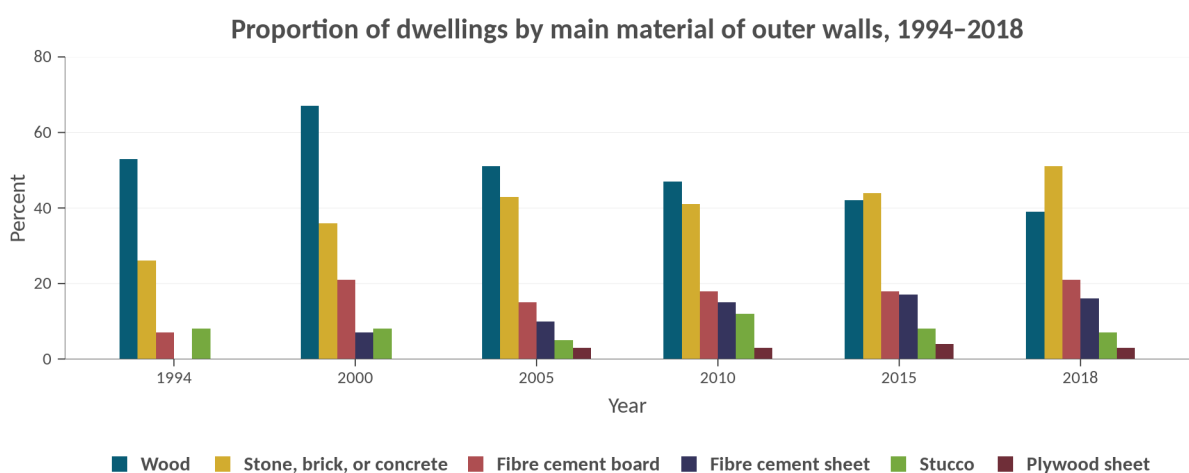
Figure 11

Stats NZ, data from 1861–1981 Censuses

Note: Data covers all dwellings before 1900; private dwellings only from 1916 to 1926; and permanent private dwellings only from 1934 to 1936.

The proportion of dwellings clad in wood began to fall from the early to mid-20th century, as more dwellings were constructed from ‘permanent’ materials such as brick and concrete. By 1981, just under half (49.0 percent) of permanent private dwellings were clad in wood.

Whilst census data stops in 1981, the Building Research Association of New Zealand (BRANZ) has been carrying out surveys of housing since the 1990s. Their surveys show that, while timber weatherboard cladding remains common, in 2018 its use had fallen to just under 40 percent of houses (figure 12).

Figure 12

Stats NZ, data from BRANZ housing condition surveys 1994–2015 and pilot housing survey 2018

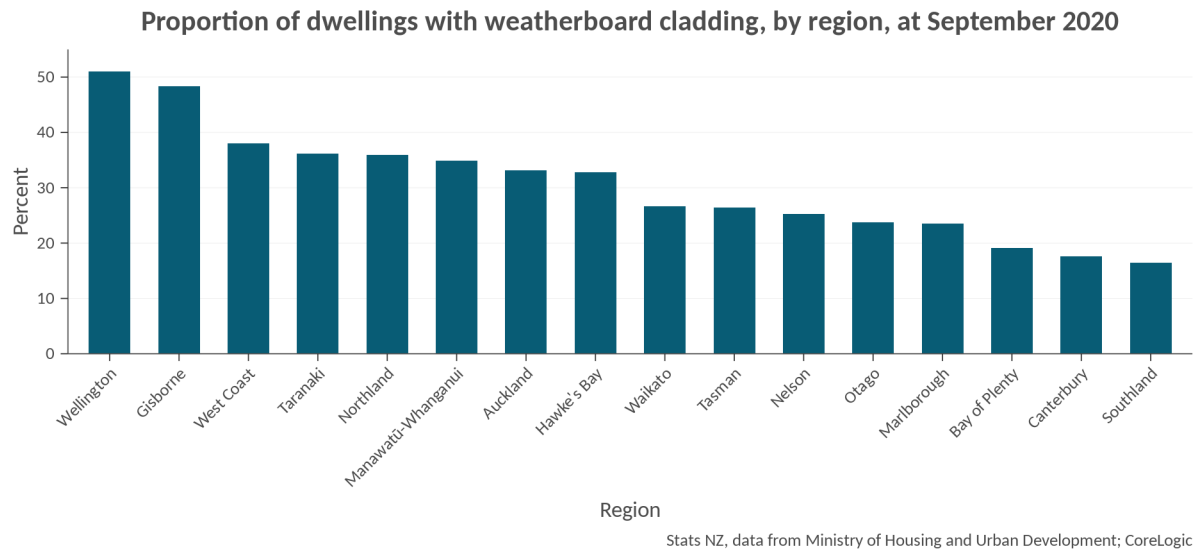
Housing condition survey, 1994, 2000, 2005, owner-occupied only and Auckland, Wellington and Christchurch.

Housing condition survey, 2010, 2015, owned and rented, nationwide.

Pilot housing survey, 2018–19, owned and rented, nationwide.

Council data on the construction of external walls shows that regions with a larger proportion of older houses also have larger proportions of houses clad in wood (timber weatherboards) (figure 13). Around half the houses in Wellington and Gisborne regions were clad in timber weatherboards (at 51.0 percent and 48.4 percent, respectively).

Figure 13



Summary of housing stock

Over the 20th century, the number of private occupied dwellings in New Zealand has grown rapidly. Around a third of New Zealand houses have been built since 2000. While house sizes have tended to increase, the size of sections has shrunk. As a result, dwellings are taking up an increasingly large proportion of their land area. At the same time, intensification, particularly in our largest cities, has led to an increase in multi-unit dwellings, including significant growth in retirement units.

Dwelling construction methods and style preferences have also changed over time. By 1981, timber weatherboards were no longer the most common external wall cladding material for New Zealand homes.

Tenure and tenure security

The *Review of housing statistics report 2009* (Stats NZ, 2009) identified tenure security as one of the key areas of need for statistical information. In particular, the need for data to monitor changes in tenure status, and the reasons for changing tenure status among different groups in the population. This included how Māori housing experiences compared with those of the total population.

Extra questions on tenure security were included in the 2018 general social survey. This data has been used in combination with 2018 Census data to look at how tenure security varies for different population groups, including owners and renters, and different ethnic and age groups.

Homeownership is a significant part of family wealth in New Zealand and provides a means to pass on resources between generations (Stats NZ, 2016; Thorns, 1995).^{2,3} However, declining home ownership rates may reduce the ability to pass on wealth and “may have the potential to exacerbate cleavages between older and younger generations” (Fuller et al, 2019).

Tenure security

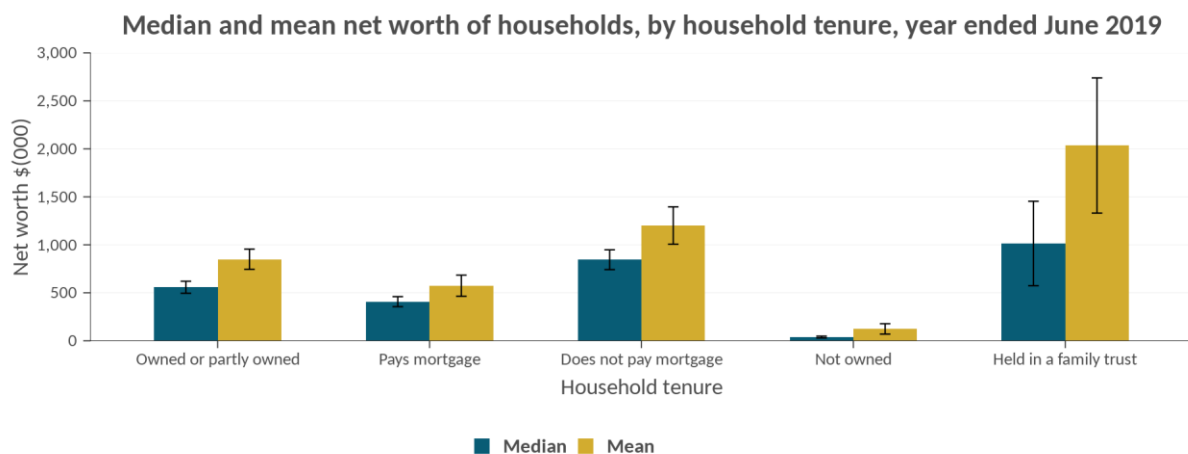
Security of tenure encompasses levels of residential mobility (how often people move house) and other dimensions of security, such as the amount of control a household has over its housing and the degree of certainty about future housing circumstances. At one extreme, tenure insecurity can result in homelessness, frequent changes of rental accommodation, or use of improvised, makeshift, or mobile dwellings such as caravans, and can reinforce social exclusion and poverty. At the other extreme, tenure security can provide long-term renters or homeowners with independence, stability, and control over their lives, which provide a basis for community participation.

Review of housing statistics report,
(Stats NZ, 2009)

Household net worth statistics (Stats NZ, 2018) showed that between June 2015 and 2018 the median property assets for people’s homes rose by almost \$100,000 (from \$350,000 to \$448,000). Figure 14 shows the difference in household wealth by household tenure in the 2018 household net worth survey. Households that owned or partly owned their homes had a median net worth of \$558,000, compared with \$39,000 for households that did not own their dwelling. In 2015, the comparable figures were \$451,000 and \$35,000, respectively. The median and mean (average) values in figure 14 are broken down according to whether a household made mortgage payments or held their dwelling in a family trust.

² D Thorns, 1995, p.24. His work shows, and is reinforced by later studies, that the family home is the most significant asset for the middle of the wealth distribution, with the least wealthy owning very little and the most wealthy households owning significant proportions of other assets such as shares.

³ A study based on 2004 and 2006 Survey of Family, Income and Employment (SOFIE) found that around 40 percent of wealth was tied up in owner-occupied housing. The value of one’s home becomes an increasingly larger share of net worth from the 5th decile to the 9th decile of the wealth distribution. Trinh Le, John Gibson, and Steven Stillman (2010). Household Wealth and Saving in New Zealand: Evidence from the Longitudinal Survey of Family, Income and Employment. Motu Working Paper 10-06 Motu Economic and Public Policy Research September 2010. Pp2-5

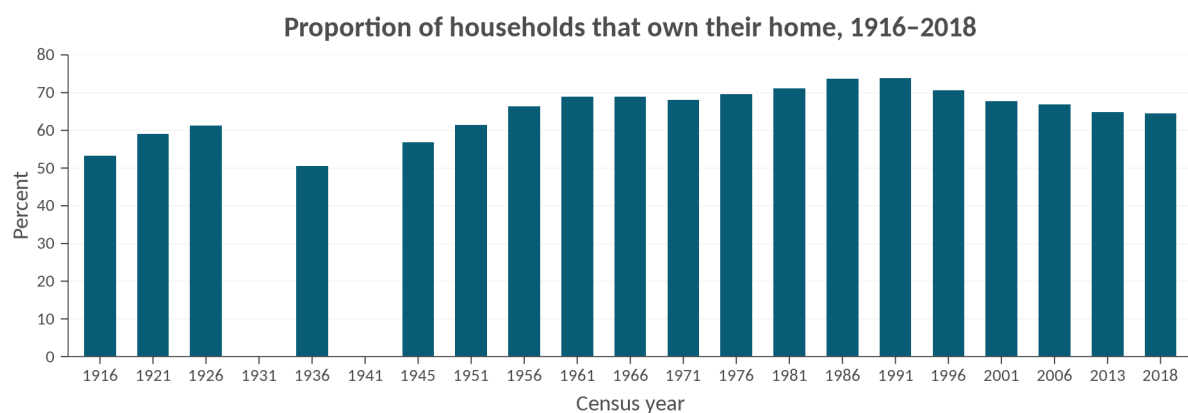
Figure 14

Error bars represent variability in estimates.

Stats NZ, data from household economic survey 2018/19

Homeownership at lowest rate since the 1950s

Data on homeownership has been collected in census since 1916. Figure 15 shows that the proportion of households owning their own home peaked in the late 1980s and early 1990s, at 73.8 percent, but by 2018 had fallen to 64.5 percent. This was the lowest rate since 1951 (61.5 percent).

Figure 15**Note:** Census not held in 1931 and 1941; 2011 Census delayed to 2013 because of Canterbury earthquakes.

Stats NZ, data from 1916–2018 Censuses

This decline occurred at a time when homeownership rates had been rising in other comparable

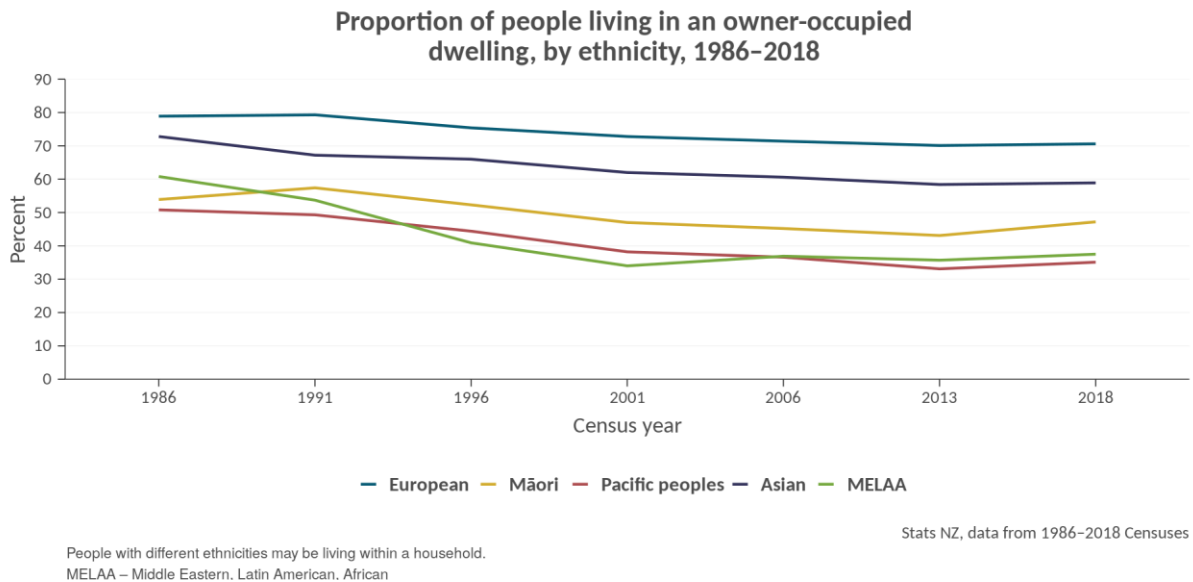
Stats NZ defines a **household** as one person usually living alone, or two or more people usually living together and sharing facilities (for example, eating facilities, cooking facilities, bathroom and toilet facilities, and a living area), in a private dwelling.

countries. Between 1970 and 2000, homeownership rates rose in countries such as the Netherlands, Norway, and the UK, but fell in Australia and New Zealand (Atterhog, in Doling et al (Eds), 2006, p.20).

The decline, from the 1990s, in the proportion of households living in owner-occupied homes did not occur uniformly across the population, and declined at a faster rate for Māori, and Pacific peoples. In the 1930s, the proportion of Māori living in a home owned by someone in their household was higher than for the

total population (at 70.5 percent), but rates gradually fell, particularly as many Māori migrated to cities. By the time national homeownership rates reached their peak in the 1990s, rates for Māori and Pacific peoples had fallen well below that for people with European ethnicity, as figure 16 shows. [Changes in home-ownership patterns 1986-2013: Focus on Māori and Pacific people](#) (Stats NZ, 2016) explains these changes further.

Figure 16



Note that the graph includes data for people with Asian, and Middle Eastern, Latin American and African ethnicity (MELAA). These are high level groupings with diverse populations. As these populations have seen considerable change over the last few decades (Goodyear, 2009) some caution must be applied when looking at homeownership changes for these groups.

Little change since last census

While census data has shown a consistent pattern of declining homeownership since the 1990s, the 2018 Census results show little change in the homeownership rate since 2013, with 64.5 percent of households owning their home or holding it in a family trust in 2018, compared with 64.8 percent in 2013.

Due to changes made to the 2018 Census, homeownership rates may not be fully comparable to previous censuses, however, a number of other data sources show a similar pattern. Results from the general social survey (GSS) also show little change in the homeownership rates over the past few years, with 66.6 percent of New Zealanders living in an owner-occupied home in 2014, and 65.6 percent in 2018.

Homeownership highest in Tasman and Marlborough, lowest in Auckland and Gisborne

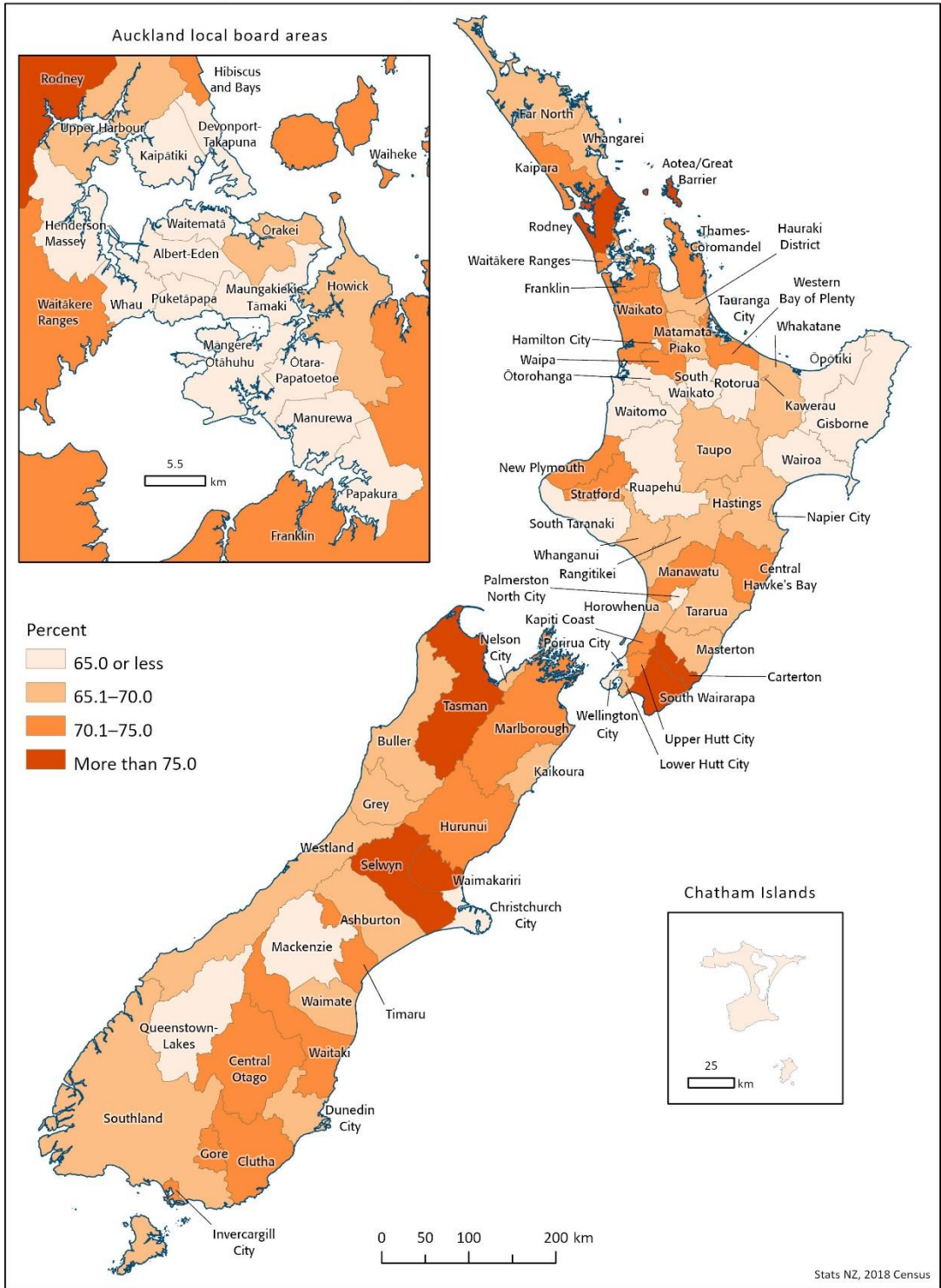
As in the 2013 Census, the 2018 Census showed the highest rates of homeownership in Tasman and Marlborough. In 2018, about three-quarters (75.6 percent) of Tasman households and 72.5 percent of Marlborough households owned their home or held it in a family trust. Homeownership levels were lowest in Auckland and Gisborne, both at 59.4 percent in 2018. These regions also had the highest proportions of renters.

Within Auckland, Waitemata, Mangere-Otahuhu, Otara-Papatoetoe, and Maungakiekie-Tamaki local board areas had the lowest homeownership rates, with less than half of households in these areas living in an owner-occupied dwelling.

Figure 17 shows the proportion of households owning their own home at the time of the 2018 Census, by territorial authority and Auckland local board areas. Waimakariri and Selwyn districts had the highest home ownership rates – at 80.5 and 79.5 percent respectively, while Hamilton city had the lowest at 53.9 percent.

Figure 17

Proportion of households that own their home
by territorial authority and Auckland local board areas, 2018



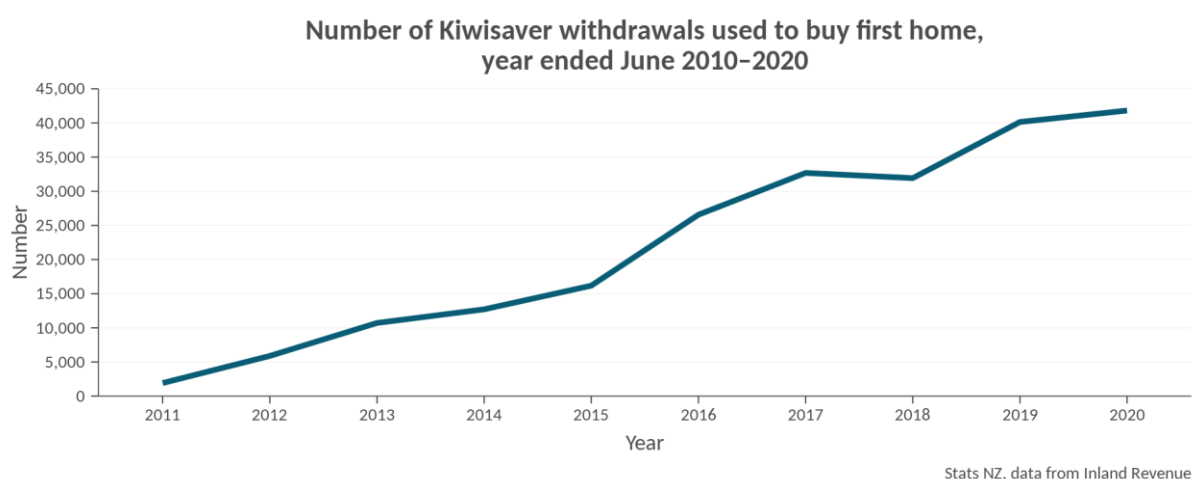
Kiwisaver helps first home buyers

There are a number of factors that may have contributed to the stabilising of homeownership rates in recent years, for example access to Kiwisaver funds and relatively low mortgage rates. Figure 18 shows the increase in the number of people accessing Kiwisaver funds to buy their first home over the past decade, reaching 41,819 in the year ended June 2020.

Kiwisaver first became active on 1 July 2007, so the earliest that people would have been eligible to withdraw funds for buying a home was July 2010. By the end of June 2018, a total of over 138,000 people had used Kiwisaver to help them buy their first home. Two years later, this had risen to over 220,000. We do not know, however, what proportion bought their home individually, or with more than one Kiwisaver amount.

First home buyers are eligible to apply to withdraw some of their **Kiwisaver** funds, as well as to potentially access a grant, if they meet certain conditions: for instance they must have contributed to the scheme for at least three years, although to get the full amount of the grant they need to have been contributing for at least five years. The maximum grant per person to purchase an existing home is \$5,000 (\$1,000 per year up to five years) and \$10,000 for a new home. (See Kāinga Ora, 2020 for more information).

Figure 18



Age and life stage impact homeownership rates

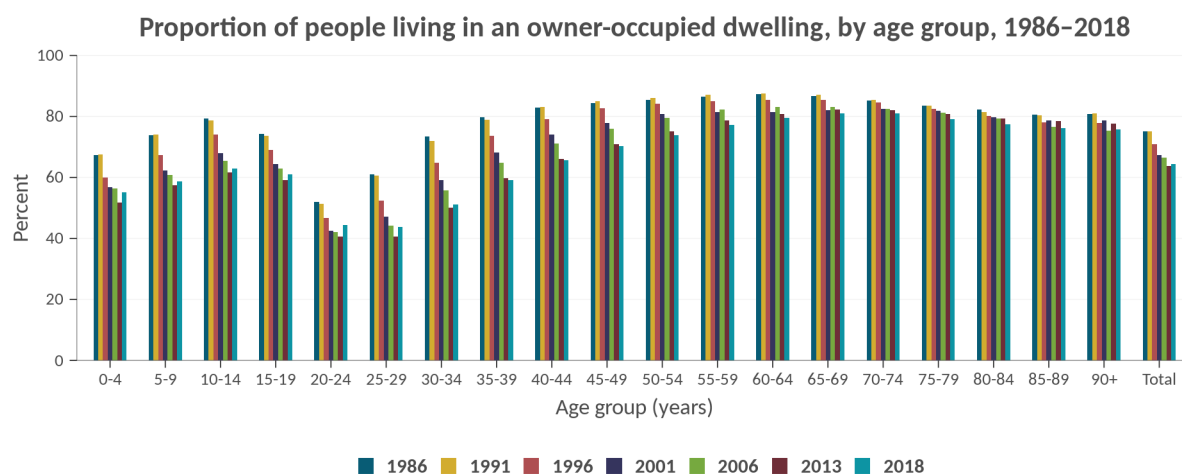
Other factors, such as changes in household formation, may also be affecting the homeownership rate. For example, there is some evidence that young adults are living in their parents' homes for longer periods of time, rather than forming their own households (see section [Young people living at home longer](#)).

Figure 19 shows the proportion and table 1 the percentage change in the proportion of people living in owner-occupied dwellings for censuses from 1986 to 2018, both split by age. Note, this does not necessarily mean that these people own their dwelling themselves, but that someone in their household does. The sharpest declines for most age groups occurred between 1991 and 2001, which was a time of high unemployment and economic recession.

From 1986 to 2018, the largest decreases were for people aged 30–34 years, and 35–39 years – both groups falling by around 20 percentage points. Between 2013 and 2018 there was a small increase in

the proportion of people aged under 35 living in an owner-occupied dwelling, but a continued small decline for people aged 35 years and over.

Figure 19



Stats NZ, data from 1986–2018 Censuses

Table 1

Change in proportion of people living in an owner-occupied dwelling (percentage points), by age group, 1986–2018							
Age group (years)	Census years						
	1986-91	1991-1996	1996-01	2001-06	2006-13	2013-18	
Less than 5	0.5	-11.3	-5.2	-0.9	-8.1	6.4	
5–9	0.4	-9.1	-7.7	-2.4	-5.4	2.2	
10–14	-1	-5.8	-8.4	-3.6	-5.8	2	
15–19	-0.8	-6.2	-6.9	-2.2	-5.8	3.3	
20–24	-1.5	-8.8	-9.3	-0.9	-3.2	9.1	
25–29	-0.8	-13.4	-9.9	-6.6	-7.7	7.3	
30–34	-1.9	-9.8	-8.9	-5.6	-10.3	2.1	
35–39	-1.3	-6.4	-7.7	-4.8	-7.8	-0.9	
40–44	0.2	-4.9	-6.4	-3.9	-7	-0.7	
45–49	0.7	-2.7	-5.8	-2.4	-6.5	-1	
50–54	0.7	-2.2	-3.9	-1.5	-5.5	-1.7	
55–59	0.7	-2.3	-4.1	0.9	-4.4	-1.9	
60–64	0.2	-2.4	-4.6	2	-2.7	-1.6	
65–69	0.4	-1.7	-4.1	1.2	-0.9	-1.6	
70–74	0.2	-0.9	-2.6	0	-0.4	-1.2	
75–79	0.1	-1.4	-0.7	-0.9	-0.5	-2	
80–84	-0.9	-1.8	-0.5	-0.3	-0.1	-2.4	
85–89	-0.3	-2.8	0.6	-2.5	2.3	-2.9	
90 and over	0.2	-3.8	1	-4.2	2.9	-2.2	
Total	-0.1	-5.7	-4.9	-1.6	-4.1	1.1	
Source: Stats NZ, data from 1986–2018 Censuses							

Characteristics of individual homeowners

Individual homeownership data from the census provides information on whether or not individual people own the home they live in or hold it in a family trust. The data relates to usual residents aged 15 years and over and includes those living in both private dwellings and non-private dwellings (for example, student hostels, residential care for older people). It does not specifically identify renting, however, many in the not owning category will be renters.

This data is useful for looking at the personal characteristics of owners and non-owners, such as age and ethnicity, and for examining patterns and trends for different groups. For a household that is 'owned', not all household members may be owners themselves. For example, where adult children live with home-owning parents.

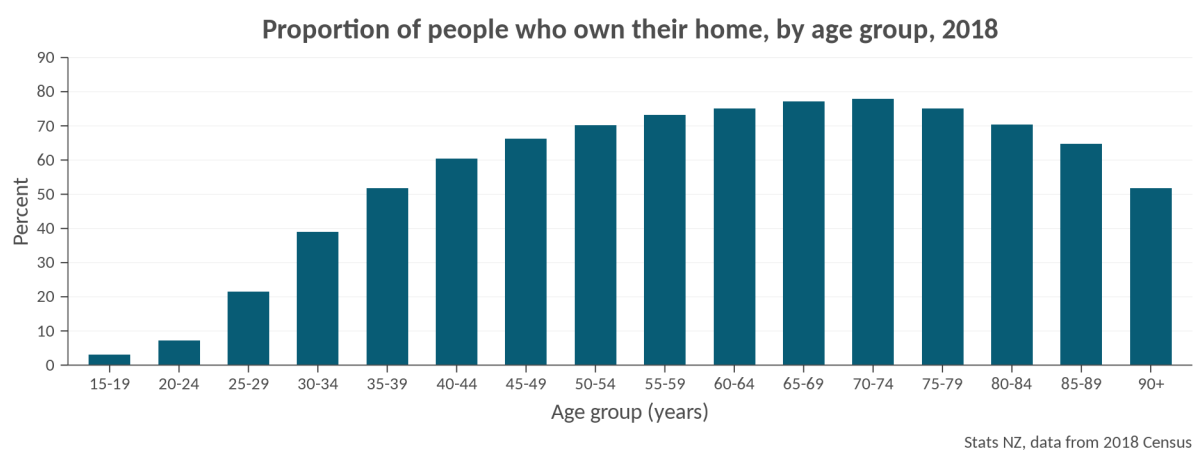
Around half of New Zealand adults own the home they live in

In the 2018 Census,⁴ the proportions of people who owned their home (or held it in a family trust), and those who did not were relatively even, at 51.8 percent and 48.2 percent, respectively.

Figure 20 shows that home ownership rates tend to increase with age, until people reach their early 70s. Homeownership was most common for those aged 70 to 74 years, at 77.8 percent, followed by those aged 65 to 69 years, at 77.2 percent.

Homeownership rates dropped again for the oldest age groups, from the mid-70s onwards. By this age, many people are living in residential care for older people, which they themselves do not own. Others in this age group might be living in homes owned by family members.

Figure 20



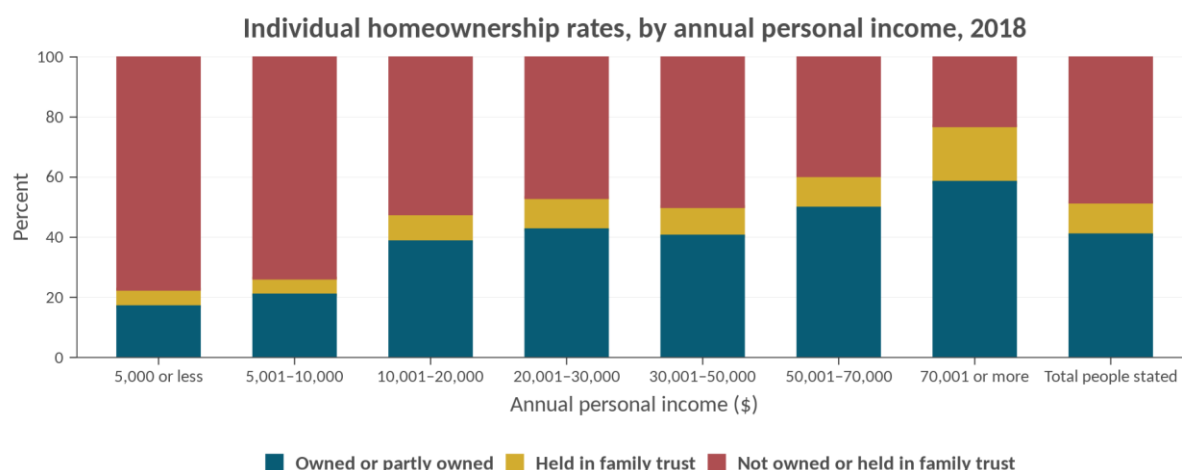
Leading up to the superannuation age of 65 years (people aged 60 to 64 years), about 1 in 4 people in 2018 did not own the home they lived in.

⁴ Individual homeownership data from the 2018 Census was rated poor quality, and there is a lot of missing data; however, patterns are similar to those seen in previous data.

Higher earners more likely to be homeowners

People with higher personal incomes were more likely to own their own homes, see figure 21. Those earning \$70,000 or more per year had the highest home ownership rates, at almost every age. They were also more likely to hold their home in a family trust.

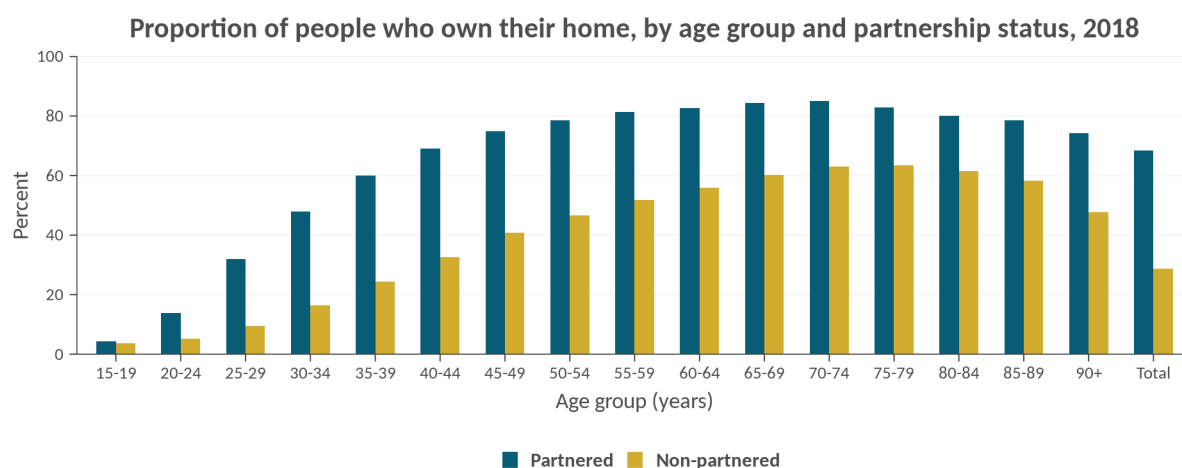
Figure 21



Partnership and ethnicity also affect homeownership rates

According to the 2018 Census, people who were partnered were also more likely to own their home (68.5 percent said they owned their dwelling or held it in a family trust) compared with non-partnered people (28.8 percent). This held across all age groups, as figure 22 shows.

Figure 22



People who had no partner and had never been in a legal relationship had the lowest home ownership rates (26.1 percent, for people aged 25 years and over). For 60-to 64-year-olds, nearly half (49.3 percent) of people who didn't own their dwelling were unpartnered, compared with 20.5 percent of people who owned their home or held it in a family trust.

The difference in home ownership rate by partnership status has been relatively consistent since the first time the question was asked in 2001 (when 72.5 percent of partnered people owned their home, compared with 29.1 percent of non-partnered people). However, partnered people aged 30–34 years have seen the largest fall in home ownership rates over this time, see table 2.

Table 2

Change in proportion of people who own their home between 2001 and 2018 Censuses, by age group		
Age group (years)	Partnered	Not partnered
25–29	-8.7	-0.2
30–34	-12.4	-5.1
35–39	-10.9	-9.9
40–44	-8.7	-11.6
45–49	-6.8	-11.1
50–54	-5.7	-11.1
55–59	-3.8	-9.7
60–64	-2.3	-8.4
65–69	1.7	-7.8
70–74	-2.2	-8.5
75–79	-4.1	-9.1
80–84	-5.5	-8.3
85–89	-4.6	-4.5
90 years and over	-2.4	-0.7
Total	-4.1	-0.3

People of European ethnicity were much more likely to own their home or hold it in a family trust than other ethnic groups, at 57.9 percent. People of Asian ethnicity were second highest at 39.9 percent, followed by Māori at 31.0 percent. Pacific peoples were least likely to own their home or hold it in a family trust, at 21.0 percent. As home ownership is related to age, these figures partly reflect differences in the age distribution of different ethnic groups.

Around one third of New Zealand households rent

Over a third (35.5 percent) of New Zealand households do not own their home or hold it in a family trust. Most of these households rent their home (31.9 percent). In 1991, less than a quarter (22.9 percent) of households rented.

The 2018 Census showed a 16.5 percent increase in the number of households renting since 2013 (from 453,135 in 2013, to 527,853 in 2018). This apparent increase, however, may partly reflect improved data quality due to the use of administrative data.

“Renting has not traditionally been part of the Kiwi dream; it has always seemed like a second-class option. But it doesn’t have to be that way. In other countries, people can rent for very long periods of time without any sense of inferiority.”

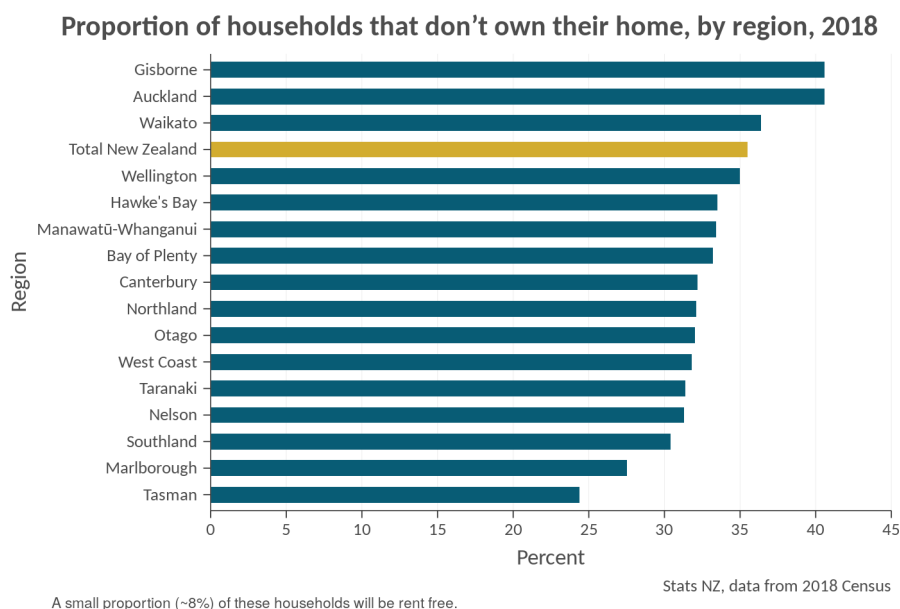
Generation rent (Eaqub, 2015).

The remainder of households in the broad category of ‘dwelling not owned and not held in a family trust’ was made up of households living rent-free (56,472) and a small number of households for whom information on whether they were paying rent was not available.

Renting varies across the country

Figure 23 shows that the proportion of households renting varies geographically. In 2018, Auckland and Gisborne regions had the highest proportion of renting households, while Tasman and Marlborough had the lowest. This reflects, in part, the demographic composition of the different areas, and differences in the affordability of home ownership.

Figure 23



Most households rent privately

Most households that rented in the 2018 Census, rented privately, with the private sector catering to over 4 out of 5 renter households (83.5 percent, 440,025 households). Around 63,000 households were renting from Housing New Zealand Corporation (now Kāinga Ora), making up 12.0 percent of renter households.

The data on households renting from Housing New Zealand Corporation (HNZC) is more complete than for previous censuses. The use of administrative data means there is minimal undercount of these households in the 2018 Census data. Previously, the undercount was estimated to be 18 percent in 2013, and 25 percent in 2006.

The numbers renting from other providers (councils; iwi, hapū, or Māori land trusts; other community housing providers; and other state-owned providers) were relatively low.

Demand for social housing has increased

The most commonly used methodology for assessing demand for social housing is through the Housing Register, which is currently administered by the Ministry for Social Development (MSD). The Housing Register consists of applicants who have been assessed eligible for public housing, that is, the household is unable to access and/or sustain suitable, adequate, and affordable alternative housing. However, it is important to note that actual demand – as opposed to the officially registered demand for social housing – is difficult to measure accurately.

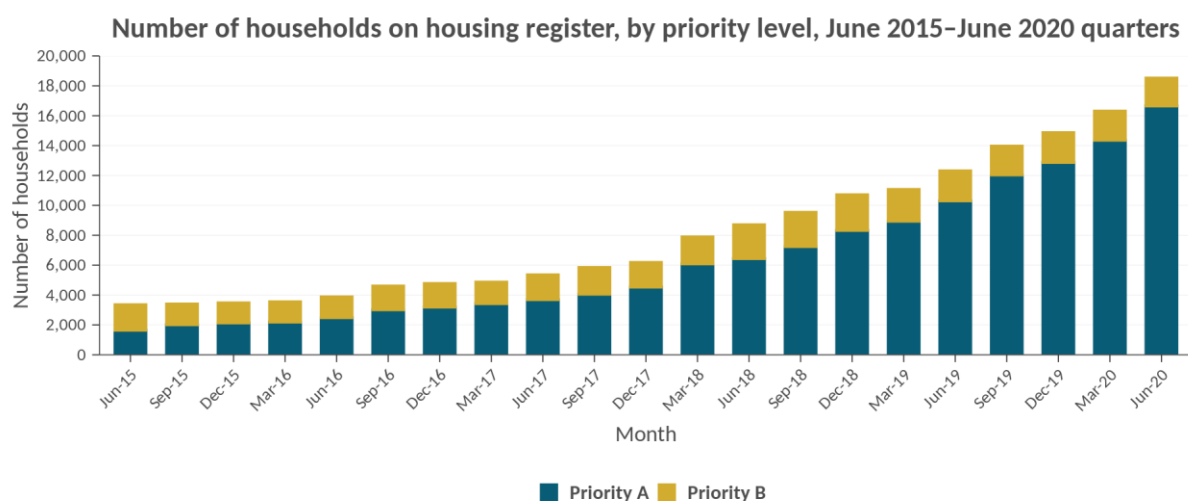
In *A stocktake of New Zealand's housing* (Johnson et al, 2018), the authors noted that “such measurement relies on the administration of an application and review process, which might, intentionally or unintentionally, have barriers or biases to recognising all unmet housing need”.

Households on the Housing Register are prioritised by need:

- **Priority A** – Applicants who are considered ‘at risk’, including households with a severe and persistent housing need that must be addressed immediately.
- **Priority B** – People who have a serious housing need, including households with a significant and persistent need.

As at June 2020, there were 18,520 households on the housing register. Increasingly, applicants on the waiting list have been accorded the highest priority – in 2015, around half of all applications were priority A, while by 2020 this had risen to 89.9 percent (see figure 24).

Figure 24



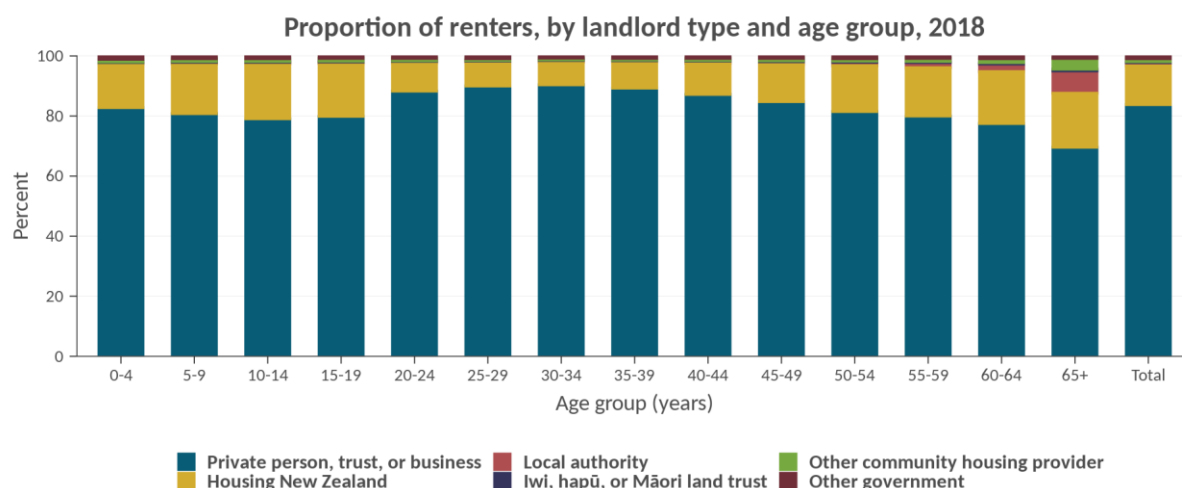
Stats NZ, data from Ministry of Social Development

Priority A – severe and persistent housing need that must be addressed immediately.
Priority B – serious housing need and inability to access suitable housing.

Among households on the Housing Register, the greatest demand is for one-and-two-bedroom housing, with sole parents and single people the most common household type. Over a third of households on the Housing Register are in Auckland, which is roughly proportional to the distribution of the population.

People in renting households

Just over 1.4 million people lived in rental housing at the time of the 2018 Census. Although private renting predominated for all age groups, almost a third (33.3 percent) of renters aged 65 years and over lived in some type of social housing, with 7.4 percent renting from a local authority, and 18.0 percent from Housing New Zealand (figure 25).

Figure 25

Māori (20.5 percent) and Pacific (36.9 percent) renters were more likely to be tenants of Housing New Zealand, when compared with the total population (12.9 percent).

Tenure security and residential movement

The *Review of housing statistics report 2009* (Stat NZ, 2009) noted the importance of tenure security for households and individuals. Frequent moves and insecure tenure can affect the sense of control a household has over its housing and erode the certainty they have about future housing circumstances. Legally, tenure security refers to the “tenant’s right to remain in their dwelling providing certain conditions are met” (James & Saville-Smith, 2018). New Zealand’s residential tenancy market has been considered weakly regulated, with limited provision for tenure security. It is one of the few countries that allow termination without grounds (Martin, Hulse, & Pawson 2017, quoted in James & Saville-Smith, 2018).

Renting in New Zealand is associated with greater residential movement (Stats NZ; 2008, 2015) and evidence shows that frequent moves can be detrimental to health and wellbeing (Howden-Chapman & Wilson, 1999). Research from the Growing Up in New Zealand study (Morton et al, 2014) found that between birth and nine months, “children born into families residing in private rental accommodation were the most likely to have experienced early [residential] mobility, with nearly 1 in 2 (49 percent) having moved at least once, compared to fewer than 1 in 5 experiencing mobility if their families were home owners”.

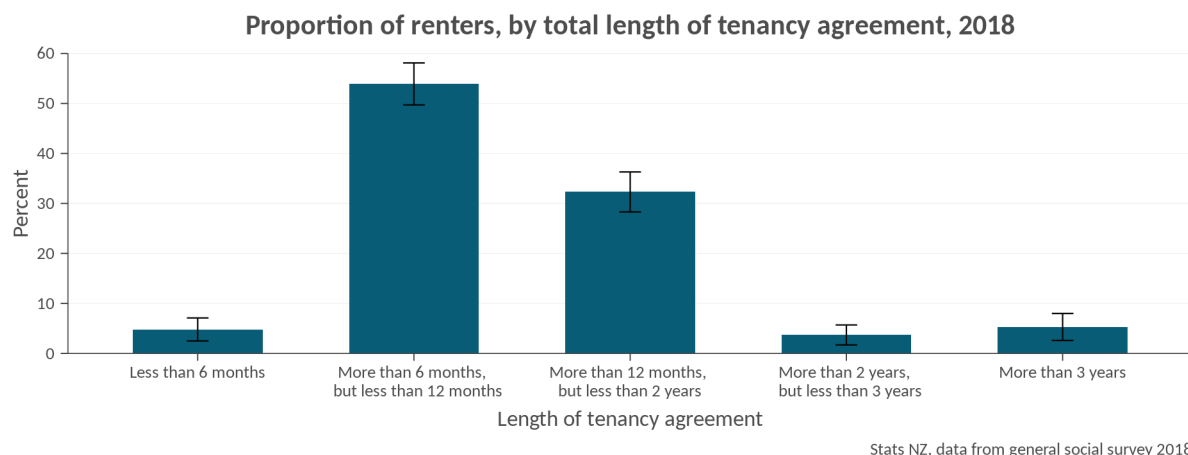
Almost 9 in 10 renting households have a tenancy agreement

The 2018 GSS found that while 9 out of 10 people living in a rented dwelling (90.8 percent) had a tenancy agreement, only half who rented from friends and family had one (52.9 percent). A tenancy agreement provides a legal basis for the tenant to live in that dwelling and provides both tenants and landlords with legal protections. As such, it supports security of tenure for tenants, which in turn supports health and wellbeing (Rolfe et al, 2020).

Just over two-thirds of tenancy agreements were a periodic or rolling tenancy (67.5 percent), while 29.7 percent had a fixed term tenancy. In a periodic tenancy there is no fixed rental period (James &

Saville-Smith, 2018), and the usual period of notice has been 90 days for a tenancy to be ended. Figure 26 shows that, in the 2018 GSS, over half of people living in rental households had a tenancy agreement of less than 12 months, and very few had long-term tenancy agreements.

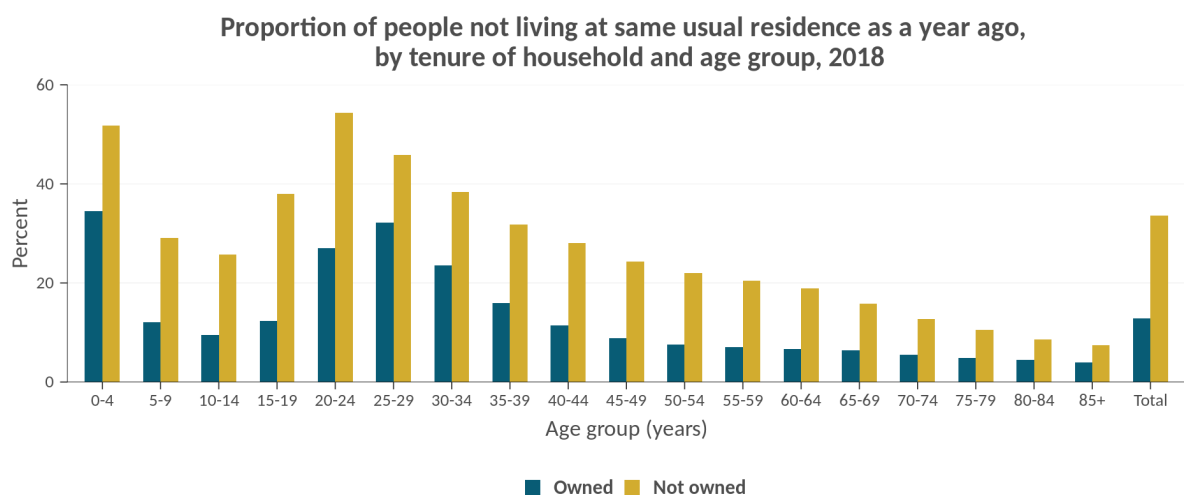
Figure 26



Renters of all ages move more frequently

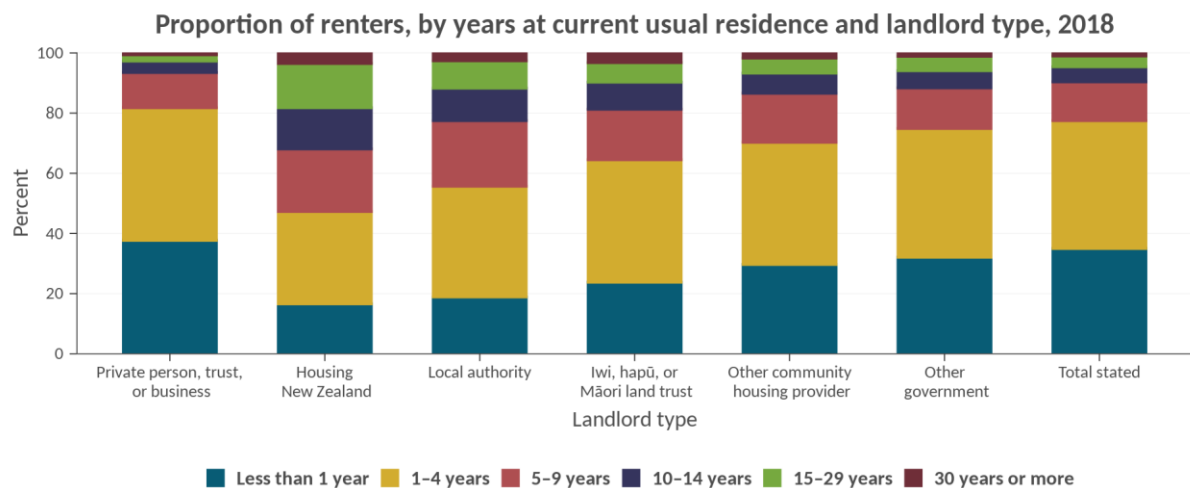
In the 2018 Census, people were asked how long they had lived at their usual residence. People living in a dwelling not owned by their household were consistently less likely to be living at the same address as the previous year, regardless of age (figure 27).

Figure 27



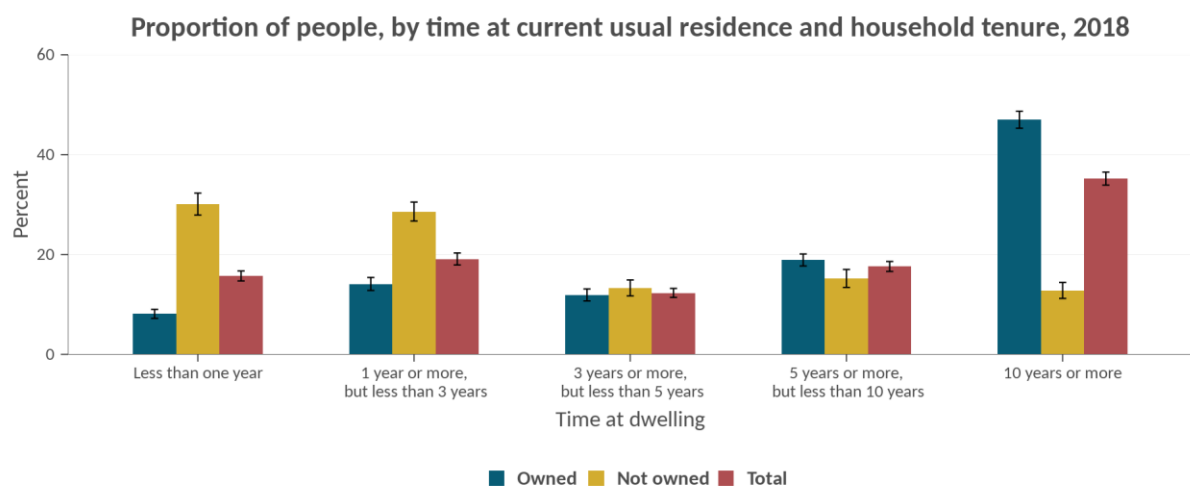
Excludes people who were overseas 1 year ago, not born, or who had no fixed abode.

The majority of rental households rent through private landlords, businesses or trusts. Figure 28 shows that landlord type also has an impact on the frequency of residential moves. For example, almost 40 percent of people who rented from private landlords had lived at that their current usual address for less than one year, compared with 16.6 percent of people who rented from HNZC.

Figure 28

Respondents in the GSS were asked a series of questions around security of tenure, including how long they had lived at their current address. People who had lived at their current address for less than five years were also asked about the frequency of moves in that time, and their reasons for moving. Note that owned/not owned is based on current tenure type at the time of the survey, so owner-occupiers could have previously been renters.

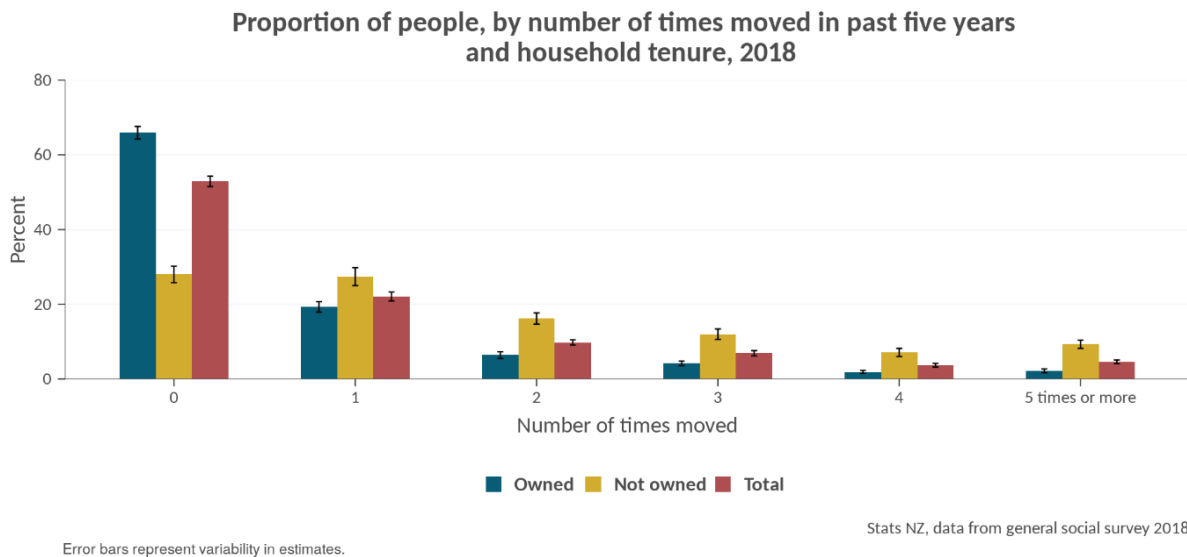
Figure 29 shows that owner-occupiers were almost four times more likely than non-owner-occupiers to have lived at their house or flat for 10 or more years, and much less likely to have been there for less than three years.

Figure 29

Almost three-quarters of non-owners had moved within the previous 5 years, compared with just over a third of owners.

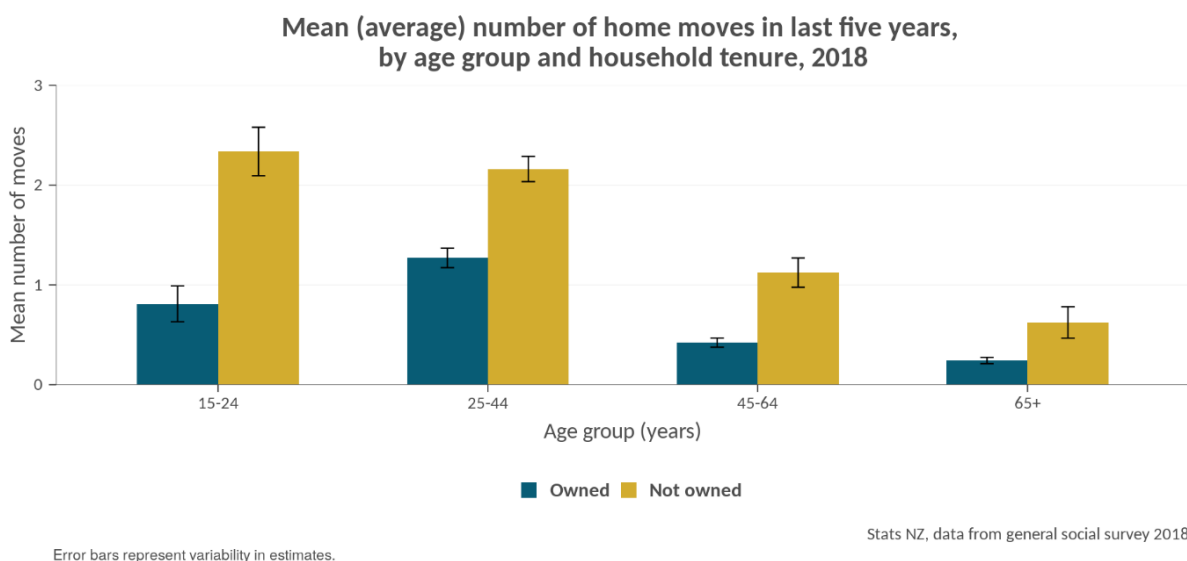
Of those who had moved in the last five years, a much higher proportion of owner-occupiers (56.6 percent), compared with non-owner-occupiers (38.1 percent), had moved just once (figure 30). In contrast, non-owner-occupiers were almost twice as likely as owner-occupiers to have moved five or more times in that period (6.5 percent and 12.9 percent, respectively).

Figure 30



People who lived in non-owner-occupied homes at the time of the survey had moved, on average, 1.9 times in the previous five years, compared with an average of 0.7 home moves for owner-occupiers. For every age group, owner-occupiers reported fewer moves, on average, than non-owner-occupiers (figure 31).

Figure 31



When looking at different household composition types, we found that renters, on average, moved more frequently than owner-occupiers, except for those living in a 'household of unrelated people' where the difference in means was not significant.

Frequent movement can affect the ability of people to create a sense of connection in their local community. The 2018 GSS asked respondents to think about the friendships, social interaction, and sense of connection they have with people in their neighbourhood, then rate their sense of connection to those people (on a scale from 0 to 10, where 0 means no sense of connection and 10 means a very strong sense of connection). People who did not live in an owner-occupied dwelling were more likely to rate their sense of connection to people in their neighbourhood poorly (0–4, 39.0 percent), compared with owner-occupiers (26.4 percent).

Renters most likely to move because tenancy ended by landlord

The 2018 GSS also asked respondents for their reasons for moving out of their previous address. For those who had moved from an owned dwelling to another owned dwelling in the five years prior to the survey, the main reason for moving was 'to move to a more suitable home' (for example, more accessible/better size), at 28.9 percent. For those who had moved out of a rental property in the past five years, the main reason was to move to an owned dwelling, followed by 17.7 percent whose tenancy was ended by their landlord.

For people who moved from one rental to another, 25.1 percent said the main reason was having their tenancy ended by their landlord, with people aged 45–64 years the most likely to give this as a reason.⁵

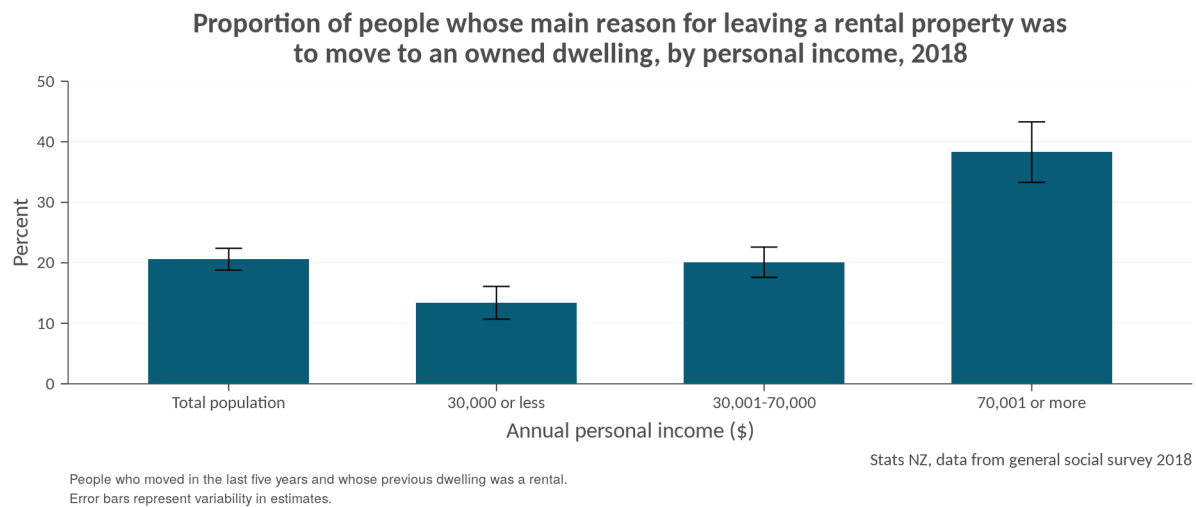
For people moving from a rental to another rental property, although tenancy ended by the landlord would generally be regarded as an enforced move, many of the other reasons given, such as to move to a more suitable (14.4 percent) or better quality (11.4 percent) home, or work or education (13.0 percent) or social (13.8 percent) reasons, suggest that the renter has chosen to move.

A fifth of renters who had moved in the last five years became owners

In the 2018 GSS, 20.6 percent (one fifth) of people who had moved in the last five years, and whose last house or flat was not owner-occupied, gave moving into home ownership as their main reason for moving. People with higher annual personal incomes (\$70,001 or more per year) were significantly more likely to list this as a main reason for moving (figure 32). Māori and Pacific people were significantly less likely to have moved into an owner-occupied dwelling than people with European ethnicity.

For people who were currently living in an owner-occupied dwelling, but had previously rented, just over half (54.0 percent) gave moving into home ownership as one of their main reasons for moving. This was less likely for people aged 55–64 years, with just under a third saying that moving into home ownership was a main reason for moving from their previous address.

⁵ The interviewer asked the respondent to the personal questionnaire in the GSS: "I'd like you to think about the last place you lived before moving to your current address. Did you or your household pay rent for that house or flat? 1 yes 2 no. People who said that they or their household had owned the last dwelling they lived at were asked the main reason for moving: for social reasons eg to live closer to family / friends, relationship change; for education or work-related reasons; to move to a better quality home eg warmer, better maintained; to move to a more suitable home eg more accessible, better size; housing costs too expensive / moved to a cheaper house or flat; for location reasons eg to be closer to services; or other - please state. People who said 'yes' (they had lived in a rented dwelling) – were given an extended set of reasons such as the tenancy being ended by the landlord, or a poor relationship with the landlord. 2018 GSS.

Figure 32

Summary of tenure and tenure security

The homeownership rate appears to have stabilised in recent years following many years of decline. Nationally, the 2018 Census showed little change in the homeownership rate since 2013.

Homeownership rates fell most sharply in the 1990s, with Māori and Pacific peoples particularly affected during this period. In 2018, Māori and Pacific peoples were less likely to own their home or hold it in a family trust than other ethnic groups. They were also more likely, along with people with MELAA ethnicity, to live in public housing.

Owner-occupiers were less likely to have moved address in the last five years and less likely to have moved frequently. They were also more likely to have moved for positive reasons, such as to move to a more suitable house, compared with renters.

Housing affordability

This section looks at a range of different measures of housing affordability to investigate whether the costs of housing have increased or decreased over time, both at a national and regional level, and for different population groups. It focuses on which groups experience housing affordability problems, particularly concentrating on differences by tenure of household – that is, whether a household owns the home they live in. Affordability for property investors is not included and is outside the scope of this report. Housing affordability statistics measure people’s capacity to pay housing costs, by comparing available financial resources with the cost of housing. Affordability includes the ability to pay housing expenses and still have sufficient for non-housing costs.

There are many ways to look at housing affordability (Gabriel et al, 2005). The definition of ‘housing costs’ and ‘income’ vary based on the design of each metric and the data available. Ideally, these metrics would also consider material wealth, but this data is seldom available. In this section we investigate some of the commonly used approaches:

- comparing housing costs with incomes
- residual income after housing costs
- self-reported housing affordability.

The Review of housing statistics report 2009 defined **housing affordability** as “housing costs in relation to a household’s ability to meet those costs” (Stats NZ, 2009). Housing costs can be divided into: entry costs (such as regulatory, material and labour costs to build a house, deposit to buy a house, bond to enter a tenancy) and ongoing housing costs (loans, mortgage repayments, rental payments, rates, and the costs of repairs and maintenance).

Several inter-related factors affect housing affordability:

- income (ability to meet costs)
- house prices and rents (level of payment required)
- financial factors (cost and availability of credit)
- demographic factors (household formation and household size)
- employment and labour market conditions (ability to participate and earn income)
- supply factors (zoning, labour, and resource availability and costs)
- people’s needs, expectations, and demands regarding the quality of their housing, such as location or proximity to key amenities, size, and special features
- relative advantages and disadvantages of ownership versus rental.

Housing affordability varies across society

“For some people, all housing is affordable, no matter how expensive it is; for others, no housing is affordable unless it is free,” (Stone, 2006).

Whichever measurement is used, experiences of housing affordability vary for different population groups. A key factor in the differences seen is tenure – whether a household pays rent, owns their house with a mortgage, or owns outright. As seen in the previous section, rates of home ownership vary across society.

Housing costs are a greater burden for renters

A widely used metric of housing affordability is the proportion of households spending more than a certain proportion of income on housing costs. The more a household spends on housing, the less is

available for other expenditure. Those spending above the chosen threshold may be described as having a housing cost 'overburden' (Barker, 2019).

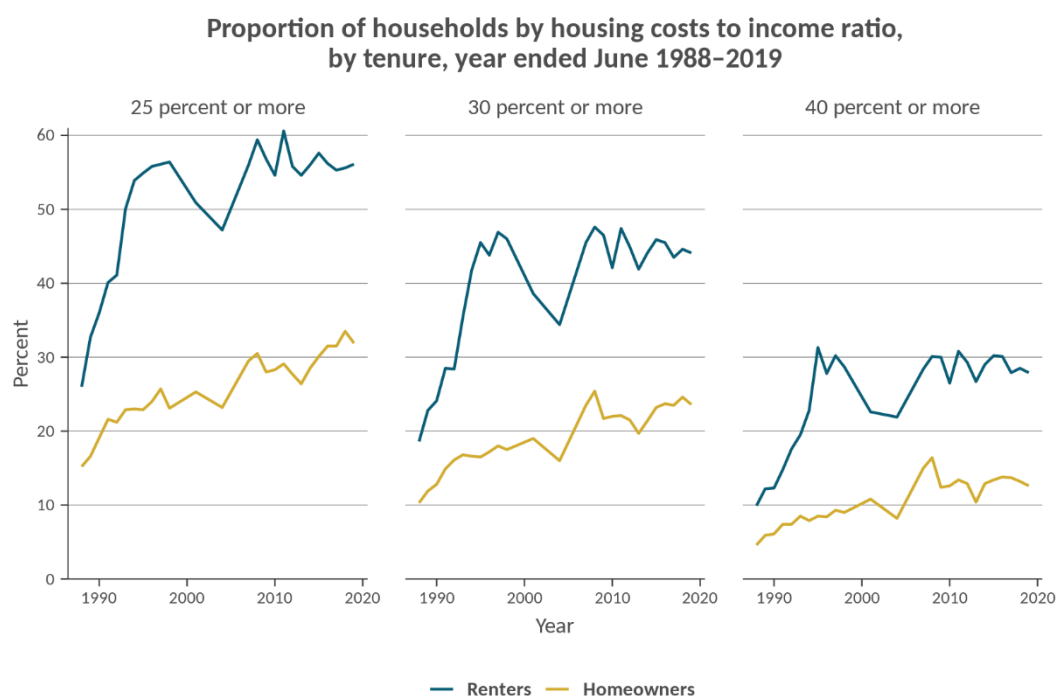
Figure 33 shows the proportion of households with housing-costs-to-income ratios greater than 25 percent, 30 percent, and 40 percent, for the period 1988–2019, by household tenure. At each of the thresholds considered, fewer owner-occupiers have a housing costs overburden.

There was an increase in the proportion of overburdened households during the 1990s. The proportion of renters spending more than 30 percent of income on housing costs increased from less than 20 percent of renters in 1988 to about 45 percent of renters a decade later, before partially falling again in the early 2000s. Taking the sampling error into account, trends are broadly flat over the period from 2007 to 2019.

Disposable equivalised annual income is income after tax that has been adjusted by the number of people in the household.

Total gross annual income (from Census) is income before tax.

Figure 33



Stats NZ, data from household economic survey 1988–2019

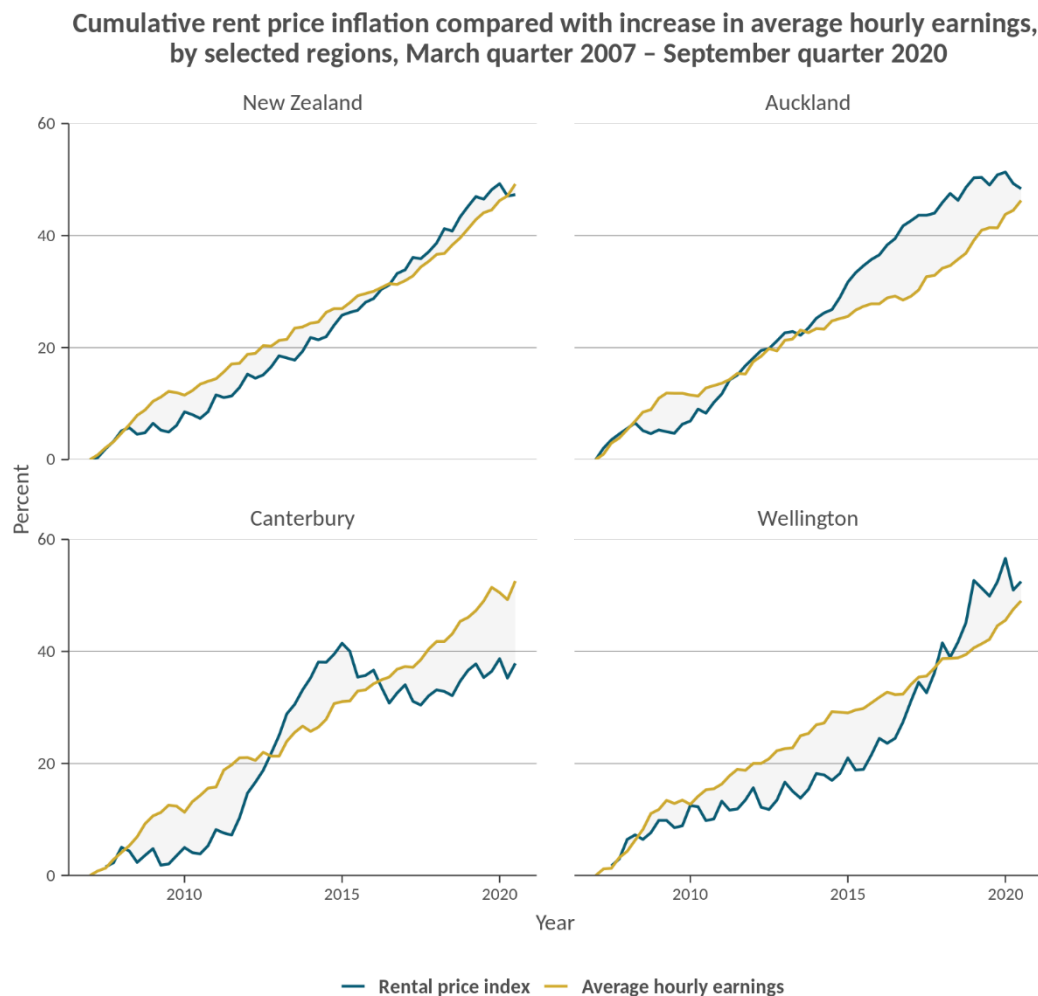
Rents have broadly increased in line with wages

Rent (actual rentals for housing) is a significant expense for many. In the 2019 HES, about 1 in 3 households were renters, but this was more common for lower income households, with nearly half of households in the lowest income decile renting. For households who pay rent, the proportion of their expenditure spent on this is typically around 30 percent.

A timely gauge of changes in rental affordability is to compare changes in rent prices with changes in wages. Using a rental price index allows us to control for changes in the rental stock (such as floor size and location).

Figure 34 compares changes in average hourly earnings with the rental price index.⁶ Rent prices and wages have increased by a similar amount overall since the start of 2007. Auckland and Wellington, however, have seen rents rising faster than wages. Rent prices rose sharply in Canterbury following the earthquakes in 2010 and 2011 but have returned to less than the national average between 2017 and July 2020.

Figure 34



Stats NZ, data from rental price index and quarterly employment survey

Rising property prices generate wealth for owner-occupiers

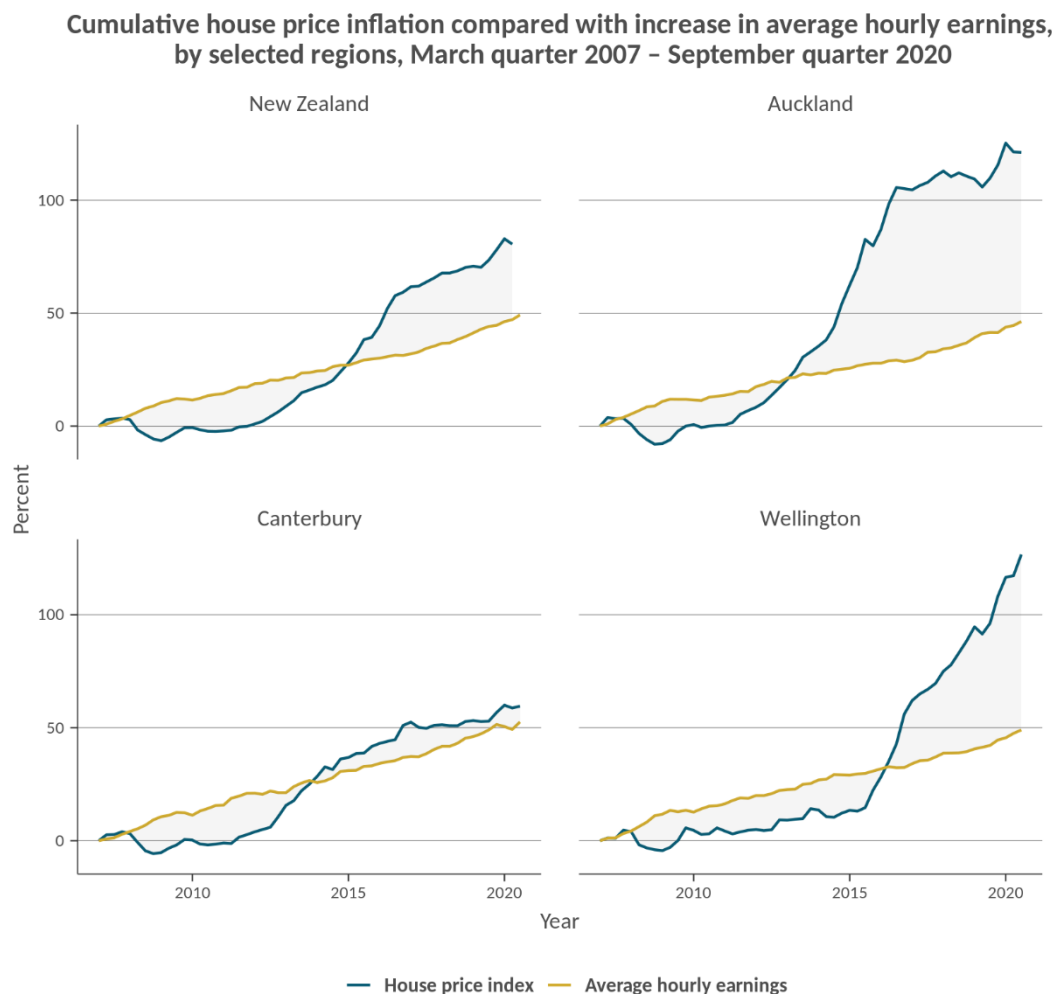
For homeowners, rising house prices are experienced in a positive way, since this increases their material wealth. Property is a big part of wealth accumulation; New Zealand homeowners (who own or partly own their home) are typically 14 times wealthier than non-home owners (Stats NZ, 2018 Household net worth statistics, 2018). Appreciation of homeowners' wealth boosts their confidence and leads to growth in private consumption, helping to grow the macro economy.

⁶ The quarterly employment survey produces estimates on the average hourly and average gross weekly wages and salaries, average weekly paid ordinary and overtime hours, number of people in full- and part-time jobs, and total hours paid for and total earnings paid out for one week. The quarterly average wage for the December quarter each year is used to set the ceiling for national superannuation payments.

On the other hand, for aspiring homeowners, rising house prices increase the amount that needs to be saved for a deposit. The proportion of young adults aged 25-34 years who are homeowners has declined, from almost two-thirds in 1988 to just over a third in 2018 (Bentley, 2019). Again, using an index to control for changes in stock, we see that house prices have been rising at a faster rate than wages both nationally, and in Auckland and Wellington, over the past 5 years (figure 35).

Auckland's property prices noticeably started to increase in 2013, with Wellington following suit in 2016. In contrast, Canterbury's house prices have broadly tracked wages since 2015, following the completion of most of the residential rebuild.

Figure 35



Stats NZ, data from quarterly employment survey;
Ministry of Housing and Urban Development, regional property price indexes;
CoreLogic, RBNZ, New Zealand house price index.

The Auckland median sales price in mid-2020 was about \$900,000, compared with a median household disposable income of \$78,500 (for the year to June 2019). This means house prices in Auckland are about 11.5 times household incomes. It would take a household that can save 20 percent of their income about 11.5 years to save a 20 percent deposit.

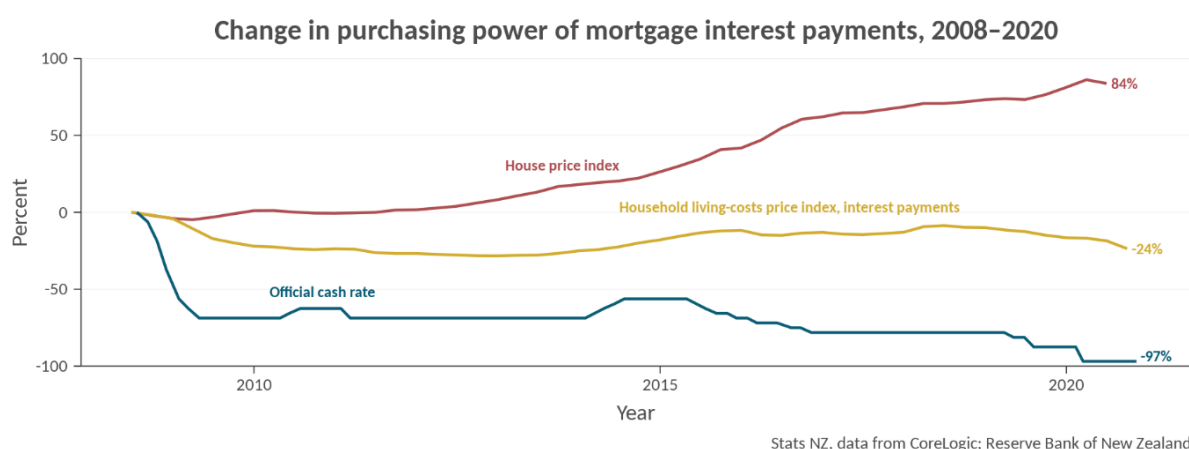
In contrast, the Wellington median sales price in mid-2020 was about \$700,000, and median income about \$73,800 (for the same time periods), meaning house prices there are about 9.5 times

incomes. In Canterbury, the median sales price was about \$490,000, around 7 times the median income at about \$70,300.

Mortgage rate cuts may have benefited some homeowners

Cuts to the official cash rate (OCR) may have benefitted some mortgage-paying homeowners. Mortgage interest rates are considered a proxy for repayment affordability, so the lower interest rates seen in recent years may have reduced the cost burden on mortgage paying homeowners. The combined effect of changes in mortgage interest rates and property prices since June 2008 is reflected in the interest payments series used in the household living-costs price indexes (HLPIs), see figure 36.

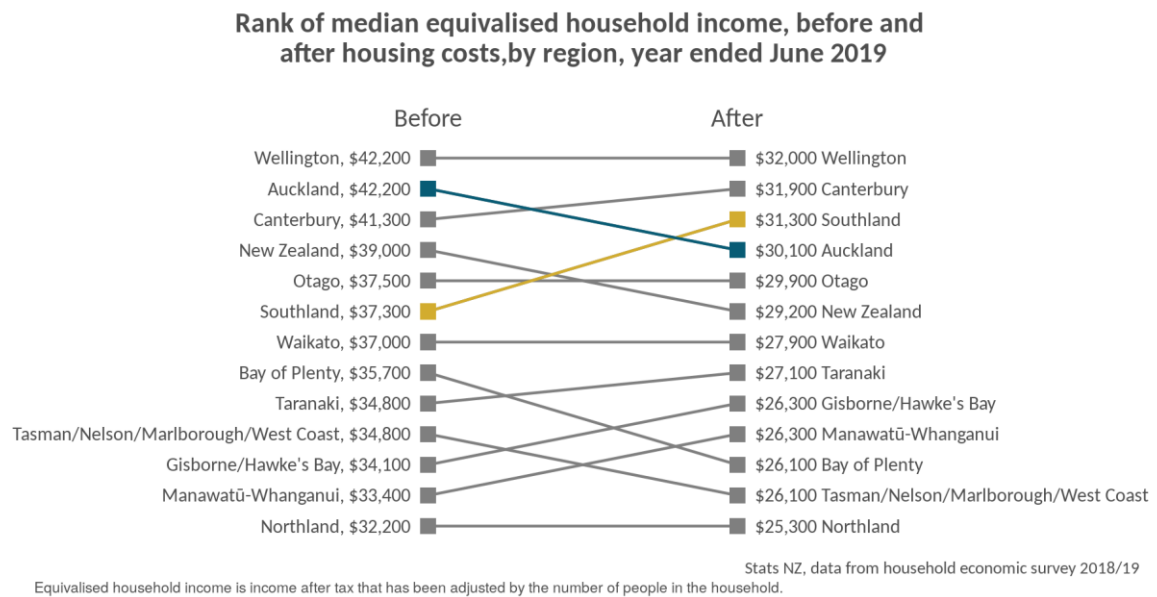
Figure 36



Between 2010 and 2020, the official cash rate (OCR) has reduced by more than the increase in property prices, which means that mortgage interest payments (repayment affordability) in 2020 are estimated to be similar to those in 2010. The OCR has reduced by 97 percent, driving a decrease in interest payments of 19 percent, while house prices – adjusting for property changes – have increased 86 percent. The biggest challenge for most aspiring homeowners is being able to afford the deposit.

Regional variation in housing affordability

Figure 37 shows median equivalised household income, by regional council area, before and after housing costs. Auckland's higher housing costs mean that in the year to June 2019, median equivalised household income before housing costs of \$42,200 is reduced to \$30,100 median income after housing costs. Median equivalised household income is lower in the Southland region at \$37,300, but this reduces by only \$6,000 to \$31,300 income after housing costs.

Figure 37

Rent most affordable in Southland, least affordable in Waiheke

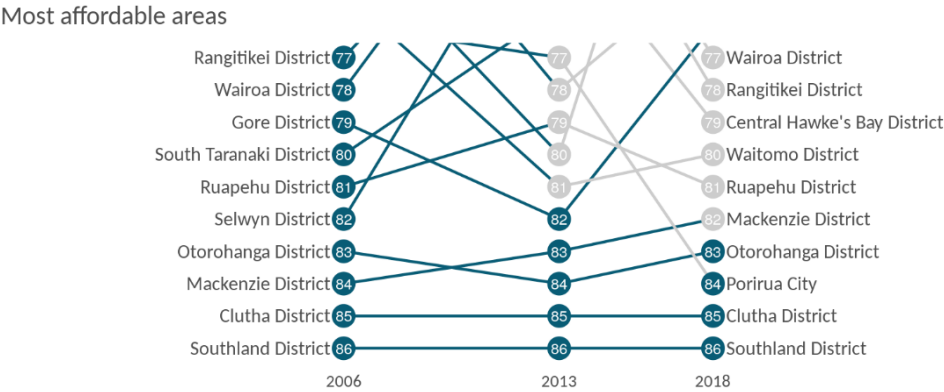
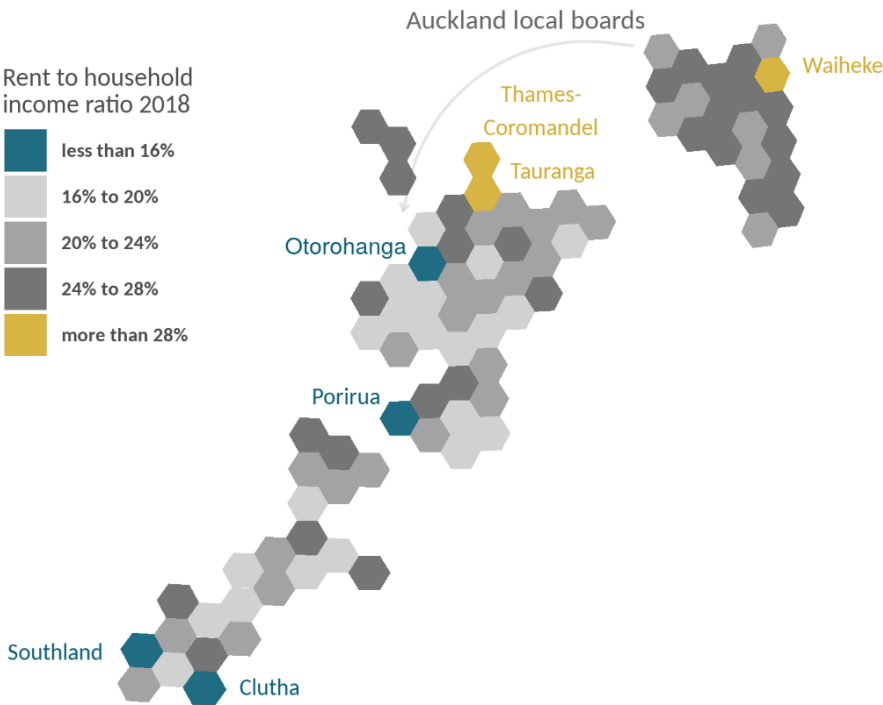
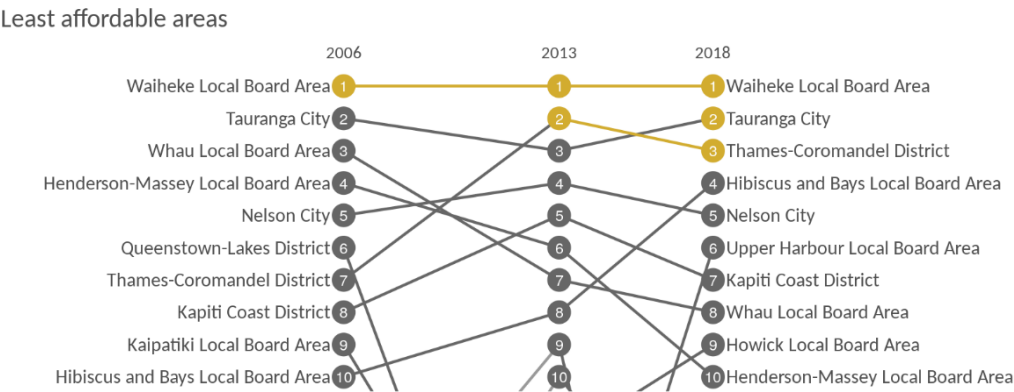
Housing affordability for smaller geographies can be investigated using census data.

Figure 38 shows ratios of rent to household gross (before tax) income for territorial authority and Auckland local board areas. Waiheke and Tauranga had the highest rent-to-income ratios of 34 percent and 30 percent, respectively, in 2018. Rental affordability in the Thames-Coromandel district has declined since 2006, as rental prices have increased faster than income. Many of Auckland's local boards are amongst the least affordable areas.

Using this measure, Southland was the most affordable in 2018, with median rent at 11 percent of median household income. Affordability in Porirua has improved as incomes have increased more than rents. This could be influenced by commuters who work in higher-paying jobs in Wellington city. Census data shows that in 2018, people who lived in Porirua but commuted to Wellington had a personal annual median income of \$70,600, compared with \$44,370 for those who worked in Porirua.

Figure 38

Rental affordability - rent to household income ratios by area, 2006–2018



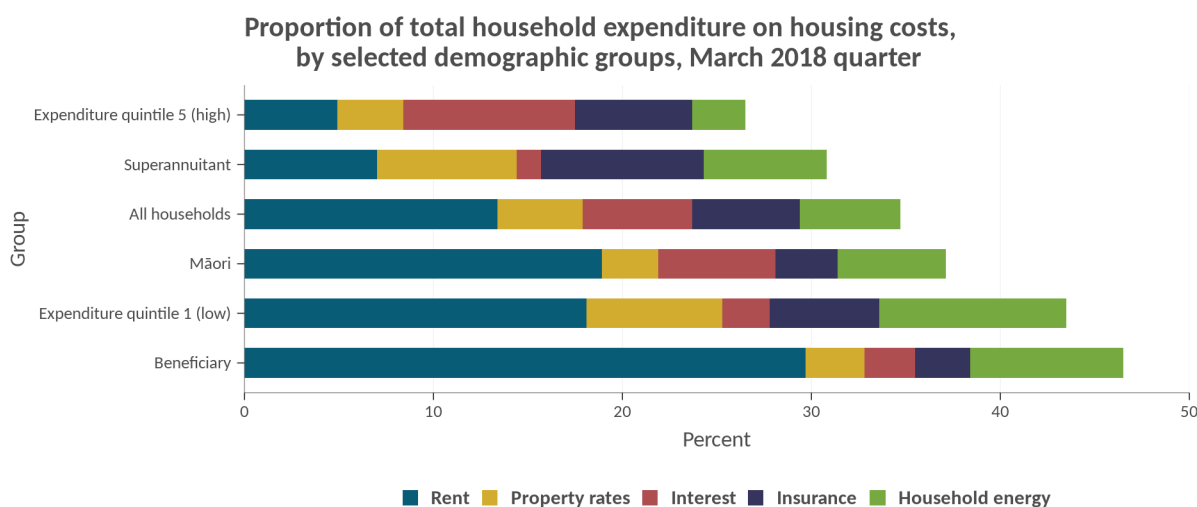
Stats NZ, data from 2006–2018 Censuses

Diversity in the makeup of housing costs

Household tenure, and a number of different demographic factors, affect how a households' housing costs are made up. Figure 39, using 2018 data, shows how typical housing costs vary for different groups in society. Note that some of these groups will overlap, as for example beneficiary households are likely to also be included in expenditure quintile 1.

High spending households (expenditure quintile 5), defined as the top 20 percent of households grouped by their total expenditure, spend the lowest proportion of their outgoings on housing costs. Mortgage interest payments are a noticeable expense for high spending households, many of whom are paying off a mortgage.

Figure 39



Stats NZ, data from household living-costs price indexes

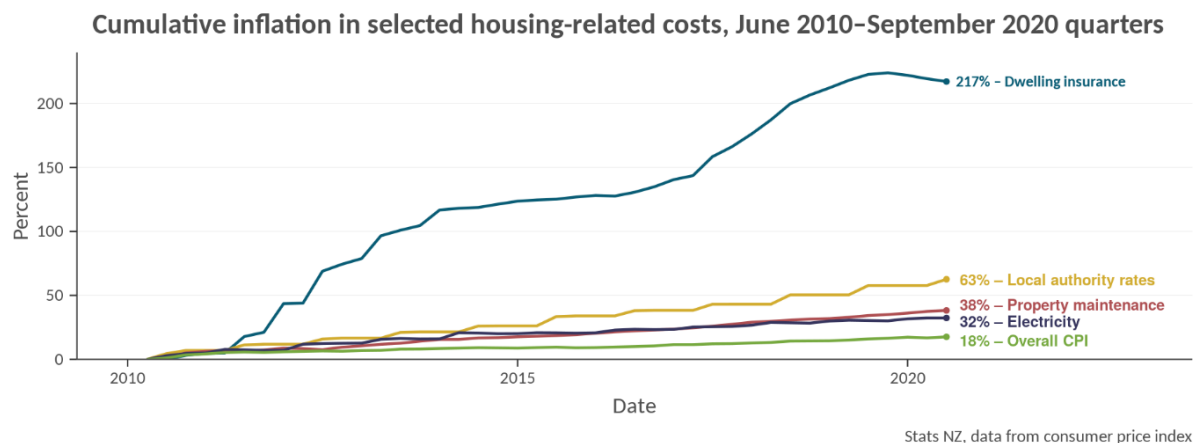
Expenditure quintiles are formed by dividing the population into five equal groups, from lowest (1) to highest (5) expenditure.

Housing costs are typically a more significant outgoing for low spending households (expenditure quintile 1) and beneficiaries. Rental costs typically make up a greater proportion of total housing costs for Māori households and beneficiaries.

Above-average inflation for rates, insurance, and electricity

For those who own their home outright (such as many superannuitants), local authority rates, building related insurance, and electricity are the major housing costs.

Figure 40 shows the price of dwelling insurance has more than tripled in the past decade (up 217 percent between the June quarter 2010 and September quarter 2020). Local authority rates have also increased by 63 percent in the same period. The price of electricity (the main source of household energy) rose 32 percent, compared with overall inflation of 18 percent (as measured by the consumers price index, Stats NZ).

Figure 40

High cost of housing can leave little money for other needs

Ratio measures of housing affordability have faced criticism because they apply the same calculation to all households, regardless of income. For higher income households a high housing-costs-to-income ratio may not be an overburden at all (Stone, 2006). Residual income available after housing expenses is a way of looking at housing affordability that focuses on a household's capacity to pay housing costs and still have enough money for necessary non-housing expenditure.

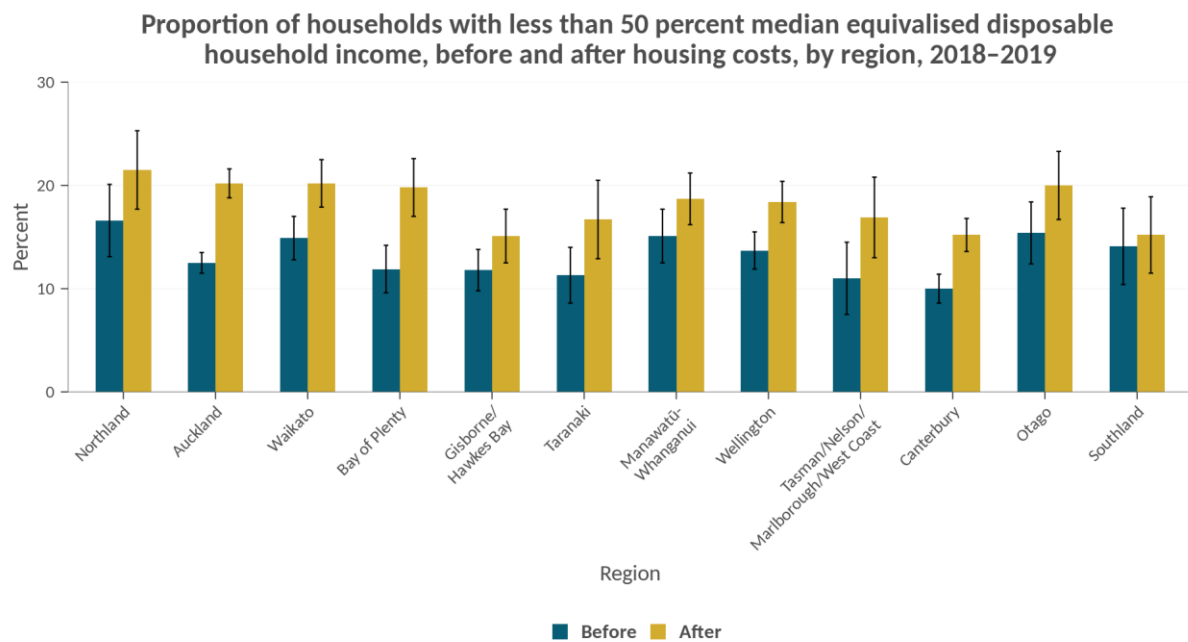
Households with low residual income after housing costs are at risk of experiencing relative poverty. Housing costs can therefore have a big impact on poverty rates. Those who are classified as below a given poverty threshold only after housing costs are taken into account are considered to experience 'housing-costs-induced poverty' (Tunstall et al, 2013).

"A dwelling that is an affordable home is not simply a matter of price, but the data shows that a dwelling that costs more than an individual or household can afford undermines its security and compromises the dwelling as a home. A dwelling that is priced more than can be afforded is transformed from a place of comfort to an arena of material struggle. It is associated with under-investment in many of the goods and services that generate wellbeing, it contracts rather than expands life chances, and makes precarious social, cultural and economic participation."

(Saville-Smith (ed), 2019, p 76)

Low housing costs in Southland leave more money in pockets

Using data from the 2018/19 HES, figure 41 shows that, after housing costs have been deducted, the proportion of households with less than the 50 percent median equivalised incomes increased across all regional councils. The exception was Southland, which saw little change. Relatively low housing costs in the region mean more money for other expenses.

Figure 41

Error bars represent variability in estimates.

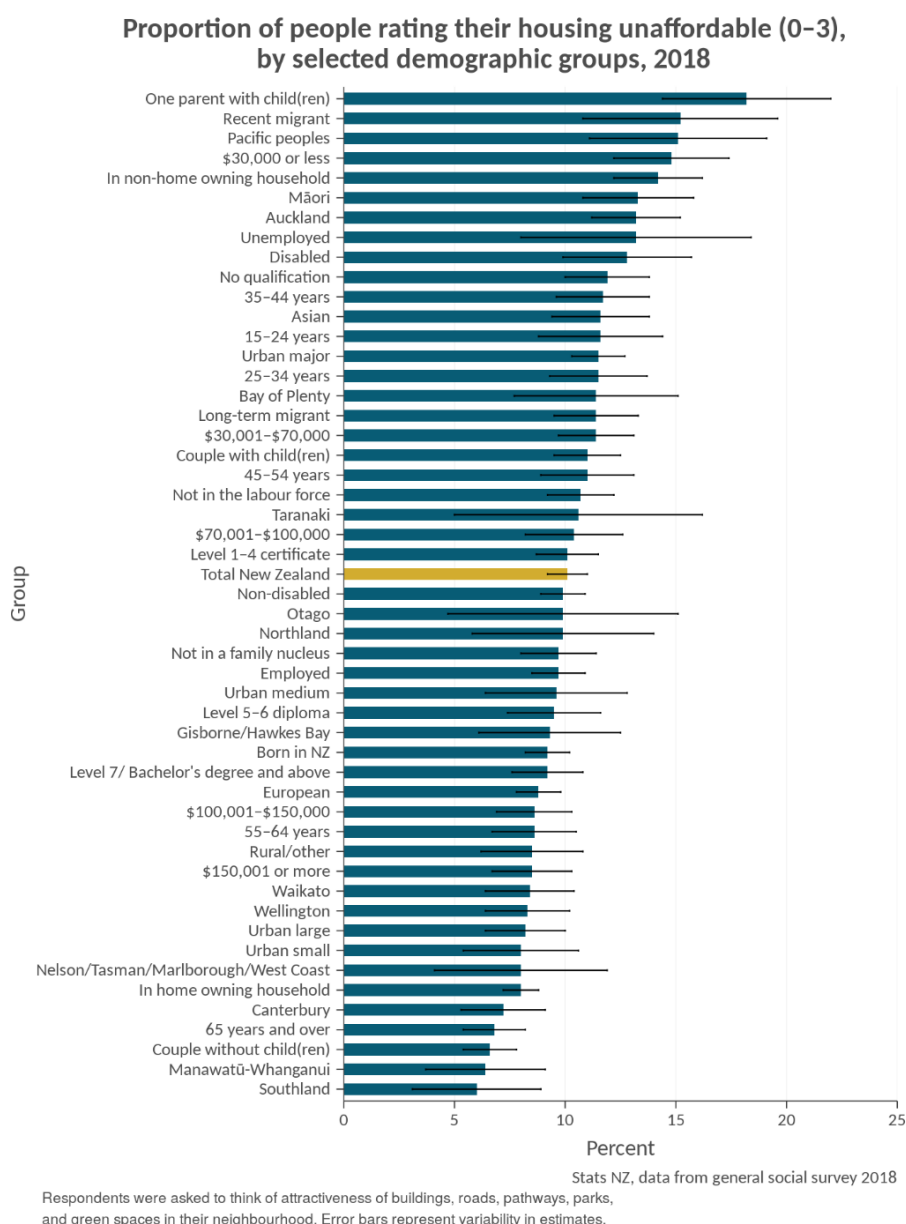
Stats NZ, data from household economic survey 2018/19

One-parent families report high rate of unaffordable housing

Perceptions of housing affordability can be measured directly by asking people to self-assess the affordability of their housing costs. This assessment may reflect some dimensions of affordability that are hard to include in simple comparisons of income and housing expenditure, such as wealth and the adequacy of current housing.

According to data from the 2018 GSS (figure 42) sole parents reported the highest rate of unaffordable housing (defined as an affordability rating of 0-3 out of 10). Recent migrants, Māori, Pacific peoples, low income earners, non-owner-occupiers, Aucklanders, the unemployed, disabled people, and those with no qualifications also reported high rates of unaffordable housing.

Figure 42



Summary of housing affordability

In this section, we have shown a diversity of experiences of housing affordability. Care should be used interpreting some measures – such as the proportion of households over a given housing-costs-to-income threshold. These indicators can hide differences in affordability across time and space.

The data in this section shows differences between owners and renters and across regions and groups in society. Renters typically spend a higher proportion of their outgoings on housing costs, and many aspiring homeowners – typically young adults – may struggle to raise a deposit in the face of rapidly rising house prices. In contrast, lower interest rates may have benefitted existing homeowners with a mortgage.

While those who own their homes outright typically have much lower housing costs, above average inflation for local authority rates, insurance, and electricity prices between 2010 and 2020 will have affected many homeowners reliant on NZ Superannuation.

Regional differences highlight the affordability challenges acute in Auckland and neighbouring regions. Auckland's high housing costs result in lower median residual income, after housing costs, than Southland, which has lower median income but also much lower housing costs.

Directly asking people about their own perceptions of housing affordability enriches our understanding of who feels their housing is least affordable. This again highlights greater housing affordability issues for renters and Aucklanders. One-parent families, parents, recent migrants, Māori, Pacific peoples, low income earners, the unemployed, disabled people, and those with no qualifications, had the highest rates of unaffordable housing.

People with large housing costs in relation to their income are likely to be at risk of financial hardship. Some households are already struggling with limited disposable income after housing costs. This puts them at-risk of experiencing relative material poverty. Some people may deal with affordability problems by crowding together to save costs, or in extreme cases, may end up homeless.

Housing habitability

Housing habitability is the third dimension of housing adequacy identified by the *Review of housing statistics report* (Stats NZ, 2009).

These four dimensions (habitability, affordability, suitability, and tenure security) are interlinked, with an outcome from one having implications for another, and for other social domains (for example, health and wellbeing, education and work etc). These interdependencies are further highlighted in the 'Framework for housing quality', which identifies and defines habitability within this context.

Since the *Review of housing statistics report 2009* was published there has been considerable progress in the measurement of housing habitability, namely:

- questions on dampness, mould, basic amenities, and heating type added to the 2018 Census
- a housing and physical environment supplement added to the 2018 general social survey (GSS)
- physical housing inspections of over 800 dwellings, linked to the 2018 GSS (pilot housing survey, PHS)
- a definition and framework for housing quality developed.

This section of the report explores the results of additional measurements on housing habitability within the new housing quality framework. It investigates the physical condition of New Zealand dwellings in terms of providing safe, warm, dry, and healthy places to live.

Housing habitability is the degree to which housing and its location provide a physically safe, physically secure, and physically healthy environment. It relates to the design, construction, materials, and service provision of a house and to how well it has been built and maintained. Habitability covers the primary function of housing as providing shelter, focusing on the condition of the house's physical structure and the facilities within it.

Framework for housing quality
(Stats NZ, 2019)

Poor housing habitability linked to ill health

The focus on housing habitability came about because of research around the effects of poor housing quality on physical and mental health. The strong link between damp housing conditions and poor respiratory health is evidenced in numerous New Zealand and international studies (Stats NZ, 2014).

Poor health leads to increased hospital admissions and more absences from school and work, with implications for the economy. An evaluation of the Warm Up New Zealand: Heat Smart programme (Grimes et al, 2012) showed a 5:1 cost benefit ratio for insulation. A study of 58,000 children in various countries showed "indoor mould exposure was consistently associated with adverse respiratory health outcomes in children" (Antova et al, 2008).

Poor housing conditions are one of the mechanisms through which social and environmental inequality translates into health inequality, which further affects quality of life and well-being.

Housing and health guidelines
(WHO, 2018)

Antova et al (2008) also demonstrated a relationship between crowded living conditions and asthma. In New Zealand, Keall et al (2012) estimated, using their Respiratory Hazard Index, that for each increase in the hazard index there was a corresponding rise in the experience of wheezing or asthma. Cold, damp housing can result in higher seasonal mortality rates and higher incidence of both cardiovascular and respiratory disease (Healy, 2004; Howden-Chapman et al, 2009; Barnard, quoted in Canterbury District Health Board, 2012). Clark (2009) notes that damp housing affects

physical health because it has the potential to increase dust mites and moulds, both of which are allergenic. Randomised control trials have found that improvements to home heating can result in benefits to child health (Howden-Chapman et al, 2008).

The most comprehensive picture of housing habitability in New Zealand to date

As a result of concern around the effects of poor housing on health, additional questions were added to both the Census and the general social survey (GSS) in 2018. The 2018 Census included questions on dampness and mould, access to basic amenities, and home heating appliances for the first time – previously people had been asked what fuels were used in the dwelling. The 2018 GSS included a supplement which focused on housing and the physical environment. This included additional information around housing quality (damp, mould, and cold), information on home heating, ventilation, repairs, and maintenance, as well as some additional health indicators, including the number of times the person had a flu like illness, or a cold in the last 12 months, or whether they had asthma, or other chronic respiratory illnesses. A temperature measurement was also included, where agreed to by participants, providing an objective snapshot of temperatures in the homes of New Zealanders.

Additionally, Stats NZ and the Ministry of Business Innovation and Employment (MBIE) partnered with the Building Research Association of New Zealand (BRANZ) to carry out around 800 housing inspections, to provide robust objective data in addition to the subjective housing quality questions in the GSS.

In 2014 Stats NZ recommended the combination of survey data with physical house inspections as the best option for improving information on housing quality (Stats NZ, 2014). The combination of Census, GSS, and physical house inspection data provides the most comprehensive information on housing quality in New Zealand to date.

Census and GSS provide complementary data on housing habitability

Census data allows us to look at different populations in greater detail, especially by area, while GSS data allows us to look at a wider range of housing variables, including frequency of heating and whether a respondent feels cold. The two surveys occurred in the same year, and care was taken to make the questions as comparable as possible.

In both the 2018 Census and GSS people were asked whether their house was not damp (dry throughout), sometimes damp, or always damp. In census, respondents were asked whether visible mould with a total area larger than A4 size was present sometimes or always in their homes. The GSS was similar, but respondents were first asked whether their house had mould, and if yes, whether the mould was larger than an A4 sheet of paper.

Collecting this type of information on mould provides a more reliable measure than information from a subjective question would (for example, whether mould is a minor or major problem), and A4 size is considered useful for assessing health risks at the population level.

Census and the GSS both collected housing quality data for private dwellings only, and did not provide any information on housing conditions for those living in non-private dwellings such as boarding houses.

Dampness and mould common in New Zealand homes

Both Census and the GSS showed that dampness and mould are common in New Zealand homes.

Nationally, the 2018 Census data showed that 318,891 homes in New Zealand (21.5 percent) were affected by dampness (that is, sometimes or always damp) and 252,855 (16.9 percent) had visible mould larger than A4 size at least some of the time. Constant dampness was a feature of 3.0 percent of New Zealand homes (44,520) and visible mould larger than A4 size was always present in 4.3 percent of homes (64,536).

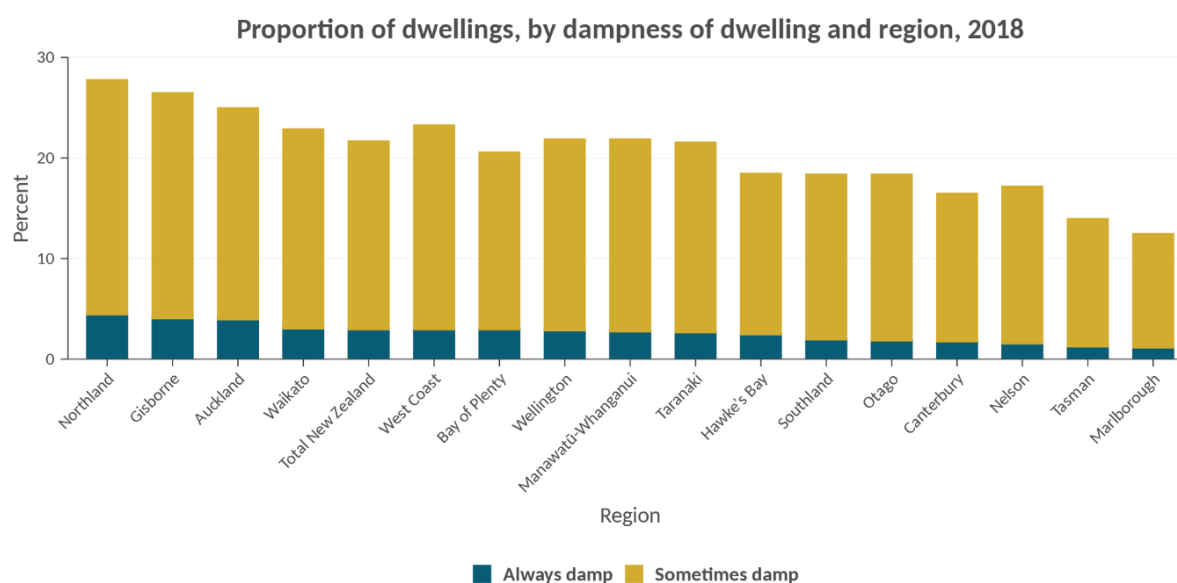
Rates of mould were comparable between the GSS and Census, but Census recorded a lower percentage of houses that were sometimes damp. As dampness is a more subjective measure, some variation may be expected.

Northland, Gisborne, and Auckland had higher rates of damp housing

Census data shows variation in dampness and mould by region, and at territorial authority level.

Northland and Gisborne, followed by Auckland, were the regions with the highest proportions of damp homes in 2018, as seen in figure 43. For example, in Northland, 4.5 percent of dwellings were always damp, and a further 23.1 percent were damp sometimes. In contrast, Marlborough and Tasman were the regions least likely to be affected, but even here over 1 in 10 dwellings experienced some dampness.

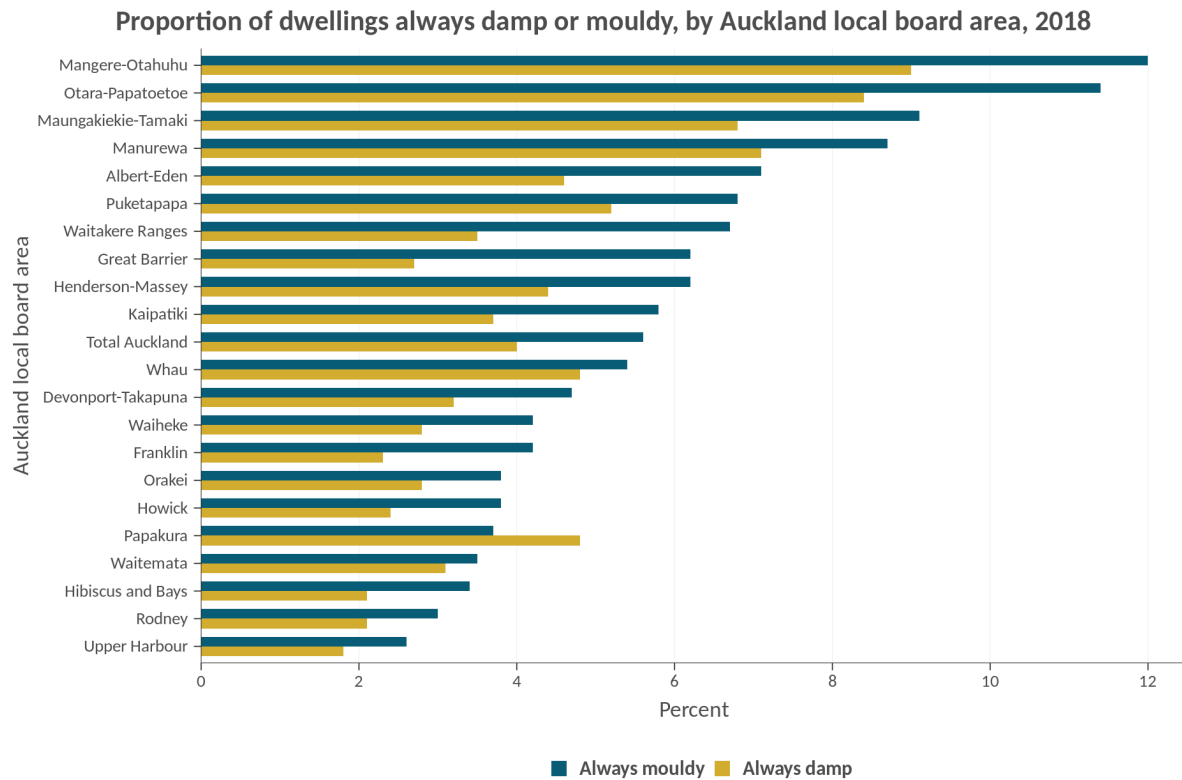
Figure 43



Stats NZ, data from 2018 Census

Breaking the data down by territorial authority areas (cities and districts) reveals a more detailed picture of geographical differences in housing quality. Dwellings in Wairoa (which is located in the Hawke's Bay region) were the most likely to be affected by dampness, at over a third (35.6 percent), followed by those in Opotiki (31.6 percent), and Kawerau (31.2 percent) in Bay of Plenty region. Wairoa and Opotiki were also the districts most likely to be affected by mould, with 27.4 percent and 25.9 percent, respectively, of dwellings in these areas having visible mould over A4 size at least some of the time. Dampness and mould were least common in Central Otago and Selwyn districts.

Around 1 in 4 occupied private dwellings in Auckland region were damp, and over 1 in 5 were affected by mould. Within Auckland, rates of dampness and mould were highest in Mangere-Otahuhu and Otara-Papatoetoe. Dampness was lowest in Hibiscus and Bays and Upper Harbour (figure 44).

Figure 44

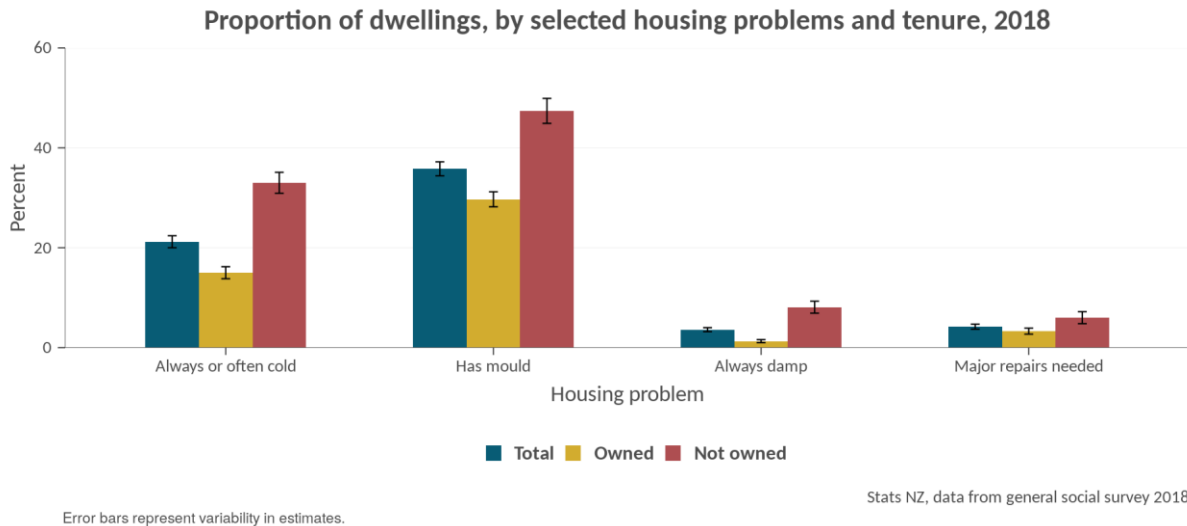
Stats NZ, data from 2018 Census

'Mouldy' is where mould is larger than an A4 sheet of paper.

In 2018, about 28,000 homes in New Zealand were reported to be always damp and always have visible mould over A4 size. Around 2 out of 5 of these dwellings were in the Auckland region (11,400). There were also substantial numbers in Waikato (2,943) and Wellington (2,955).

Housing problems more common for renters

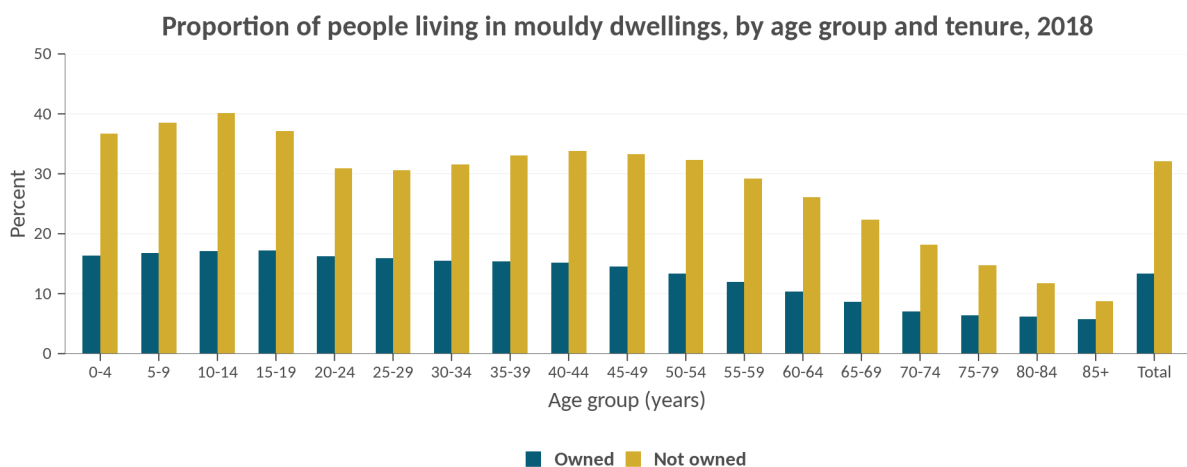
Households who rented their home were more likely to experience dampness and mould than homeowners. Figure 45 shows self-reported housing problems in the GSS by tenure, which shows that housing that was not owner-occupied was more likely to be often or always cold, always damp, to have mould, and to be in need of major repairs.

Figure 45

Data from the 2018 Census also showed that households renting from Housing New Zealand were particularly likely to be in homes affected by dampness or mould (or both). Information on dampness and mould was more likely to be missing for these households, but of those who did provide this information, almost half (49.4 percent) reported dampness some or all the time, and about 2 in 5 (40.4 percent) reported visible mould over A4 size some or all the time.

Constant dampness was reported by 14.6 percent of households renting from Housing New Zealand, and 16.2 percent of Housing New Zealand households reported that visible mould over A4 size was always present.

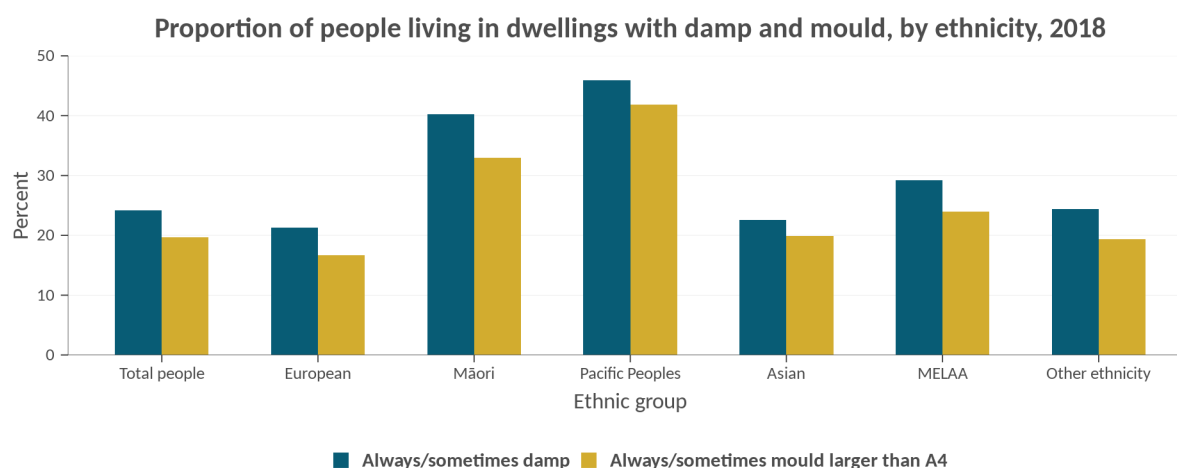
Census data allows housing issues to be examined in greater detail for small population groups. Figure 46 shows that, for all age groups, those living in rented rather than owner-occupied homes were more likely to experience mould. The difference is particularly evident for children and young people up to the age of 19 years.

Figure 46

Over 2 in 5 Māori and Pacific peoples live in damp housing

Figure 47 shows that Māori and Pacific peoples were more likely to live in homes affected by dampness or mould than other ethnic groups. Over 2 in 5 Māori and Pacific peoples lived in damp housing (40.3 percent and 45.9 percent, respectively), compared with 21.3 percent of people of European ethnicity, and 22.5 percent of people of Asian ethnicity. Pacific peoples were also the most likely to live in homes with visible mould over A4 size at least some of the time, at 41.8 percent, compared with 33.0 percent of Māori and 16.7 percent of Europeans (see Stats NZ, 2020 for more information).

Figure 47



MELAA – Middle Eastern, Latin American, African

Stats NZ, data from 2018 Census

The 2018 GSS also showed that Māori and Pacific peoples experienced higher rates of dampness and mould, as well as other problems such as feeling cold and living in a house requiring major repairs.

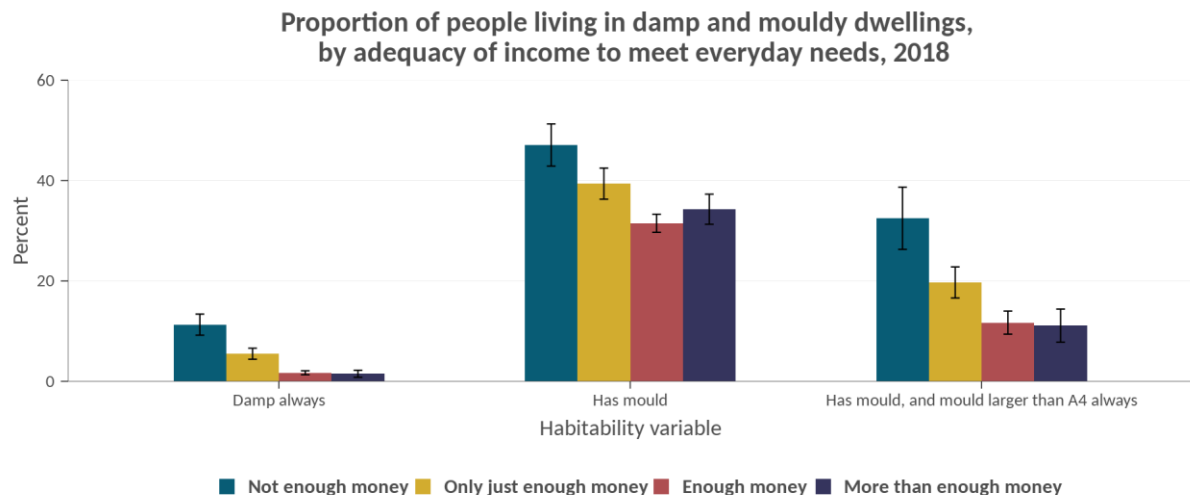
Low income, large households, and inefficient heating linked to dampness and mould

The previous section showed that dampness and mould are more common in housing that is not owner-occupied, however, there are a number of other factors that influence the rates of dampness and mould within New Zealand homes.

Low income households more likely to experience damp and mould

2018 Census data shows that households with an annual income of \$20,000 or less were the most likely to live in housing that was always damp (6.4 percent) or sometimes damp (22.5 percent), or had visible mould over A4 size always (7.2 percent) or sometimes (14.6 percent). However, households of all income levels experienced some problems with dampness and mould.

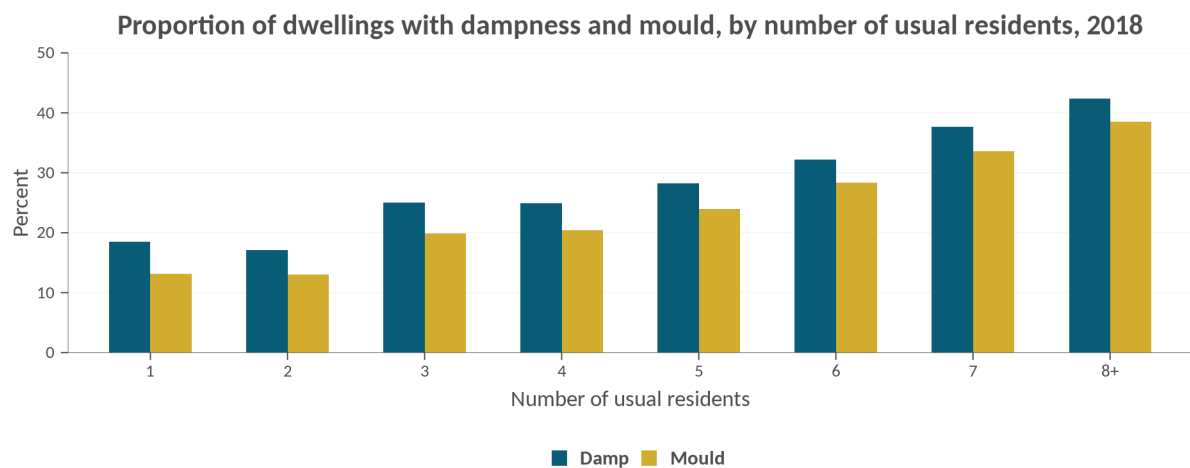
The 2018 GSS asked people how well their total income (including partner's where applicable) met their everyday needs for such things as accommodation, food, clothing, and other necessities. Figure 48 shows that people who said they had enough or more than enough money were less likely to live in households with damp and mould than those without enough money to meet everyday needs.

Figure 48

Stats NZ, data from general social survey 2018

Dampness and mould more common in homes with more residents

In both 2018 Census (figure 49) and 2018 GSS, dampness and mould were more common in houses with larger numbers of usual residents. In the 2018 Census, homes with eight or more residents were more than twice as likely to experience damp and mould than those with just one or two people.

Figure 49

'Damp' is sometimes or always damp; 'Mould' is sometimes or always mould larger than A4 sheet of paper.

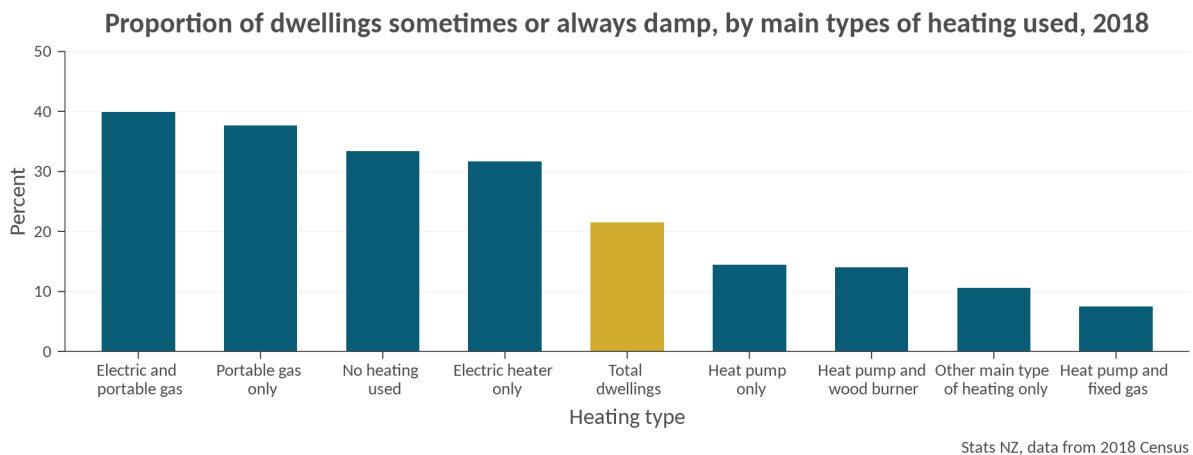
Stats NZ, data from 2018 Census

Heating types impact rates of dampness

The prevalence of dampness varied according to the main type or types of heating used (figure 50). Dampness (some or all the time) was most common in dwellings heated with both an electric heater (not a heat pump) and a portable gas heater (39.9 percent), or a portable gas heater only (37.7 percent). For the most common forms of heating – electric heater only, wood burner only, or heat pump only – dampness was most common in dwellings where electric heaters were used (31.7 percent), followed by wood burners (22.8 percent), and least common in dwellings where heat pumps and fixed gas heaters were used (7.5 percent)). Since the census did not ask about

ventilation, we don't know to what extent this would have been a factor, but the section on the pilot housing survey explores this in more depth.

Figure 50



A third of unheated dwellings were affected by dampness some or all the time. Constant dampness was most common in unheated dwellings (8.4 percent) and dwellings heated using a portable gas heater only (8.1 percent). There were differences in heating types by tenure of household, with owner-occupied houses more likely to have efficient heating sources.

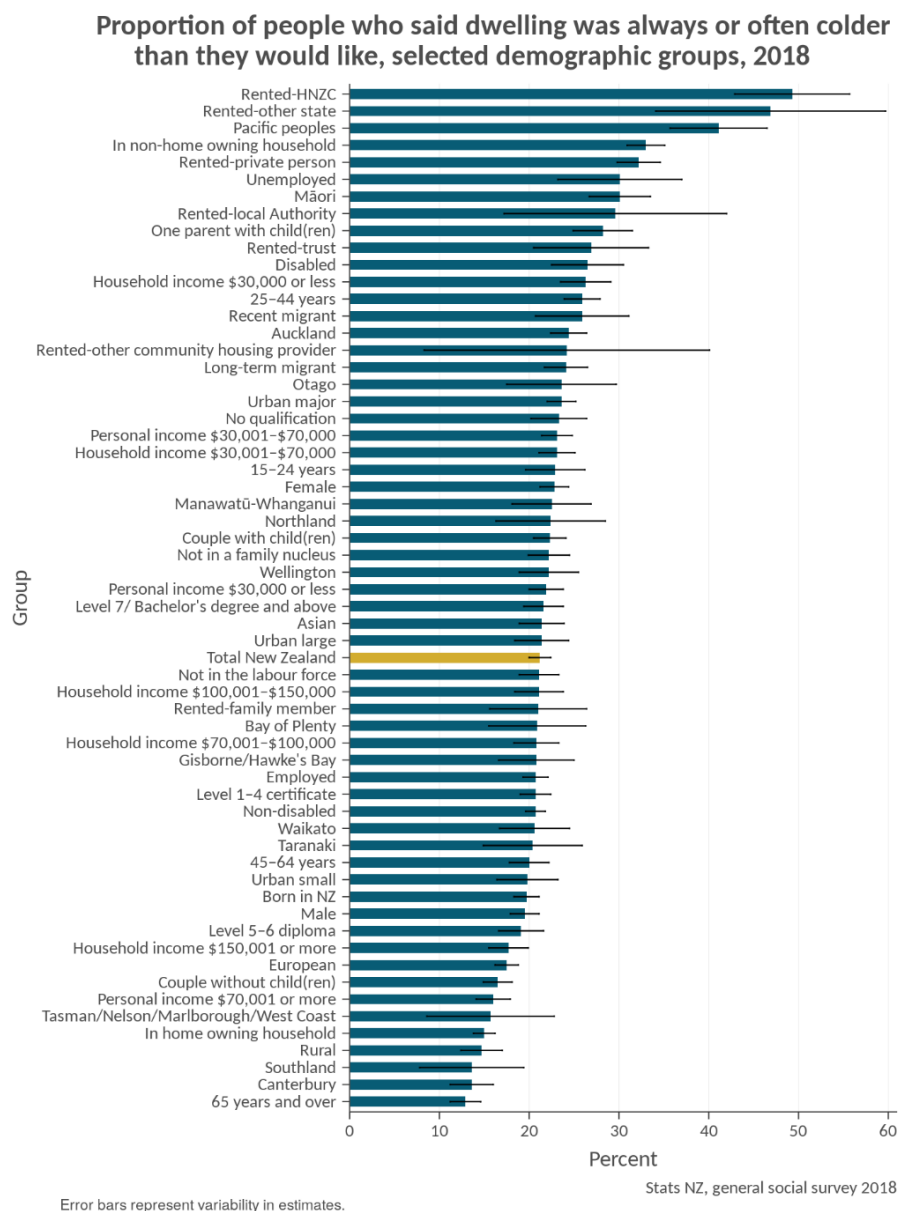
The 2018 GSS showed that dampness and mould were more common for people without enough money. Other contributory factors identified here, such as households with large numbers of people and households using inefficient means of heating or no heating at all, are also likely to be associated with a lack of money to meet everyday needs.

One in 5 New Zealanders said their homes were too cold

Figure 51 shows the proportions of people from a variety of different demographic groups who said their house or flat was always or often colder than they would like in winter. This data comes from the 2018 GSS.

Nationally, 21.2 percent of people said their home was too cold.⁷ People renting from Housing New Zealand or from other state government agencies, and Pacific peoples, were the most likely to report their homes being too cold, followed by renters (not owner-occupied), people who were unemployed, Māori, sole parents, disabled people, and those in low-income households. Conversely, people aged 65 years and over, those living in Southland and Canterbury or in rural areas, and owner-occupiers were the least likely to report being too cold, always, or often.

⁷ Note that the denominator for this calculation includes people who said they were not there in winter.

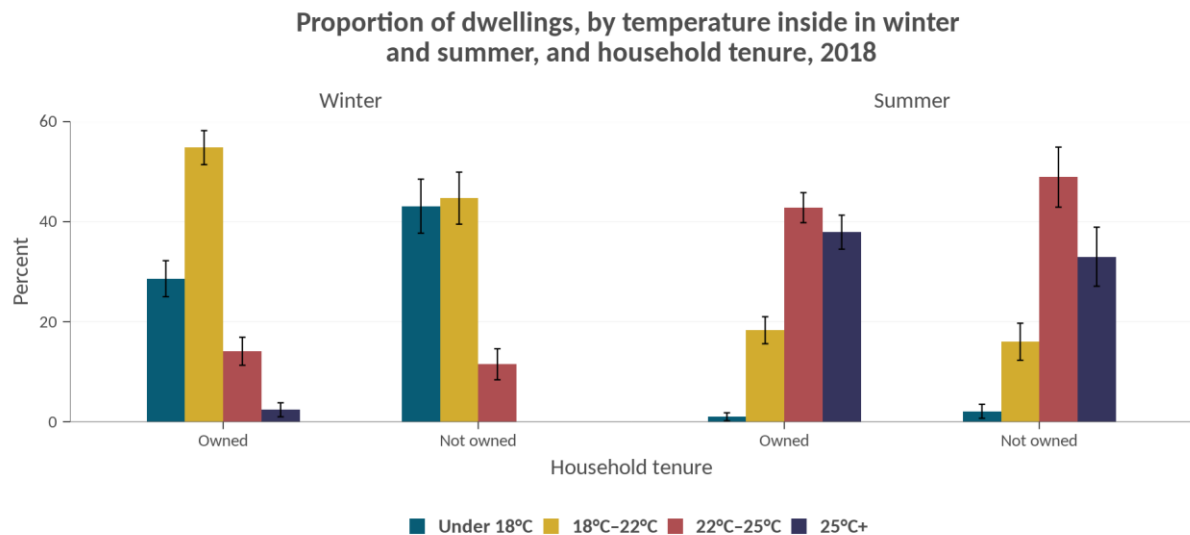
Figure 51

The 2018 GSS also asked people whether they could see their breath inside in winter, which is considered a more objective measure of cold. Around 1 in 5 people said they could. This rose to around 1 in 3 renters.

Around a third of homes were too cold in winter

Alongside subjective measures of cold, 2018 GSS respondents were also asked for permission to take an on the spot temperature reading. This took place in approximately 6,700 homes (see Stats NZ, 2020b for more information).

In winter, 33 percent of the temperature readings were under the minimum 18°C recommended by the World Health Organization (2018) *Housing and health guidelines*. Over a third of houses in summer (36.2 percent) were over 25°C. BRANZ's Household Energy End user Project (HEEP) study rated 20–25°C as a comfortable indoor temperature. Figure 52 shows that dwellings that were not owner-occupied were much more likely to record winter temperatures below 18°C.

Figure 52

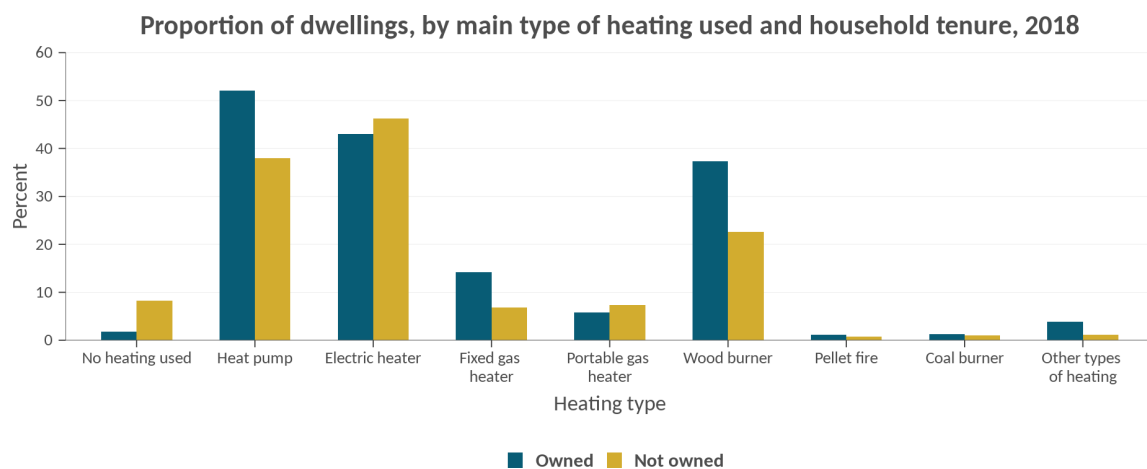
Error bars represent variability in estimates.

Stats NZ, data from general social survey 2018

Although the average (mean) temperature recorded inside homes during a 2018 GSS interview was 21.4°C, the mean temperature in winter was colder, at 19°C. People living in houses they didn't own, and those who said they didn't have enough money for everyday needs, also experienced colder indoor temperatures in winter (with mean recorded temperatures of 18.1°C and 17.7°C, respectively). Houses with efficient heat sources such as wood burners and heat pumps recorded warmer average temperatures in winter than houses with other electric heaters, or where people did not heat regularly.

How New Zealanders heat their homes

How New Zealanders heat their homes can have a big impact on rates of dampness and mould. Figure 53 shows differences in heating types by tenure of household in the 2018 Census. It demonstrates that owner-occupied houses were more likely to have efficient heating sources such as heat pumps and wood burners than non-owner-occupied homes.

Figure 53

Stats NZ, data from 2018 Census

Heating types vary across the regions

Use of a heat pump as a main type of heating was most common in Canterbury (71.1 percent) and Nelson region (63.6 percent), and least common in the West Coast (26.6 percent) and Northland regions (30.5 percent). Tasman and West Coast regions had the highest percentages of woodburners (at 62.3 percent and 60.3 percent, respectively), with the lowest percentages in Wellington (27.0 percent) and Auckland (17.0 percent) regions.

Portable gas heaters were most relied on as a main type of heating in Gisborne region (11.7 percent), Northland (9.8 percent), and Bay of Plenty (8.5 percent). Unflued gas heaters can release harmful emissions and water vapour into the home. Without proper ventilation, this can severely reduce indoor environmental quality, increase the risk of damp and mould, and affect the health of occupants (BRANZ, 2015). Use of coal burners as a main type of heating in occupied private dwellings was rare in every region except the West Coast (34.3 percent) and Southland (13.2 percent).

Unheated housing most common in Auckland region

No heating was used in 4.0 percent (60,819) of occupied private dwellings. The 2018 data for this category is not completely comparable with the previous data, due to the change in concept. However, this is consistent with the previous trend of a small increase in unheated private dwellings (from 2.4 percent in 2006 to 3.0 percent in 2013).

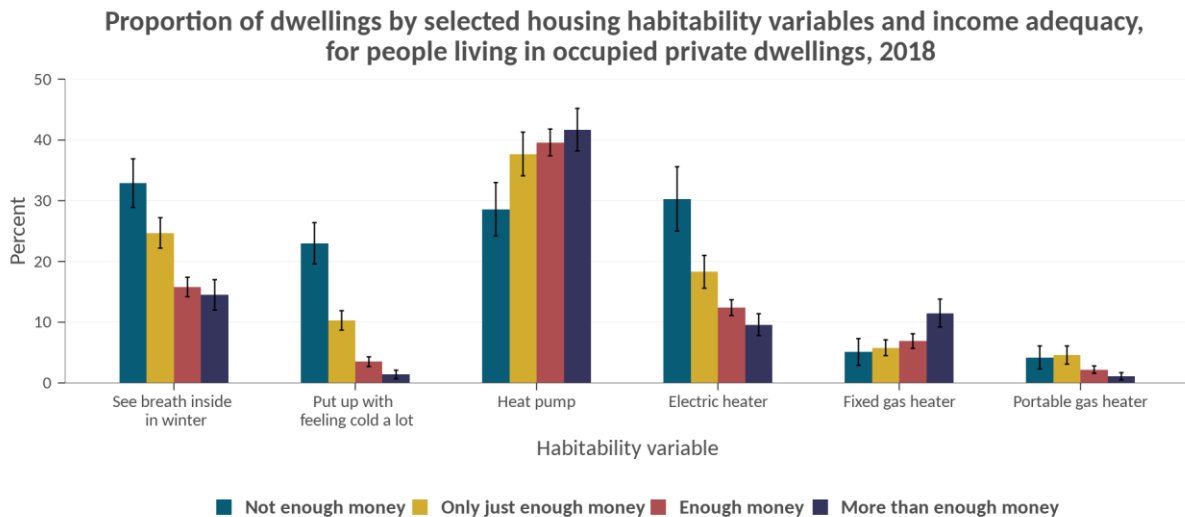
In the 2018 Census, unheated dwellings were most common in Auckland region (8.7 percent, 39,057 dwellings) and Northland (6.5 percent, 3,738 dwellings). The 2018 GSS also showed that people in Auckland were significantly more likely to report feeling always or often cold (24.4 percent, compared with 21.2 percent of people in the total New Zealand population).

Poorer households less likely to have efficient heating

In the 2018 GSS (see figure 54), people who said they did not have enough money for everyday needs were less likely to have a heat pump as a main form of heating (28.6 percent) in their living room, compared with people who had more than enough money (41.7 percent). They were more likely to use an electric heater (30.3 percent, compared with 9.6 percent). They were also more likely to use a portable gas heater (4.2 percent, compared with 1.1 percent of households with more than enough money), which have been shown to be associated with higher rates of dampness. These households were also more likely to have problems with dampness and mould, and to feel cold.

Households without enough or with only just enough money were less likely to heat their living room every night in winter (at 37.2 and 44.3 percent, respectively) compared with 61.4 percent of households with more than enough money. Just under 10 percent (9.7 percent) of households with not enough money never heated their living room, compared with 2.6 percent of households with more than enough money.

Note: The 2018 GSS only asked about heating type if people said they heated regularly (every night or most nights in winter) so the data is not directly comparable with Census data. The GSS asked for main type while Census collected data on main types.

Figure 54

Error bars represent variability in estimates.

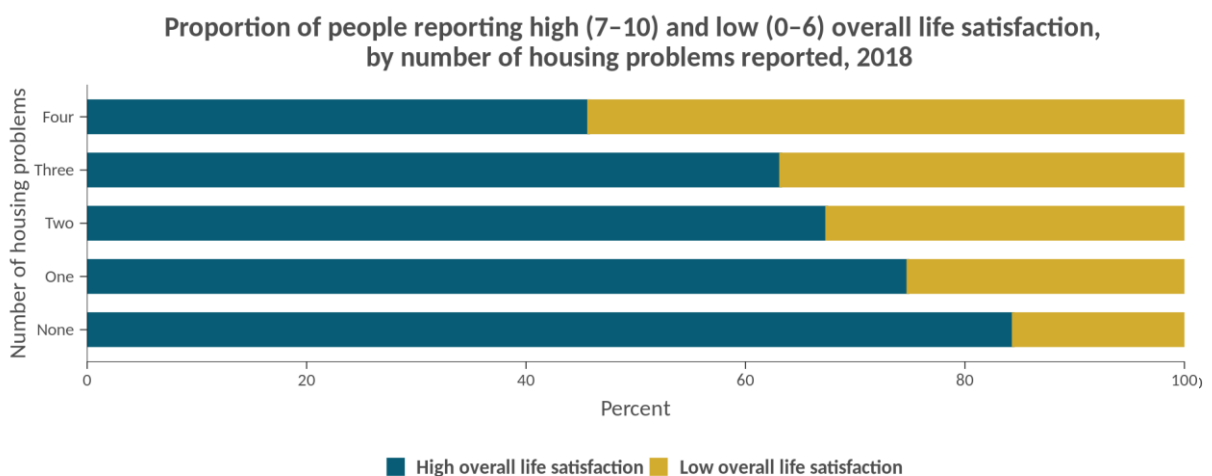
Stats NZ, data from general social survey 2018

Housing problems associated with poorer health and wellbeing

Through the GSS, we are able to compare the impact of housing problems with both physical and mental wellbeing. The four key housing problems measured in the 2018 GSS – living in a home that: was always damp; was always or often too cold; had mould that was always larger than an A4 sheet of paper; required major repairs or maintenance – appear to have a strong relationship with overall life satisfaction.

Figure 55 shows that self-rated overall life satisfaction was lower for those with multiple housing quality problems, and higher for those with fewer poor outcomes in these key housing quality aspects.

For people who reported four key housing quality problems, just over half (54.3 percent) rated their overall life satisfaction as 6 or below (on a 0 to 10 scale). For those with no key housing quality problems, 84.4 percent rated their overall life satisfaction as 7 or more out of 10.

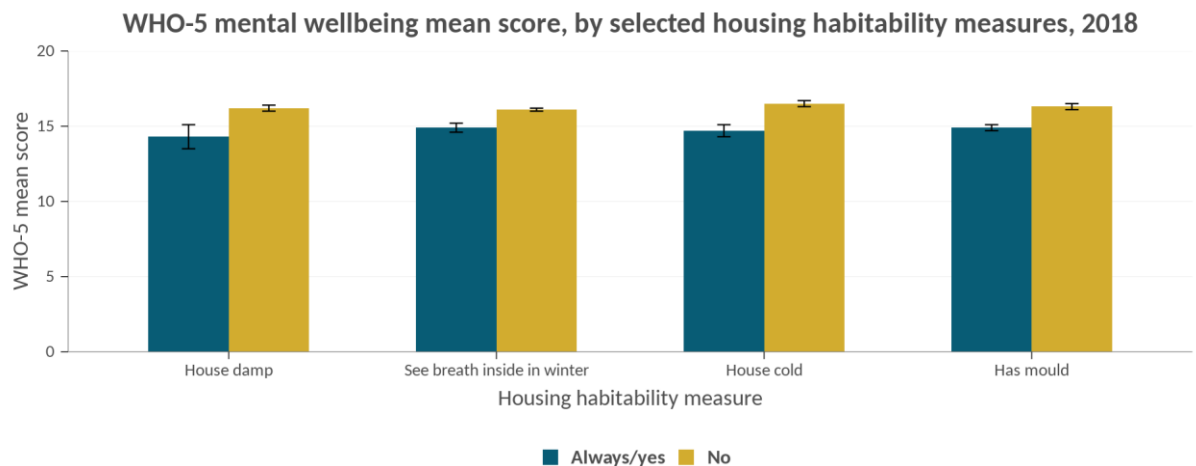
Figure 55

Four key aspects of housing quality measured – dwelling is: always damp; always or often too cold; had mould that was always larger than an A4 sheet of paper; required major repairs or maintenance.

Stats NZ, data from general social survey 2018

People experiencing housing quality problems also tended to experience poorer mental wellbeing, as measured by the WHO-5 Well-Being Index⁸ (figure 56).

Figure 56



Mean score calculated using WHO-5 – World Health Organization's five questions relating to mental health. Scores range between 0 and 25, with higher scores indicating better mental wellbeing. Error bars represent variability in estimates.

Stats NZ, data from general social survey 2018

As part of the 2018 GSS people were also asked some additional health questions, such as whether they had asthma, or how many times they had had seasonal flu or a common cold in the last 12 months.

This data showed that the presence of mould was associated with asthma, more frequent colds and flu, and an increased number of sick days and care days. People who lived in a house that was always damp were more likely to have had colds or flu in the last 12 months, and to have asthma. Similarly, living in a dwelling that was cold enough to see breath in winter was also associated with higher rates of sick and care days, asthma, mould, colds, and flu.

Access to basic amenities

In the Housing Improvement Regulations 1947, cl 4, which still apply today, the government stipulated that the minimum requirements for a house were:

- a living room
- a kitchen/kitchenette
- at least one bedroom
- a separate bathroom
- a toilet
- a facility for washing clothes (if accommodating more than two people).

“Enclosure and basic amenities are necessary if housing is to provide a basic level of privacy and dignity”

(Amore et al, 2013)

The regulations stipulate minimum requirements for size of rooms, and the kitchen must have:

- an approved sink with a tap connected to an adequate supply of potable water; and
- adequate means of preparing food and of cooking food, both by boiling and by baking, combined.

⁸ The World Health Organization - Five Well-Being Index (WHO-5) is a short self-reported measure of current mental wellbeing. Mean score is calculated from 5 questions relating to mental health: how calm, how cheerful, how active, whether they woke up feeling rested, whether life is full of interesting things. Total scores range between 0 and 25, with higher scores indicating better mental wellbeing. <https://ogg.osu.edu/media/documents/MB%20Stream/who5.pdf>

There is also the requirement for a fixed heating source – a chimney and fireplace, and that the dwelling should be free from dampness.

In the 2018 Census, respondents were asked about access to seven basic amenities (cooking facilities, tap water that is safe to drink, kitchen sink, refrigerator, bath or shower, toilet, and electricity supply) inside their dwelling. These amenities had to be in working order to be counted.

This information was collected to help measure ‘uninhabitable housing’ as part of an investigation into severe housing deprivation in New Zealand (Amore et al, 2013), as well as to understand the extent to which some New Zealanders are surviving without basic amenities.

Most New Zealand households have good access to basic amenities

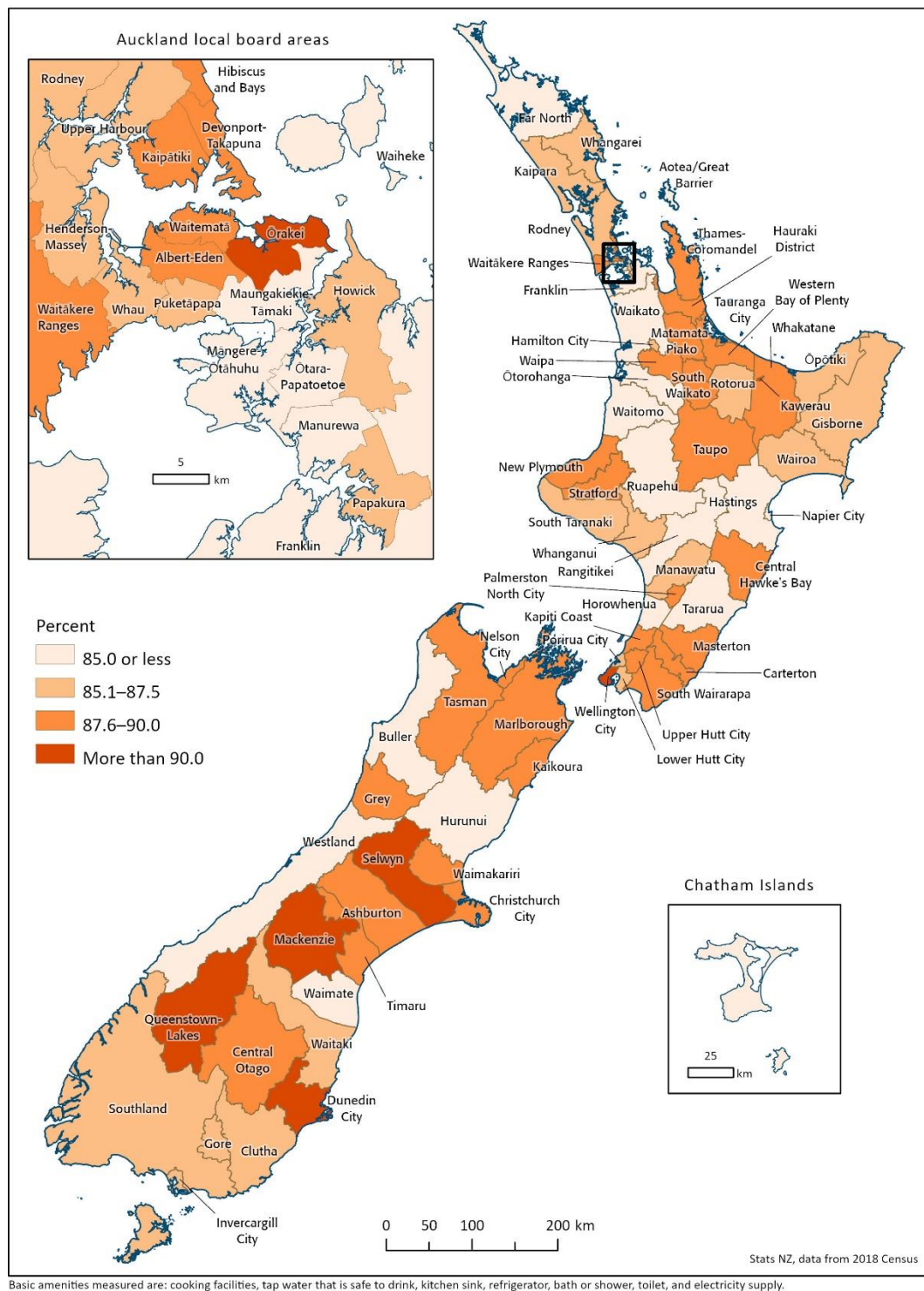
In the 2018 Census, 93 percent of all households (1,414,590) said they had access to the seven basic amenities, and less than 6,000 households (5,844 households) had no access to any basic amenities. However, there was considerable difference by tenure, with only 87.2 percent of households that did not own their dwelling having access to all seven basic amenities, compared with 95.9 percent of owner-occupied households.

For those households that were not owner-occupied, having access to all seven basic amenities was least likely in Hawke’s Bay, West Coast, Manawatū -Whanganui and Gisborne regions. However, less than 90 percent of non-owner-occupied households had access to all seven basic amenities in every region.

Looking at territorial authority areas, access was lower in more rural areas, with less than 81 percent of non-owner-occupied households in Buller, Ruapehu, and Hastings districts having all seven amenities (see figure 57). In Auckland, rates were lowest for Great Barrier local board area (at 62 percent of non-owner-occupied dwellings).

Figure 57

Proportion of non-owner-occupied households with access to all seven basic amenities, 2018



Safe tap water and refrigerators least common amenities

Nationally, the two amenities most likely to be missing were tap water that was safe to drink and a refrigerator – on average, around 97 percent of households had access to these amenities. Households that did not own their dwelling were less likely to have access – just 92.3 percent had a refrigerator and 95.0 percent had tap water that was safe to drink. Access to tap water that was safe to drink was lowest for non-owner-occupied households in Buller, Ruapehu, and Hastings districts

(at 83.8, 87.1, and 88.3 percent, respectively). In general, access to tap water that was safe to drink was less common in rural areas.

However, non-owner-occupied households in Auckland local board areas of Otara-Papatoetoe, Mangere-Otahuhu, Manurewa, and Great Barrier also had poorer than average access to all seven amenities.

Around 1 in 10 children living in a non-owner-occupied dwelling, regardless of ethnicity, did not have access to a refrigerator.

Nationally, the proportion of people with access to all seven amenities was lowest for Pacific peoples at 86.0 percent, followed by people with Asian and Middle Eastern ethnicities. For Māori and Pacific peoples, access was lowest in Hawke's Bay.

Summary of housing habitability

2018 Census and GSS data shows that housing quality issues were common. Levels of dampness and mould were associated with number of usual residents, tenure status, and whether residents had enough money for everyday needs. Renters were more likely to live in dwellings affected by dampness and mould, particularly those renting from Housing New Zealand.

The prevalence of dampness also varied according to the type of heating used. The highest rates were seen in dwellings with an electric heater and portable gas heater, or portable gas heater only. Constant dampness was most common in unheated dwellings.

Māori and Pacific peoples were more likely to live in homes affected by dampness or mould than other ethnic groups. Although most homes had access to basic amenities, people who did not own their home were more likely to lack access to some amenities. Pacific peoples were the most likely to live in a household without access to all seven basic amenities.

Matching self-rated housing quality with objective data – the pilot housing survey

In 2015, Stats NZ looked at potential ways to improve the measurement of housing quality including combining questions on housing quality with an objective measurement such as a housing condition inspection. In 2018, this became a reality through a Stats NZ–BRANZ partnership. Questions on housing quality were included in the 2018 GSS, and housing condition inspection information from BRANZ was collected in the 2018–19 pilot housing survey (PHS), which was co-funded by MBIE and BRANZ.

This section presents the results from the pilot housing survey, along with information on housing habitability from the 2018 GSS.

A novel pilot approach

The PHS involved a physical assessment of 832 dwellings throughout New Zealand. While based on methods used by BRANZ in its house condition survey (HCS),⁹ which has been carried out every five years since 1994, the PHS trialled some different approaches including:

- some new survey content
- new data collection methods
- partnering with the GSS – a large, national household survey
- a larger sample size (making it the largest national survey of its type undertaken in New Zealand since 1937).

Further information about the survey content and methods are available on the BRANZ website (BRANZ, 2020).

What makes a healthy home?

The analysis presented here focuses on key housing characteristics of a warm, dry, safe home, aiming to provide a snapshot of the condition of our housing stock, drawing comparisons between owner occupied and non-owner-occupied dwellings.¹⁰

In December 2017, the Government passed the Healthy Homes Guarantee Act 2017, which enabled standards to be introduced to help make rental homes warmer and drier. The resulting Residential Tenancies (Healthy Homes Standards) Regulations 2019 set new requirements for insulation, heating, ventilation, draught-stopping, and moisture ingress and drainage (Ministry of Housing and Urban Development, 2020). Where applicable and possible, analysis has been undertaken to compare findings from the PHS with these new requirements.

Housing characteristics vary by tenure

Dwelling size (floor area and number of storeys) and type (for example, stand-alone or joined units, single-storey or multi-storey) have implications for thermal performance (heat loss and heating requirements) and retrofit opportunities (for example, accessibility of a roof space or subfloor for

⁹ www.branz.co.nz/hcs

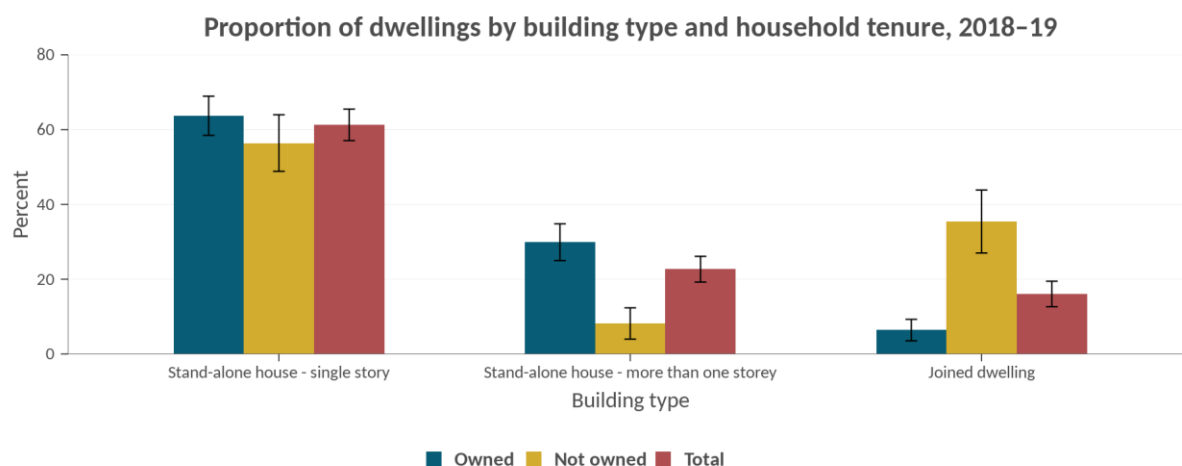
¹⁰ Where dwellings are referred to as 'rentals' or 'rented dwellings' this means all housing that is not owner-occupied.

insulation). Before looking at some of the indicators of housing condition from the 2018–19 PHS, it is therefore useful to explore some of the basic differences in dwelling characteristics by tenure.

Owner-occupied properties more likely to be larger, stand-alone houses

Owner-occupied dwellings surveyed in the PHS were more likely to be larger, stand-alone houses while rentals were more likely to be smaller, multi-unit/joined¹¹ dwellings (figure 58). Over a third (35 percent) of renting households were living in joined dwellings, compared with 6 percent of owner-occupier households.

Figure 58



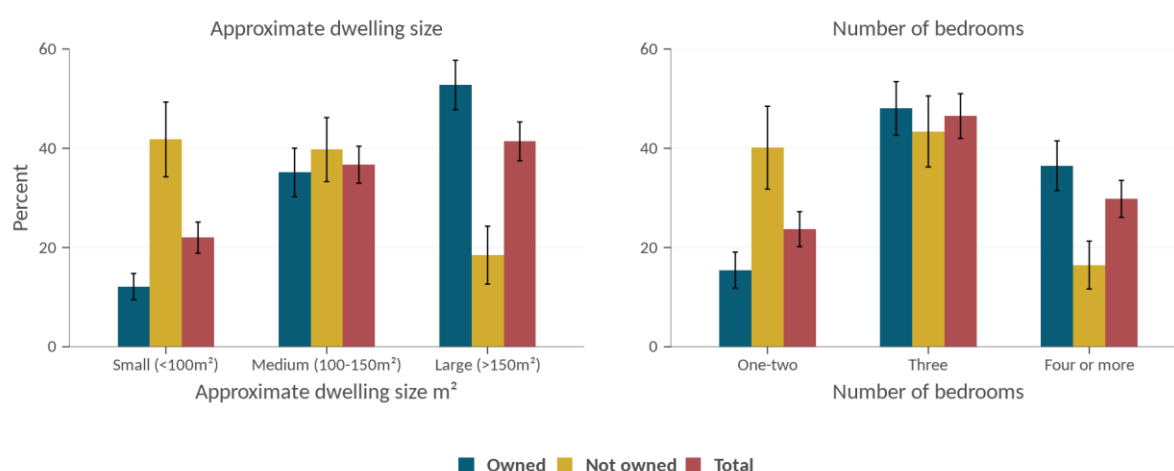
Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Two-fifths (42 percent) of non-owner-occupied dwellings were ‘small’ (less than 100m² approximately), compared with 12 percent of owner-occupied dwellings, while over half (53 percent) of owner-occupied dwellings were 150m² or larger (figure 2). Two-fifths (40 percent) of non-owner-occupied dwellings surveyed had one or two bedrooms, compared with 15 percent of owner-occupied dwellings. Conversely, almost 37 percent of owner-occupied had four or more bedrooms, compared with 16 percent of rentals (figure 59).

The prevalence of smaller housing amongst the non-owner-occupied stock is consistent with findings from the latest census.

¹¹ This includes single storey joined dwellings, townhouses, flats, and apartments.

Figure 59**Proportion of dwellings by approximate size, number of bedrooms, and household tenure, 2018–19**

Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Owner-occupied dwellings were also more likely to be newer, with 26 percent being built post-1996, compared with 9 percent of non-owner-occupied dwellings. Conversely, a higher proportion of rentals occupied housing from the 1960s–1980s (17 percent compared with 3 percent for the owner-occupied sample).

Assessing condition

The PHS recorded information on the presence of defects and condition of different components of the dwelling. Defects were identified from a list specified in the survey and the assessment was based on what the assessor could see at the time of the survey. A condition assessment was made based on the extent and severity of defects and the need for repair or maintenance, using the criteria summarised in table 3. For full details on the survey methods and criteria see the PHS technical report (BRANZ, 2020).

Table 3

Summary of condition assessment criteria, 2018–19 pilot housing survey	
Condition rating	Description and assessment criteria
Excellent	“As new” condition. No signs of damage/wear and tear. No maintenance requirements at present.
Good	“Good, clean” condition. Minor signs of wear and tear. No maintenance requirements at present.
Average	“Sound and clean”. Minor marks/chips/slight deterioration, signs of wear and tear. Standard maintenance (for example, repaint/wash down within ~1 year)
Poor	“Needs work”. Badly marked/chipped/damaged. Functionality compromised. Repair/maintenance significant and/or needed within ~3 months.
Serious	“Urgent attention”. Broken/missing, major faults/cracks/damage/hazards. Not functioning. Health and safety risk/weathertightness impact. Major repair/replacement required urgently. ¹
Assessors have a duty of care when undertaking the housing assessment survey. Issues identified that could present serious or imminent risk to the occupant were communicated verbally to the occupant, with recommendation to seek expert advice.	
Source: BRANZ	

Exterior materials and condition

According to BRANZ, 2013, materials used in construction have implications for maintenance and repair requirements, as different materials will be subject to different rates of ‘wear and tear’, deterioration and defects.

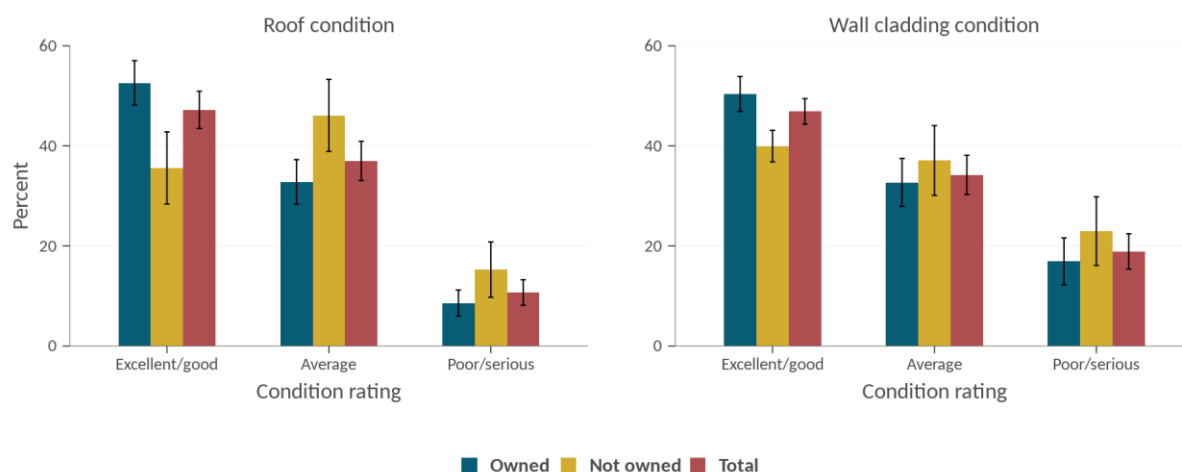
Half of roofs and walls in need of some maintenance or repair

Steel was the most common roofing type of all surveyed dwellings (for owned and rented), followed by concrete tiles (62 percent and 19 percent, respectively). Overall, in nearly half (47 percent) of dwellings surveyed, the roof was considered in excellent or good condition, meaning no repairs or maintenance were required at the time of assessment. In 11 percent of dwellings the roof was considered serious or poor, suggesting significant and/or immediate repair was needed (figure 60).

While there was no significant difference between owned and rented homes in the average or worse condition categories, the roof was more likely to be in good or excellent condition for owner-occupied dwellings compared with non-owner-occupied houses. Allowing for sample errors, these results are broadly consistent with the previous house condition survey, 2015–16 (White & Jones, 2017).

Figure 60

Proportion of dwellings by condition of roofs and wall cladding, and household tenure, 2018–19



Roof condition data excludes dwellings with another dwelling above and where roof condition could not be assessed.
Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Wall cladding in poor condition for 1 in 5 houses

Timber weatherboard was the most common wall cladding type, for both owned and rental properties, present on nearly 2 in 5 (39 percent) of all houses surveyed. This was followed by brick (33 percent), and fibre cement weatherboard¹² (21 percent). While almost half (47 percent) of surveyed dwellings had wall cladding in excellent or good condition, nearly 1 in 5 (19 percent) had cladding in poor or serious condition. Owner-occupied dwellings were again more likely to have cladding in better condition (excellent or good) compared with non-owner-occupied houses. This

¹² Fibre cement weatherboard has a similar appearance the traditional timber weatherboard cladding used in New Zealand, but is composite material made of cement reinforced with cellulose fibres.

trend is consistent with the 2015–16 HCS, and when allowing for sampling error suggests no significant change.

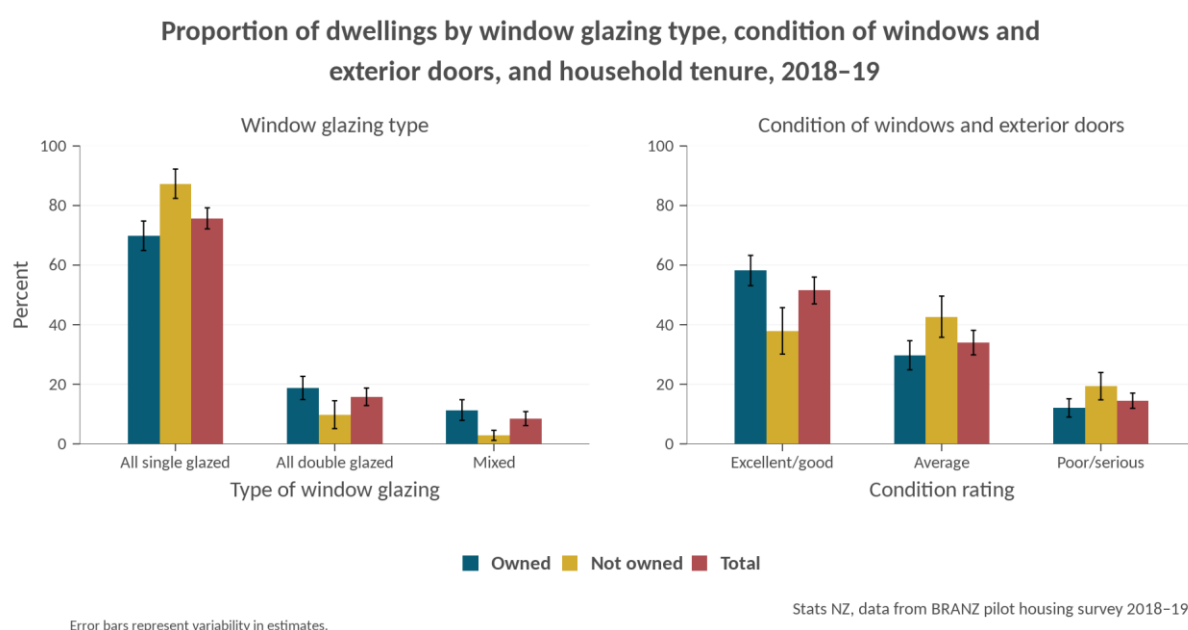
Timber window framing becoming less common

As with roof and wall materials, window framing type has implications for maintenance requirements and thermal performance. Up until the 1970s, the main material used for window frames in New Zealand was timber. While these were *present* in over two-fifths (42 percent) of houses surveyed in the PHS, timber was the *predominant* frame type in less than one-third (32 percent), being overtaken by aluminium. Aluminium windows became very popular from the 1970s onwards and were present in 4 in 5 (80 percent) of dwellings surveyed, and the predominant framing type for 68 percent. Aluminium has lower maintenance requirements than timber, but unless thermally-broken,¹³ performs less well in terms of heat loss (Villard, 2018).

Double-glazing slowly on the increase

While single glazing still dominates in our housing stock, with over three quarters (76 percent) of dwellings surveyed being entirely single glazed, the survey shows double-glazing is on the increase. In the 2015 HCS only 10 percent of houses surveyed were entirely double-glazed, compared with 16 percent in the 2018–19 PHS. This likely reflects changes to the New Zealand Building Code (NZBC), which made double-glazing mandatory in all new builds from 2008. Whilst on the upward trend in general, disparity between the owned and rented stock remains, with almost twice the proportion of owner-occupied dwellings being fully double-glazed compared to rentals (figure 61).

Figure 61



Windows and exterior doors in poorer condition in rental properties

Different framing materials are susceptible to different maintenance requirements, with timber typically requiring more upkeep than aluminium. Window defects were more commonly observed on non-owner-occupied dwellings (which also had a higher proportion of timber-framed windows).

¹³ Thermally-broken window frames have a section inside the frame made of insulating material, such as plastic or wood, to prevent the transfer of heat and cold via the window frame.

The higher prevalence of defects in rentals aligns with the lower overall condition rating of windows and exterior doors. While 58 percent of owner-occupied dwellings had windows and exterior doors in excellent or good condition, this applied to less than two-fifths (38 percent) of non-owner-occupied dwellings (figure 61).

Interior condition and mould

The results of the 2018–19 PHS complemented data on dampness and mould from both the 2018 Census and 2018 GSS. In the PHS, the interior of each dwelling was surveyed to record information on the presence of visible mould and condition of internal linings. As with the exterior, the same condition rating scale was used to assess condition based on the presence and severity of defects and need for repair/maintenance. For mould, a scale of severity was used and applied to all linings (floor, ceiling, walls), window frames and curtains (see table 4 for summary). This assessment criteria differs slightly from the 2015–16 HCS, and the inclusion of curtains was new, so the results are not directly comparable.

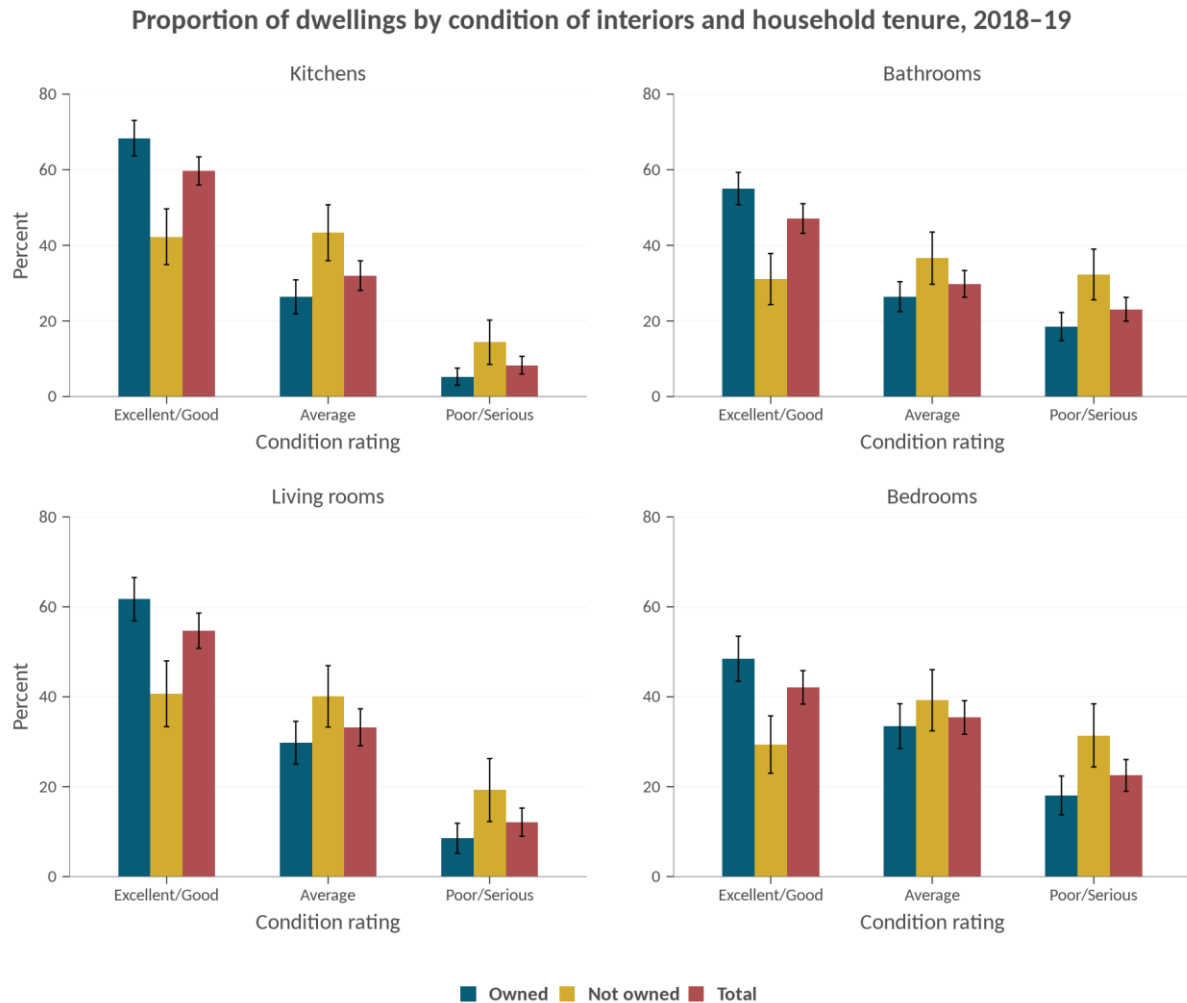
Table 4

Summary of mould severity criteria, 2018–19 pilot housing survey	
Visible mould category	Description
None	No visible mould on any surface.
Small (~doorknob size)	Specks or patch around the size of doorknob. Can be easily cleaned/washed off.
Moderate (~A4 paper size)	One patch around the size of A4 paper. Can be cleaned/washed off with effort.
Large or Extensive	Multiple patches or larger than A4. Requires specialist attention (beyond DIY solutions)
Source: BRANZ	

While the condition and presence of mould was assessed in all rooms individually, the results presented here have been combined for rooms of the same type. This means where more than one room of that type (for example, living areas, bedrooms, and bathrooms) was present in the dwelling, the worst rating for a room of that type has been used. For example, in a three-bedroom house where two bedrooms were in average condition, and one in poor condition, bedrooms for that dwelling would be reported here as poor. Similarly, if there were two bathrooms and one had small mould, and the other moderate mould, this would be counted as moderate. It therefore presents the ‘worst case scenario’.

Condition of room linings in poorer state of repair in rentals

The results from the condition assessments show the interior of the dwelling was consistently in poorer state of repair in non-owner-occupied dwellings than owner-occupied dwellings (figure 62).

Figure 62

Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Bedrooms and bathrooms show the most signs of visible mould

Mould is a key indicator of poor indoor environmental quality and has implications for occupant health, including links to asthma, respiratory infections, and rheumatic fever (see, for example, Mendell et al, 2009). Mould and damp can arise through a combination of inadequate warmth and excessive moisture/lack of ventilation.

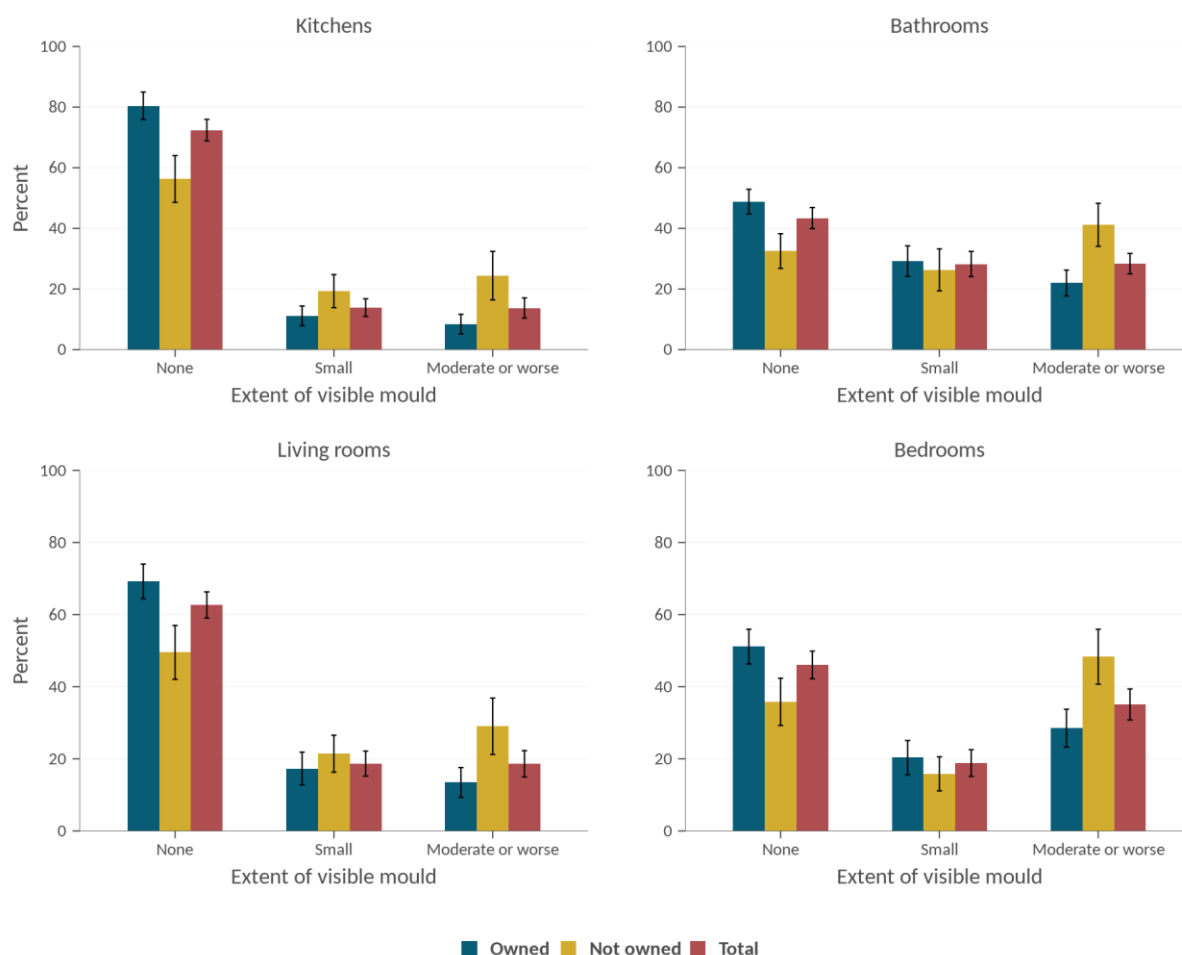
The PHS assessed the extent of visible mould in all rooms of the house. The results show visible mould was more frequently observed in bathrooms (57 percent) and bedrooms (54 percent), compared with kitchens (28 percent) and living spaces (37 percent). Bathrooms, being a high moisture environment, are typically more susceptible to mould. A number of factors could be contributing to the mould growth observed in bedrooms, including under-heating (too cold), poor ventilation, and/or over-crowding. The presence of mould in bedrooms is of particular concern as we tend to spend a lot of our time indoors in bedrooms (that is, overnight), therefore presenting higher exposure risk.

Across all rooms assessed, mould was consistently more commonly observed, and to a greater extent, in non-owner-occupied dwellings compared with owner-occupied dwellings.

This trend is consistent with the poorer room condition rating seen in rentals. Mould on or embedded in interior linings represents a defect requiring 'maintenance' (either cleaning or, where severe, removal and replacement of linings). The presence and severity of visible mould will therefore have impacted on and be linked to the condition rating.

Figure 63

Proportion of dwellings by extent of visible mould inside and household tenure, 2018–19



Error bars represent variability in estimates.

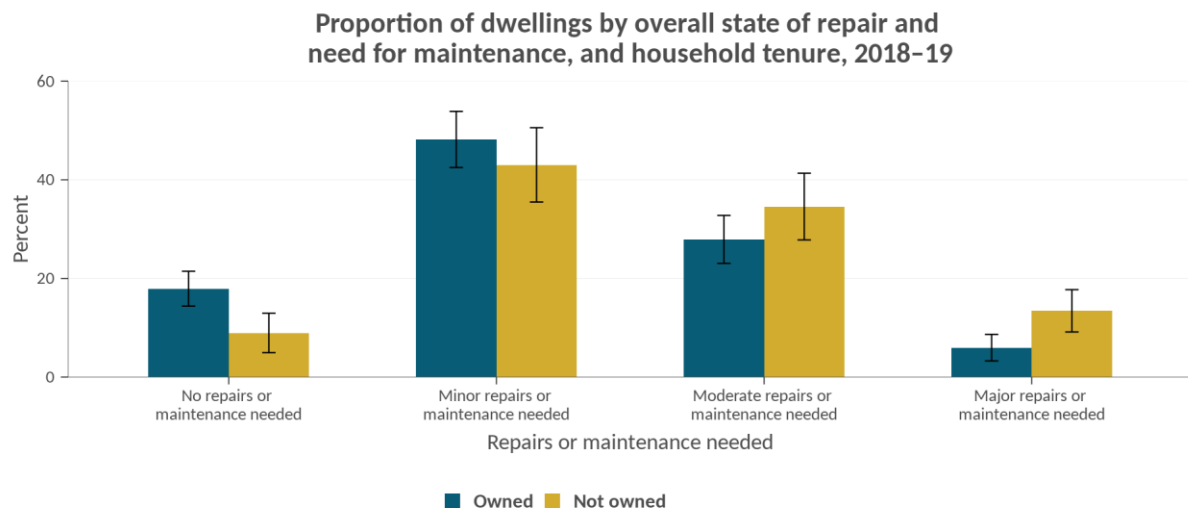
Stats NZ, data from BRANZ pilot housing survey 2018–19

Rentals more likely to require major repair

Based on an assessment of the overall state of repair and need for maintenance (which takes account of all dwelling features considered in the survey, and the extent and severity of issues identified),¹⁴ owner-occupied dwellings were twice as likely to need no immediate repairs or maintenance, while rentals were twice as likely to require major repairs or maintenance at the time of the assessment (figure 64).

However, it is only at the 'extreme' ends of this assessment criteria that we saw a significant difference – the proportion of houses needing minor or moderate repairs does not differ significantly between the two sectors.

¹⁴ The categories in the overall condition assessment used in the 2018–19 PHS differ from that of the 2015 HCS as they were amended to align more closely, and therefore be more comparable with a question in the 2018 GSS.

Figure 64

Error bars represent variability in estimates.

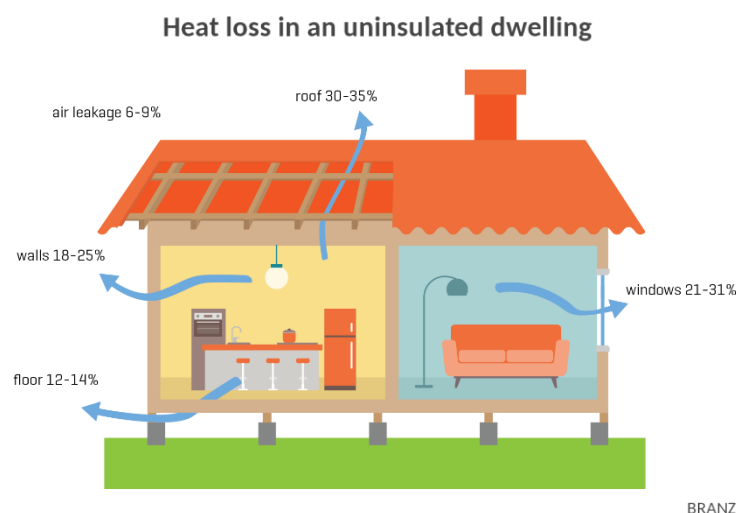
Stats NZ, data from BRANZ pilot housing survey 2018–19

Preventing heat loss

The dwelling fabric plays a critical role in reducing the impact of outdoor temperatures on occupants. The construction type and design, insulation levels, glazing, draughts, window coverings, and state of repair affects the efficacy with which a dwelling fulfils that role.

Uninsulated roofs a major source of heat loss

In an uninsulated house, 30–35 percent of heat can be lost through the roof (figure 65, BRANZ, 2007). Insulation became mandatory in all new houses in New Zealand from 1978. Houses built before then are unlikely to have insulation unless it has been retrofitted.

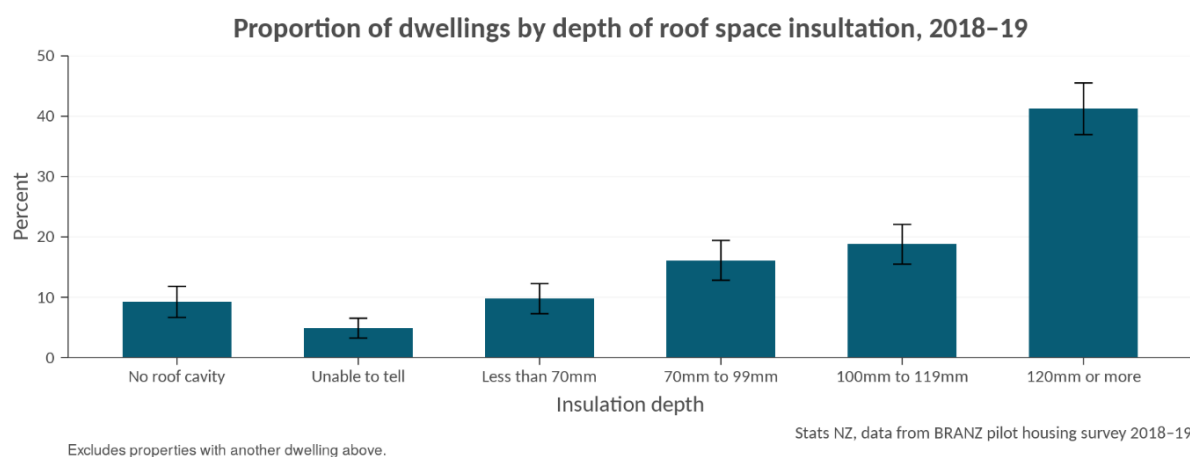
Figure 65

New requirements for rental properties introduced in 2019 (under the Healthy Homes Guarantee Act 2017) require all rental homes to have insulation consistent with the 2008 building code requirements for house insulation, or for existing insulation it must be at least 120mm thick (Building Code, 2008). This is also the recommended minimum by the Energy Efficiency and Conservation Authority.

No significant difference in roof space insulation by tenure

The PHS recorded the type, depth, and coverage of all insulation materials in the roof space, where there was an accessible roof cavity. The results showed that 45 percent of houses with a roof cavity had at least 120mm insulation, while 49 percent had less than 120mm¹⁵ (figure 66). There was no significant difference between owned and rental dwellings. These estimates are consistent with those from the 2015–16 HCS (White & Jones, 2017), though the data indicates some improvement, with proportionally fewer houses with none or less than 70mm insulation. While improvements in insulation levels over time are to be expected, given the requirements of the New Zealand Building Code for new builds, regulations (such as the Healthy Homes Standards) and interventions (such as Warmer Kiwi Homes), this is a positive finding.

Figure 66



Slab foundations more common in owner-occupied homes

An uninsulated subfloor can be another major source of heat loss from a home, and like the roof space, underfloor insulation is also now a requirement in rentals under the Healthy Homes Standards. For houses with an accessible subfloor, the 2018–19 PHS recorded the type and coverage of insulation.

Over a third of houses surveyed had an entirely concrete slab foundation (36 percent, that is, no subfloor cavity). This was more common amongst owner occupied houses (40 percent) compared with non-owner-occupied dwellings (28 percent).

In 6 percent of cases where a subfloor was present, it was not accessible and could therefore be considered unsuitable (not practicable) for retrofit.

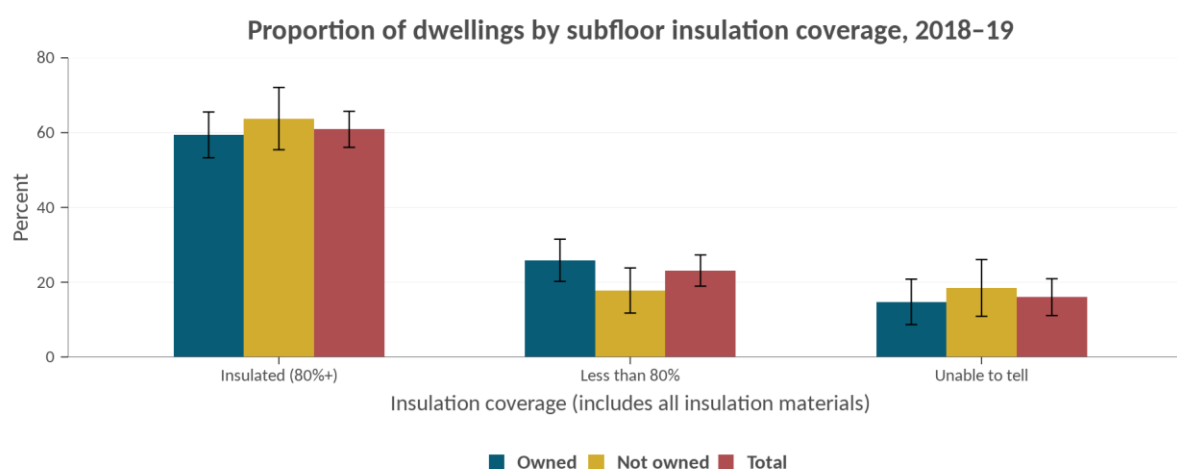
¹⁵ These figures do not take account of coverage. If coverage is taken into account, a further 5 percent could potentially benefit from additional insulation to ensure all roof space is adequately covered.

Three in five houses have adequate subfloor insulation

Of those with an accessible subfloor,¹⁶ around 3 in 5 houses (61 percent) had at least 80 percent coverage of insulation in the subfloor (figure 67). Most of these (80 percent) had bulk insulation, while 16 percent had foil insulation. Almost a quarter (23 percent) of houses lacked adequate insulation of the subfloor.¹⁷

There was no significant difference between the proportion of owned and rented houses lacking insulation in the subfloor. Findings are reasonably consistent with results from the previous HCS but indicate some evidence of improvement (suggesting a decrease in the proportion still needing subfloor insulation). Improvement is to be expected over time due to Building Code requirements, regulations, and retrofit interventions.

Figure 67



Includes only dwellings with a subfloor cavity. Error bars represent variability in estimates

Stats NZ, data from BRANZ pilot housing survey 2018–19

Rental dwellings more likely to be draughty

Gaps around windows and doors and unblocked (unused) chimneys can be a major source of draughts which impact the thermal performance of a dwelling. The 2018–19 PHS introduced a question on draughts, which assessed the extent and size of gaps around windows and doors (see table 5).

Table 5

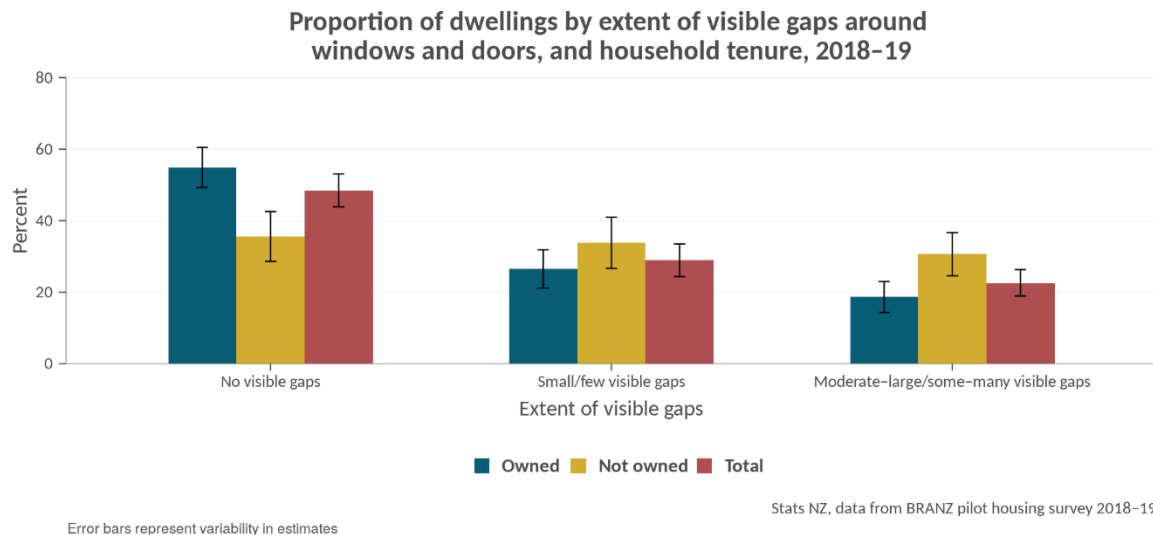
Summary of draught assessment criteria, 2018–19 pilot housing survey	
Draught assessment	Description and criteria
No visible gaps	“Not draughty”
Small/few visible gaps	“A little draughty”
Moderate/some visible gaps	“Draughty”
Large/many visible gaps	“Very draughty”
Source: BRANZ	

¹⁶ These results apply to 55 percent of the total sample which had an accessible suspended floor.

¹⁷ In the remainder of cases the extent of insulation could not be determined, due to limited visibility from the access hatch.

The results of the PHS (figure 68) suggest rentals may be more susceptible to draughts due to more frequent and/or larger gaps around windows and doors. Some 19 percent of owner-occupied dwellings had 'moderate'/'some' or 'large'/'many' gaps around windows and doors, compared with 31 percent of rentals. However, there can be other sources of draughts (such as unblocked chimneys, or gaps between floorboards), hence 'no visible gaps' around windows and doors as recorded in the PHS does not necessarily mean a draught-free house.

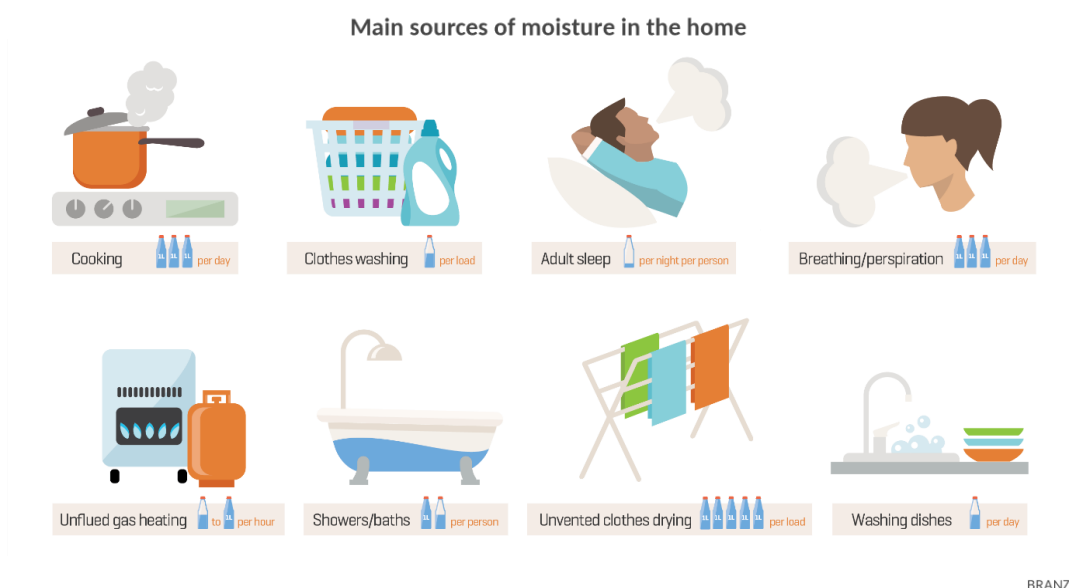
Figure 68



Managing moisture

Daily activities in the home, such as bathing and cooking, generate moisture (figure 69). Managing this moisture by using mechanical extracts and ventilation (opening windows and doors) is essential for ensuring a healthy indoor environment. Mechanical extract ventilation in bathrooms and kitchens is also now a requirement for rental properties under the Healthy Homes Standards.

Figure 69

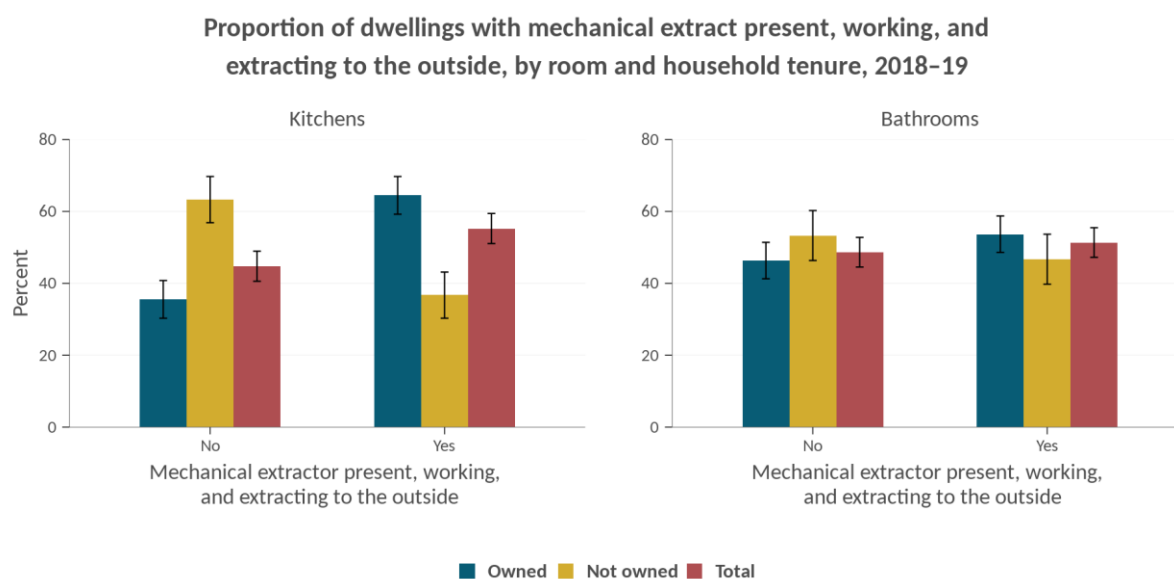


The PHS recorded the presence of mechanical extract ventilation in kitchens and bathrooms. When considering extract ventilation, the survey only counted appliances that were venting to the outside and working at the time of the survey.

Around half (49 percent) of houses surveyed did not have working mechanical extract, extracting to the outside, in all bathrooms, with no significant difference between owned and rented dwellings.

Almost two-thirds (63 percent) of owner-occupied dwellings had working mechanical extract ventilation, extracting to the outside in the kitchen, compared with less than two-fifths (37 percent) of non-owner-occupied houses (figure 70).

Figure 70



Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Keeping warm

The presence of good insulation in the roof space and subfloor will not in itself result in a warm home.

Most New Zealand homes require some heating

Most dwellings in New Zealand will at some time of the year require heating to ensure indoor temperatures are maintained at a healthy level (at least 18°C (World Health Organization, 2018)). Heating is also important for managing moisture, as warm air can ‘hold’ more moisture, helping to prevent it from condensing on surfaces. Fixed heating in the main living area is a requirement in rentals under the Healthy Homes Standards.

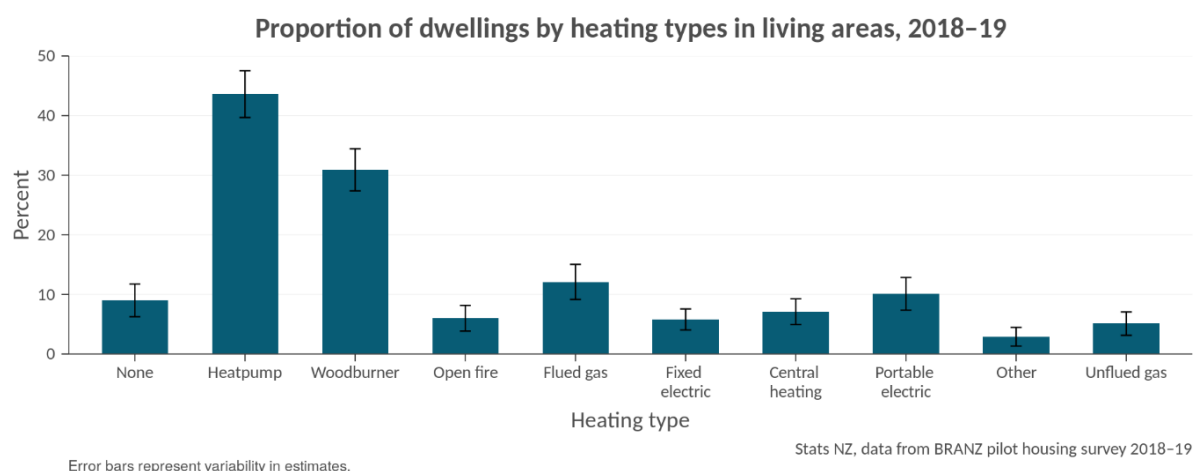
The 2018–19 PHS recorded the presence of all heating types in all living spaces and bedrooms of the house individually. It provides more detail, but a similar picture to information on heating from both the 2018 Census and 2018 GSS.

Heat pumps most common heating type in living areas

Heat pumps and enclosed wood burners were the most common heating type in living areas, with 44 percent and 31 percent, respectively, of dwellings having these types of heating appliances in a living

area (figure 71). Non-owner-occupied houses were more likely to have no heating in living areas (15 percent) than owner-occupied homes (6 percent).

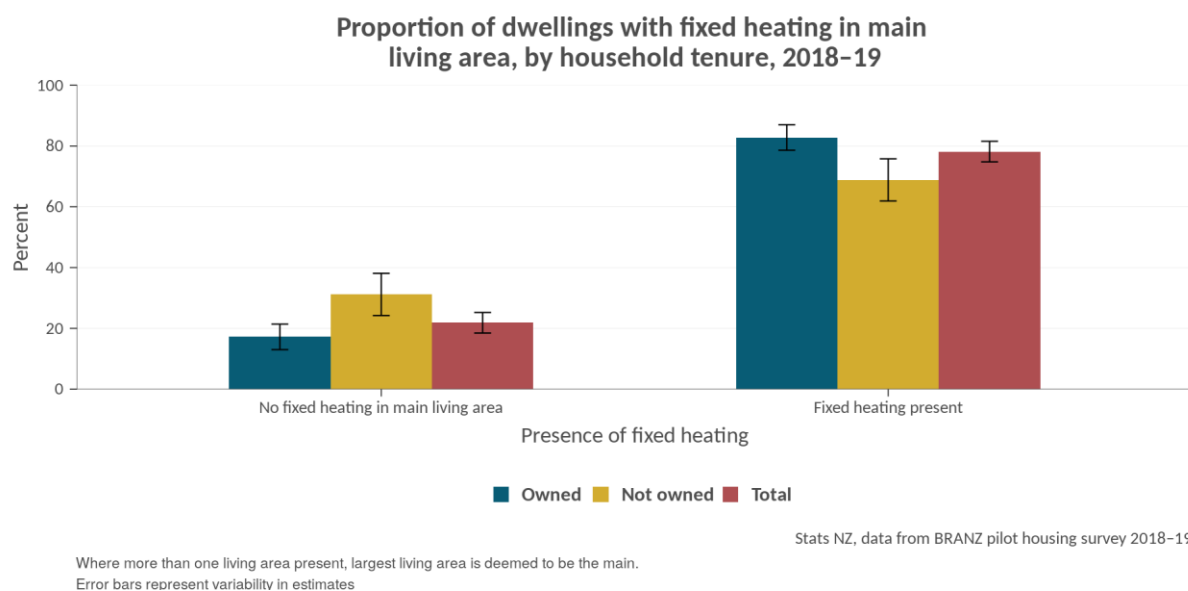
Figure 71



Fixed heating in main living area of over two-thirds of rentals

Looking at the largest living room only, which is deemed to be the 'main' living area under the Healthy Homes Standards, figure 72 shows that nearly four out of five houses (78 percent) had a fixed heating source in the 'main' living area (that is, excluding unflued gas and open fires).¹⁸

Figure 72



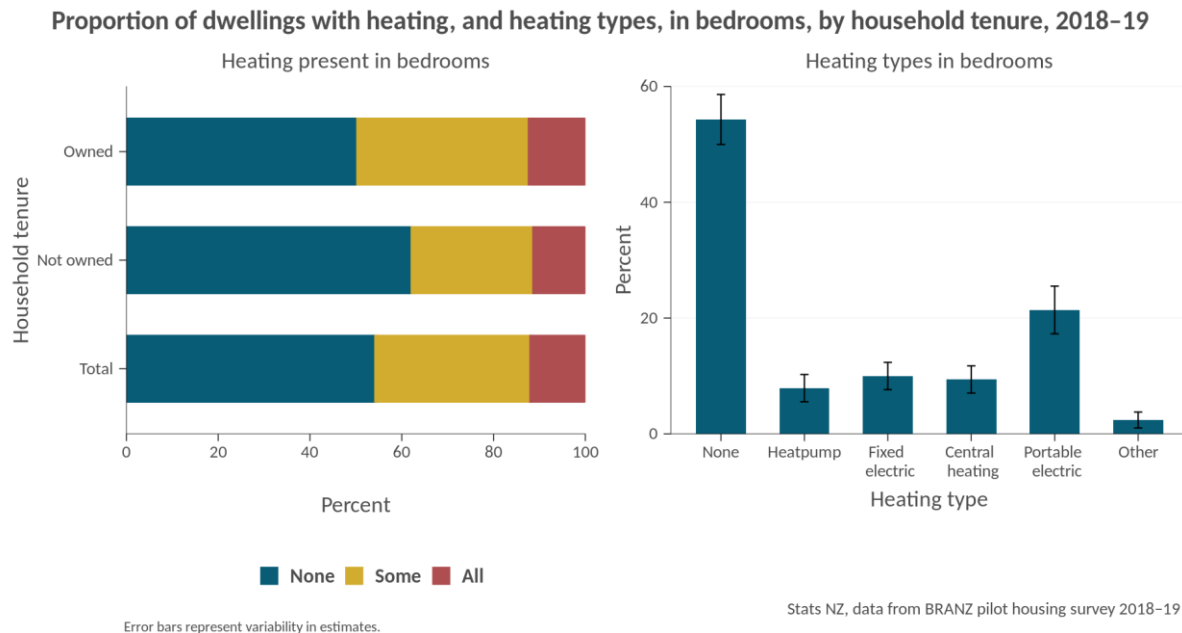
However, this proportion differed slightly between owned and non-owner-occupied dwellings (83 percent and 69 percent, respectively).

¹⁸ These were excluded to align with the Healthy Homes Standards requirements. However, as there are additional requirements in the Healthy Homes Standards around sizing (kW capacity), which are not covered in the PHS, the results provide an indication only of whether there is an acceptable type of fixed heating source present in the largest living area.

Over half of houses lacked any heating in bedrooms

The proportion of houses without heating in bedrooms is significantly higher than for living rooms: over half (54 percent) of houses surveyed had no heating present in any bedrooms, while only 12 percent had heating in all bedrooms (figure 73). Where heating was present, portable electric was the most common type.

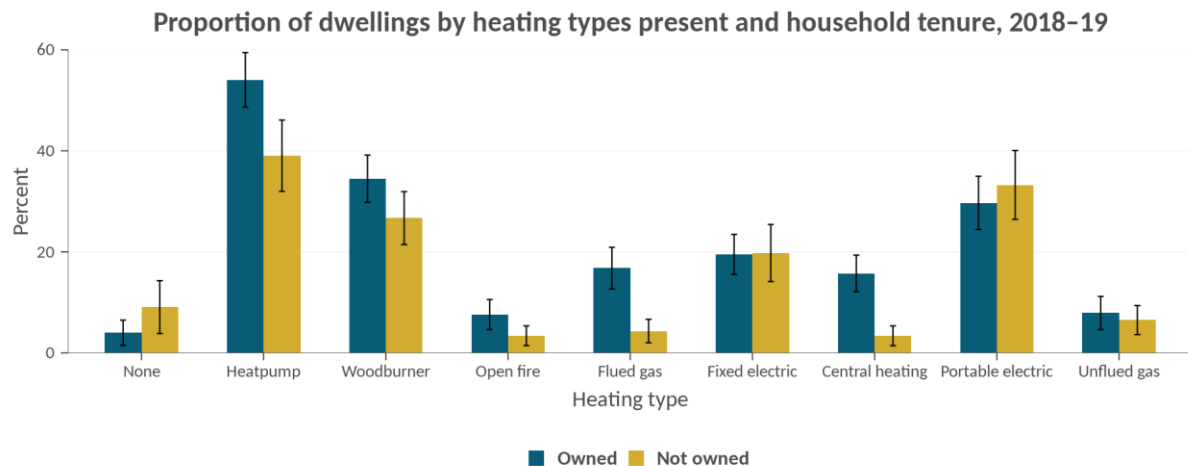
Figure 73



Heat pumps up, unflued gas down

Looking at all heating appliances present (and visible) *anywhere* in the house at the time of the survey¹⁹ suggests an increase in the presence of heat pumps, and a decrease in unflued gas heaters, particularly for rentals, since 2015. In the 2015 HCS, heat pumps were observed in 27 percent of rentals (White et al, 2017a). In the PHS (figure 74), this increased to 39 percent. Unflued gas heating was observed in around one fifth of rentals in the 2015 HCS, compared with 7 percent in the 2018–19 PHS. This is a positive trend – heat pumps are amongst the most efficient heating appliances in New Zealand, while unflued gas heating is inefficient and releases harmful noxious gases and moisture into the home.

¹⁹ This includes living rooms, kitchens, hallways, and bedrooms, but not bathrooms and laundry rooms. This is how information on heating was recorded in the 2015 HCS, rather than being room-by-room as per the 2018/19 PHS. As the assessment is based on what the assessor could see at the time of the survey, there may be additional appliances not recorded due to (for example) being in storage cupboards.

Figure 74

Includes all heating types present anywhere in surveyed dwelling. Error bars represent variability in estimates.

Stats NZ, data from BRANZ pilot housing survey 2018–19

Staying safe

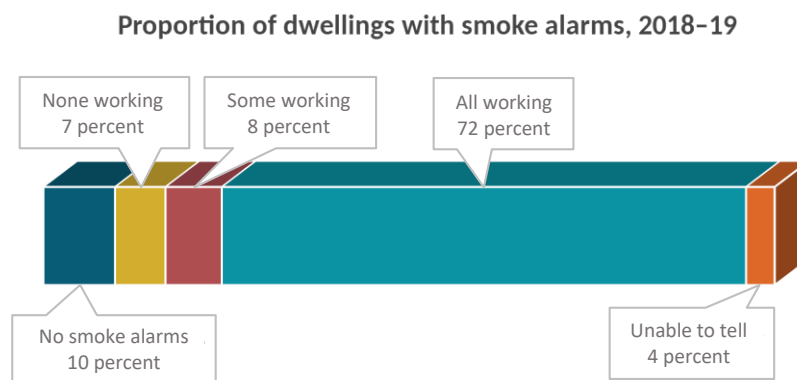
New Zealand Building Code includes a number of clauses designed to ensure dwellings provide a safe environment for their occupants. This covers aspects such as fire safety, access (entry/exit), internal stairs, decks, and hot water (storage and temperature at the tap).

The Residential Tenancies Act also requires all rental properties to have smoke alarms. These must be located within 3 metres of each bedroom or room where a person sleeps, and on each level or storey of a multi-storey home (MBIE, 2015).

The PHS assessed dwellings for some of these key safety features.

One in 10 houses have no smoke alarms

While almost 3 out of 4 (72 percent) of houses had working smoke alarms at the time of the survey, 1 in 10 (10 percent) had no smoke alarms at all (figure 75). In around 1 in 4 (25 percent) of dwellings, including houses, smoke alarms were not within 3 meters of all bedrooms.

Figure 75

BRANZ, pilot housing survey 2018–19

Taps too hot in a third of dwellings

The temperature of hot water at the tap should be in a safe range to avoid scalding. The New Zealand Building Code states 55°C as the maximum water temperature at the tap for showers, baths and hand basins. A lower temperature (around 45°C) is recommended in some instances (for example, if young children are present).

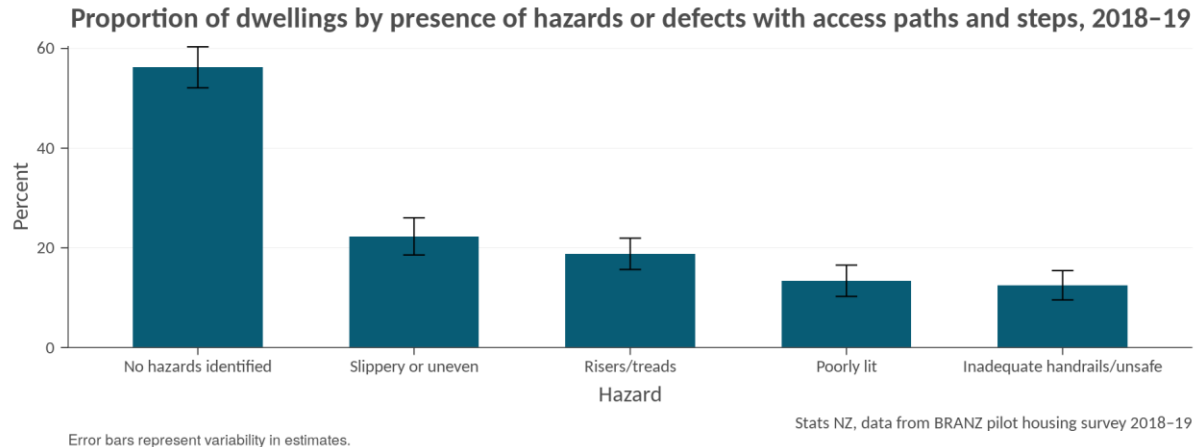
The PHS recorded the temperature at the hot water tap in all bathrooms. The results show that one third of houses surveyed (33 percent) had hot water exceeding 55°C in at least one. Hot water tap temperatures exceeding this threshold were more commonly observed in non-owner-occupied dwellings. These results are consistent with previous measurements in the HCS (eg see BRANZ, 2018).

Trips and falls hazards common

Access paths and steps were assessed for potential trips and falls hazards, such as slippery, uneven, cracked surfaces, or obstructions (for example, overgrown vegetation); risers or treads too high, too shallow, or varying heights/depths (for steps); inadequate or missing handrails.²⁰

Figure 76 shows that for over half of houses (56 percent) none of the hazards assessed in the survey were identified. However, around 1 in 5 had surfaces or steps that could present a trip hazard (for example, slippery or uneven paths, or steps too high/shallow/uneven). There was no significant difference in the frequency of hazards observed with access paths and steps for owned and rental dwellings.

Figure 76



Rentals still lag behind owned dwellings in condition

The PHS provides a snapshot of the general condition of our housing stock, and the status of some key features for ensuring a healthy home. The findings suggest there is still a disparity between the condition of owned and rental dwellings, both inside and out. Roofs, wall cladding, and windows were all more likely to be in better condition in owner-occupied dwellings. On the interior, room linings were consistently in a poorer state of repair in rentals, which aligns with the higher rate of visible mould observed.

²⁰ The New Zealand Building Code requirements for riser height and tread depth, and handrails were used as a basis for this assessment.

Hints of improvements in energy efficiency and home heating?

While the disparity between owned and rentals was evident in the condition assessments, this was not observed in the presence of insulation. This suggests we may be starting to see evidence of changes due to regulations to improve insulation standards in rentals. In addition, double-glazing showed an increase since the last HCS (2015–16), although this was limited to owner-occupied dwellings.

Heat pumps, which are among the most efficient heating appliances in New Zealand, were the most common heating appliances observed in surveyed houses, for both owned and rentals. This shows a positive trend and shift. However, the lack of heating in bedrooms is still a major gap (for owners and tenants) and could be contributing to the high rates of mould observed.

Information from 2018 Census, 2018 GSS, and 2018–19 PHS provides a compelling picture of the state of New Zealand's homes, in particular the prevalence of dampness and mould in rental houses. The PHS shows that people tend to underreport housing problems, with, in particular, much higher rates of mould present in houses when identified by a trained observer. All the different data sources identify a disparity for homes that are not owner occupied: they were more likely to be missing basic amenities, to be cold, damp, and mouldy and to be in need of repair. Both the GSS and Census show that a higher proportion of Māori and Pacific peoples experienced poor housing quality and were more likely to live in houses with damp and mould, and to feel cold.

Housing suitability, crowding, and homelessness

Housing suitability is “the ability of households to meet their housing needs – to access housing, public services and amenities, and local opportunities such as employment or schooling that is appropriate to their needs; cultural expectations; and their aspirations and preferences. People with different lifestyles and those at certain stages of their life require different types of housing. A commonly used concept of suitability relates to space, particularly in relation to identifying homes that are crowded or where there is underutilisation of space.”

Review of housing statistics report 2009 (Stats NZ, 2009)

Review of housing statistics report 2009 (Stats NZ, 2009) identified housing suitability as the fourth area for development of more information. This includes exploring how many people live in housing that is unsuitable for their needs; how people access housing that is suitable; the quality of their neighbourhoods; and the impact of crowding and homelessness.

Neighbourhood quality can impact housing suitability

The quality and characteristics of the neighbourhoods in which people live can have an impact on their wellbeing, and on how suitable they find their homes. In the 2018 GSS, people were asked about the suitability and attractiveness of their neighbourhood, neighbourhood problems and feelings of safety, and their ease of access to public amenities such as green spaces, doctors, supermarkets, and public transport.

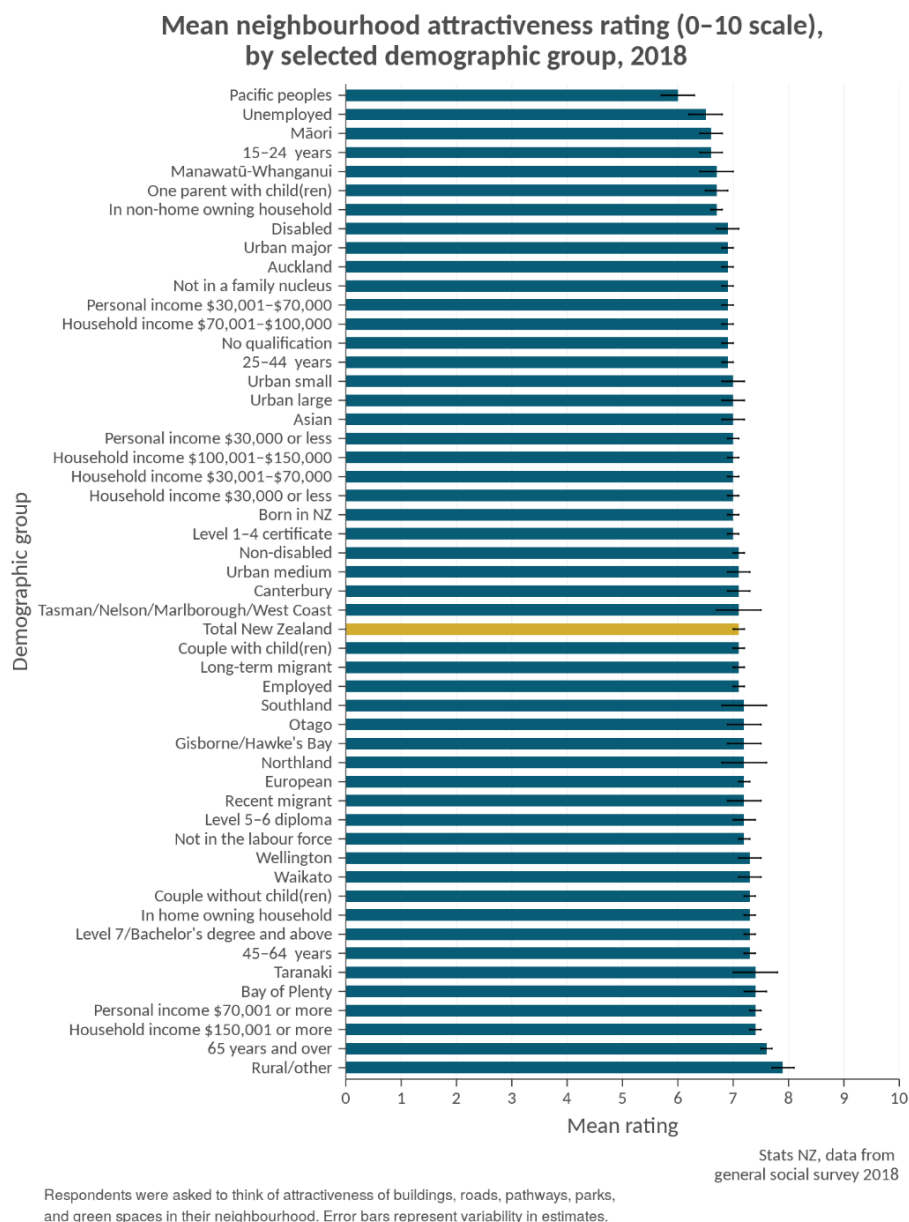
Most New Zealanders find their neighbourhood attractive

Around two-thirds of people found their neighbourhood attractive (rating it as 7 or above on a scale from 0 to 10), with a mean rating of 7.1. Figure 77 shows mean neighbourhood attractiveness ratings for selected demographic groups. People living in rural areas tended to rate their neighbourhood attractiveness more highly than those in urban areas, with around 1 in 4 (24.4 percent) rating it 10 out of 10, compared with 1 in 10 people in major urban areas (10.1 percent).

Other groups that gave high ratings for their neighbourhood quality include people aged 65 years and over, and households with incomes of \$150,001 or more (with mean ratings of 7.6 and 7.4).

Pacific peoples, 15–24-year olds, unemployed people, and people living in houses that were not owner-occupied were less likely to find their neighbourhoods attractive, with mean ratings of 6.0, 6.6, 6.5, and 6.7 respectively. Almost 1 in 5 Pacific peoples (19.7 percent) gave a very low rating for the attractiveness of their neighbourhood (0 to 4 out of 10).

Figure 77



Neighbourhood problems

In the 2018 GSS, people were also asked about how safe they felt when walking alone in the neighbourhood after dark, being at home by themselves at night, and when using or waiting for public transport at night. Almost 9 out of 10 New Zealanders (86.7 percent) felt safe or very safe at home but only around 1 in 2 (52.9) felt safe or very safe using or waiting for public transport. Close to two-thirds of the population (61.9 percent) felt safe or very safe when walking alone in the neighbourhood after dark. There were no significant differences by ethnicity, but women, sole-parents, and people not in the labour force felt significantly less safe.

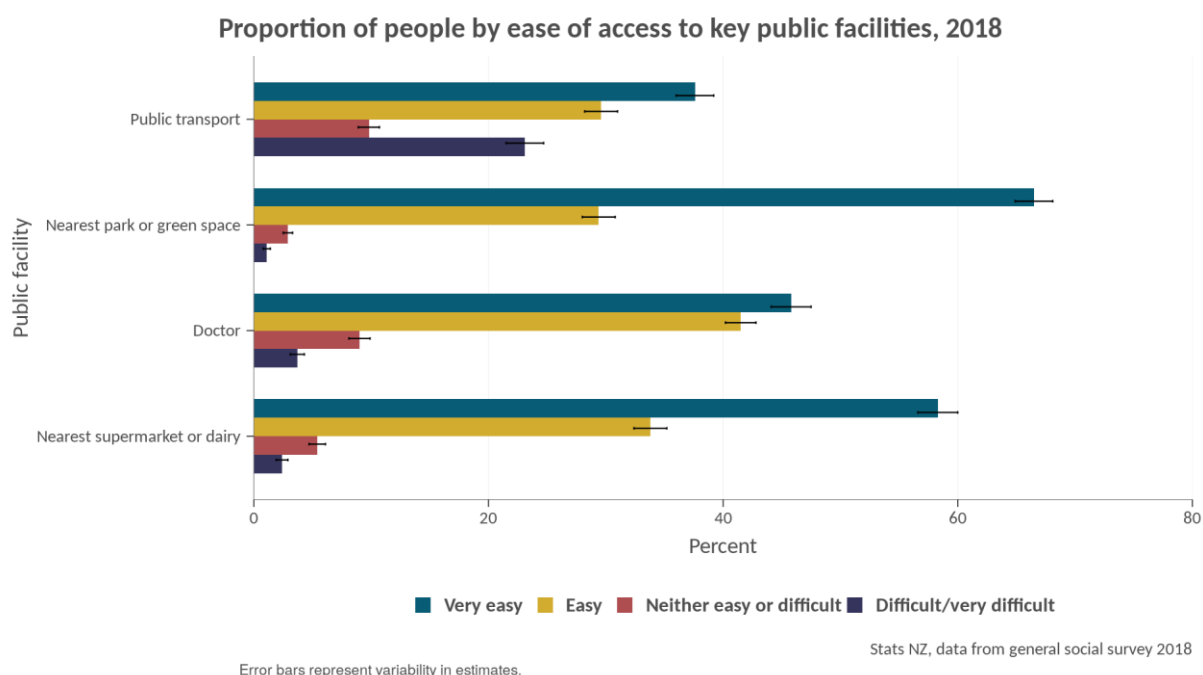
Access to public facilities

When establishing a balance between housing affordability and suitability, people may choose a cheaper home that is further away from the facilities they need such as shops, transport options,

medical facilities, and green spaces. Access to public facilities supports people's ability to socialise and their mental and physical wellbeing, as well as facilitating opportunities for work and education.

In the 2018 GSS, people were also asked to rate their ease of access to key public facilities. Figure 78 shows that most people found it easy or very easy to access these facilities.

Figure 78



For most population groups there was little difference in ease of access to these amenities. People aged 75 years and over, however, were less likely to find it very easy to access their nearest park or green space, or public transport, compared with younger people.

Public transport was the least accessible, with almost a quarter of the population finding it difficult or very difficult to access. People in rural areas (75.2 percent) or small urban areas (56.7 percent) were more likely to find it difficult or very difficult to access public transport compared with just 6.3 percent of people in major urban areas. Over two-thirds of people in small urban areas said this was because there was no public transport available. A recent report by Stats NZ (2020e) found that disabled people were more likely than non-disabled people to have difficulty accessing facilities.

Most Kiwis happy with location of their home

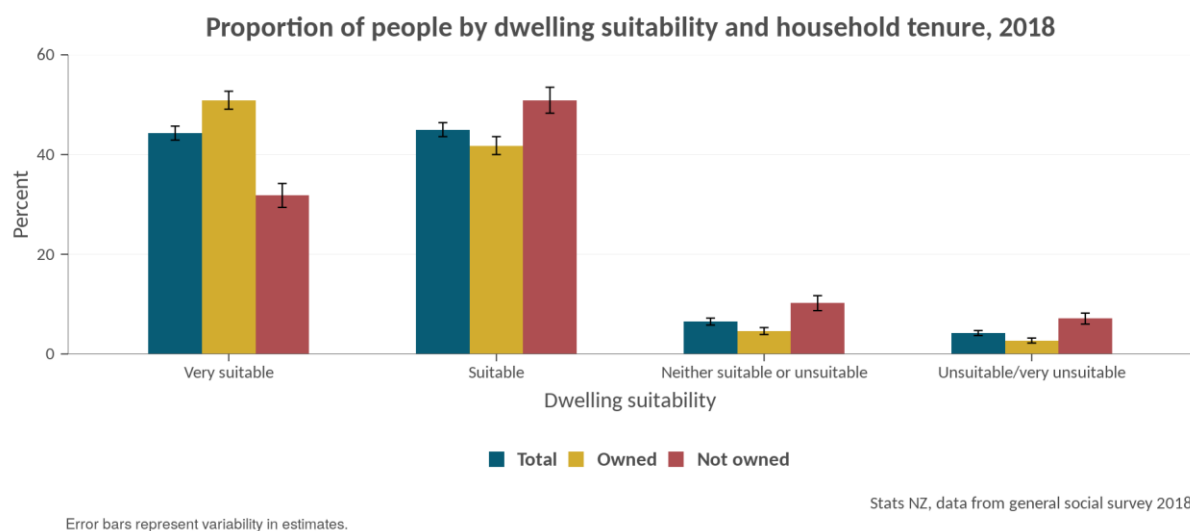
The 2018 GSS also asked people to rate how suitable the location of their home was to meet their needs. The vast majority of people were happy with the location of their homes, with 93.3 percent rating this as suitable or very suitable. Only 2.2 percent said the location of their home was unsuitable or very unsuitable. Some groups, however, were less likely to report that the location of

their homes was suitable or very suitable. These include disabled people (90.3 percent), and people in the most highly deprived areas (87.8 percent of people in NZDep10).²¹

Most homes suitable for residents' needs

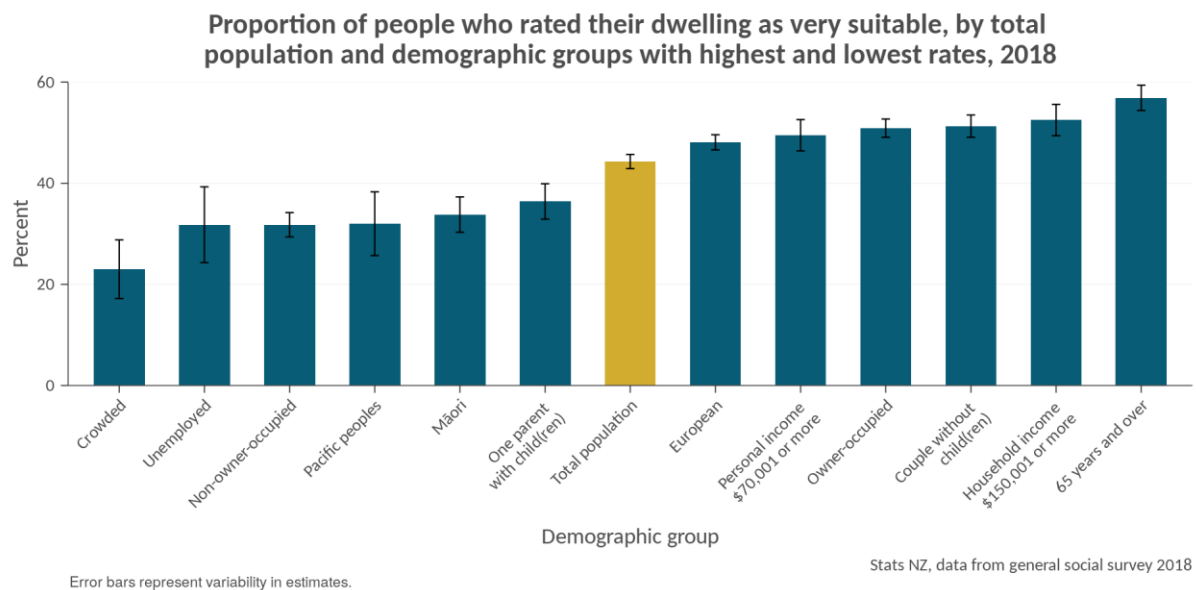
GSS data also showed that around 9 out of 10 people rated their house as either suitable or very suitable, whilst just 4.2 percent of people (an estimated 161,000 people) said their house was unsuitable or very unsuitable (figure 79). People who owned their own homes were more likely to find their housing very suitable. Non-owner-occupiers, however, were more likely to find their homes very unsuitable.

Figure 79



People living in crowded housing, Māori, Pacific peoples, the unemployed, and sole parents were less likely to rate their housing as very suitable, compared to the population as a whole (figure 80).

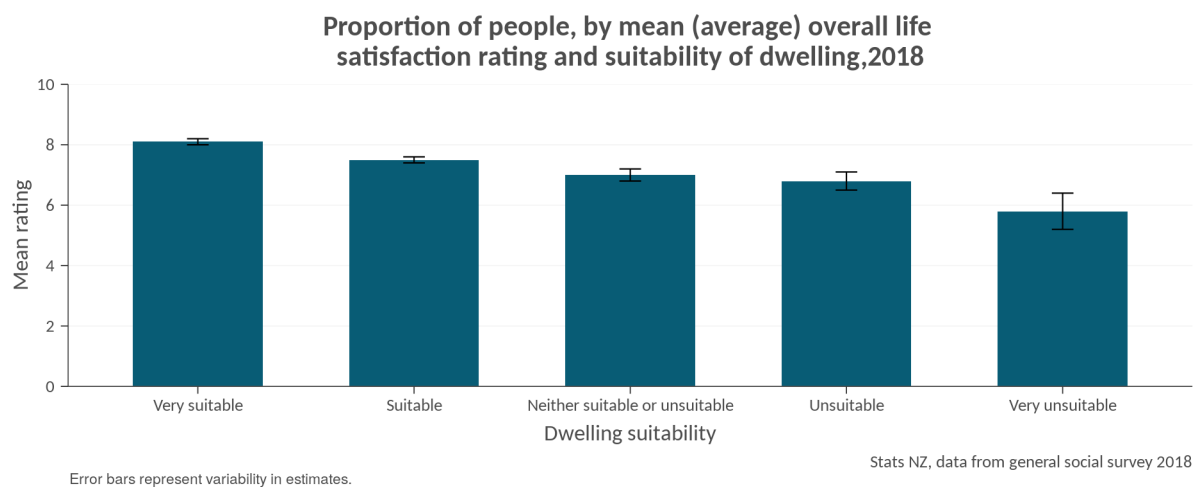
²¹ The NZDep index of deprivation ordinal scale ranges from 1 to 10, where 1 represents the areas with the least deprived scores and 10 the areas with the most deprived scores. This score is based on NZDep2013. Atkinson J, Salmond C, Crampton P (2019). NZDep2018 Index of Deprivation, Interim Research Report, December 2019. Wellington: University of Otago.

Figure 80

Disabled people were more likely to find their homes unsuitable or very unsuitable than non-disabled people (7.2 percent and 3.9 percent, respectively) (Stats NZ, 2020e). Satisfaction with housing suitability tended to increase with age, so after adjusting for the relatively older age distribution of the disabled population, about 1 in 10 disabled people (9.5 percent) were living in a dwelling they thought was unsuitable or very unsuitable for their needs.

Housing suitability impacts wellbeing

Housing suitability also has an impact on people's wellbeing. GSS data shows that people who thought their housing was unsuitable or very unsuitable rated their life satisfaction worse, on average, than those with suitable or very suitable housing (figure 81).

Figure 81

Size the most common reason for housing unsuitability

As the proportion of people who considered their housing unsuitable was small, it is difficult to disaggregate this population much further. People could cite more than one reason for their house being unsuitable. Of those who said their house was unsuitable or very unsuitable, 54.0 percent gave size (too small/too large) as a reason. Housing quality and housing costs were also common issues (at 20.1 and 18.0 percent respectively).

Living in a crowded house

According to the 2018 Census, household size in New Zealand ranges from 1 (for one-person households) to an average of 9.0 people for three-or-more-family households. Housing of different sizes is needed to cater for the variety of households. The section on dwelling stock shows that there has been some increase in the diversity of housing size in New Zealand, but the three-bedroom home remains by far the most common. As a result, larger households may experience crowding.

There is considerable evidence linking household crowding with poor outcomes, and the World Health Organization (2018) notes that “Crowding is considered to be stressful to health and well-being across different cultures and aspects of life in low-, middle- and high-income countries”.

What is household crowding?

Crowding is caused when the homes that people live in are too small to accommodate the number of people in a household. There are many different measures of crowding used internationally. The capacity of a dwelling can be measured by floor area, or the number of bedrooms or rooms.

Research into different crowding indexes, to identify the most appropriate one for New Zealand, (Goodyear et al, 2011) concluded that, whilst not perfect, the Canadian National Occupancy Standard (CNOS) provided the best fit.²²

CNOS is based on a calculation of the number of bedrooms needed depending on the demographic composition of the household. It presumes that there should be no more than two people to a bedroom, but that couples and children of certain ages can share a bedroom.

CNOS is widely reported on within New Zealand, and is one of the indicators used in the New Zealand Deprivation Index (Atkinson et al, 2019). It is also used to measure crowding in Australia. A home is considered to be ‘crowded’ if the people living there need one additional bedroom, and ‘severely crowded’ if they need at least two more bedrooms.

The **Canadian National Occupancy Standard (CNOS)** states that there should be no more than two people to a bedroom. However, people can share a bedroom if they meet the following criteria:

- a couple
- children aged less than five years, either of the same or opposite sex
- children aged less than 18 years, of the same sex.

However:

- A child aged five to 17 years should not share a bedroom with one aged under five years of the opposite sex.
- Single adults aged 18 years and over, and any unpaired children, require a separate bedroom.

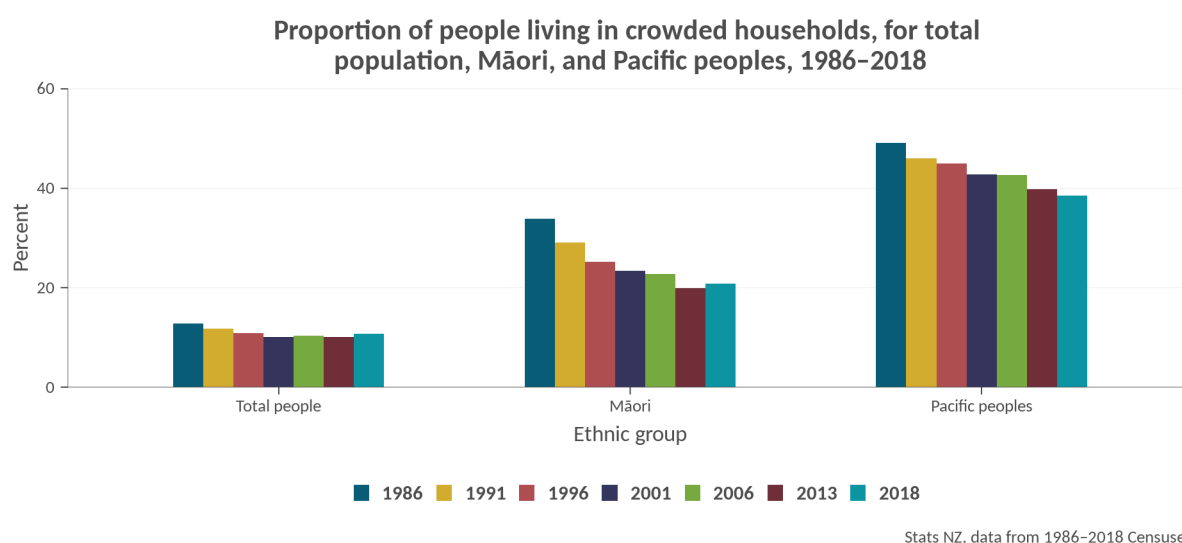
²² The CNOS was developed by the Canada Mortgage and Housing Corporation to help determine how well housing needs are met. See <https://www.cmhc-schl.gc.ca/en/data-and-research/core-housing-need/identifying-core-housing-need> and <https://meteor.aihw.gov.au/content/index.php/itemId/386254>.

Nearly 6 percent of New Zealand households crowded

Crowding has been measured using CNOS since the 1986 Census, the first time all the necessary variables for calculating the index were available. In the 2018 Census, 5.7 percent of households were crowded. Of these, 65,540 required one additional bedroom, and 24,620 were severely crowded, requiring two or more additional bedrooms. While this represents an increase from 2013, a change in methodology for the 2018 Census means that these proportions are only broadly comparable, and care should be taken when interpreting change over time.²³

Almost 1 in 9 people (10.8 percent) lived in a crowded household at the time of the 2018 Census. Figure 82 shows that, for the total population, the percentage of people living in crowded households fell through the 1980s and 1990s, but has remained largely static since the turn of the century.

Figure 82

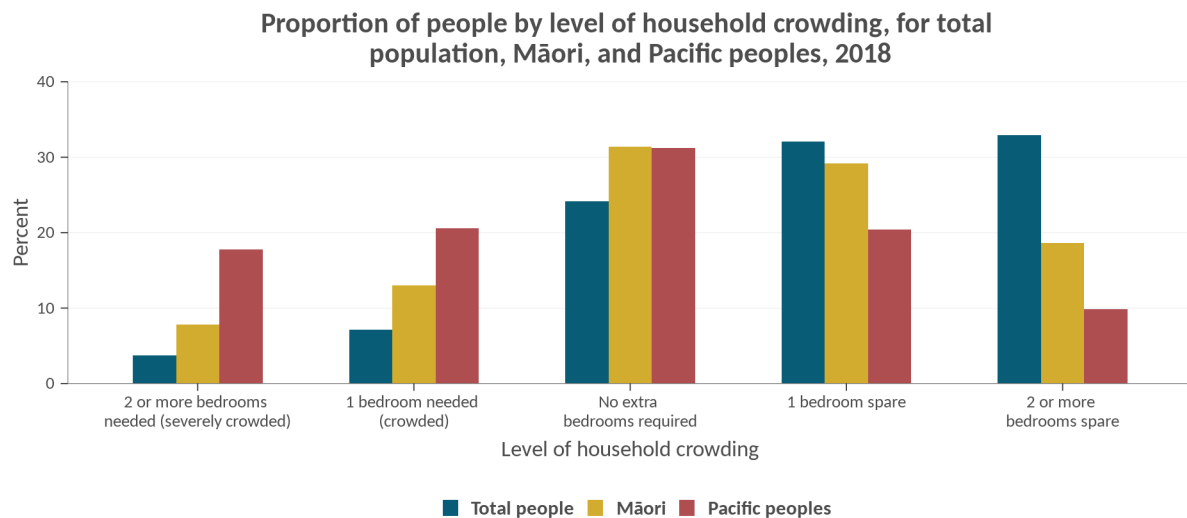


Over the same period, the average number of people per household fell until the 1990s before remaining largely unchanged (although it fell again in 2018). It is likely that a combination of housing affordability issues, combined with the changing demographic makeup of the population, have influenced rates of crowding in New Zealand.

Crowding rates highest for Pacific peoples

Whilst rates have fallen since 1986, Pacific peoples and Māori have consistently been more likely to experience crowding than the total population. In the 2018 Census, almost 2 in 5 Pacific peoples and around 1 in 5 Māori were living in a crowded home, see figure 83.

²³ There were around 357,000 people who could not be placed into households in the 2018 data. As a result, the number of people, including Māori and Pacific peoples, who lived in a crowded house may be undercounted.

Figure 83

Stats NZ, data from 2018 Census

Crowding rates for Pacific peoples were significantly higher than for Māori or the total population across all age groups, but was particularly high for young adults. Around 46 percent of Pacific peoples aged 15 to 24 years lived in crowded homes. For Pacific peoples aged 70 years and over, 27.4 percent lived in a crowded home, compared with just 2.7 percent of this age group in the total population.

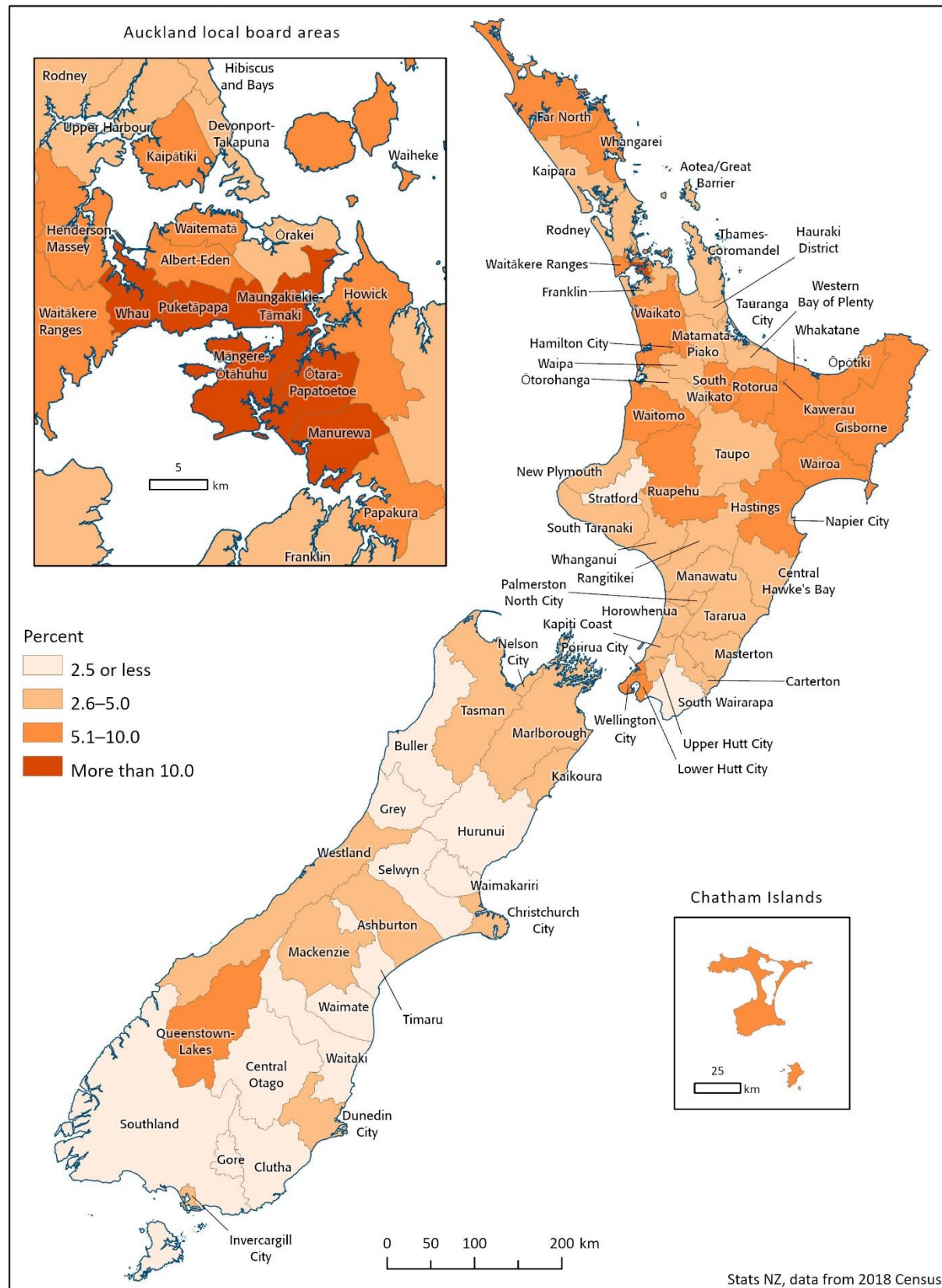
Over half of severely crowded households in Auckland

Crowding has become increasingly concentrated in the Auckland region. In 1991 around a third of people who lived in a crowded house were in Auckland, but by 2013 and 2018, this had risen to almost half. In 2018, over half of severely crowded households (where two or more extra bedrooms were required) were in Auckland. As the sections on housing affordability; and housing supply and demand show, Auckland has well documented affordability and housing supply issues.

Regionally, household crowding rates were highest in Auckland region (8.9 percent) and Gisborne region (7.7 percent). Auckland had the highest proportion of Pacific peoples living in crowded homes, at 44.0 percent, followed by Hastings and Western Bay of Plenty, at 41.0 percent and 39.8 percent, respectively. For Māori, the territorial authorities with the highest levels of crowding were Hastings (28.1 percent) and the Far North (27.6 percent), see figure 84.

Figure 84

Proportion of crowded households
by territorial authority and Auckland local board areas, 2018



Within Auckland, crowding rates were highest in Mangere-Otahuhu and Otara-Papatoetoe. One in 4 households in these areas were crowded, equating to 4,150 and 4,710 households, respectively.

Rates of crowding were higher for one parent family households living with others and for households with two or more families.

When you don't have a place to call home

In addition to the four key areas already discussed, *Review of housing statistics report 2009* (Stats NZ, 2009) also identified information about homelessness as a key gap in housing statistics. Prior to this, there was no formal classification or definition of homelessness, and so it was impossible to measure. It remains a very difficult population to count. There is no internationally consistent methodology for estimating homelessness. When trying to understand the extent of homelessness in America (Cowan et al, 1988) researchers found “counting the homeless population is extremely difficult because of the lack of a clear definition of homelessness, the mobility of the population, and the cyclical nature of homelessness for many individuals”.

Defining homelessness

In 2009, Stats NZ, in conjunction with several other agencies,²⁴ developed a definition of homelessness that was updated and formalised as the official definition of homelessness in New Zealand in 2015 (Stats NZ, 2015c).

The definition is a New Zealand adaptation of the European Observatory on Homelessness (ETHOS) framework (Stats NZ, 2015c). It recognises living situations that may not be immediately identifiable as homelessness (compared with rough sleeping), such as people who have no other option but to share someone else's accommodation temporarily, or who are living in uninhabitable housing.

Homelessness is defined by Stats NZ as:

- a living situation where people with no other options to acquire safe and secure housing are: without shelter; in temporary accommodation; sharing accommodation with a household; or living in uninhabitable housing.

New Zealand definition of homelessness: 2015 update
(Stats NZ, 2015c)

Measuring homelessness

While initially there was no means to accurately measure the homeless population, University of Otago researchers (Amore et al, 2013) have developed a methodology to estimate the homeless population using census and administrative data. They first published homelessness estimates for 2001 and 2006 (Amore et al, 2013) and later updated this to include figures from the 2013 Census (Amore et al, 2016). In 2020, the methodology was further refined, and figures based on the 2018 Census were published, and the figures for 2013 were revised (Amore, Viggers, & Howden-Chapman, 2021)²⁵.

The researchers adapted the New Zealand definition of homelessness in order to operationalise it – to enable homelessness to be measured. They define severe housing deprivation, or homelessness as:

- people living in severely inadequate housing due to a lack of access to minimally adequate housing (Amore et al, 2013). This means not being able to access a private dwelling to rent or own that has all basic amenities. Housing that lacks at least two of the three core dimensions

²⁴ Housing New Zealand and Ministry of Social Development.

²⁵ The first version of this report was published in 2020, this has been revised in June 2021.

of housing adequacy – habitability, security of tenure, and privacy and control – is deemed severely inadequate.

Using the New Zealand definition of homelessness (Stats NZ, 2015c), this population is organised into three groups, ‘Without shelter’; ‘Temporary accommodation’; and ‘Sharing accommodation’, see table 6. Further work has been undertaken using information on access to basic amenities to develop estimates of the number of people living in uninhabitable housing, due to the timing of this work the following findings reflect the severely housing deprived population excluding the uninhabitable housing category²⁶.

Table 6

Data sources used to measure homelessness (severe housing deprivation)				
Broad living situation (NZ Definition of Homelessness category)			Specific living situation (Types of severely inadequate housing)	Data source
1	Without shelter		Roofless / rough sleeper	Census
			Improvised dwelling	
			Mobile dwelling	
2	Temporary accommodation	Targeted to homeless people (Emergency and transitional housing)	Night shelter	Operational data from providers (via HUD & direct)
			Women’s refuge	
			Other accommodation for homeless people	
		Not targeted to homeless people	Institution not targeted to homeless people (eg ‘overstaying’ in hospital solely due to lack of housing)	No data available
			Camping ground / motor camp	Census
			Boarding houses, hotels, motels, vessels	
			Marae ⁽¹⁾	
3	Sharing accommodation		Temporary resident in a severely crowded private dwelling	Census
<p>1. Although some marae provide services for homeless people (for example, Te Puia Memorial Marae), people stay at marae for many reasons. Marae are therefore classified as ‘not targeted to homeless people’.</p> <p>Source: Amore et al, 2021.</p>				

Just under one percent of the population severely housing-deprived in 2018²⁶

On Census night 2018, some 41,724 people were identified as being severely housing-deprived, which was nearly 0.9 percent of the population (Amore et al, 2021). However, this should be regarded as a lower limit, due to the challenges around the 2018 Census, and the inherent difficulty in counting this population. In particular, there is likely an undercount of Māori and Pacific peoples

²⁶ Analysis by Viggers, Amore and Howden-Chapman of housing lacking basic amenities (2021), and minor method improvements have resulted in a revised version (June 2021 update) of the 2018 Severe Housing Deprivation Estimate (Amore et al, 2021). This identified a further 60,399 people as living in severe housing deprivation through uninhabitable housing, bringing the total to 102,123, or just under 2.2 percent (217.3 per 10,000 people). See <https://www.hud.govt.nz/news-and-resources/statistics-and-research/2018-severe-housing-deprivation-estimate/>

experiencing severe housing deprivation. Table 7 shows the 2018 estimates for each homeless category.

Table 7

Severely housing-deprived people by housing deprivation category, 2018					
Count and prevalence rate (revised rates, published June 2021)					
Broad living situation (NZ Definition of Homelessness category)			Specific living situation	2018	
				No. people	Prevalence rate per 10,000 people ¹
1	Without shelter		Roofless / rough sleeper	207	0.4
			Improvised dwelling	1,347	2.9
			Mobile dwelling	2,070	4.4
			Subtotal	3,624	7.7
2	Temporary accommodation	Emergency and transitional accommodation (NGO-run)	Night shelter	69	0.1
			Women’s refuge	96	0.2
			Other accommodation for homeless people	1,530	3.3
			Subtotal	1,695	3.6
		Commercial accommodation	Camping ground / motor camp	1,521	3.2
			Boarding houses, hotels, motels, vessels	4,668	9.9
			Subtotal	6,189	13.2
		Marae ²		45	0.1
		Subtotal (temporary accommodation)		7,929	16.9
3	Sharing accommodation (temporary resident in a severely crowded private dwelling)		30,171	64.2	
Total severely housing-deprived for the first three categories			41,724	88.8	
1. Denominator is the 2018 NZ usually resident population.					
2. Although some marae provide services for homeless people (for example, Te Puia Memorial Marae), people stay at marae for many reasons. Marae are therefore classified as ‘not targeted to homeless people’.					
Sources: Stats NZ, HUD, and emergency housing providers.					

Compared with 2013, the rate of severe housing deprivation in 2018 rose by 0.9 per 10,000 people, an increase of about 4,400 people overall. Severe housing deprivation was more prevalent amongst the young, with almost half those who were severely housing-deprived being under 25 years old. Rates of severe housing deprivation were highest among Pacific and Māori young people, while overall, Māori and Pacific peoples saw severe housing deprivation rates close to four and six times the European rate, respectively (table 8).

Table 8

Severely housing-deprived people by housing deprivation type, sex, age, and ethnicity, 2018 Count, percentage, and prevalence rate (first three categories - revised rates, published June 2021)										
Characteristic	Category	NZ Definition of Homelessness (NZDH) category						Total severely housing-deprived (first three categories) ¹		
		Without shelter		Temporary accommodation ¹		Sharing accommodation		No. people	% of all severely housing-deprived people	Prevalence rate per 10,000 people ²
		No. people	% of people	No. people	% of people	No. people	% of people			
Sex	Male	1,977	54.6	4,124	54.8	14,355	47.6	20,456	49.5	88.2
	Female	1,644	45.4	3,402	45.2	15,813	52.4	20,859	50.5	87.6
Age (years)	<15	576	15.9	585	7.8	6,867	22.8	8,028	19.4	86.9
	15-24	324	9.0	1,459	19.4	10,152	33.6	11,935	28.9	192.7
	25-34	291	8.0	1,454	19.4	6,138	20.3	7,883	19.1	119.2
	35-44	381	10.5	911	12.1	2,319	7.7	3,611	8.7	61.5
	45-64	1,410	39.0	2,183	29.1	3,141	10.4	6,734	16.3	56.4
	65 +	633	17.5	914	12.2	1,551	5.1	3,3098	7.5	43.3
Ethnicity ³	European	2,514	73.4	3,548	59.5	7,512	25.8	13,574	35.2	41.2
	Māori	900	26.3	1089	18.3	10,890	37.4	12,879	33.4	166.0
	Pacific	222	6.5	521	8.7	8,625	29.6	9,368	24.3	245.5
	Asian	168	4.9	1,143	19.2	7,299	25.0	8,610	22.3	121.7
	MELAA ⁴	33	1.0	172	2.9	525	1.8	730	1.9	103.8
	Other	63	1.8	64	1.1	108	0.4	235	0.6	40.5
<p>1. All data in this table does not include 'pro-rata' proportions of children in non-private dwellings. Very little ethnicity data were available for people in emergency and transitional accommodation. Therefore, the total severely housing-deprived populations for this table vary by characteristic and are all less than in Table 7.</p> <p>2. Denominator population is NZ usual residents in each category, e.g. top row ('Male' category) denominator is all NZ (usually resident) males.</p> <p>3. People who reported more than one ethnic group are counted once in each group reported. This means that the total number of responses for all ethnic groups can be greater than the total number of people who stated their ethnicities.</p> <p>4. MELAA = Middle Eastern, Latin American, and African.</p> <p>Sources: Stats NZ, HUD, and emergency housing providers.</p>										

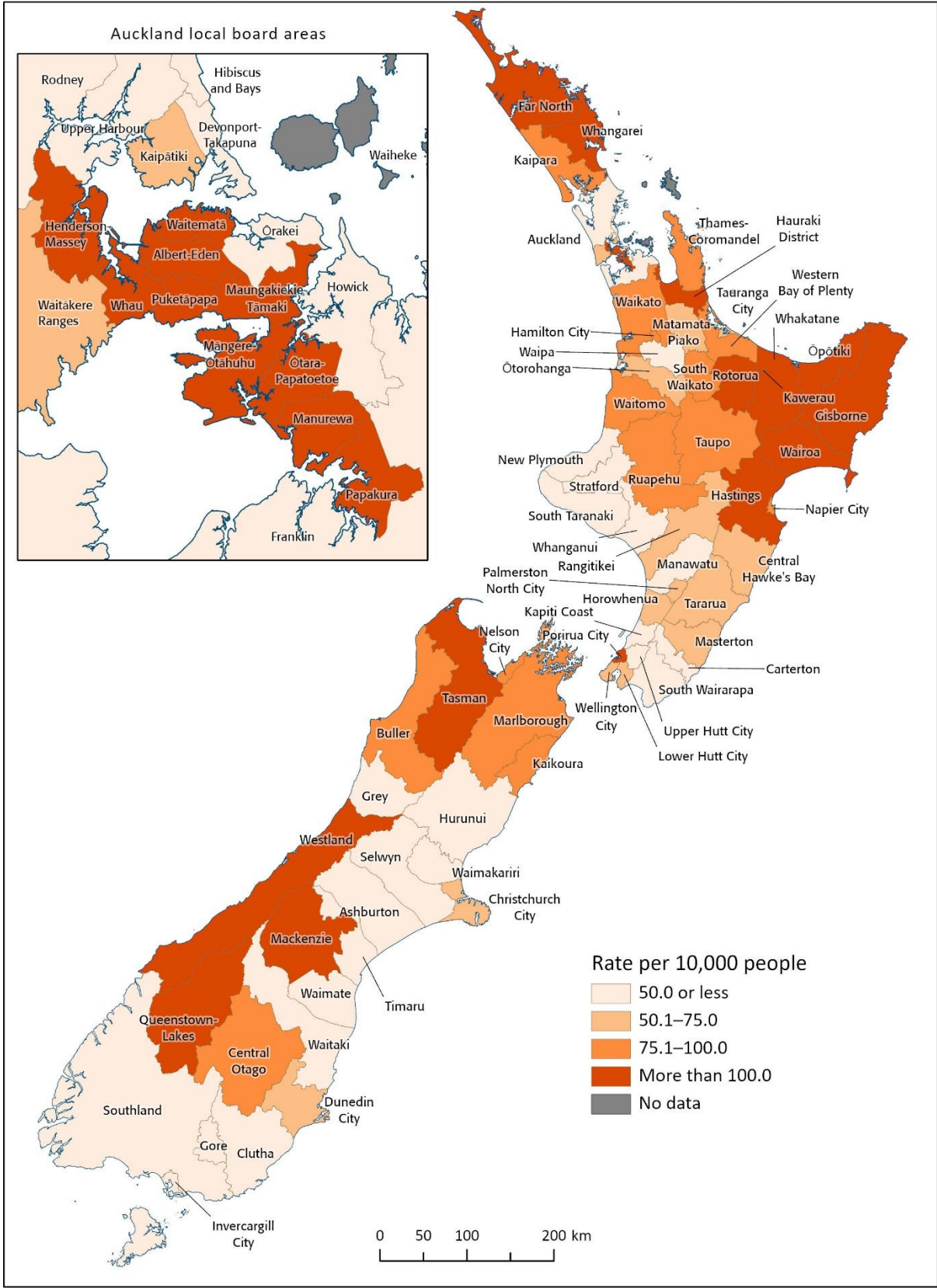
Housing deprivation varies by region

In 2018, Northland, Gisborne, and Auckland regions had the highest rates of people experiencing severe housing deprivation, at 149.0, 120.0, and 115.5 per 10,000 people respectively. Auckland had the largest estimated number of severely housing-deprived people at 18,157.

Looking at territorial authority areas (figure 85), Kawerau, Ōpōtiki and Far North districts had high rates of severe housing deprivation, at 230.9, 207.0, and 202.1 per 10,000 people, respectively, see figure 85. Within Auckland, Māngere-Ōtāhuhu, Ōtara-Papatoetoe, Manurewa, and Waitemātā all had severe housing deprivation rates of above 200 per 10,000 people.

Figure 85

Severe housing deprivation – first three categories, rates per 10,000 people, 2018



Summary of housing suitability, crowding, and homelessness

Most New Zealanders, in 2018, were satisfied with their homes and neighbourhoods. However, for some groups in the population, their housing did not meet their needs. Non-owner-occupiers, people living in crowded conditions, Māori, Pacific peoples, disabled people, the unemployed, and sole parents were all significantly less likely to rate their housing and its location as very suitable. The most common reason for dissatisfaction was the size of the dwelling.

Around 1 in 10 people lived in a crowded household, and this rose to almost 4 in 10 for Pacific peoples. Crowding was more common in the North Island, particularly within Auckland. Some New Zealanders were without homes altogether or were living in housing that was so inadequate that they were considered severely housing-deprived. At the time of the 2018 Census, this was estimated at just under 1 percent of the population (around 41,700 people).

Housing and the environment

Managing climate change . . . will require rethinking virtually every aspect of daily life: how and where homes are built, how power grids are designed, how people plan for the future with the collective good in mind.

Branch, J, & Plumer, B (2020). Climate disruption is now locked in. The next moves will be crucial. *New York Times*, 22 September.

The relationship between housing and the environment is an area of housing statistics that was identified in *Review of housing statistics report 2009* (Stats NZ, 2009). This section relates to both the impact of housing on the environment (for example, waste and emissions), but also to housing location in areas at risk from extreme events. However, at the time of the review, it was not considered a priority area for statistical development.

Environmental sustainability is the degree to which housing design, construction, and materials interact with and impact on the natural environment to support habitability now and in the future. This includes resilience to climate impacts such as sea level rise, temperature rise, droughts, and extreme weather events. Environmental sustainability focuses on the resource efficiency, durability, and resilience of housing.

Recent research has identified some sobering issues, for example, the high proportion of people living in vulnerable coastal areas. Paulik et al, 2020, calculated that in 2013, just under 10 percent of New Zealand's population (around 399,000 residential dwellings) lived in areas that have been designated Tsunami evacuation zones.

In 2019, Stats NZ published a definition and framework for housing quality, which identified environmental sustainability as a key element (Stats NZ, 2019).

This section is based on work at BRANZ. It focuses on some of the implications of New Zealand housing design for our climate change targets.

New Zealand's climate response

Climate change presents one of the great challenges of our time. Research shows that the levels of heat-trapping greenhouse gases in the atmosphere are at record highs, mainly due to increased human activity in relation to the use of fossil fuels, agricultural activities, and land-use changes (IPCC, 2007).

New Zealand's response to climate change is centred on the Climate Change Response (Zero Carbon) Amendment Act 2019, which sets out greenhouse gas emission reduction targets, and initiatives, to help the country meet its obligations under the Paris Agreement (United Nations, 2016). These targets and initiatives include:

- Net emissions of all greenhouse gases (except biogenic methane) to zero by 2050.
- Reduce biogenic methane emissions to 24–47 percent below 2017 levels by 2050, including to 10 percent below 2017 levels by 2030.
- Establish a system of 5-year emissions budgets for New Zealand, which will track downwards towards 2050.
- Establish an independent Climate Change Commission for expert advice and monitoring.

Housing and climate change

Buildings, especially housing, have an important role to play in addressing the impacts of climate change (MacGregor et al, 2018). This is because buildings are accountable for more than 40 percent of global energy consumption and approximately 30 percent of global greenhouse gas emissions worldwide (IPCC, 2007). The New Zealand construction sector is a dominant contributor to New Zealand's consumption-based greenhouse gas emissions (which takes into account greenhouse gas emissions from products and services imported into New Zealand), representing 16 percent of total emissions (Chandrakumar et al, 2019).

Buildings are a key component of any response to climate change due to their (typically) long service lives (the length of time they are inhabited), (Dowdell et al, 2016). For example, Alcorn (2010) observes that buildings are typically designed to last 50 years, prompted in part by building code requirements (as seen in the Building Act 2004, section 113). Alcorn (2010:275) also notes that the average life expectancy of New Zealand houses built from 1860 to 1980 is 90 years, while houses built from the 2000s are expected to last for up to 130 years.

Timber construction may help to reduce carbon footprint

Much of New Zealand's housing stock is predominantly timber-based construction. Where timber is used, this may help reduce the carbon footprint of housing. Timber is a product that captures and stores atmospheric carbon dioxide – a carbon sequestering product. Lockyer and Brunson (2019: 7-8) note that timber framing is the predominant structural material in new housing, with a historical market share of 90 percent. Timber weatherboards have traditionally been the most common cladding, however as the section [About New Zealand's housing stock](#) shows, it is no longer the most common cladding type. Timber products, if sourced from sustainable forestry, provide benefits in terms of carbon dioxide sequestration and storage during the (frequently) long building service life.

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.

What is carbon sequestration?
USGS (nd)

Energy use has limited impact on greenhouse gas emissions

A high proportion of New Zealand's electricity is generated from renewable sources, so energy use within New Zealand homes has less of an impact on greenhouse gas emissions than comparable dwellings in other countries. However, in 2019 renewable energy decreased from 84.0 percent in 2018 to 82.4 percent, due to a combination of low hydro generation and high coal-fired generation used to meet the shortfall between electricity supply and demand (MBIE, 2020: 2). Research shows that in residential buildings, electricity use is increasing, but the residential use of coal had decreased by 14.9 percent in 2019 (MBIE, 2020:60; MacGregor, et al, 2019).

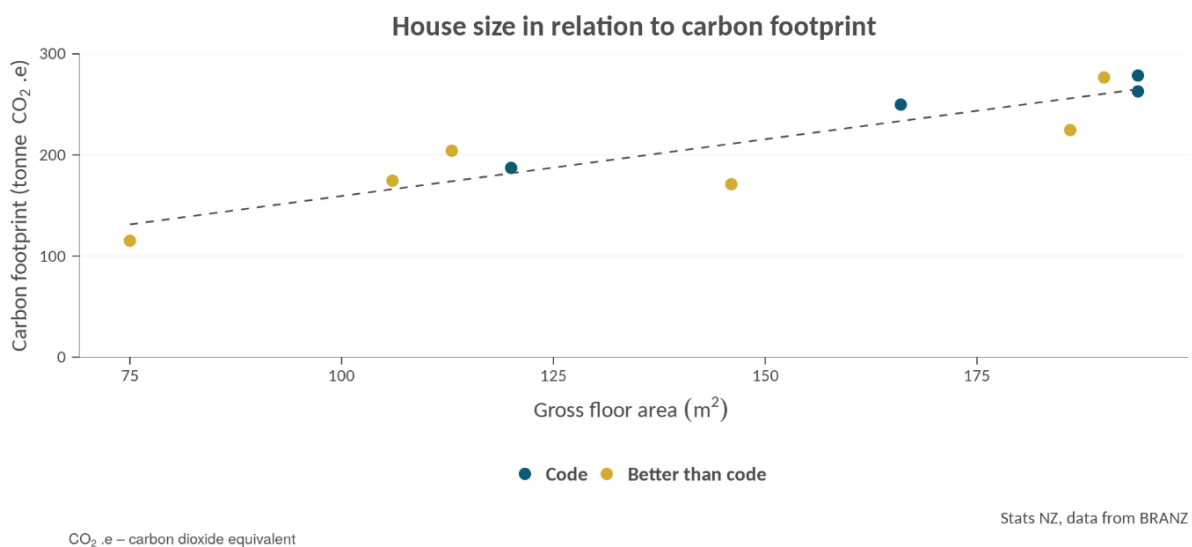
Challenges caused by inadequate housing and larger house sizes

Despite opportunities to reduce greenhouse gas emissions from our housing due to the high use of timber and large proportion of renewable energy, there are a number of challenges. BRANZ has conducted studies of New Zealand's building stock since the 1990s and has found that it is largely inadequate, especially in relation to insulation, ventilation, and cost-effective heating options (White & Jones, 2017). The pilot housing survey reinforced these findings. This means that New Zealand households require more energy to heat (or cool) their housing to the 18 degrees Celsius minimum temperature advised by the World Health Organisation, *Housing and health guidelines* (2018).

A major factor influencing a building's contribution to greenhouse gas emissions is size. House size and occupancy rates are, therefore, important issues when addressing a building's environmental impact.

Within New Zealand house sizes have progressively increased. The average house size in the 1960s was 128m², compared with 205m² in 2010 (MacGregor et al, 2019). Research by Dowdell et al (in press) highlights that larger houses have larger carbon footprints. Figure 86 shows that this is true of code minimum as well as high-performance houses. However, this is based on an assessment by BRANZ of only 10 stand-alone houses, so care must be taken in extrapolating to all New Zealand homes.

Figure 86



Case study: A carbon footprint of a New Zealand house

The case study in figure 87 shows the carbon footprint for a stand-alone house that was evaluated by BRANZ in 2018. A reference house has been used that reflects many houses available today – detached, single-storey, four bedrooms, 194 m² (including an attached 38 m² internal access garage), double-glazed windows with aluminium frames, building code compliant wall and ceiling insulation, a sheet metal roof with a concrete slab foundation, and situated in Auckland region.²⁷

A **carbon neutral** building is one where: “greenhouse gas emissions are minimised at all stages, including the manufacturing processes, during construction and during use. The emissions that occur are balanced by climate-positive initiatives so that the net carbon footprint over time is zero.” From whitearkitekter.com

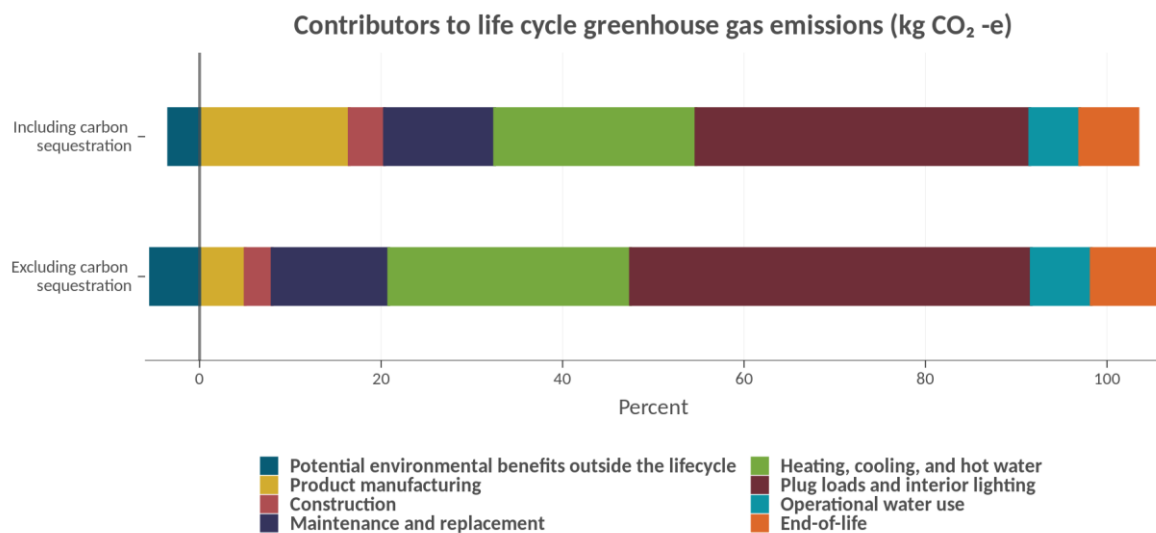
Energy use for heating and cooling was simulated based on the house maintaining a year-round temperature of 18–25°C. The estimated life span of the building is 90 years (Johnstone, 2004).

Figure 87 shows the key factors that contribute to greenhouse gas emissions from the case study house over its lifetime.

²⁷ Brick vented cavity with 90mm timber framing (construction R-value 1.9 m²C/W), double glazing in aluminium frames (non-thermally broken, R0.26 m²C/W), profiled sheet metal roof cladding with ceiling insulation (construction R-value 3.0 m²C/W), slab-on-grade flooring with underslab insulation (construction R1.4 m²C/W).

The top bar illustrates results with sequestered CO₂ (the capturing and storage of atmospheric carbon dioxide) in timber products excluded, and the bottom bar provides the same results with sequestered CO₂ in timber products included. The top bar therefore represents a situation where carbon neutrality cannot be assumed, and the bottom bar represents a situation where carbon neutrality can be assumed (for example, use of timber from certified sustainable forestry management practices).

Figure 87



Regardless of whether carbon neutrality can be assumed, operational energy use (including heating, cooling, and hot water and energy use from plug in appliances, and interior lighting) is the biggest contributor to the life cycle carbon emissions of the dwelling. When CO₂ sequestration is excluded, operational energy use comprises 59 percent of life cycle carbon emissions over a 90-year period, when CO₂ sequestration is included, this rises to 71 percent.

Embodied carbon is the carbon footprint of a material. It considers how many greenhouse gases (GHGs) are released throughout the supply chain and is often measured from cradle to (factory) gate, or cradle to site (of use).

Embodied carbon assessment
(Circular Ecology, nd)

Figure 87 also illustrates the contribution that embodied carbon makes to the life cycle greenhouse gas emissions of the case study house. Embodied carbon (including manufacture, transport, waste in construction, maintenance, replacement, and end-of-life) can contribute 28 percent (including biogenic CO₂ sequestration²⁸) and 39 percent (excluding biogenic CO₂ sequestration) of the house's life cycle carbon footprint.

Results for other houses are likely to vary depending on parameters such as size, location, orientation, design, and choice of materials.

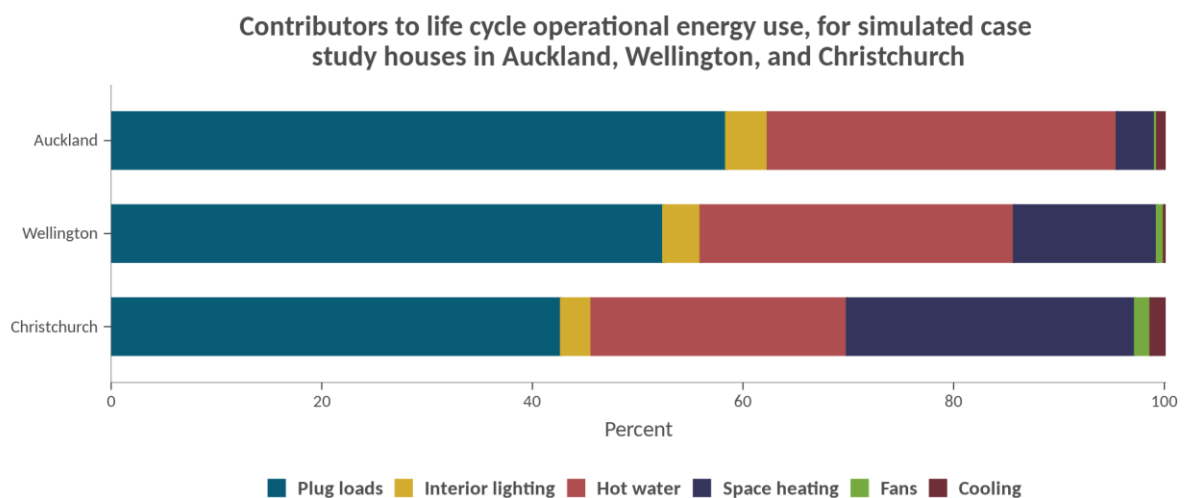
²⁸ Biogenic carbon refers to carbon that is sequestered from the atmosphere during biomass growth and may be released back to the atmosphere later due to combustion of the biomass or decomposition (Stamford, 2020).

Energy use varies across different climate zones

Figure 88 summarises the sources of simulated energy demand across three different climate zones. In Auckland and Wellington almost half of the energy demand arises from the use of appliances such as refrigerators. The other significant energy use is the provision of hot water, making up 33 percent, 30 percent, and 24 percent in Auckland, Wellington, and Christchurch urban areas, respectively.

The heating of spaces also makes a significant contribution in regions with colder winter temperatures, with 27 percent of operational energy used on space heating in colder Christchurch, compared with only 4 percent in Auckland, with its milder winter temperatures.

Figure 88

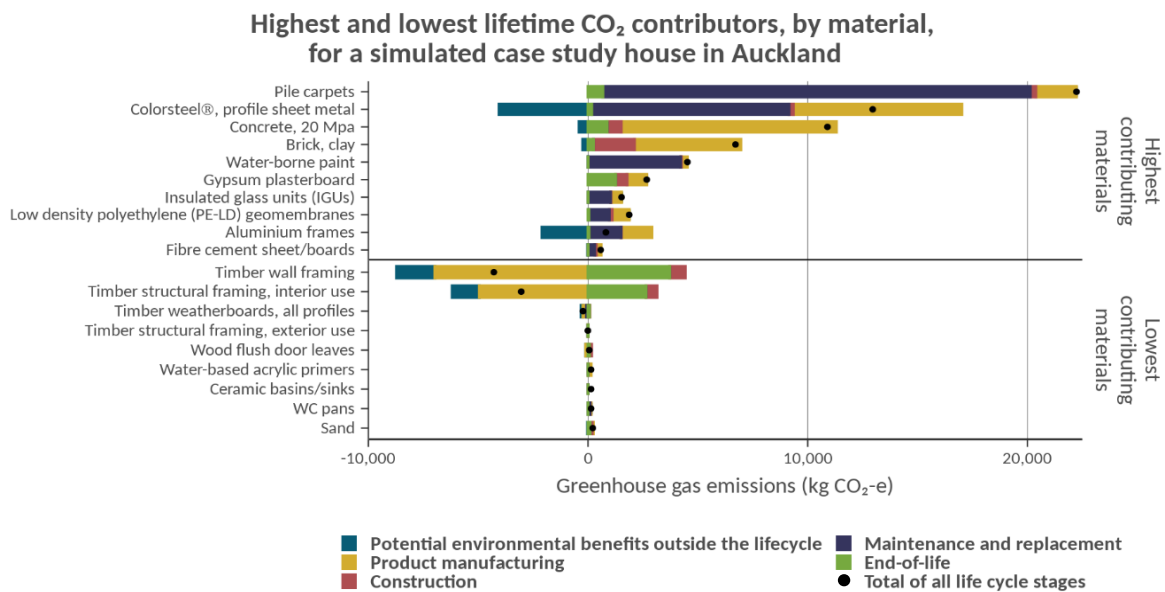


Stats NZ, data from BRANZ

Contribution of household materials to CO₂ emissions

Figure 89 shows the materials in the house that contribute the most and least to greenhouse gas emissions over the life cycle of a house. For the purposes of this figure, timber products are assumed to be carbon neutral (that is they will not add to greenhouse gas emissions). The level of greenhouse gas emissions depends on the amount of material in the house, the emissions arising from manufacture, and how often the material is maintained or replaced during the 90-year service life.

Figure 89



New Zealand housing set to exceed carbon budget

There is a finite amount of greenhouse gases that humans can emit to have a reasonable chance of holding global temperature rise to no more than 1.5°C above pre-industrial levels. Research undertaken by BRANZ and Massey University outlines that the carbon budget of a 198m² stand-alone house is 35 tonnes equivalent carbon dioxide emissions (Chandrakumar, et al, 2019b, 2020).

BRANZ research has also found that newly contracted houses contributed 66 percent, and newly built detached houses contributed 34 percent of the projected climate impact for New Zealand's detached housing sector for the period 2018-2050 (Chandrakumar et al 2019b, 2020). It's been estimated that, based on the current building code, and also on high performance housing (examined in the study), New Zealand housing often exceeds the building carbon budget of 35 tonnes equivalent of carbon dioxide emissions by 7 to 10 times (Dowdell et al, in press).

The carbon impact of New Zealand's homes

The timing of carbon emissions is important when it comes to buildings (Dowdell et al, 2016). Improving the energy efficiency of the current building stock presents a key opportunity for climate change mitigation, as the current building stock will comprise the majority of buildings in 2050 (MacGregor et al, 2018). However, BRANZ research shows that the levels of greenhouse gas emitted by new New Zealand houses are too high, compared with the allowable carbon budget. New Zealand's trend towards larger houses increases the carbon footprint of housing, with larger houses having higher emissions due to the amount of materials used, their construction, replacement, and occupation levels.

Any housing response to climate change requires dealing with the whole of the building life cycle - from design, construction, and use to demolition and reuse of materials. BRANZ research suggests future house design needs to limit our carbon footprint by reducing house size, by selecting lower-carbon materials, and by allowing for low carbon water and space heating.

However, occupant behaviour also influences greenhouse gas emissions. For example, energy behaviours, such as the way appliances are used, can have an important impact on a building's carbon footprint. In Auckland and Wellington almost half of the energy demand is from the use of appliances such as refrigerators. New Zealanders need to think about the way we interact and live within our houses to enable zero carbon living.

Housing supply and demand

This section gives an overview of the changing characteristics of the New Zealand population and society, particularly since 2000, how they are projected to change in the future, and the implications of these changes for housing.

The demographic forces shaping housing demand were recognised in the 1980s by the National Housing Commission (Pool, 1986) who argued that “it is now changes in the composition of the population rather than simple growth in numbers which is the prime demographic factor affecting housing need and demand”. However, because of the relative inflexibility of the housing stock, the availability and types of housing may lag well behind demand. New Zealand’s housing supply has been growing rapidly over the last 30 years, but not enough to keep up with population growth, increasing demand for larger houses, and the desire for multiple home ownership amongst those looking to hold vacant holiday property or rental investments.

Housing supply and population

While newspaper headlines have continually referred to a ‘housing crisis’, academic research has been somewhat more muted in its analysis of the supply problem. Much of the debate has centred around the availability of housing in New Zealand’s largest urban area – Auckland. Johnson et al (2018) in their *A Stocktake of Housing in New Zealand* suggested that despite rates of housing construction being high in recent years, the number of new houses is not at sufficient levels to match the strong population growth experienced by New Zealand since 2013. They identified a shortfall of around 28,000 dwellings in Auckland.

Other commentators (for example, Professor John Tookey (2017)) argue that the problems are more around a shortage of affordable homes for people to become homeowners rather than a shortage of housing per se:

More people want to own a house – either to live in or as a capital accumulating investment – than there are houses available for sale. Perversely the principle purchasers in the market already own properties and are using the leverage offered by equity in existing property holdings to facilitate further purchases. This artificial scarcity is what is behind the asset bubble that Auckland housing currently demonstrates (Tookey, 2017).

It is difficult to give a definitive answer around whether housing supply is keeping up with demand, as supply has fluctuated over recent years, and not all housing is used as long-term accommodation (available for people to rent or buy to live in). The rise of short-term rental accommodation, such as AirBnB, especially in tourist centres such as Queenstown, is another complicating factor in understanding supply.

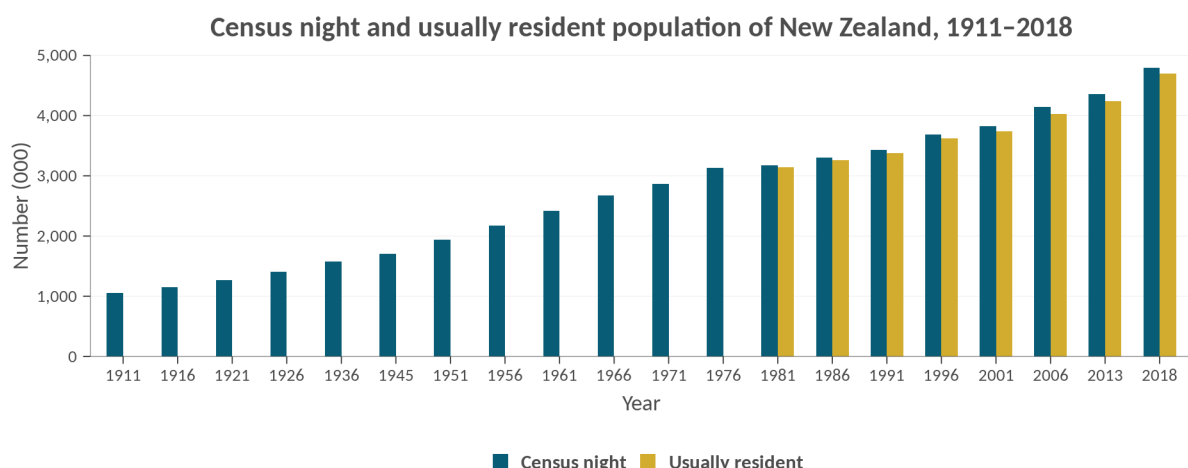
Housing demand is heavily influenced by population growth. Population growth comprises two key components: natural increase and migration. Both components influence the growth in household formation, which is an important driver of housing demand. Apart from population growth, household formation is shaped by factors such as the size and composition of households, changes in household living arrangements, the ageing of the population, and fertility patterns. The demand for housing can also be affected by changing aspirations and preferences, such as the desire to live in apartment-style accommodation and lifestyle blocks, or to own holiday homes. Individual and household preferences are influenced by culture and the stages in the family life cycle. The cost of housing, the level of demand for housing as an investment, and the availability of adequate finance are other vital factors, which are in turn related to consumer confidence and the employment and income circumstances of individuals and households.

Review of housing statistics report 2009
(Stats NZ, 2009)

New Zealand population changing in both size and composition

Between the 1981 and 2018 Censuses, New Zealand grew by almost 2 million people, to reach a census usually resident population of just under 4.7 million people.²⁹ Recently updated estimated resident population figures (where census numbers are adjusted to account for census undercount, natural increase and net migration) show a rapid increase in population between 2013 and 2018 (up by an estimated 458,000 people). As at 30 September 2020, New Zealand's population is estimated to be over 5.1 million.

Figure 90



Stats NZ, data from 1911–2018 Censuses

New Zealand's population has also continued to diversify, with the 2018 Census showing that 27.4 percent of people counted were not born in New Zealand, up from 25.2 percent in 2013. Note that changes in methods for the 2018 Census, which included the use of administrative enumeration, meant that Census 2018 was a more complete count than in previous years.

Population growth varies across New Zealand

Population growth has varied considerably across New Zealand, as figure 91 shows, with much of the strongest growth seen in the northern parts of the North Island and northern parts of the South Island.

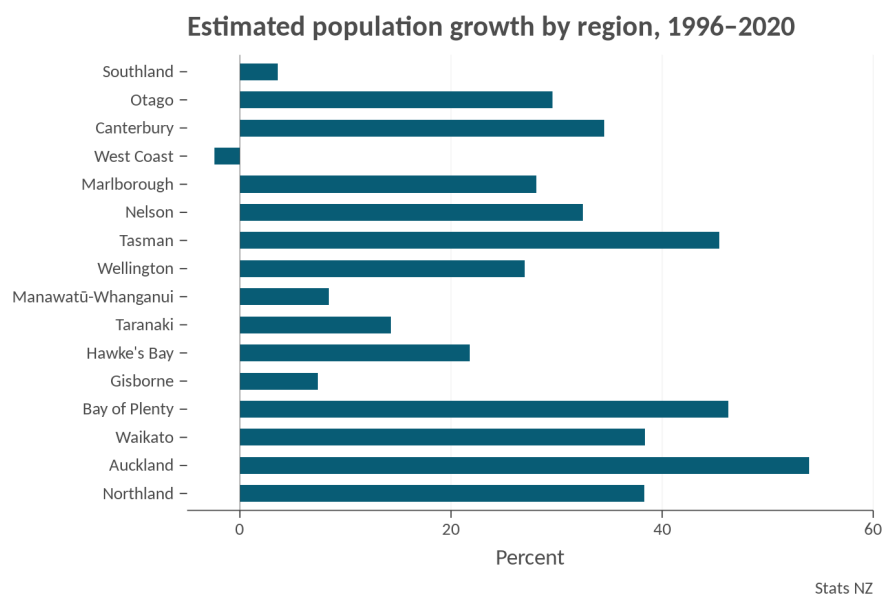
However, the territorial authority areas experiencing the highest rates of population growth since the 2013 Census were Queenstown-Lakes (up 38.7 percent to 39,153) and Selwyn (up 35.8 percent to 60,561), both in the South Island. The North Island territorial authority areas experiencing the strongest population growth rates were those bordering Auckland, with Kaipara to the north increasing by 20.6 percent and Waikato to the south by 19.3 percent.

The usually resident population of Auckland increased by over 150,000 people between 2013 and 2018, the equivalent of a city around the size of Hamilton in 2018. Over that same period, Auckland had an additional 26,745 private occupied dwellings. Tauranga added an extra 21,924 people between 2003 and 2018, but the 2018 Census counted an extra 5,556 private occupied dwellings. The contrast between population and dwelling growth was greatest in Queenstown-Lakes district

²⁹ New Zealand residents counted at each census, excluding overseas visitors.

where there was a 38.7 percent increase in the census usually resident population (an extra 10,929 people), but a 22.6 percent increase in private occupied dwellings (2,529).

Figure 91



Migration rates high in recent years

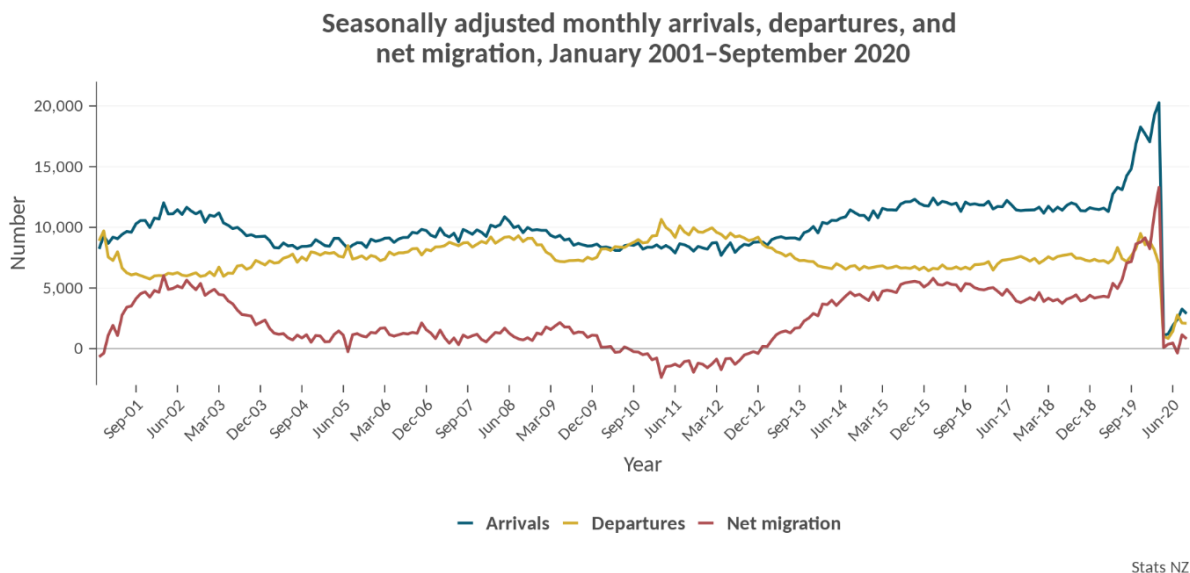
The higher growth rate in recent years is consistent with higher net migration. Between 2013 and 2018, New Zealand had a net migration gain of 318,100 people compared with 25,300 in the seven years between 2006 to 2013. Table 9 shows the census usually resident population and estimated resident population alongside the two components of population change. This shows the significant impact of increased migration on the growth of the New Zealand population.

Table 9

Estimated components of subnational intercensal population change, 1981–2018							
Measure	1981-86	1986-91	1991-96	1996-2001	2001-06	2006-13	2013-18
Census usually resident population count	3,263,300	3,373,900	3,618,300	3,737,280	4,027,947	4,242,048	4,699,755
Estimated resident population	3,732,000	3,880,500	4,184,600	4,442,100	4,900,600
Natural increase ⁽¹⁾	124,400	151,100	156,400	147,300	143,300	232,200	140,500
Net migration ⁽²⁾	-4,430	-40,450	88,000	1,200	160,800	25,300	318,100
Population change ⁽³⁾	120,000	110,600	244,400	148,500	304,100	257,500	458,500
<p>1. Excess of registered births over registered deaths for periods 1981-86, 1986-91 and 1991-96. Excess of estimated births over estimated deaths (both by date of occurrence) for other periods.</p> <p>2. In migration minus out migration.</p> <p>3. Differences between the census usually resident population count at the start and end of the periods 1981-86, 1986-91 and 1991-96. Differences between the estimated resident population at 30 June at the start and end of the period for other periods.</p> <p>.. figure not available</p> <p style="text-align: right;">Source: Stats NZ</p>							

Figure 92 shows that net migration increased in the early 2000s – reaching over 60,000 people for the year ended 2002 – falling sharply in 2011 and 2012, the years around the Canterbury earthquakes – before climbing again from 2013 to reach a peak of over 74,195 in the year ended December 2019. The reduced flights and increased border restrictions put in place to help manage New Zealand’s response to the 2020 global COVID-19 pandemic have led to a sharp drop in migration.

Figure 92



What does high net migration mean for housing?

While research shows that migration does impact house prices, there is still some debate around the strength of the effect (Stillman & Maré, 2008). One study (Coleman & Landon-Lane, 2007) looked at the relationship between housing markets and migration between 1962 and 2006. Their findings suggested that a net migration flow equal to 1 percent of the population was associated with an 8-12 percent change in house prices after a year, and a slightly larger effect after three years.

They suggest three possible reasons for this relationship. Firstly, a genuine house shortage in the short term as supply takes time to catch up with demand. Secondly, that positive net migration may be an indicator of price change itself “signalling when times are good or bad, and thus whether house prices can be expected to rise or fall”. Lastly, that migration flows may raise expectations about the value of homes, resulting in price inflation. Subsequent research suggests that while migration drives up prices, only one additional house is built for every six migrants who arrive in New Zealand (McDonald, 2013). As the average household size in 2013 was 2.7 people, this is not enough to keep up with demand.

Population growing faster than private dwelling stock

Census data shows that between 2013 and 2018, population growth was higher than growth in the number of private occupied dwellings. The number of private occupied dwellings increased on average by 1.3 percent per year between 2013 and 2018, compared with an annual average of 0.9 percent for the seven years from 2006 to 2013. This figure compares with an average annual growth in the usually resident population of 2.1 percent between 2013 and 2018, considerably higher than the annual average growth between 2006 and 2013 (0.7 percent).

Household size and composition can vary widely across different areas, but in 2018 the average household size was 2.7 people (Stats NZ, 2020). In some areas it is not just a shortage of housing that is an issue, but a shortage of housing that is affordable and suitable for the needs of whānau, households, and individuals.

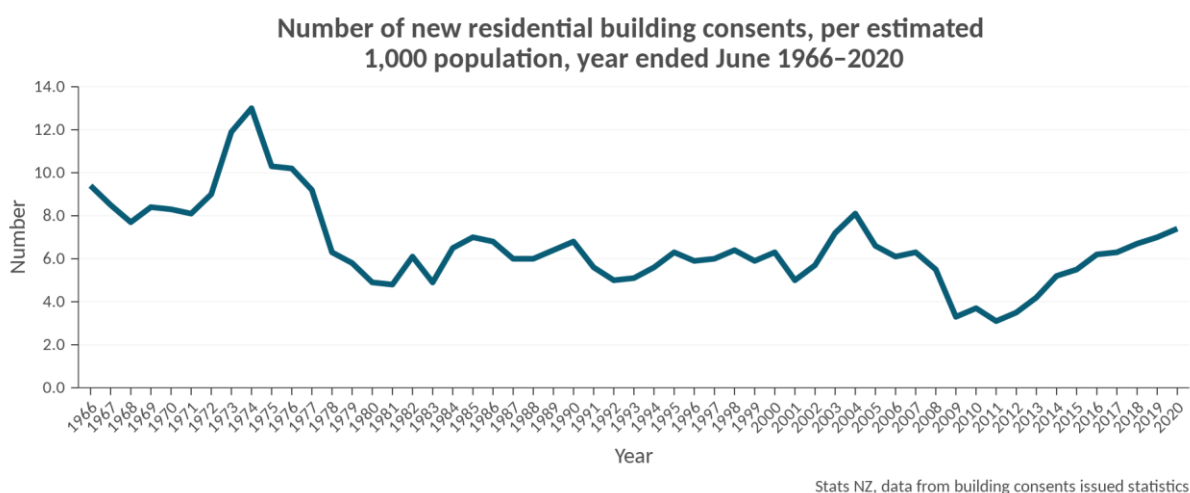
Building consents per head highest in 1970s

Another indicator of whether the supply of dwellings is keeping up with population growth is by looking at how consents for new dwellings compare with population growth. Note that consents do not necessarily equate to finished dwellings, and we also do not have any information on the number of dwellings that have been demolished. An experimental dwelling series (Stats NZ, 2017), estimated that three percent of consents were cancelled, on average, between 1998 and 2016, this rose to seven percent in 2008 at the height of the Global Financial Crisis.

There is a time lag between consents and completed dwellings. The quarterly building activity survey estimates that nationally, most (86 percent) of the total building work for residential new dwellings and domestic outbuildings is completed in three financial quarters (nine months). Ninety-three percent is completed in five quarters (15 months (Goodyear, 2014)).

Figure 93 shows that, although the number of new dwellings consented has grown significantly in the last decade, the rate per capita is still much lower than in the 1970s, when New Zealand experienced a peak of house building.

Figure 93



Data for our more populous regions (see figure 94) shows that building consents per head, particularly in Auckland region, fell sharply in the lead up to the Global Financial Crisis of the late 2000s, but have climbed again in recent years. In the year to August 2020, there were 8.9 consents per 1,000 population in Auckland (provisional estimate). The building boom following the Canterbury earthquakes is clearly evident, particularly between 2014–2016. In Auckland, a high proportion of building consents in recent years have been for smaller, medium density housing.

The Otago region saw the highest rate of residential building consents at 9.3 per 1,000 population, while Gisborne and Southland regions had the lowest rates at 1.8 and 3.5 per 1,000 population, respectively.

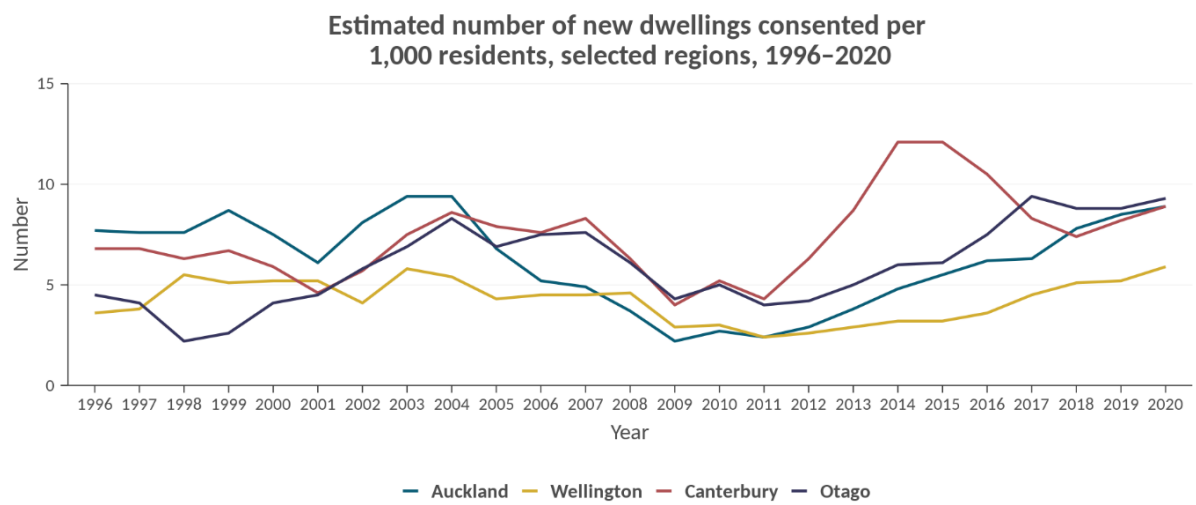
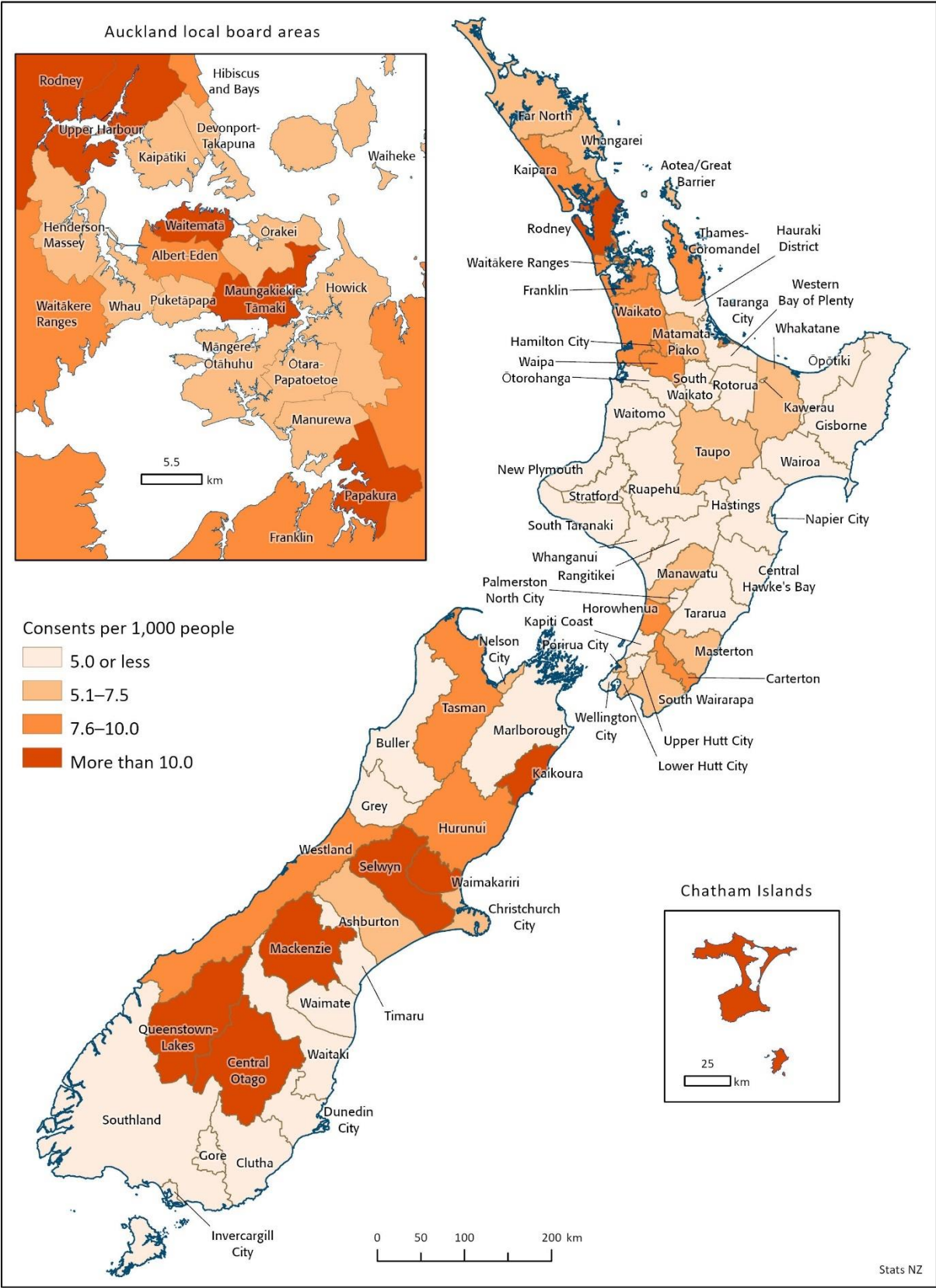
Figure 94

Figure 95 shows residential building consents per capita across the country, in the year to August 2020.

Figure 95

Estimated number of residential building consents for new homes per 1,000 population, 2019



Note that in some regions, such as Otago, high numbers of consents can also be driven by demand for holiday homes as well as by demand for housing from the usually resident population. For example, building consents per head of population was consistently high in Queenstown-Lakes district (at 26.2 per 1,000 people in the year ended August 2019), but was only 3.4 per 1,000 people in Dunedin city.

Growth in tourism may have contributed to increased housing demand

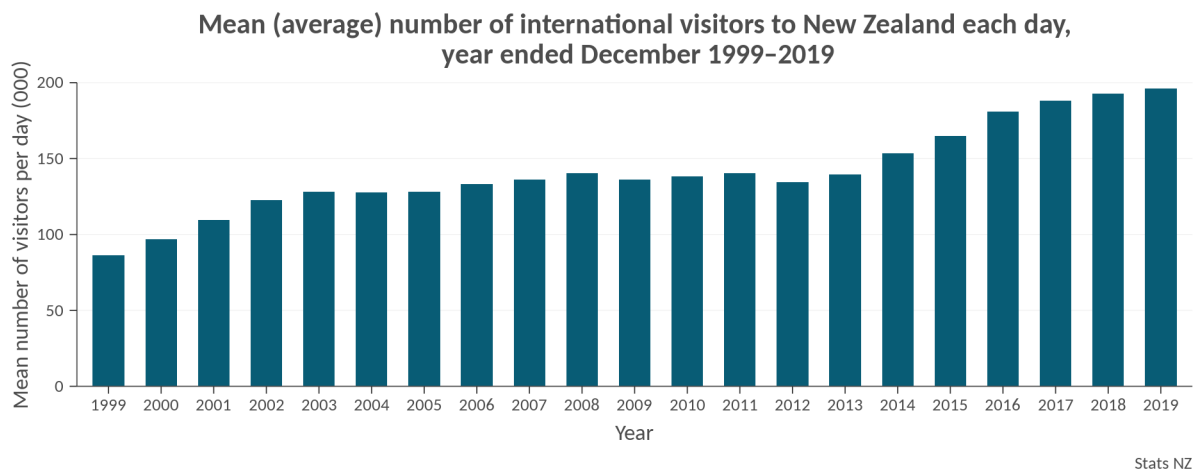
Recent research suggests that tourism also affects house prices, and potentially housing stock, particularly in popular tourism areas (Balli et al, 2019). While this is an area of developing research in New Zealand, there has been recent work internationally looking at the effects of international companies (such as AirBnB) on housing.

AirBnB is an online platform allowing residents to raise income by offering their homes as short-term rental accommodation. Typically, these short-term lets are rented out furnished at much higher rates than for long-term rentals. This gives an opportunity for New Zealanders to rent out their holiday crib or bach when they're not using it, allowing many property owners to seek higher (taxable) week-to-week rent for a furnished property without the regulation of the Residential Tenancies Act 1986.

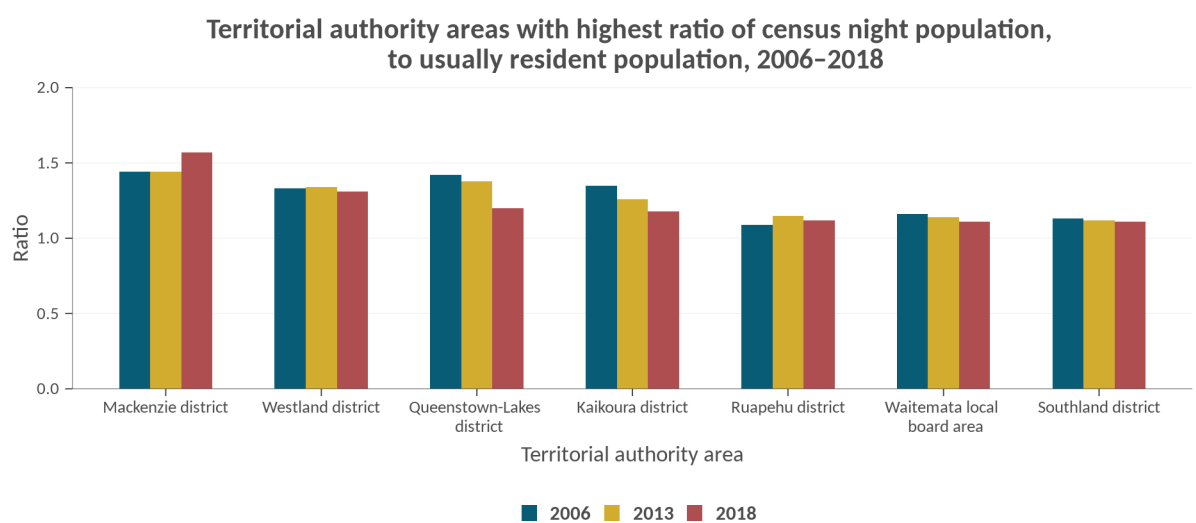
The research suggests that, in popular tourism destinations, platforms such as AirBnB impact both the affordability and supply of housing for locals. A number of international studies have shown that an increase in AirBnB listings can lead to rent rises. For example, in Barcelona, areas with high AirBnB activity saw rent rises of up to 7 percent, while at the same time house prices increased by almost 20 percent (Garcia-López et al, 2020). In Sydney, Gurran and Phibbs (2017) found that almost 1 percent of total dwellings and 3.3 percent of all rentals were available for short-term stays via AirBnB in late 2015. In one popular area of the city converting whole houses or apartments into short-term accommodation absorbed 7.0 percent of the rental stock.

International visitors on the rise

Figure 96 shows that international visitor numbers have generally been increasing since 1999. In 2019 New Zealand hosted close to 200,000 international visitors per day, compared with just under 100,000 in 2000. It is likely that the rise in international visitor numbers in recent years has had an impact on housing demand for short term rentals in New Zealand, although the extent of this impact is not yet known.

Figure 96

Comparing the census night population with the usually resident population can provide some insight into the potential extent of the pressure from tourism. Figure 97 shows that the popular tourist areas of the Mackenzie, Westland, Queenstown-Lakes, Kaikoura, and Ruapehu districts had significantly higher census night populations than usually resident populations over each of the last three censuses.

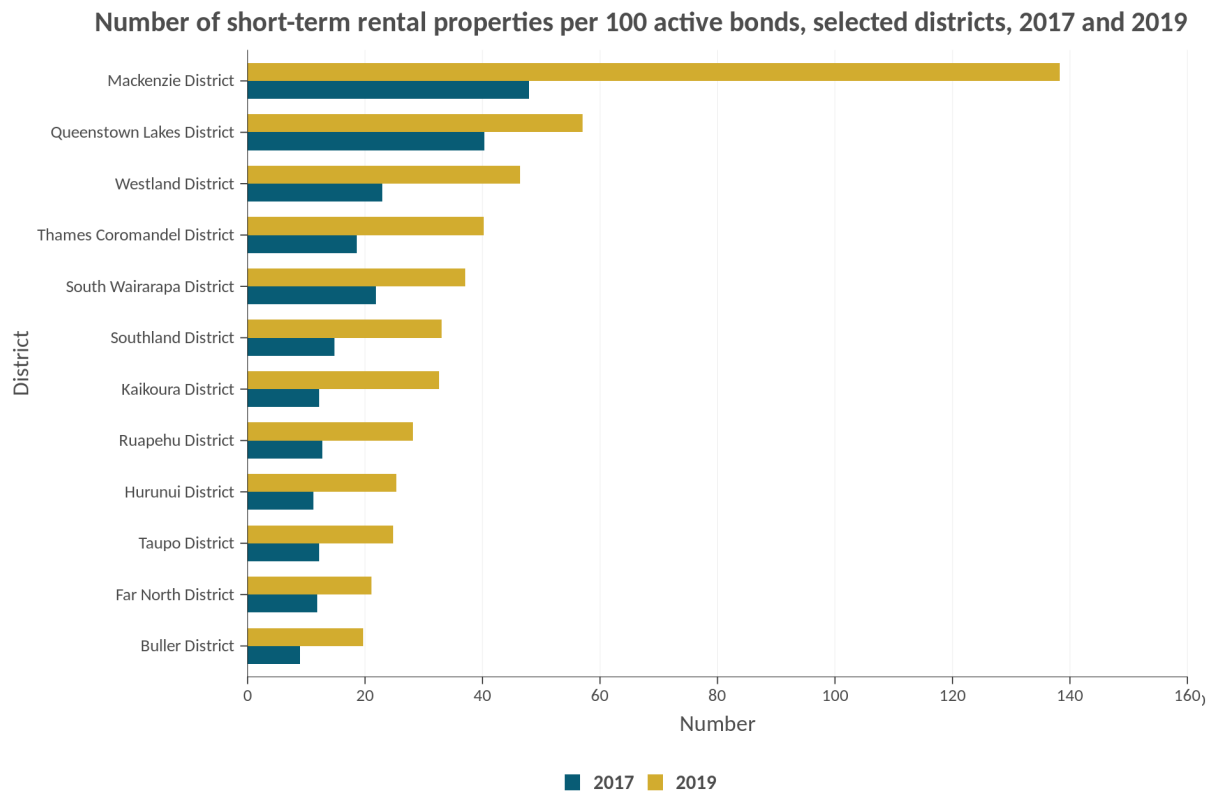
Figure 97

Stats NZ, data from 2006–2018 Censuses

Analysis of counts of short-term accommodation listings show the pressure in some areas. The ratio of short-term accommodation property listings to bonds for 2019 shows that in McKenzie and Queenstown-Lakes districts in particular, there was a high number of short-term accommodation property listings compared to rentals (see figure 98). In the McKenzie district in 2019, the number of

short-term listings substantially outnumbered rental properties (properties are identified by a bond being lodged).³⁰

Figure 98



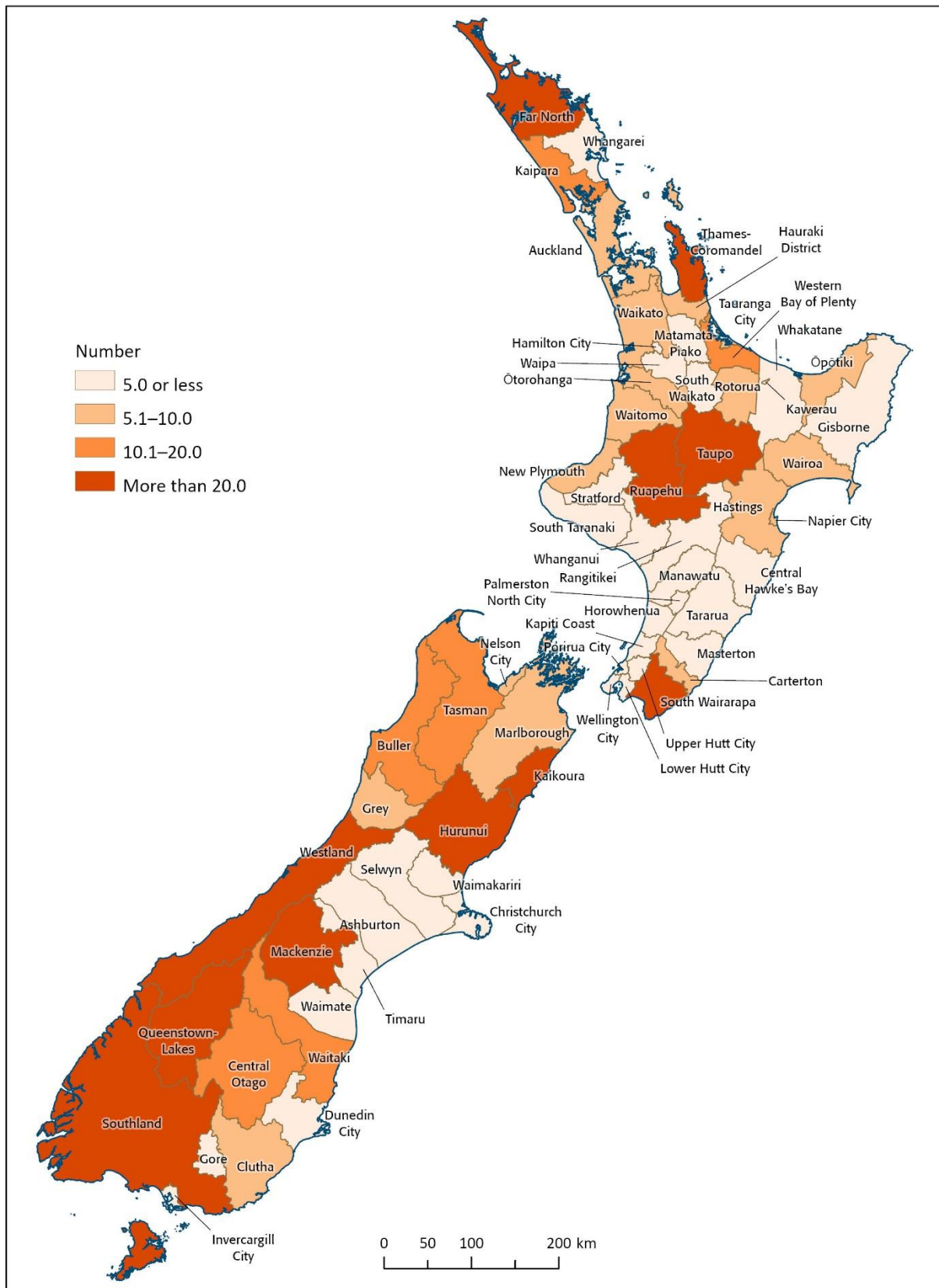
Stats NZ, data from Ministry of Housing and Urban Development; AirDNA

Figure 99 shows the distribution of short-term rental properties per 100 active bonds by territorial authority, which clearly shows the high rates of such properties in areas geared towards tourism, such as Queenstown-Lakes district.

³⁰ This is web-scraped data for short term accommodation listings (primarily from AirBnB). The count here is only for 'entire properties', which means things like a single room in a house have been removed. The count here also only includes 'active properties', which means that the property was available for booking or was booked at some point in the month. The ratio describes the number of unique short-term accommodation property listings per 100 active bonds (from MBIE Lodged bonds) for each month and then a median is taken from 1 January 2019 to 1 December 2019. As an example, a ratio of 5 would mean that over the course of the 12 months, the median number of listings was 5 per 100 active bonds in the area. **Note** that not all rental properties have bonds lodged (so may be an undercount of available rental properties) and short-term accommodation listings may also be undercounted. See: [AirDNA data: How it works.](#)

Figure 99

Number of short-term rental properties per 100 active bonds, by territorial authority, 2019



Stats NZ, data from Ministry of Housing and Urban Development; AirDNA

Census also collects information on unoccupied dwellings, which have averaged around 10 percent of total dwellings for the last four censuses. Unoccupied dwellings include dwellings where the residents are temporarily away, as well as empty dwellings. These may be empty for a number of reasons, for example, they may be a second home, a holiday rental such as an AirBnB, or a rental dwelling awaiting refurbishment. In 2018, there were 94,197 empty dwellings recorded, and 97,449 dwellings where the residents were away.

Changing household composition may impact housing needs

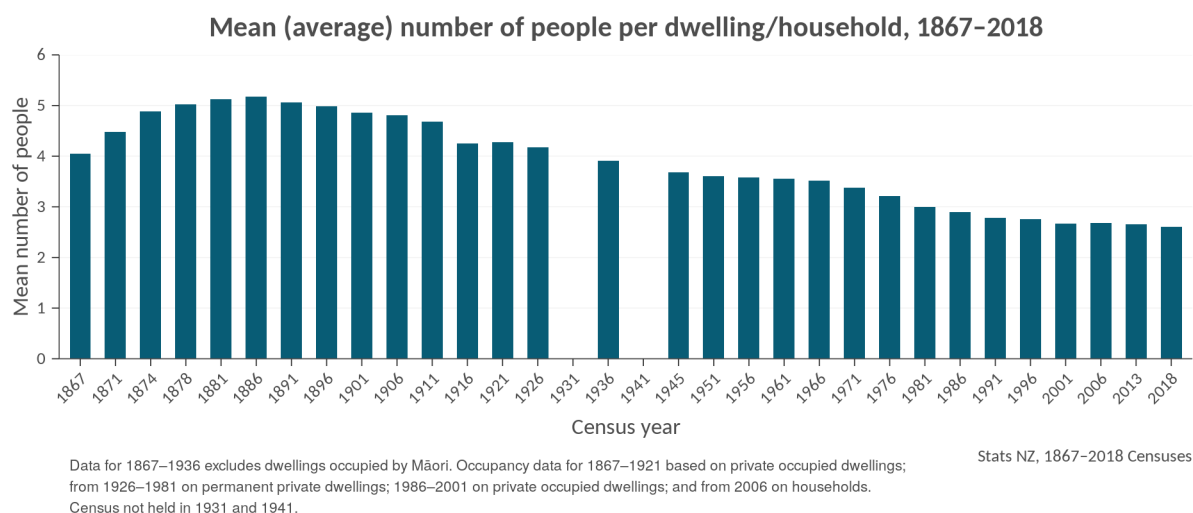
Demand for housing is not just driven by population growth and tourism, but also by changing household types. There have been considerable changes to families and households within New Zealand society since the 1970s. These include decreasing fertility rates, and older average age at first birth (Dharmalingam, et al, 2004).

These changes, combined with population growth, help drive housing demand. However, constraints on supply and affordability, as well the demand for second homes, and investment in housing for short-term accommodation, mean that it is not a simple relationship. Not all housing stock is available for households to buy or rent to actually live in. This limits the choices available to, and suitable for, New Zealand's changing households.

Average household size falling

The average number of people per household has fallen from a high of 5.2 people in 1886, to 2.7 people at the time of the 2018 Census, see figure 100. Note that earlier population counts are not comparable as they were just of the settler population, and did not include Māori.

Figure 100



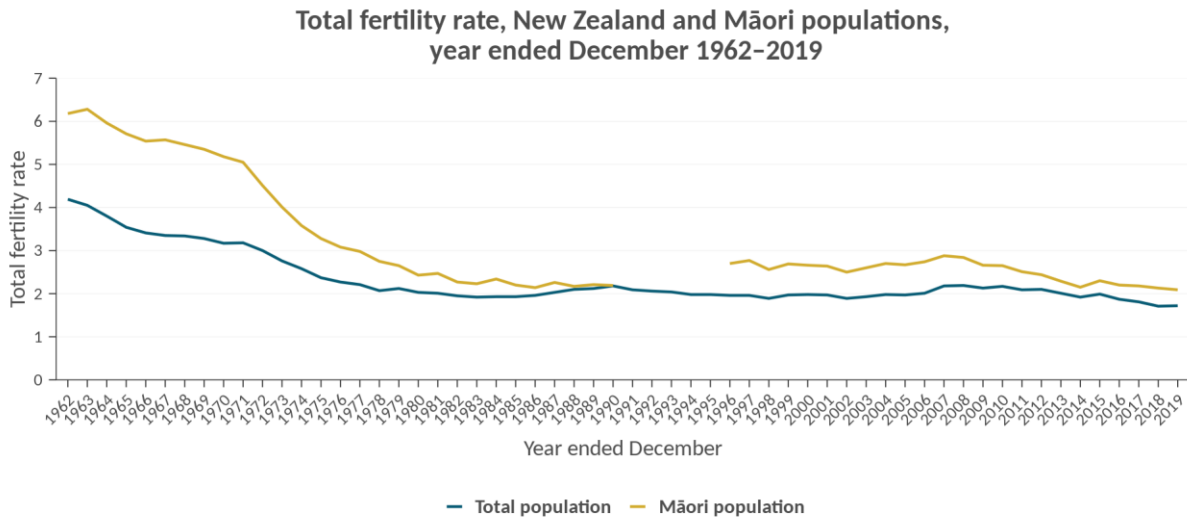
The fall in average household size is largely due to declining fertility rates, and the ageing of the population.

Women having fewer children, at older ages

Figure 101 shows that at the height of the New Zealand baby boom, in the early 1960s, the total fertility rate was just over four children per woman for the total population, and over six for Māori. However, this fell sharply from the early 1970s. Since 2010, women are having fewer children, and

having children when they are older (Stats NZ 2019b). In 2018, the median age of a mother at the time of her child's birth was 30.5 years, compared with 29.7 years in 2000, 27.7 years in 1990, and 25.7 years in 1980.

Figure 101



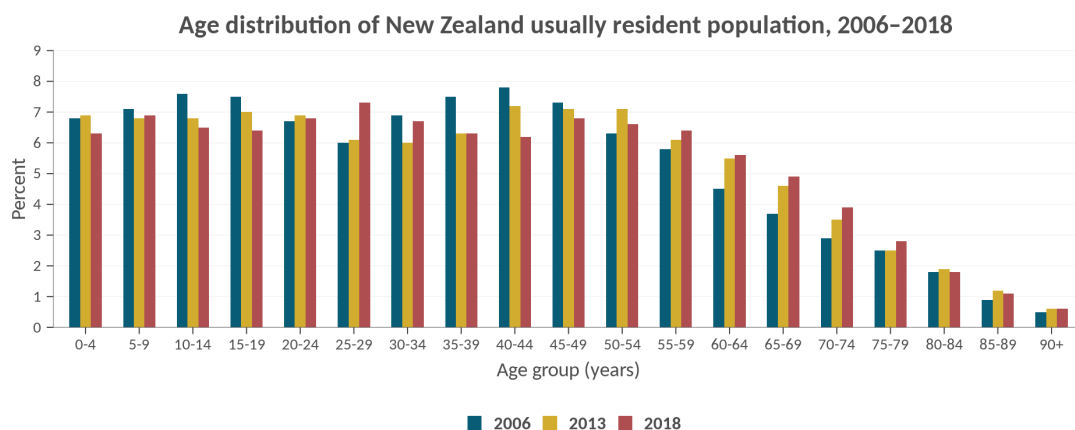
Total fertility rate is the average number of live births that a woman would have during her life if she experienced the age-specific fertility rates of a given period (usually a year). It excludes the effect of mortality.
Total fertility rates for Māori are based on the ethnicity of the child before 1991 and the ethnicity of the mother from 1997.

Stats NZ

New Zealand population aging

Between 2006 and 2018, the proportion of children (aged 15 years and under) in the population fell from 21.5 percent to 19.6 percent. At the same time, the proportion of people aged 65 years and over increased from 12.3 percent to 15.2 percent (see figure 102).

Figure 102



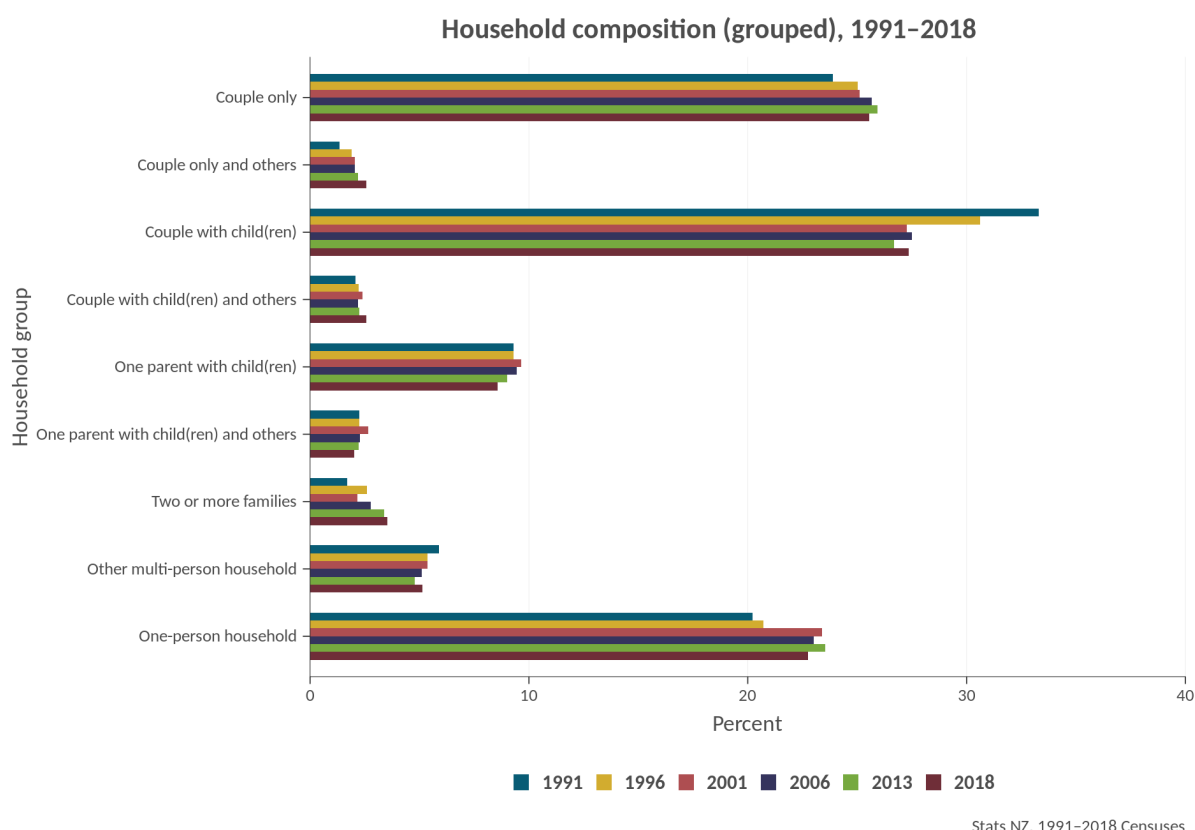
Stats NZ, data from 2006–2018 Censuses

There were considerable ethnic differences in population structure. At the time of the 2018 Census, around a third of Māori and Pacific peoples were aged under 15 (32.1 percent for Māori and 33.6 percent for Pacific peoples), and just 6.2 percent and 5.3 percent, respectively, were aged 65 years and over.

Couples with children less common

In 1991, there were just under 1.2 million households in Aotearoa New Zealand, of which around a third (388,407) were couples with children. Couple only households made up a further 24 percent, while 20 percent were one person households. Just 1.7 percent (19,818 households) consisted of two or more families. Figure 103 shows how these proportions have changed over the last five censuses.

Figure 103



By the time of the 2018 Census, just under 1.7 million households were recorded in Aotearoa New Zealand, although this is believed to be an undercount as some people could not be placed in households.

Couple-with-children households made up just over a quarter of these (434,472 households, 27.3 percent). Note that a household with children can include children of any age, for example, elderly parents living with one of their children. In 2018, 20.1 percent of couple-with-children households had no dependent children (a dependent child in a family is defined as a being under 18 years of age and not in full-time employment). This compares with 18.2 percent of households in 2013.

In 2018, almost half of all households (48.3 percent) in New Zealand were either a couple with no children, or one person living on their own, compared with 44.1 percent in 1991.

Multi-family households on the rise

The proportion of households with multiple families has increased over time, both in numbers, and as a proportion of all households. In 2018, 3.5 percent of households (55,902) included two or more

families. As multi-family households were much larger on average, this equated to 7.6 percent of people in households (324,069 people).

Household numbers expected to increase in New Zealand

Current household projections, which are based on the 2013 Census, suggest that between 2018 and 2038, the number of households will have increased by over 400,000 to make a total of over 2.2 million.

All 16 regions are projected to increase in number of households between 2013 and 2038. The largest increase is projected in the Auckland region, up from 498,000 in 2013 to 791,100 in 2038, an average growth of around 2.0 percent per year. This accounts for around half (49.2 percent) of the national growth in the number of households projected over this period. By 2038, 35 percent of all households in New Zealand are expected to be in the Auckland region, up from 30 percent in 2013.

The Auckland region is projected to account for over half of New Zealand's population growth between 2013 and 2038. Canterbury and Waikato are the only other regions expected to grow at around or above the national average of 30 percent between 2013 and 2038 – with projected population growth of 32 and 29 percent respectively.

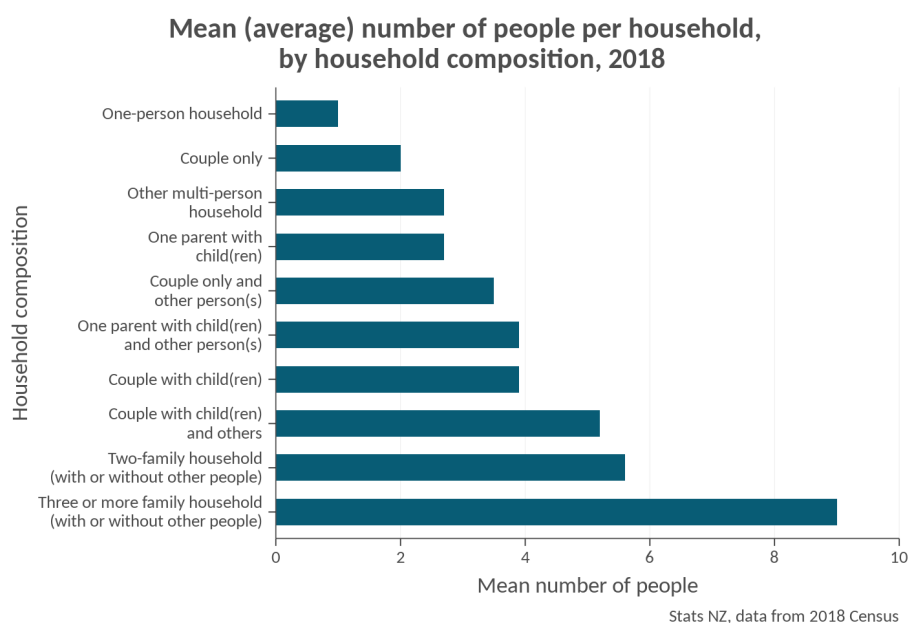
Household sizes expected to fall

Whilst the number of households in New Zealand is projected to increase, the average number of people per household is expected to decrease slightly, between 2013 and 2038, from an estimated 2.6 to 2.5. This reflects an increasing proportion of one-person households, and a decrease in the average size of families.

Average family size is projected to fall largely due to an increase in the proportion of couple-without-children families (which contain two people) and a decrease in the proportion of two-parent families. Two-parent families are also expected to decrease in size, from four people on average in 2013, down to 3.7 people in 2038. Similarly, one-parent families, which contained an average of 2.6 people in 2013, are projected to reduce to 2.4 people, on average, in 2038.

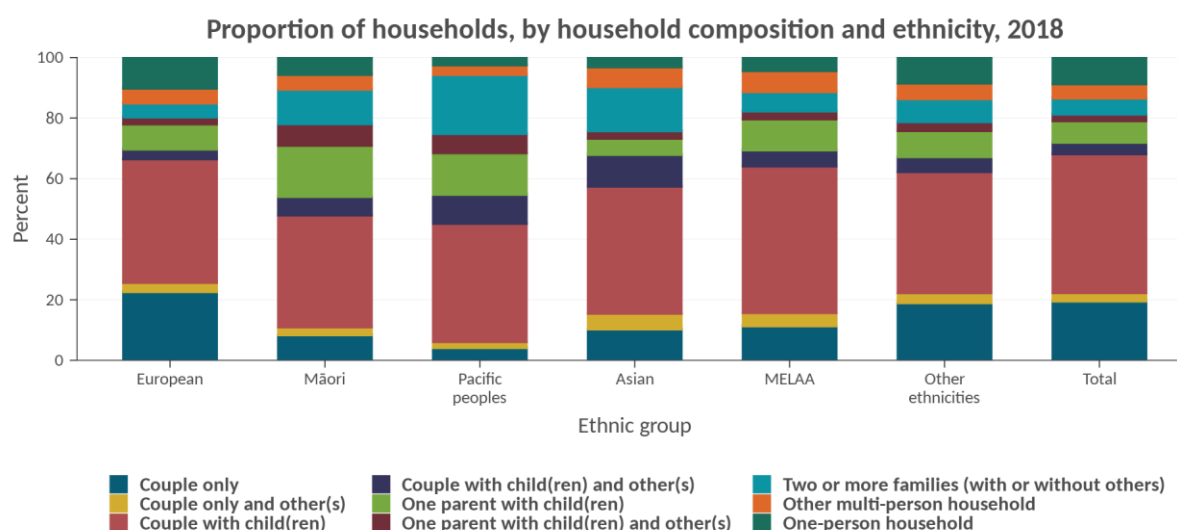
There is considerable variation in size between the different household types. If households cannot access adequately sized housing, then they are more likely to experience crowding.

Figure 104 shows average sizes of different household types in the 2018 Census. Three-or-more family households were the largest with an average of 9.0 people per household. In comparison, two-family households averaged 5.6 people, and one-family households only 3.1 people.

Figure 104

Household composition varies by ethnicity

While household size in the total population is expected to decrease, household composition and size can vary by ethnicity. Figure 105 shows that in 2018, around 1 in 3 people with European ethnicity (32.8 percent) lived in a couple only or one-person household, compared with around 1 in 7 Māori (14.0 percent), and 1 in 15 Pacific peoples (6.6 percent). This is partly due to the different age structures of different ethnic groups. By contrast, around 19.5 percent of Pacific peoples and 11.4 percent of Māori lived in a household with two or more families, with or without other people.

Figure 105

MELAA – Middle Eastern, Latin American, African

Stats NZ, data from 2018 Census

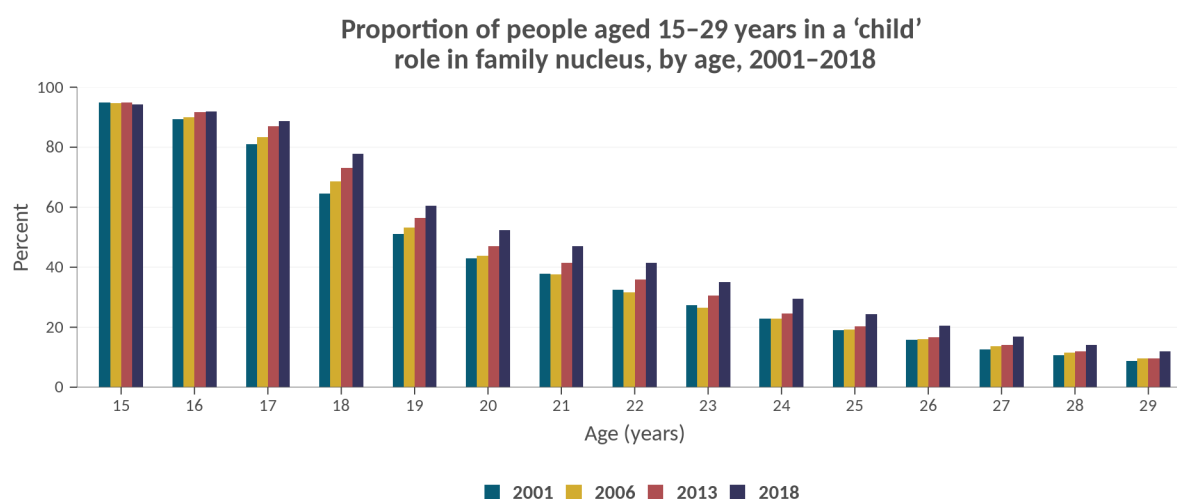
Young people living at home longer

To be a 'child in a family nucleus' a person must be usually resident with at least one parent, and have no partner or child(ren) of their own living in the same household.

Constraints around housing, as well as affordability issues, may result in younger people taking longer to leave their parental home and set up home by themselves. To investigate this question, we looked at the role of individuals in their family, and whether they were counted as a 'child in a family nucleus'. This data has been collected consistently since the 2001 Census.

Figure 106 shows that while there has been little change in the proportion of 15-year-olds and 16-year-olds living with their parent(s), the proportion of young people aged 17 years and over who still live at home has increased. For example, the proportion of people aged 18 years living with their parent(s) rose from 64.6 percent in 2001 to 77.7 percent in 2018.

Figure 106



Stats NZ, data from 2001–2018 Censuses

To be a 'child in a family nucleus' a person must be usually resident with at least one parent, and have no partner or child(ren) of their own living in the same household.

Data from the 2018 Census shows considerable variation by ethnicity. For young people aged from 0 to 29 years, a particularly high proportion of Pacific peoples lived as a child in a family nucleus (82.1 percent), compared with 78.0 percent for Māori and 74.3 percent for people with European ethnicity. Almost a third of Pacific peoples aged 25–29 years lived as a child in a family nucleus, around double the rate for people with European, MELAA, or Asian ethnicity. The rates were highest for Pacific peoples in Auckland, with 35.6 percent of Pacific 25–29-year-olds still living with their parent(s).

The proportion of young people aged 15–29 years living as a child in a family nucleus increased for people with European, Māori, and Pacific ethnicity between 2001 and 2018, particularly for people aged 20–24 years. Young people who were born in New Zealand were more likely to be living in a family nucleus, compared with people born overseas, regardless of ethnicity.

Variation in household size and composition across New Zealand

The variation in household size and composition across New Zealand is shaped by the age and ethnic makeup of the population. Auckland and Porirua city, which have diverse populations, in particular high proportions of Pacific peoples, had the largest average household size at 3.0 people per household (Stats NZ, 2020g). Selwyn district, in the South Island, averaged 2.9 people per household.

In comparison, Buller district had the lowest average household size, with 2.1 people per household, followed closely by Thames-Coromandel district, at 2.2 people per household. Areas with smaller households tended to have higher proportions of older people. Median ages in the Thames-Coromandel and Buller districts were 53.6 years and 49.6 years respectively, and around two-thirds of all households consisted of a couple or one person. In contrast, Auckland, Porirua city, and Selwyn district had much lower median ages at 34.7 years, 35.1 years, and 37.6 years, respectively.

What does this mean for future housing requirements?

The growing diversity of New Zealand households suggests that there may be an increasing demand for both larger properties that accommodate extended family living, as well as smaller one-and two-bedroom properties and dwellings more suitable for the ageing population. Smaller household size, however, does not necessarily mean that demand for smaller houses has increased markedly. As About New Zealand's housing stock shows, house size increased from an average of 135 m² in 1991, before peaking at 200 m² in 2010.

For most households, regardless of size or composition, the most common number of bedrooms was three. However, couples with children and others and households with two or more families were slightly more likely to be living in four-bedroom homes. Over the last four censuses, the distribution of bedroom numbers by household type has seen little change.

It is important to note that the size of the house a household lives in may also reflect changing circumstances, for example, a couple or individual whose children have moved out, or a couple who plan but have yet to have children. Divorced or separated parents may also have larger houses to accommodate children who live with them for part of the time.

There is a closer match between household composition and number of bedrooms in renting households. Households that do not own may be able to be more flexible in order to rent housing for their immediate needs, when compared with households that own. As renting extra bedrooms also comes at a higher cost, people may be less likely to choose to rent more bedrooms than they actually need.

Although population growth will increase housing demand, a complex interplay of forces also shapes the interaction between demand and supply. Growing diversity (of people and households), an aging population, changing needs and preferences, and the impact of climate change will all have an effect on the housing of the future. When housing is scarce or expensive young people may stay at home longer, or people will crowd in together. As building regulations improve, building materials change and dwelling intensification increases, we'll also see a difference in the types of homes that Kiwi's live in.

Whilst the classic Kiwi three-bedroom, stand-alone home may remain a staple for a while, the New Zealand homes of the future will likely need to change. It is not just about the numbers, but the suitability of housing to meet growing and changing demand that is of key importance.

Conclusions

What we now know about housing in Aotearoa

In the decade since 2009, there has been considerable progress in the development of housing statistics. New streams of information have been created, through new and existing surveys, as well as the greater use of administrative data on housing. Habitability and homelessness are two areas that have seen a substantial increase in information.

There has also been substantial progress around the measurement of habitability, with the development of a housing quality framework, additional questions added to the 2018 GSS and 2018 Census, and the 2018–19 pilot housing survey, linked to the GSS. Before 2009, there was no real information on homelessness, but the development of a draft definition enabled the development of experimental estimates based on the census. Based on the 2018 Census and administrative data, it is estimated that nearly 0.9 percent of the population was experiencing severe housing deprivation in 2018. In 2020, we have a better understanding of our housing and housing needs, although a number of gaps remain.

What is the state of housing in New Zealand?

In this report, we have brought together information based on the themes identified by *Review of housing statistics 2009* (Stats NZ, 2009): tenure and tenure security, affordability, habitability, and suitability. Since 2009, homeownership rates have continued to decline, with homeownership at the lowest rate since the 1950s. The decline in home ownership was sharpest in the 1990s, which saw the highest rates of unemployment since the Great Depression of the 1930s. Between 2013 and 2018, rates of home ownership have remained static. The decline in homeownership has occurred unevenly, with greater falls for Māori and Pacific peoples, and in Auckland region in particular.

In some parts of New Zealand, housing supply is not necessarily keeping up with demand for housing. Although there has been a recent increase in house building, we still lag behind the 1970s in relation to new dwelling consents per head of population. This lack of supply has affected affordability throughout New Zealand, but in Auckland region particularly. Housing pressures affect the most vulnerable among us. Inequalities in New Zealand's housing emerge, with one-parent families, the unemployed, and disabled people often experiencing poorer housing conditions. Ethnic inequalities are also apparent. Māori and Pacific peoples, in particular, experience poorer housing outcomes, and higher rates of crowding and homelessness.

The section on housing and climate change shows that housing contributes significantly towards greenhouse gas emissions in New Zealand. This is exacerbated by the sprawling nature of our cities, and poor access to public transport in much of New Zealand.

There are some encouraging signs: the pilot housing survey shows improvements in insulation and more efficient forms of heating, as well as an increase in double-glazing. The increase in new dwellings consented in recent years mean that we are adding newer housing with improved standards of insulation. There has also been an increase in dwelling intensification in recent years, with smaller sections and more multi-unit housing.

Throughout this report, tenure remains one of the most significant markers of inequality in housing. People who don't own have less tenure security, poorer affordability, and worse housing conditions. Problems with housing impact on wellbeing – both mental and physical. And a significant number of people experience very poor housing conditions, such as severe crowding, or lack a place that they can call home.

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