PEER REVIEWED

FINAL REPORT NO. 399

The new normal: changed patterns of dwelling demand and supply

Authored by

Steven Rowley, Curtin University
Ryan Brierty, Curtin University
Francesca Perugia, Curtin University
Habib Rahman, Curtin University
Ranjodh Singh, Curtin University
Mohammad Swapan, Curtin University
Liz Taylor, Monash University

Publication Date May 2023
DOI 10.18408/ahuri8129401

AHURi

Title

The new normal: changed patterns of dwelling demand and supply

Authors

Steven Rowley, Curtin University
Ryan Brierty, Curtin University
Francesca Perugia, Curtin University
Habib Rahman, Curtin University
Ranjodh Singh, Curtin University
Mohammad Swapan, Curtin University
Liz Taylor, Monash University

ISBN

978-1-922498-66-3

Key words

Housing supply, housing affordability, COVID-19, housing markets.

Series

AHURI Final Report

Number

399

ISSN

1834-7223

Publisher

Australian Housing and Urban Research Institute Limited
Melbourne, Australia

DOI

10.18408/ahuri8129401

Format

PDF, online only

URL

https://www.ahuri.edu.au/research/final-reports/399

Recommended citation

Rowley, S., Brierty, R., Perugia, F., Rahman, H., Singh, R., Swapan, M. and Taylor, L. (2023) *The new normal: changed patterns of dwelling demand and supply,* AHURI Final Report No. 399, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/399, doi: 10.18408/ahuri8129401.

AHURI

AHURI is a national independent research network with an expert not-for-profit research management company, AHURI Limited, at its centre.

AHURI's mission is to deliver high quality research that influences policy development and practice change to improve the housing and urban environments of all Australians.

Using high quality, independent evidence and through active, managed engagement, AHURI works to inform the policies and practices of governments and the housing and urban development industries, and stimulate debate in the broader Australian community.

AHURI undertakes evidence-based policy development on a range of priority policy topics that are of interest to our audience groups, including housing and labour markets, urban growth and renewal, planning and infrastructure development, housing supply and affordability, homelessness, economic productivity, and social cohesion and wellbeing.

Acknowledgements

This material was produced with funding from the Australian Government and state and territory governments. AHURI Limited gratefully acknowledges the financial and other support it has received from these governments, without which this work would not have been possible.

AHURI Limited also gratefully acknowledges the contributions, both financial and in-kind, of its university research partners who have helped make the completion of this material possible.

Disclaimer

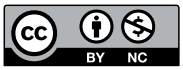
The opinions in this report reflect the views of the authors and do not necessarily reflect those of AHURI Limited, its Board, its funding organisations or Inquiry Panel members. No responsibility is accepted by AHURI Limited, its Board or funders for the accuracy or omission of any statement, opinion, advice or information in this publication.

AHURI journal

AHURI Final Report journal series is a refereed series presenting the results of original research to a diverse readership of policy makers, researchers and practitioners.

Peer review statement

An objective assessment of reports published in the AHURI journal series by carefully selected experts in the field ensures that material published is of the highest quality. The AHURI journal series employs a double-blind peer review of the full report, where anonymity is strictly observed between authors and referees.



Contents

List of tables

List of figures

Acronyms and abbreviations used in this report

ABS	Australia Bureau of Statistics
ACT	Australian Capital Territory
AHURI	Australian Housing and Urban Research Institute
APM	Australian Property Monitors
AVM	Automated Valuation Method
NHFIC	National Housing Finance and Investment Corporation
NSW	New South Wales
QLD	Queensland
RBA	Reserve Bank of Australia
REA	Real Estate Agent
SA	South Australia
SEIFA	Socio-Economic Indexes for Areas
UDIA	Urban Development Institute of Australia
VG	Valuer General
VIC	Victoria
VREA	Victorian Real Estate Agent
WA	Western Australia
WAREA	Western Australian Real Estate Agent

Glossary

A list of definitions for terms commonly used by AHURI is available on the AHURI website ahuri.edu.au/glossary.

Executive summary

Key points

- The onset of COVID-19 brought about unprecedented changes to the Australian economy, including the housing market.
- Dwelling prices increased significantly during the COVID-19 period (defined as mid-2020 to mid-2022) and were driven by a range of factors, including COVID restrictions, working from home, government stimulus grants, favourable lending conditions, and comparatively little new or established housing supply available.
- The COVID-19 stimulus measures delivered an increase in the supply (approval) of houses between 1 and 47 per cent across the five largest states, while the amount of 'other residential' supply fell. The location of the supply increases was generally in outer urban areas.
- Regional areas experienced the highest rates of dwelling price growth as populations increased due to rising demand. Rental vacancy rates fell Australia-wide, because of population shifts, household restructuring and a surge of landlords selling their investment properties.
- Residential transactional data for Victoria and WA were examined across two time periods to assess the impact of COVID-19. Both Victoria and WA saw similar patterns of price increases, despite very different COVID experiences. The subsequent market response to rising interest rates has been starkly different, with prices falling in Victoria but remaining steady in WA.
- State and local governments need to ensure housing supply is more responsive to avoid affordability pressures from demand shocks. Regional areas are especially vulnerable to demand pressures.

Key findings

This report assessed the impact of the COVID-19 pandemic on patterns of supply and demand and how the Australian housing market has changed over time. Analysis of census data found that around 1.7 million dwellings were added to the total dwelling stock in the last ten years. At development rates equivalent to those of the past decade, it would take around six years to deliver 1 million new dwellings. However, it should be noted that the ten-year period 2011–2021 included development booms in a number of states, including the two biggest—NSW and Victoria. Construction cost increases and rising interest rates will make the delivery of 1 million dwellings by the end of the decade, in line with the National Housing Accord, very challenging.

The COVID-19 period, defined as mid-2020 to mid-2022 for the purposes of this study, saw robust price growth within Australian capital cities and even stronger growth in regional areas. In the rental market, vacancy rates have fallen across the country, and rents have risen sharply. Our case study work across Victoria and WA found that consumer demand for housing led to increased prices across both states, leading to similar outcomes despite lockdown experiences being very different (severe in Victoria and mild in WA). The sudden price increases in local housing markets during COVID can be attributed to a range of factors, including COVID restrictions, working from home, government grants, favourable lending conditions, and comparatively little new housing supply or sale listings. A survey conducted in June 2020 (Crowe, Duncan et al. 2021) found that one in five households had changed what they wanted from their dwelling, broadly wanting more indoor and outdoor space and this contributed to changed patterns of housing demand.

Many of the shifts caused by the pandemic, such as some households seeking more internal and external space, remote working and smaller household sizes, were already taking place; COVID simply accelerated these trends. What COVID did is bring forward the decisions of many households, increasing demand and leading to price and rent rises, especially in supply constrained locations. Such price increases came to an end with interest rate rises. However, for the vast majority of households, particularly those on lower incomes where housing choice is severely limited by affordability, COVID changed nothing other than increasing competition in an already constrained rental market.

In terms of new supply, the uneven patterns identified by Rowley, Gilbert et al. (2020) have continued over the last five years. This uneven supply was exacerbated by increasing construction costs leading to many multi-residential projects becoming financially unviable. Supply growth remains uneven across capital cities, partly due to the availability of sites and partly due to consumer demand.

Policy development options

The pandemic showed just how quickly demand for housing can change and how prices and rents can rise rapidly as a result. There is always a lag between demand shifts and the delivery of new housing because of the time it takes to work through the planning approval process and physically construct dwellings. However, there are a number of options available to government to make housing markets more responsive, and such options have been discussed for many years.

New housing supply

Housing supply does respond to increased market demand, as increasing prices generate increased returns and lower risk to developers, stimulating new supply. However, the responsiveness of supply to demand is inhibited by the availability of sites and the development approval process. Industry lobby groups such as the UDIA and Property Council constantly highlight the need for approval reform to ensure development can occur more quickly. This is not just planning approval but also issues around infrastructure and environmental approvals.

Government needs to ensure that development approvals are as efficient as possible while maintaining the integrity of the process itself. The National Housing Accord discussed the importance of delivering new housing supply, highlighting measures necessary to speed up land release and streamline planning regulations. Establishing supply targets and measuring outcomes can help identify what is working and where intervention is required. The newly established National Housing Supply and Affordability Council will hopefully deliver meaningful advice on how to improve the delivery of new housing.

It should be noted that improved availability of sites and an improved approval process will not automatically result in increased dwelling supply. Given the almost total reliance on the private sector to deliver new supply, policy makers need to understand what drives such supply. As Rowley, Leishman et al. (2022) discussed, the main driver of new supply is profitability, and the main driver of profitability is market conditions.

While access to sites and a shorter development process will certainly be a positive, it will not stop developers from holding land until conditions are favourable for them – it might be straight away, it might take a number of years. If governments want to accelerate land release, they should attach timelines to its development to make sure the land is brought to the market in a timely manner.

Government at all levels need to work with industry to ensure the industry can respond quickly to demand pressures and ramp up supply. Labour shortages and costs have blocked new supply, particularly in WA, where it has been difficult to attract new workers. Supply chain issues across the country resulted in significant construction cost increases, and these increases are preventing new supply because developments, particularly capital intensive multi-residential developments, are no longer financially feasible.

Census data over the last ten years shows little increase in housing diversity. Intervention is required to ensure developers are able to deliver the type of housing stock that meets consumer needs rather than the type of stock that is easiest to deliver.

Regional housing markets

Regional housing markets are volatile, and governments need to ensure an ongoing supply of development-ready land in regional locations. While some states have development agencies that are very active in regional markets, labour shortages, increased costs and general market uncertainty make development in the regions higher risk for the private sector.

Having development-ready land that can quickly be developed in partnership with the private sector is the best solution to rapidly address increasing demand. While this may mean sites sit vacant for a number of years, when demand does pick up, such sites can be brought to the market quickly to avoid the supply vacuums which make regional markets so volatile.

Delivering greater housing diversity in regional areas is also a challenge, given the economics of many markets means higher density development is not financially feasible for the private sector. It will take a partnership between government and the private sector to deliver more diverse housing options, which will help cater for market demand.

Given a long-term policy interest within most states in supporting regional populations and rebalancing population pressures away from major cities, the disruptions caused by COVID—which suddenly increased population and housing demand in many regional areas—illustrate the need for supportive infrastructure and policies to ensure these regional shifts are sustainable. The sudden realisation and impact of a large-scale shift in population toward smaller and medium-sized Australian cities underscores the importance of some version of a national settlement strategy, long argued for.

The private rental market

The contraction in vacancy rates across the country over the last two years has highlighted the volatility of Australia's private rental market. Government has been powerless to address what is termed a rental crisis in many parts of the country, hoping that private sector investment will increase and deliver new supply. Many local markets, particularly in regional areas, have historically low vacancy rates with little change on the horizon.

New supply is required at scale into the private rental market without distorting the rest of the housing system. Incentivising small landlords to purchase established dwellings will only contribute to declining affordability in the ownership market.

With the build to rent sector growing in Australia, government should encourage new private sector investment into larger scale, professionally managed private rental accommodation offering flexible tenancies and potentially greater security. National and state governments should continue to monitor the policy settings necessary to encourage such investment. While governments have committed significant spending to social housing, more is needed to help address the rental crisis and direct investment in the delivery of private rental dwellings must also be considered.

Final remarks

The rapid rise of interest rates has left us unable to answer the question of whether the COVID-19 pandemic has permanently altered patterns of demand and supply. Supply shifted during 2020 and 2021 with a surge in detached dwellings and a collapse of apartment development. Building approval data for the end of 2022 show the level of detached housing development returning to pre-COVID levels while apartment development remains low due to cost issues. An eventual return to pre-pandemic patterns of development seems likely.

COVID-19 drove an increase in demand for established houses and a preference for regional areas and the outer suburbs. The subsequent decline in demand across most of the country, mainly due to interest rate rises and a fall in consumer confidence, means it is difficult to establish what demand patterns will look like once the market stabilises. Will regional areas continue to prove popular as households permanently change working patterns, or will demand ease over time? Will demand for detached dwellings increase, or will affordability pressures result in a return to cheaper, higher-density products? These are questions that will be answered over the coming years, and future research should be conducted to determine whether COVID-19 has driven permanent changes to our housing market five years on from the first case.

For now, what lessons can policy makers learn from the COVID-19 pandemic?

- Demand can change very quickly, so Australia needs a much more responsive housing supply system.
- The current housing supply system can deliver detached housing in the outer suburbs on development ready land within 18 months but cannot respond within an effective timeline on land that requires re-zoning.
- The building stimulus measures had their desired effect but also delivered unintended consequences. These consequences arose for a number of reasons including the structure of the HomeBuilder program, unanticipated demand for stimulus payments, COVID driven supply chain and cost issues and workforce capacity constraints.
- The new dwelling supply pipeline, particularly for higher density products, can be turned off very quickly by rising construction costs. It is far slower to turn back on.
- Supply chains are extremely vulnerable and can quickly cause major delays and dramatically increase project costs.
- Regional housing markets require different policies when compared to capital city markets, as supply is even less responsive to demand shocks. A stock of readily developable land is essential if supply is to respond in such areas.
- The private rental market is broken. Government is powerless to intervene and deliver more supply. Government is almost totally reliant on market conditions improving and attracting new investors to ease the rental crisis.
- The direct provision of social housing is more important than ever, and additional spending is now popular policy.

The study

The research project is designed to address the following four research questions:

- **RQ1:** How have housing markets changed in 5 years since the 2016 census, what are the key components and drivers of change, and what are the implications for low-income households?
- **RQ2:** How have patterns of dwelling supply (spatial pattern, density, structure, tenure) changed since 2016 and to what extent has COVID-19 driven recent supply outcomes?
- **RQ3:** Have households changed what they want from their dwelling as a result of COVID-19, and if so, what are the implications for the economy and housing and urban policy?
- **RQ4:** Have the characteristics of dwelling transactions changed as a result of COVID-19?

We used a mixed methods approach consisting of secondary data analysis and interviews with key industry stakeholders. The release of 2021 census data provided the opportunity to analyse the five-year change in housing markets building on previous work by Rowley, Gilbert et al. (2020). Using the ABS table builder pro, we analysed census data at the state and capital city/rest of state levels to examine changes in housing stock and housing diversity. Again, building on Rowley, Gilbert et al. (2020), we examined changes to dwelling supply using ABS data on dwelling commencements, completions and building approvals. We calculated the change in dwelling supply across two periods; the first pre-COVID-19 (2017-2019) and the second during the pandemic (2020-2022), to identify the extent to which dwelling supply patterns had shifted across these periods. We mapped the outcomes to identify patterns of supply.

To assess housing market changes attributable to COVID-19, we analysed housing market outcomes using data from the ABS and CoreLogic and then conducted interviews with real estate agents and new home builders to unpick whether housing market outcomes have been driven by changes in consumer preferences. Seventeen Interviews were conducted in two case study states; Victoria and WA, two states that went through very different experiences during the pandemic. The location of the housing markets within which our industry experts operated was determined by our market analysis which identified locations subject to the greatest disruption.

Finally, for our two case study states, we used data on individual transactions to calculate whether the characteristics of dwellings, such as dwelling type, size and location, had changed due to COVID-19. To do this, we again used a variety of statistical techniques to test whether COVID-19 had affected actual patterns of transactions.

1. Introduction

- **This research is designed to examine the impact of COVID-19 on housing demand and supply.**
- **The onset of COVID-19 brought about unprecedented changes to the Australian economy, including the housing market. Whether these changes are temporary or permanent is discussed in this report.**
- **Dwelling price increases during the COVID-19 period were predominantly driven by a raft of policies used to simulate the housing market, coupled with historically low interest rates designed to lessen the economic and social impact of COVID-19.**
- **The research uses a mixed methods approach consisting of secondary data analysis and interviews with key industry stakeholders to examine whether COVID-19 has driven permanent changes to Australia's housing markets.**

1.1 Housing markets and COVID-19

The onset of COVID-19 brought about unprecedented changes to the Australian economy, including the real estate market. Housing is generally an Australian household's most significant store of financial wealth. The Australian Bureau of Statistics (ABS) valued residential property at nearly AUD$10 trillion in the June 2022 quarter, more than four and a half times the annual Gross Domestic Product (ABS 2022a). Therefore, a sudden decline in housing prices, and potential loss of equity, will cause a substantial adverse effect on the national economy and an individual's financial wellbeing.

Australia recorded its first case of COVID-19 in late January 2020. The Australian Government, responsible for national border security, limited international travel and, on 29 March 2020, introduced a suspension of all non-essential gatherings (DoH 2020a). At the same time, state governments brought in 'lockdown' policies of various lengths and severity to reduce the movement of people and the virus transmission within Australia. Thus, COVID-19 provided a natural experiment on the effects of reduced mobility on the Australian housing market.

The strict shelter-in-place policies during the June 2020 quarter led to a decline in consumption and increased savings in Australia (ABS 2022b), consistent with Baker, Farrokhnia et al. (2020)'s findings in the US. The subsequent decrease in economic growth led Australia to enter recession during the March and June 2020 quarters, the first recession in nearly 30 years.

Due to the initial economic uncertainty from COVID-19, financial institutions forecast housing prices to fall dramatically. The Commonwealth Bank of Australia predicted a worst-case scenario drop of 32 per cent nationally in May 2020 (ABC 2020). Although there were initial declines in house prices during the first half of 2020, the magnitude of these early forecasts proved inaccurate.

To counter the anticipated increase in unemployment and reduction in economic growth, the Reserve Bank of Australia (RBA) loosened monetary policy, reducing the cash rate to 0.1 per cent, the lowest rate in Australian history. At the same time, the national and state governments introduced a raft of fiscal stimulus policies. These policies ranged from housing construction grants to income support measures, including the doubling of JobSeeker and implementing JobKeeper payments, to housing loan deferrals, prohibitions on rent increases and eviction moratoria.

The Australian Government launched the initial HomeBuilder Program on 4 June 2020 to support jobs in the residential construction sector (Prime Minister of Australia 2020), offering eligible citizens a $25,000 grant towards renovations to an existing dwelling or a new home build, with the program to finish on 31 December 2020. The program was designed to complement the current states' first home owner grants programs and the Australian Government's First Home Loan Deposit Scheme ($10,000). Rowley, Crowe et al. (2020) and Leishman, Aminpour et al. (2022) provide a full review of the housing stimulus measures implemented by state and Australian governments.

The onset of COVID-19 led national property prices to a relatively minor decline of 2.1 per cent between April 2020 and September 2020 (ANZ 2021). The fall was well below many of the forecasts in the media at that time. According to Hu, Lee et al. (2021), the volume of COVID-19 cases caused the initial price decrease.

Following the initial decline in values, house prices surged, and by February 2022, national prices had grown by 24.6 per cent since the pandemic's beginning (ANZ 2022). KPMG Economics reported that the increase in property prices during COVID-19 was greater in all Australian capital cities than an estimated value assuming the absence of COVID-19 (KPMG 2021).

> KPMG's analysis shows that house prices are expected to be between 4 per cent and 12 per cent higher and unit values are expected to be between 0 per cent and 13 per cent higher than would have been the case in the absence of COVID-19. (KPMG 2021:11)

The report cites lower mortgage interest rates as a critical factor in price growth but does not comment on the role of changed consumer preferences.

The KPMG Economics study concluded that the COVID-19 driven gain in unit prices was considerably less than houses (KPMG 2021). Pawson, Martin et al. (2021) identified a clear shift in demand from apartments to houses and from cities to regional locations, which offers some explanation for the differences in price growth.

The increased preference for houses and regional locations led to uneven price growth distribution throughout Australia. CoreLogic (ANZ 2022) reported a record-high 29.8 per cent difference between the median unit and median house prices in February 2022, up from 8.5 per cent at the beginning of the pandemic, demonstrating a strong tendency away from units and towards detached dwellings. The Bank of England (2022) reported similar findings in the UK.

Regional locations increased in popularity, recording increased levels of demand and listings much lower than historic trends. These high levels of demand and low supply led to the combined regions' home value index rising by 36.5 per cent versus the combined capital cities' 21.4 per cent (CoreLogic 2022a). However, the regional markets have recently softened, with house values in 22 of the 25 non-capital city regions falling in the three months to October 2022 as higher mortgage interest rates contribute to lower demand (CoreLogic 2022a).

These property price increases were predominantly driven by policies designed to stimulate the housing market coupled with historically low interest rates aimed to lessen the economic and social impact of COVID-19. Stimulus policies aimed at the housing industry were effective in boosting the housing industry, thus contributing to economic growth (Rowley, Crowe et al. 2020), yet led to a number of unintended consequences in certain states (Leishman, Aminpour et al. 2022).

The KPMG HomeBuilder National Partnership Agreement (NPA) Review identified 'overheating' in the residential construction industry, partly due to the HomeBuilder NPA (KPMG 2022). Leishman, Aminpour et al. (2022) identified that greater than anticipated demand for the grants significantly contributed to a shortage of land, labour and materials, construction cost increases and delays.

Broader supply chain issues, state residential construction grants, and other fiscal stimulus policies were also contributing factors (KPMG 2022). Ultimately the effectiveness of the HomeBuilder rollout was shown by the demand for financial grants exceeding initial expectations. The Treasury (2022) reported 137,755 HomeBuilder applications and a total of $2.1 billion in grant payments. This figure vastly exceeded the expected payments of $688 million (Hayne and Conifer 2020). Approximately 80 per cent of the applications were for new builds, while 20 per cent were for renovations (Treasury 2022).

The effect of COVID-19 on the housing market was not limited to the fiscal and monetary stimulus impact on dwelling purchase and construction. The closure of many service businesses led to weak market conditions and reduced incomes, increasing mortgage stress and housing precariousness. JobKeeper and JobSeeker supplementary payments to workers affected by COVID-19 were instrumental in paying mortgages and rent (Leishman, Aminpour et al. 2022). Initially, only 7.7 per cent of recipients primarily used the revenue for mortgages or rents; however, this figure increased to 43 per cent by March 2021. The major Australian lenders also provided forbearance to over 480,000 mortgages and were deemed highly effective (Leishman, Amanpour et al. 2022).

In the private rental market, all states' capital cities experienced an initial downturn in the June 2020 quarter due to the shocks to demand and supply (Evans, Rosewall et al. 2020; Martin 2021). The income reduction encouraged households to consolidate and lessened rental property demand. NSW rental bond claims increased 17 per cent year-on-year in the 2020 second quarter, demonstrating the reduction in tenancies. (Pawson, Martin et al. 2021).

The closure of international borders slowed the intake of international students and migrants who prefer to rent, further increasing supply and vacancy rates (Evans, Rosewall et al. 2020; Pawson, Martin et al. 2021; Martin, Sisson et al. 2021). Vacancy rates in the inner city suburbs of Sydney and Melbourne were particularly affected, with these cities being major destinations for international students and workers (Martin, Sisson et al. 2021).

The closure of international borders and restricted movement of people interstate also impacted tourism, particularly the short-term rental (STR) market. Airbnb listings decreased by 40,000 nationwide between February and May 2020 (Evans, Rosewall et al. 2020). Suburbs in Hobart, with higher density STRs, experienced increased rental affordability with the decline of overseas and interstate tourists (Buckle and Phibbs 2021). Sydney had a similar experience with long-term rental supply increasing as STRs decreased, with rental prices declining by up to 7.1 per cent as Airbnb numbers fell proportionately (Thackway and Pettit 2021). The increase in the supply of rentals and decrease in the vacancy rate led national rents to a mild decline of 0.8 per cent from the start of the pandemic to August 2020 (ANZ 2022).

Despite the initial downturn in the rental market, it was feared that the weak labour market would lead to widespread rent arrears and evictions, even with JobKeeper payments (Martin 2021). Although the forecasted high levels of unemployment did not eventuate, the lockdowns disproportionately impacted public-facing workers who are more likely tenants (Baker, Daniel et al. 2022a). Younger people in the casualised 'gig' economy are also more likely to be renters but are not entitled to JobKeeper payments and, therefore, are particularly disadvantaged (O'Keefe, Johnson et al. 2022).

To counter the prospect of lease terminations, the National Cabinet introduced prohibitions on rent increases and eviction moratoriums in March 2020. Most state jurisdictions also introduced rent relief schemes. These policies produced varied reactions and modest outcomes, with private landlords and agents expected to negotiate with tenants leading to a non-systemic response (Baker, Daniel et al. 2022a). Of the minority of renters who suffered an income loss, only 8 to 16 per cent received a rent variation (Martin 2021; Leishman, Aminpour et al. 2022).

Since the initial downturn in the rental market, vacancy rates have fallen across the country, and rents have risen as a result (ANZ 2022). While supply contracted, several factors contributed to changing patterns of household formation, including the dissolving of share houses due to COVID lockdowns, the increase in overseas migration as the borders opened, and long-term rentals transitioning to short-term holiday rentals with the return of international tourism (AHURI 2022).

In summary, COVID-19 disrupted the normal operation of the housing market. In March 2022, CoreLogic (2022b) discussed six ways COVID-19 shaped the housing market. The article was published before interest rate rises drove a decline in the majority of Australia's capital city markets. COVID-19 increased first home buyer activity due to the HomeBuilder and other available national and state grants and concessions (see Leishman, Aminpour et al. 2022 for a review) and household borrowing on housing rose to record levels as market activity surged in 2020/21 on the back of record low interest rates.

While first home buyer activity increased, it did not ease short-term demand pressures in the rental market due to the time taken to construct new dwellings. CoreLogic (2022b) cited several reasons for increased rents, including subdued levels of new supply and an increase in short-term letting once borders reopened, and added to this is limited evidence of changing household formation patterns (AHURI 2022).

CoreLogic (2022b) identified a growing gap between the prices of houses and units, likely the result of shifting patterns of demand and accelerated price growth in the regions, again due to demand changes and increased rates of working from home.

This project aims to shed more light on changing patterns of demand and supply via analysis of secondary data supplemented with qualitative work featuring stakeholders who have been active within housing markets during the COVID-19 period. The report will discuss whether the market changes discussed above are permanent or simply a reaction to various market factors in play during the COVID-19 period.

For example, to what extent did regional areas see greater market changes than capital city areas, as observed by Li and Zhang (2021) in the US and Pawson, Martin et al. (2022) in Australia, and have markets changed since COVID-19 has become less impactful? Have dwelling transaction patterns actually changed in the 'race for space' (Pawson, Martin et al. 2022) as identified in the UK by the Bank of England (2022) or has the lack of housing diversity and availability meant a lack of choice stifled such change? Finally, have the significant interest rate rises of 2022 actually reset the housing market to one where affordability dominates decisions, and housing markets are trending back to pre-COVID outcomes?

1.2 Research methods

The research project addresses the following four research questions:

- **RQ1:** How have housing markets changed in 5 years since the 2016 census, what are the key components and drivers of change, and what are the implications for low-income households?
- **RQ2:** How have patterns of dwelling supply (spatial pattern, density, structure, tenure) changed since 2016 and to what extent has COVID-19 driven recent supply outcomes?
- **RQ3:** Have households changed what they want from their dwelling as a result of COVID-19, and if so, what are the implications for the economy and housing and urban policy?
- **RQ4:** Have the characteristics of dwelling transactions changed as a result of COVID-19?

We used a mixed methods approach consisting of secondary data analysis and interviews with key industry stakeholders. The release of 2021 census data provided the opportunity to analyse the five-year change in housing markets, building on previous work by Rowley, Gilbert et al. (2020). Using the ABS table builder pro, we analysed census data at the state and capital city/rest of state levels to examine changes in housing stock and housing diversity.

Again, building on Rowley, Gilbert et al. (2020), we examined changes to dwelling supply using ABS data on dwelling commencements, completions and building approvals. We calculated the change in dwelling supply across two periods; the first pre-COVID-19 (2017–2019) and the second during the pandemic (2020–2022), to identify the extent to which dwelling supply patterns had shifted across these periods. We mapped the outcomes to identify patterns of supply.

To assess housing market changes attributable to COVID-19, we analysed housing market outcomes using data from the ABS and CoreLogic and then interviewed real estate agents and new home builders to unpick whether housing market outcomes have been driven by changes in consumer preferences. Seventeen interviews were conducted in two case study states: Victoria and WA. The location of the housing markets our industry experts operated in was determined by our market analysis which identified locations subject to the greatest disruption.

Victoria and WA were chosen as the case study states because they went through very different experiences during the pandemic, so this helped test whether longer lockdowns were associated with greater changes to patterns of demand. The experiences of both states, within metropolitan and regional areas, are applicable to the rest of the country based on broad demand (price and rent) and supply (building approvals) outcomes identified across the country through various data sources.

Finally, for our two case study states, we used data on individual transactions to calculate whether the characteristics of dwellings, such as dwelling type, size and location, had changed due to COVID-19. To do this, we again used a variety of statistical techniques to test whether COVID-19 had affected actual patterns of transactions.

The report is organised into five chapters covering supply, demand, the drivers of local market activity, patterns of transactions and, finally, a discussion of the policy issues emerging from the research.

2. Housing supply

- **Around 1.7 million dwellings were added to total stock between 2011 and 2021.**
- **At building rates equivalent to the last decade, it will take around six years to deliver 1 million additional dwellings. It should be noted that the ten-year period 2011-2021 included development booms in a number of states.**
- **In terms of housing diversity, ownership rates continue to fall (although to a lesser extent in regional areas), and the number of larger houses is increasing at the expense of three-bedroom dwellings.**
- **The COVID-19 stimulus measures delivered an increase in the supply of houses in most states while the rate of 'other residential' supply fell. The location of the supply increases was uneven, but generally in outer urban areas.**
- **Increased construction costs, higher interest rates, the pulling forward of demand and lower consumer confidence will likely result in a period of low supply growth.**

Industry, government and academics are in general agreement that Australia needs to increase new housing supply in order to address housing affordability. The National Housing Finance and Investment Corporation's national housing report (NHFIC 2022) projected a housing shortfall of 163,400 dwellings between 2025 and 2032, equating to an annual deficit of around 20,000 per annum (or 10 per cent of annual supply). On top of this estimated future market supply shortfall, given rates of predicted household formation, a number of studies have calculated the current and projected shortages of social and affordable housing. These include:

- A shortfall of 727,300 social dwellings over 2016–2036 (Troy, van den Nouwelant et al. 2019).
- Unmet housing need of 640,000 Australian households projected to grow to 940,000 households by 2041 (van den Nouwelant, Troy at al. 2023).
- Estimated additional social housing demand to 2037 of 547,036 dwellings (AHURI 2023).
- 1.7 million households projected to be in housing need due to unaffordable rents by 2025 (Rowley, Leishman et al. 2017).

Increasing the supply of housing in both the ownership and rental markets will have a positive impact on house prices and rents, assuming constant demand. There are proponents that argue the most effective way to increase supply is by reforming the planning system, making it less restrictive, and that will result in the private sector delivering more housing (Commonwealth of Australia 2022). Others argue that planning reform on its own will not automatically result in a significant increase in supply as there are many other factors that determine whether the private sector will deliver housing on a particular site (Rowley, Leishman et al. 2022).

Australia is almost totally reliant on the private sector to deliver housing supply, with the key driver of supply being market conditions, which are largely outside government control (Rowley, Leishman et al. 2022). While increasing the availability of sites, particularly if they are well located, will almost certainly result in new housing as new areas are opened up to profitable development, not all sites will be profitable—the key condition for development. In a strong market, supply will increase, and we have seen many construction boom periods in Australia (e.g. NSW in 2017–2019, WA 2013–2015), showing the market can respond to increased demand, assuming it has the capacity.

The problem with housing supply is that it can collapse very quickly if demand is falling, banks stop lending, and construction costs are rising. The cyclical nature of supply is a major factor in explaining the volatility of house prices.

The recent announcement by the Australian Government of a national housing accord that aims to build 1 million dwellings by 2030[1] relies almost totally on the private sector to deliver these dwellings. This is possible in a strong construction market but very difficult in an environment where interest rates are rising, house prices are falling, and consumer confidence is low.

This chapter explores what has happened to housing supply over the last decade, charting periods of expansion and contraction, and also examines to what extent housing diversity has increased over time. Crucially for this report, we look at the impact of COVID-19 on recent patterns of supply and explore whether there have been any major shifts over time.

2.1 New dwelling stock

The simplest, and most accurate, way to examine changes to new dwelling supply is to analyse dwelling stock changes as recorded by the ABS census. Changes over time provide the net increase or decrease in stock in a given location. Table 1 reports changes to dwelling stock by states and territories over the ten years to 2021. Around 1.7 million dwellings were added to total stock, although far more than 1.7 million dwellings were actually completed, as the net figure accounts for stock removed from the market. ABS dwelling completion data records around 1.9 million completions resulting in a demolition rate of approximately 12 per cent.

The housing accord target of 1 million dwellings by the end of the decade would actually deliver around 880,000 dwellings assuming a similar development pattern. At development rates equivalent to those of the past decade, it would take around six years to deliver 1 million new dwellings. It should be noted that the ten-year period 2011–2021 included development booms in a number of states, including the two biggest—NSW and Victoria.

Looking at the relative share of new stock in Table 1, Victoria and Queensland have increased their share of total stock slightly. Although not included in the table, ACT actually saw the biggest relative growth in supply. South Australia and Tasmania lag behind in terms of new development.

1 https://www.theguardian.com/australia-news/2022/oct/25/australia-federal-budget-2022-jim-chalmers-announce-national-housing-accord-to-build-1m-homes

Table 1: Dwelling stock changes

	2011 stock	Proportion of total stock (%)	2021 stock	Proportion of total stock (%)	Change based on relative share of 2011 stock
NSW	2,864,532	31	3,357,780	31	0.98
VIC	2,277,971	25	2,805,664	26	1.03
QLD	1,826,453	20	2,190,415	20	1.01
SA	727,678	8	806,978	7	0.93
WA	960,719	11	1,147,855	11	1.00
Australia	9,116,138		10,850,036		1

Source: ABS Table builder pro, 2021 census

Table 2 splits the analysis into capital cities and rest of state and highlights how the relative share of rest of state locations has fallen over the ten-year period. While the stock in capital cities has generally increased by more than 2 per cent net per annum, with the exception of Greater Adelaide, new supply in rest of state areas has been between 1 and 1.7 per cent, so lagging well behind.

Table 2: Stock changes by greater capital city statistical areas

Greater Capital City Statistical Areas	2011 Stock	2021 Stock	10 year change	10 year change (%)	Change based on relative share of 2011 stock
Greater Sydney	1,720,334	2,076,284	355,950	21	1.01
Rest of NSW	1,144,198	1,281,496	137,298	12	0.94
Greater Melbourne	1,636,170	2,057,482	421,312	26	1.06
Rest of VIC	641,801	748,182	106,381	17	0.98
Greater Brisbane	821,062	1,016,682	195,620	24	1.04
Rest of QLD	1,005,391	1,173,733	168,342	17	0.98
Greater Adelaide	533,512	593,881	60,369	11	0.94
Rest of SA	194,166	213,097	18,931	10	0.92
Greater Perth	726,004	882,374	156,370	22	1.02
Rest of WA	234,715	265,481	30,766	13	0.95
Australia	9,116,130	10,850,036	1,733,915	19	1

Source: ABS Table builder pro, 2021 census

Table 3 provides an indication of the balance between population growth and new dwelling stock. Generally, the percentage growth in dwelling stock has exceeded the percentage growth in population, although there are exceptions, including South Australia. What the analysis doesn't show is changes to average people per dwelling. If there are fewer persons per dwelling, then the new housing stock has to exceed rates of population growth to accommodate smaller household sizes.

For example, in Greater Sydney the average people per household dropped from 2.8 in 2016 to 2.7 in 2021. This means 35,700 dwellings were required to accommodate population growth of 100,000 in 2016 but 37,000 in 2021, an increase of 3.7 per cent. Greater capital city locations saw the following changes in persons per household from 2016–2021:

- Greater Sydney: 2.8 to 2.7
- Greater Melbourne: 2.7 to 2.6
- Greater Brisbane: 2.7 to 2.6
- Greater Adelaide: no change at 2.5
- Greater Perth: no change at 2.6.

Table 3: Population and dwelling stock changes

		5 year growth		10 year growth	
	Population	Population (%)	Stock (%)	Population (%)	Stock (%)
New South Wales	8,069,984	7	9	16	17
Victoria	6,472,911	9	11	21	23
Queensland	5,210,647	8	10	17	20
South Australia	1,776,877	6	5	12	11
Western Australia	2,676,904	6	7	18	19
Total	**25,484,647**	**7**	**9**	**17**	**19**

Source: ABS Table builder pro, 2021 census

As noted above, household structures change over time, and so, therefore, does the type of product demanded, so some products and locations will be in greater demand than others. Table 4 considers changes across different household structures. The table identifies the change in the number of households by capital city and rest of state (so the table shows 410,000 additional households across Greater Sydney between 2016 and 2021, or 9.1 per cent) and also the change in each of the six broad household structures.

The most common structure is a one-family household containing just family members[2]. The next most common is the lone person household[3]. Traditionally, these household structures would demand different products, usually, a detached house for a family and an apartment for a lone person, although there are certainly overlaps. If the growth of households (those formed and those unable to form) exceeds the supply of a suitable product type, one would expect prices to rise.

The table identifies different patterns of household growth by location. For example, strong growth of one-family households in greater capital cities and weaker in rest of state locations, while lone person households have grown strongly in both capital cities and rest of state. The number of group households has generally fallen within capital cities, while multiple family households have seen strong growth from a small base. The table identifies how the growth in household types is uneven, and thus housing supply needs to adjust to such changing patterns.

2 A family is defined by the ABS as 'two or more persons, one of whom is at least 15 years of age, who are related by blood, marriage (registered or de facto), adoption, step or fostering, and who are usually resident in the same household.'
3 A lone person households in defined by the ABS as 'Any private dwelling in which there is only one usual resident at least 15 years of age.'

Table 4: Changes in household structure (number of households)

5 year change (number of households)	One family household with only family members present	One family household with non-family members present	Two family household	Three or more family household	Lone person household	Group household
Greater Sydney (410,337, 9.1%)	354,907 (10.3%)	- 11,153 (-5.1%)	6,352 (2.4%)	2,236 (11.2%)	65,238 (17.1%)	-7,253 (-3.7%)
Rest of NSW (204,187, 8.5%)	129,240 (6.9%)	17,258 (21.9%)	19,419 (26.9%)	2,060 (72.6%)	27,118 (9.3%)	9,088 (12.4%)
Greater Melbourne (439,438, 10.5%)	362,515 (11.1%)	- 4,009 (-2.4%)	17,730 (10.7%)	2,084 (21.2%)	67,391 (17%)	- 6,268 (-3.2%)
Rest of Vic. (155,949, 12.1%)	107,755 (10.6%)	10,006 (30.2%)	11,810 (49.7%)	805 (106.5%)	21,379 (12.8%)	4,198 (10.9%)
Greater Brisbane (245,168, 12%)	200,995 (12.9%)	-122 (-0.1%)	15,571 (17.7%)	1,602 (31.4%)	38,559 (20.4%)	- 2,449 (-2.4%)
Rest of Qld (183,789, 8.4%)	114,793 (6.8%)	14,975 (16.7%)	21,697 (29.9%)	1,883 (40.6%)	25,843 (10.9%)	4,594 (5.6%)
Greater Adelaide (100,254, 8.3%)	70,487 (7.4%)	6,021 (14.8%)	9,712 (33.2%)	594 (52.9%)	12,073 (8.4%)	1,363 (2.9%)
Rest of SA (12,801, 3.8%)	5,043 (1.9%)	890 (11.3%)	2,321 (39.5%)	26 (4.8%)	3,867 (8.1%)	662 (8.7%)
Greater Perth (172,906, 9.6%)	142,159 (10%)	-7,973 (-11.3%)	7,066 (12%)	217 (6.6%)	34,181 (20%)	- 2,757 (-4.2%)
Rest of WA (9,857, 2.2%)	1,197 (0.3%)	763 (5.6%)	2,114 (16.1%)	15 (1%)	5,473 (11%)	274 (2.4%)

Source: ABS Table builder pro, 2021 census

2.2 Housing diversity

Given changing patterns of household structure, has housing diversity increased over the last decade to provide alternative products, tenures and sizes? This chapter examines this questions through an analysis of changing patterns of dwelling characteristics using ABS census data.

Table 5a: Change in tenure - capital cities

	Greater Sydney %	Greater Melbourne %	Greater Brisbane %	Greater Adelaide %	Greater Perth %
10 year change					
Owned outright	-3.0	-3.3	-1.6	-1.0	-1.1
Owned with mortgage	-1.8	0.0	-0.9	0.2	1.6
Rented	4.7	3.4	2.5	0.6	-0.4
Other	0.2	0.1	0.0	0.3	-0.3
5 year change					
Owned outright	-1.8	-1.1	-0.9	-0.1	0.1
Owned with mortgage	-0.4	0.5	0.0	0.2	-0.5
Rented	2.1	0.5	0.8	-0.2	0.4
Other	0.0	0.1	0.1	0.2	-0.1

Source: ABS Table builder pro

Table 5b: Change in tenure - rest of state

	Rest of NSW %	Rest of VIC %	Rest of QLD %	Rest of SA %	Rest of WA %
10 year change					
Owned outright	-0.1	0.6	1.1	1.9	1.0
Owned with mortgage	-0.1	-0.3	0.2	-1.2	0.9
Rented	0.2	0.1	-0.9	-0.6	-1.0
Other	0.0	-0.2	-0.4	0.0	-0.7
5 year change					
Owned outright	0.0	1.1	1.2	1.8	1.3
Owned with mortgage	0.1	-0.5	0.4	-1.4	-0.1
Rented	-0.2	-0.6	-1.6	-0.7	-1.1
Other	0.1	-0.1	0.0	0.2	-0.1

Source: ABS Table builder pro

The decline in the rates of home ownership over the last decade has been well documented (AIHW 2022), with ownership falling from 70 per cent in 2006 to 67 per cent in the 2021 census. The decline has been fastest in younger cohorts (AIHW 2022).

Table 5a and Table 5b examines tenure change by location, identifying different patterns across and within states. Unsurprisingly, the most expensive capital cities, Sydney and Melbourne, have seen the biggest declines in ownership over ten years, with the cheaper capital cities faring much better. Renting has increased to offset the declines in ownership. In other locations, home ownership has actually increased in every state outside NSW, although ownership increased in regional NSW during the last five years. High ownership rates are a combination of an older demographic and the relative affordability of regional locations. Ownership in rest of state locations has been given a boost through population shifts driven by COVID-19, which will be discussed in the next chapter.

Another aspect of housing diversity is size, for which we use the number of bedrooms as a proxy. Table 6 identifies that the biggest changes have been in the form of a decline in the number of three-bedroom dwellings and a rise in larger dwellings. This is not great news in terms of diversity and runs contrary to the housing aspirations of households identified by Stone, Rowley et al. (2020) where the three-bedroom house was the most preferred house size.

Patterns are broadly consistent across states, with marginal increases in the proportion of smaller dwellings and a big increase in four-bedroom dwellings at the expense of three-bedrooms. This suggests the redevelopment of many three-bedroom dwellings into larger houses and particularly notable is this shift in all regional areas. For a growing cohort of single person households, there has been little change in the proportion of one and two-bedroom products, with Sydney and Brisbane exceptions.

Table 6a: Change in number of bedrooms - capital cities

	Greater Sydney %	Greater Melbourne %	Greater Brisbane %	Greater Adelaide %	Greater Perth %
10-year change					
None	0.0	-0.2	0.0	0.0	-0.1
One bedroom	1.5	0.7	1.0	-0.3	0.2
Two bedrooms	0.6	0.3	0.7	-1.8	-0.5
Three bedrooms	-6.1	-6.3	-5.5	-1.7	-1.7
Four bedrooms	1.5	4.1	2.0	2.8	1.4
Five bedrooms	2.0	1.2	1.5	0.8	0.6
Six bedrooms or more	0.5	0.1	0.4	0.2	0.1
5-year change					
None	0.1	-0.1	0.0	0.0	0.0
One bedroom	0.7	0.0	0.7	-0.1	0.2
Two bedrooms	0.6	-0.2	0.6	-0.8	0.3
Three bedrooms	-3.3	-3.1	-3.1	-1.0	-0.6
Four bedrooms	0.7	2.7	0.9	1.5	-0.1
Five bedrooms	1.0	0.7	0.7	0.4	0.2
Six bedrooms or more	0.2	0.0	0.2	0.1	0.0

Source: ABS Table builder pro

Table 6b: Change in number of bedrooms - rest of state

	Rest of NSW %	Rest of VIC %	Rest of QLD %	Rest of SA %	Rest of WA %
10-year change					
None	0.0	0.0	0.0	0.2	0.0
One bedroom	0.1	-0.4	0.1	0.1	0.5
Two bedrooms	-1.2	-1.5	-0.5	-1.2	-0.7
Three bedrooms	-4.1	-4.6	-4.1	-3.0	-3.1
Four bedrooms	3.6	5.5	3.2	3.1	2.5
Five bedrooms	1.3	0.8	0.9	0.9	0.5
Six bedrooms or more	0.4	0.1	0.3	0.1	0.2
5-year change					
None	0.0	0.0	0.1	0.1	0.5
One bedroom	0.1	-0.1	0.3	0.4	0.9
Two bedrooms	-0.6	-1.1	-0.1	-0.5	-0.4
Three bedrooms	-2.3	-2.6	-2.3	-1.8	-1.5
Four bedrooms	1.9	3.2	1.3	1.5	0.1
Five bedrooms	0.7	0.5	0.5	0.3	0.2
Six bedrooms or more	0.2	0.1	0.2	0.1	0.2

Source: ABS Table builder pro

Finally, Table 7 examines dwelling structure. Ten-year changes are not included, as the way data were collected across the 2011 and 2016 census collections changed. In Sydney, Melbourne and Brisbane, there have been increases in large scale apartment developments (four storeys or more), which has contributed to a small increase in the proportion of one and two-bedroom stock in these locations. While the proportion of separate houses declined in all capital cities over ten years, Adelaide and Perth saw an increase between 2016 and 2021, and this was before the completion of many of the separate houses built as part of the HomeBuilder stimulus. In rest of state areas, there has been little change in the stock profile in the last five years.

Table 7a: Change in dwelling structure - capital cities

	Greater Sydney %	Greater Melbourne %	Greater Brisbane %	Greater Adelaide %	Greater Perth %
5-year change					
Separate house	-1.7%	-1.2%	-3.1%	0.2%	1.0%
Semi-detached, row or terrace house, townhouse	-1.3%	-0.7%	1.3%	-0.6%	-2.0%
Flat, unit or apartment up to four storeys	-1.5%	-0.8%	-0.8%	-0.3%	0.0%
Flat or apartment in a four or more storey block	4.4%	2.7%	2.7%	0.7%	0.9%
Other	0.2%	-0.1%	0.0%	0.0%	0.2%

Source: ABS Table builder pro

Table 7b: Change in dwelling structure - rest of state

	Rest of NSW %	Rest of VIC %	Rest of QLD %	Rest of SA %	Rest of WA %
5-year change					
Separate house	0.1%	0.8%	-0.7%	0.4%	-0.4%
Semi-detached, row or terrace house, townhouse	0.8%	0.5%	1.0%	0.7%	1.1%
Flat, unit or apartment up to four storeys	-0.7%	-1.1%	-0.8%	-0.5%	-0.8%
Flat or apartment in a four or more storey block	0.4%	0.0%	1.2%	0.0%	0.1%
Other	-0.6%	-0.2%	-0.7%	-0.6%	-0.1%

Source: ABS Table builder pro

Generally, housing diversity has not increased significantly across the ten-year and five-year periods. The biggest shift is a reduction in three-bedroom dwellings, which are, traditionally, entry level home-ownership products for families. As we will see in the next section, many states have seen the majority of their new housing supply on the edges of capital cities, and this has led to the growth in larger products, while new apartments have dominated in the inner areas of Sydney, Melbourne and Brisbane.

2.3 New and established dwelling supply

Broadly there are two types of dwelling supply: the supply of established dwellings (listings for sale) and the supply of new dwellings (houses and apartments newly constructed). The supply of new dwellings adds to stock (around 2% per year, as identified above), while median prices are determined through the trading of established dwellings (although there are exceptional circumstances where new supply could impact local median prices, large scale apartment development for example).

The supply of established dwellings is determined by owners electing to sell, and if demand is high and the availability of dwellings for sale is weak, then prices will increase. New housing supply can make a difference to this equation over time by adding to stock but also providing an alternative to buyers, i.e. buying a new apartment or building a new house instead of purchasing an established dwelling.

It is therefore important to understand patterns of new housing supply—periods of weak supply will mean fewer opportunities for consumers and, if demand is constant, stronger price growth. While this is a very simplistic description, basic economics determines that if there is less supply, prices will rise. What determines the level of new supply is complex and is discussed in detail by Rowley, Leishman et al. (2022).

Established dwelling supply

The supply of established dwellings is recorded in new listings data, or dwellings for sale, by organisations such as CoreLogic and state-based real estate institutes. These data record the number of dwellings for sale on the market, usually on a monthly flow basis.

National listings for sale peaked in 2018, coinciding with a fall in dwelling prices CoreLogic (2022b). After 2018, listings declined before peaking again in 2019, then trending downwards from 2020. The decline in listings during the COVID-19 period is attributable primarily to the increased demand stemming from low interest rates, while construction delays and increased building costs increased the demand for established dwellings. The lack of listings created a vicious cycle of potential homeowners not going to market because of a lack of options to buy once they sell and a very tight rental market meant renting in between dwellings was difficult. Locations that experienced increased demand due to high levels of migration also generally saw a decrease in listings as stock was absorbed and not replaced.

The decline in national listings from early 2020 to early 2022 was not uniform with considerable variation between capital houses and units (CoreLogic 2022b). Generally, house listings declined at a greater rate than units. Furthermore, the cities that reported the more significant falls in listings also recorded higher COVID-19 troughs to peak in property price growth (see Figure 1). The general patterns are described below:

- Sydney house and unit listings experienced large monthly fluctuations but recorded a moderate decline in house listings, while unit listings remained flat.
- Melbourne was an exception with houses listed for sale remaining flat, and unit listings increasing over the COVID-19 period. Melbourne reported the lowest COVID-19 trough-to-peak price growth of 17.3 per cent.
- Brisbane house listings declined by more than 40 per cent and unit listings by more than 30 per cent. Brisbane experienced high levels of positive interstate migration, particularly from Melbourne and Sydney, and this was reflected in the steep decline in houses and units for sales.
- Adelaide recorded similar declines in house and unit listings to Brisbane and the highest trough-to-peak price growth of 44.7 per cent.
- While Perth recorded a downward trend in house listings not dissimilar to Adelaide, unlike Adelaide, Perth had approximately 50 per cent more house listings per capita at the start of the pandemic so price growth was weaker. Furthermore, unit listings in Perth demonstrated a steep increase from early 2020 to early 2022.

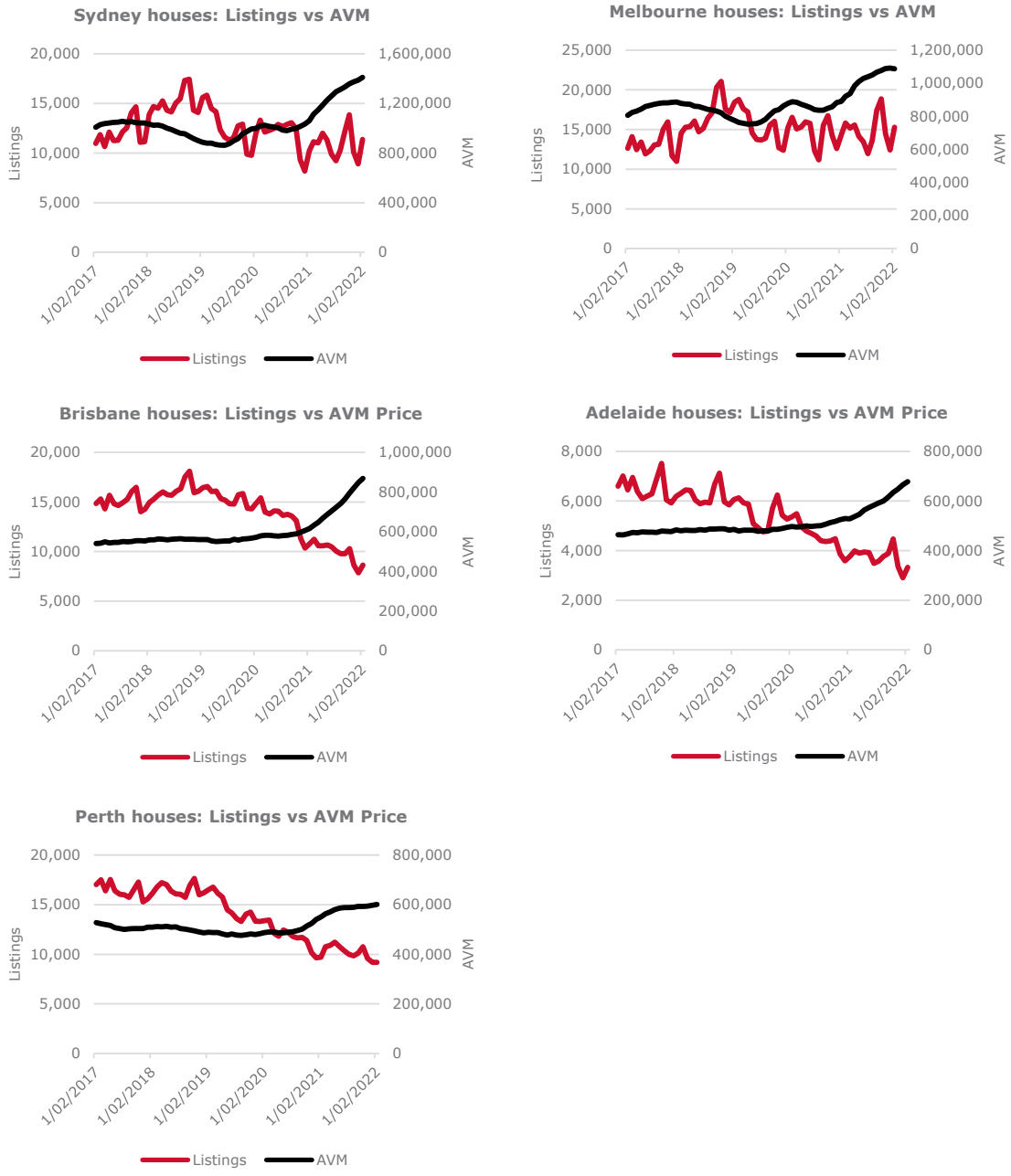
Despite the RBA's decision to increase the cash rate throughout 2022, listings nationally have declined further. New listings in the first four weeks of 2023 were 20.3 per cent lower than the same period in 2022, while listings for sale are 2.9 per cent lower[4]. Even though listings have declined and remained low, the rapid increase in interest rates has restricted borrowing capacity, leading to national price declines in 2022.

4 https://www.corelogic.com.au/news-research/news/2023/will-low-listings-persist-into-2023

There is an imperfect relationship between listings and prices. Using CoreLogic data purchased for this project, we map the number of listings against price (using CoreLogic's AVM). Figure 1 presents some examples, and some locations show an inverse relationship where an increase in supply is accompanied by a fall in price, while others show listings increasing with price.

This is possible as consumers rush to sell to take advantage of rising prices coupled with demand being strong enough to absorb this new supply. So while new listings are an important barometer of market outcomes, they are not a perfect indicator of price movements, as outcomes depend upon the strength of demand. Clearly, we can see from houses in Adelaide, Brisbane and Perth that significant falls in listings are accompanied by price rises, whereas the picture was not as clear in Sydney and Melbourne.

Figure 1: Listings for sale and house prices



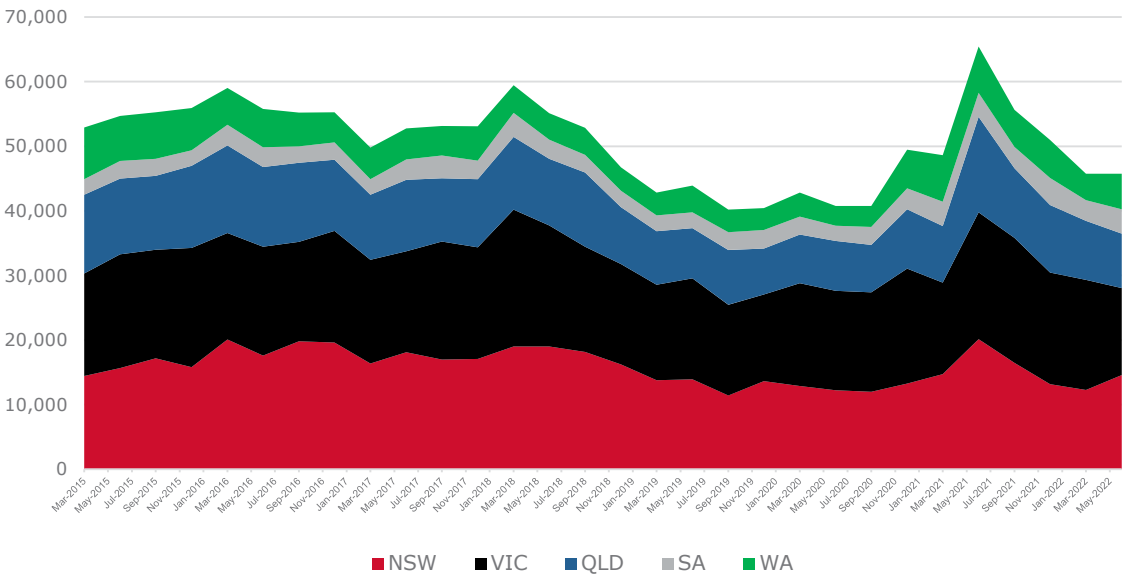
Source: Authors' calculations from CoreLogic data

New dwelling supply

New dwelling supply is delivered through newly constructed dwellings, be it a detached dwelling on a lot, an apartment within a large complex or maybe a semi-detached house. To examine new dwelling supply, we analyse stock changes (Section 2.1) but also the flow of dwellings through building approvals, dwelling commencements and dwelling completions. Figure 2 shows state level commencements from March 2015 to June 2022. The impact of the COVID-19 stimulus is evident, with a big jump in commencements from mid-2020, peaking 12 months later.

Commencements have now dropped back to pre-pandemic levels and are likely to decline further due to multi-residential development being stifled by high construction costs and the construction of new separate dwellings being brought forward by stimulus measures (Leishman, Aminpour et al. 2022). Rising interest rates will also have an impact. Table 8 shows how commencements for the first half of 2022 are well down on 2021, assuming similar patterns are repeated in the second half of the year.

Figure 2: Total dwelling commencements by state

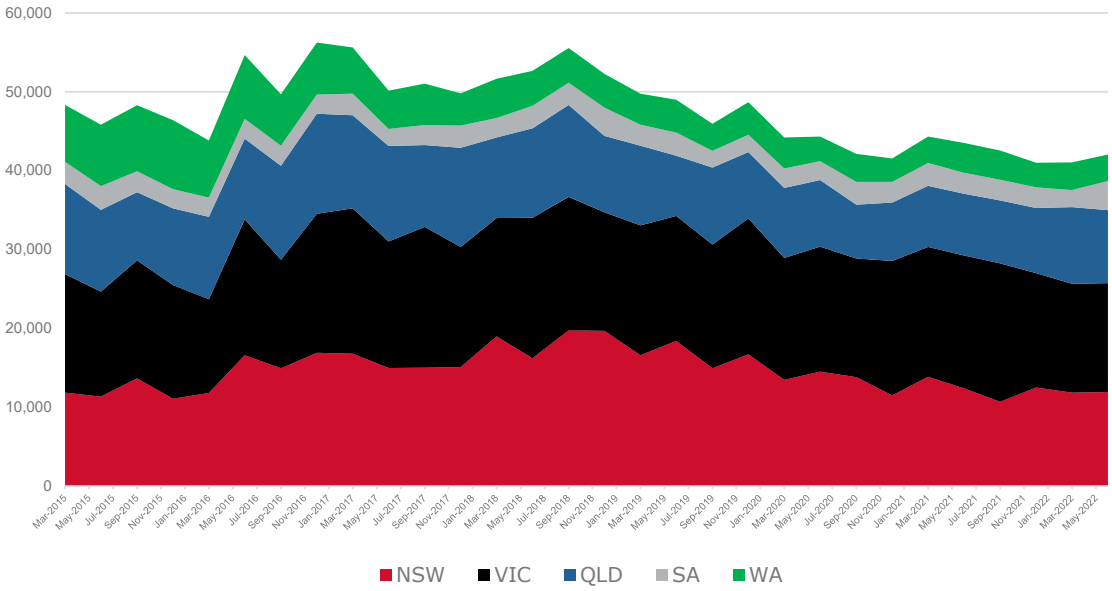


Source: ABS Building activity, Australia

Figure 3 shows patterns of dwelling completions and it is evident that by June 2022, the large surge in dwelling commencements had yet to result in an increase in completions and therefore have any impact on the housing market—either directly, through new purchases or indirectly, through renters leaving their rental dwellings to move into their newly completed homes. The commencement to completion period has lengthened in many states because of the rapid increase in new home builder activity resulting in labour shortages, further exacerbated by a shortage of many critical materials[5]. For NSW, Queensland and WA, 2021 completions were way below levels seen in 2017 and 2018. While completions will increase as commencements flow through, particularly in Queensland and WA due to HomeBuilder, there will be a fall once the HomeBuilder surge feeds through.

5 https://www.theage.com.au/national/victoria/new-home-build-times-blow-out-prices-jump-as-builders-face-supply-squeeze-20220520-p5an06.html

Figure 3: Total dwelling completions by state



Source: ABS Building activity, Australia

Table 8: Dwelling commencements and completions by state

	NSW	VIC	QLD	SA	WA
Dwelling commencements					
2017	68,537	67,204	41,495	11,982	19,547
2018	72,328	71,802	41,893	11,932	16,200
2019	52,770	57,828	31,702	10,480	14,540
2020	50,372	64,468	31,824	11,137	16,059
2021	64,495	70,387	44,828	14,956	26,005
2022 (first half)	26,859	30,456	17,624	6,914	9,645
Dwelling completions					
2017	61,894	67,586	46,816	10,294	19,983
2018	74,654	64,751	42,903	11,738	18,097
2019	66,663	65,240	35,880	10,011	15,584
2020	53,340	63,370	31,567	10,400	13,568
2021	49,494	65,310	31,868	10,770	13,953
2022 (first half)	23,805	27,606	18,942	5,870	6,871

Source: ABS Building activity, Australia

Dwelling commencement and completion data are lagged as is evident from the data above. Building approvals provide a more up-to-date data source, are available at the local government level, and can be split between separate houses and other residential. Table 9 explores changes in building approval data in the two years prior to the onset of COVID-19 and the two years after and shows how some states benefited significantly from the COVID-19 stimulus measures while those more reliant on apartment development saw a reduction in the approval pipeline.

NSW and Victoria saw falls in the number of approvals for the two years between June 2017 and 2019 and June 2020 and 2022. The falls were entirely due to a decline in the number of other residential approvals—defined as residential product that is not a separate house. All states saw a decline in other residential, largely due to construction cost rises meaning projects were no longer financially feasible to develop. For separate houses, WA and SA saw massive increases between the two periods, while increases were more modest in Queensland and Victoria.

Clearly, the COVID-19 stimulus measures did not have a uniform impact across states, with those cheaper states traditionally delivering a much larger proportion of development as separate houses benefiting the most.

Approvals feed through into commencements and then completions. Given the lag between approval and completion, those states seeing a big increase in house approvals will benefit from stimulus induced supply well into 2023.

Table 9: Building approval changes: COVID impact

	NSW	VIC	QLD	WA	SA
Total dwellings					
BA June 2017 – June 2019	135,712	140,947	79,968	35,560	24,453
BA June 2020 – June 2022	118,643	138,344	82,753	46,959	27,757
	-13%	-2%	3%	32%	14%
Other residential					
BA June 2017 – June 2019	74,772	61,479	29,255	8,462	7,238
BA June 2020 – June 2022	56,577	47,793	26,862	7,038	5,314
	-24%	-22%	-8%	-17%	-27%
Houses					
BA June 2017 – June 2019	60,940	79,468	50,713	27,098	17,215
BA June 2020 – June 2022	61,586	90,695	55,653	39,911	22,449
	1%	14%	10%	47%	30%

Source: ABS Building activity, Australia

2.4 Local government area housing supply

Rowley, Gilbert et al. (2020) discussed the uneven supply of new residential development between the period 2006 and 2016, identifying different patterns of supply across greater capital city areas of states and unpicking some of the reasons behind this uneven production.

In this section, we update the analysis to look at new supply up to 2022 and explore the impact of COVID-19 on these patterns. We use local government areas of the greater capital cities as the basis for our analysis. Rowley, Gilbert et al. (2020) found that new housing supply between 2006 and 2016 was distributed unevenly between and within the Australian states. In cities such as Sydney and Melbourne, there was much new supply in high value, inner city localities near transport and employment hubs (consistent with Ong, Dalton et al. 2017), but in all cities, significant amounts of new housing production occurred in lower value outer areas.

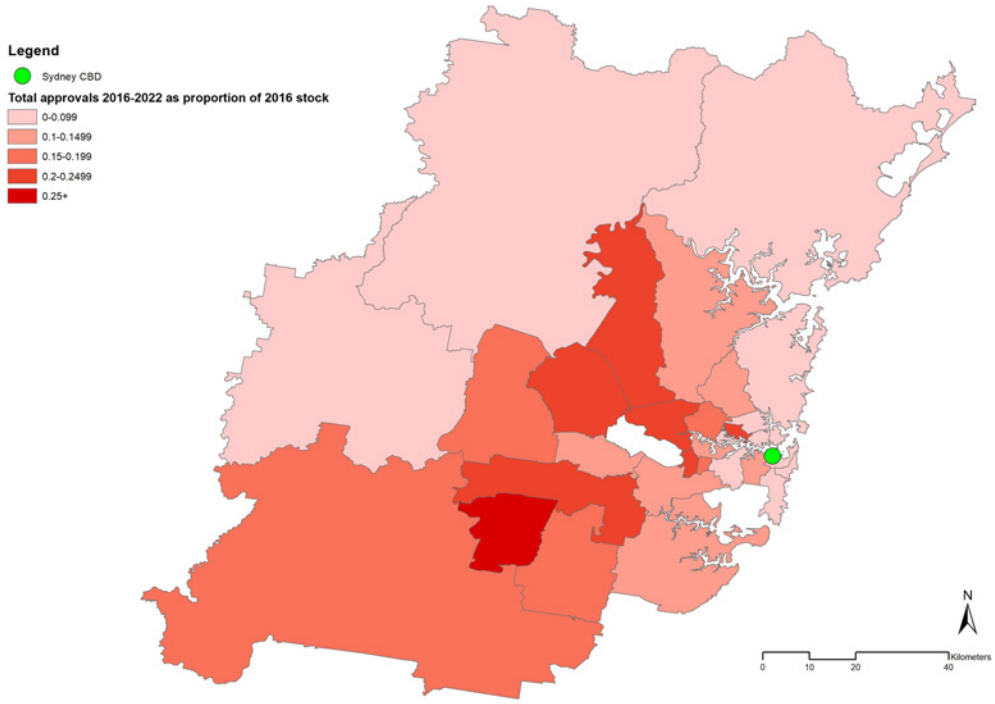
Rowley, Gilbert et al. (2020) concluded that

> Each level of government is able to play a stronger role in supporting residential development within established and new communities by investing in major infrastructure provision and upgrades; coordinating land-supply processes and making available developable sites; and streamlining development approval processes for projects that meet local planning requirements, including expectations for diverse, well designed and affordable housing options. (Rowley, Gilbert et al. 2020: 2).

The maps below describe building approvals between 2016–2022 in greater capital city areas. We use building approvals to examine the impact of COVID-19 on supply during that period at the local government level and to differentiate between houses and other residential approvals.

Figure 4 shows building approvals as a proportion of dwelling stock in 2016. Local governments with building approvals during the period which equal 25 per cent or more of starting stock, appear in the darkest red, and those with approvals totalling up to 10 per cent of stock are the lightest colour. Western, and in particular, south western, areas of Sydney saw the greatest growth in supply relative to existing stock, with inner areas and the north the weakest. Certainly, distribution was not even.

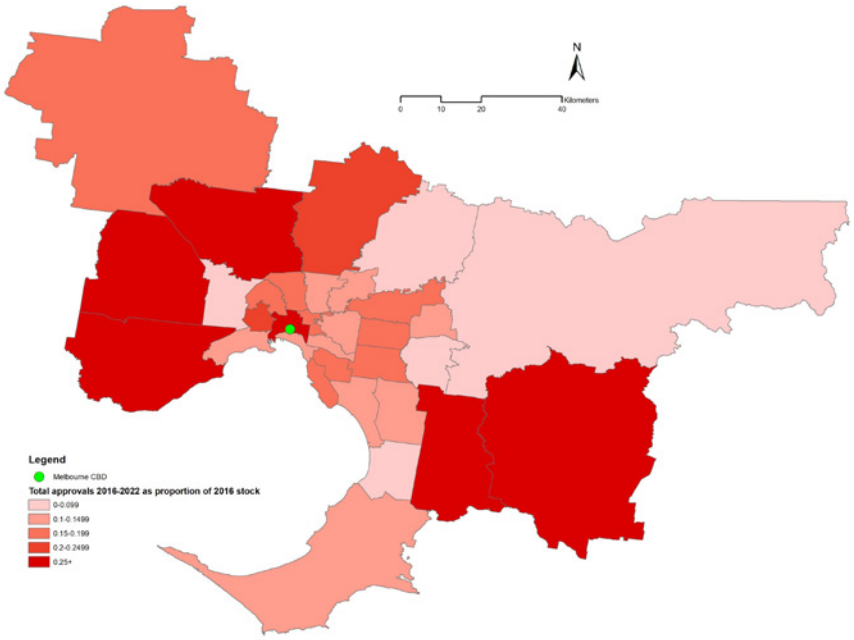
Figure 4: Total building approvals 2016–2022: Greater Sydney



Source: ABS Building activity, Australia and ABS Table builder pro

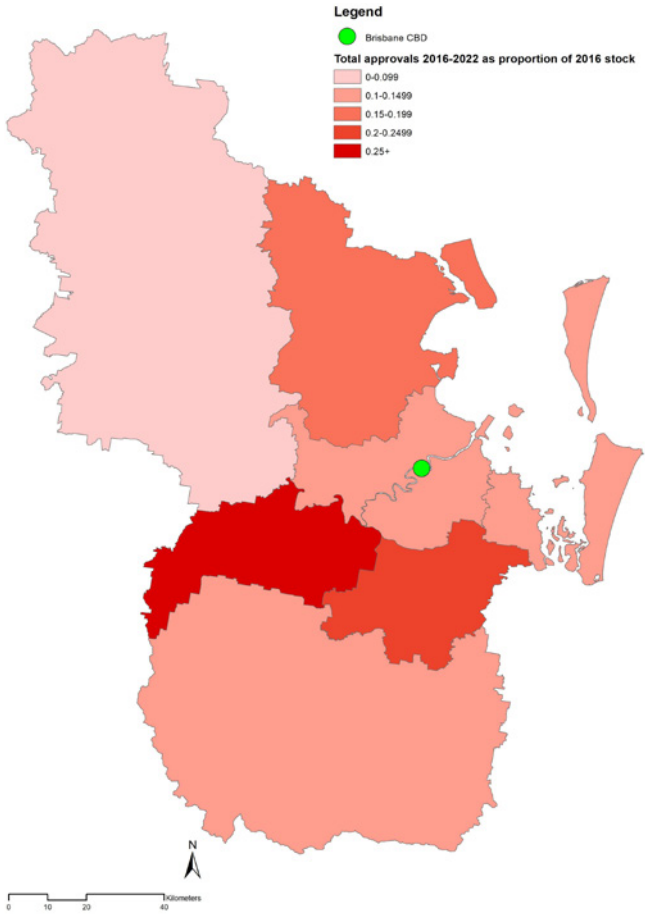
For Greater Melbourne, growth was more evenly distributed, with inner, middle and outer areas all seeing strong growth in stock. This continues the relatively consistent patterns of new supply in the city identified by Rowley, Gilbert et al. (2020) for 2006–2016.

Figure 5: Total building approvals 2016–2022: Greater Melbourne



Source: ABS Building activity, Australia and ABS Table builder pro

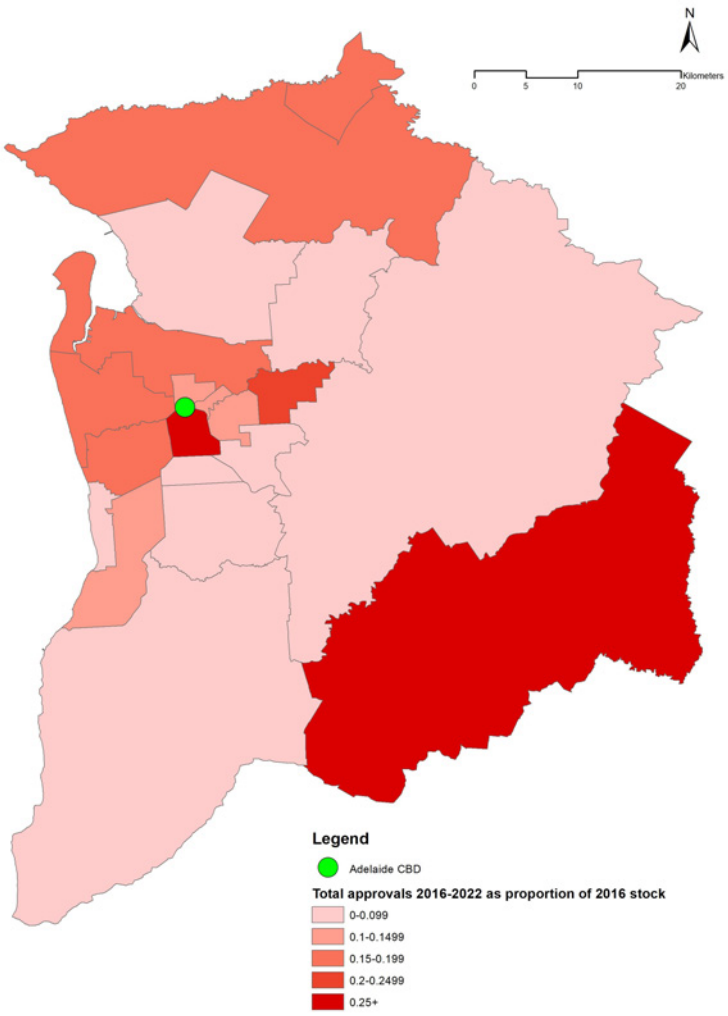
Figure 6: Total building approvals 2016–2022: Greater Brisbane



Source: ABS Building activity, Australia and ABS Table builder

For Brisbane, the greatest relative growth occurred in the south, while Adelaide saw strong activity in the inner and south eastern areas of the capital city.

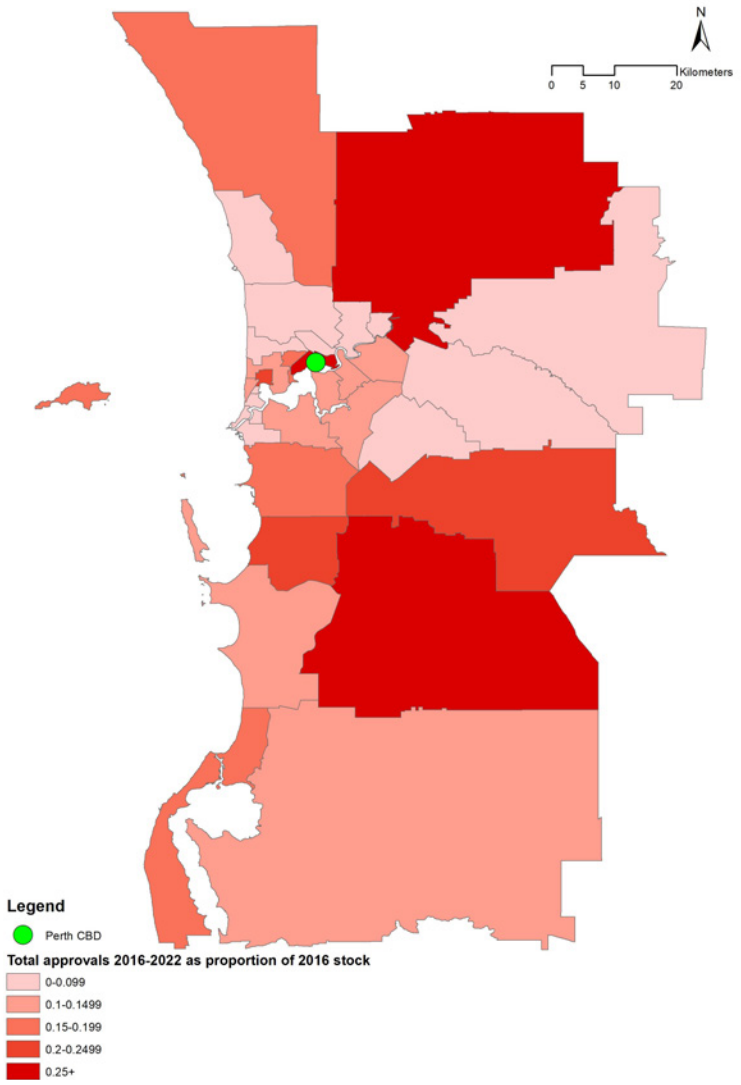
Figure 7: Total building approvals 2016–2022: South Australia



Source: ABS Building activity, Australia and ABS Table builder pro

Finally, for Greater Perth, activity was again concentrated in outer areas, with some strong growth in a handful of inner areas.

Figure 8: Total building approvals 2016–2022: Western Australia

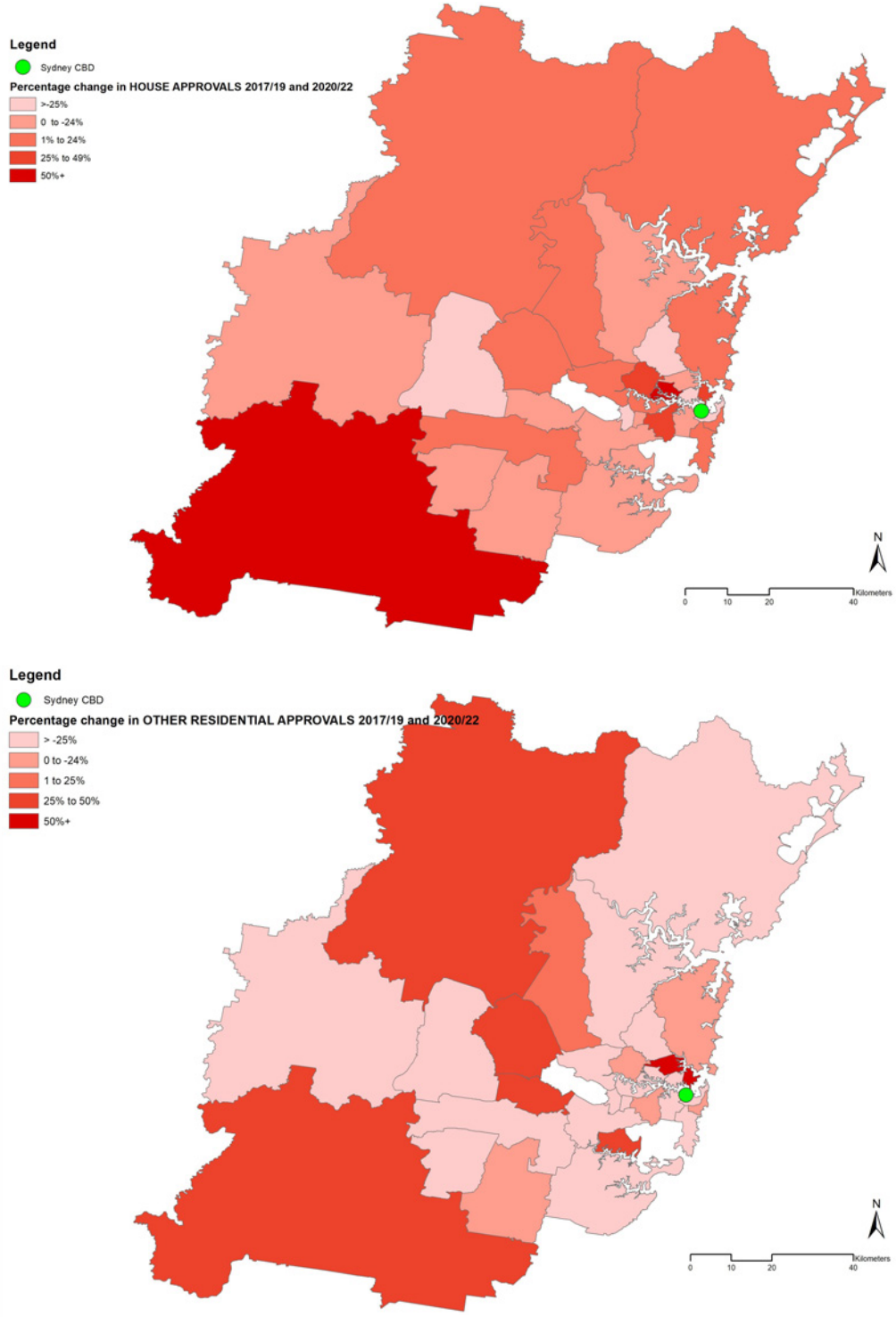


Source: ABS Building activity, Australia and ABS Table builder pro

What impact did the pandemic have on patterns of new supply? Examining the two years before the pandemic hit, 2017–2019, and the two years during COVID, 2020–2022, we can identify whether supply patterns shifted across the timeframes.

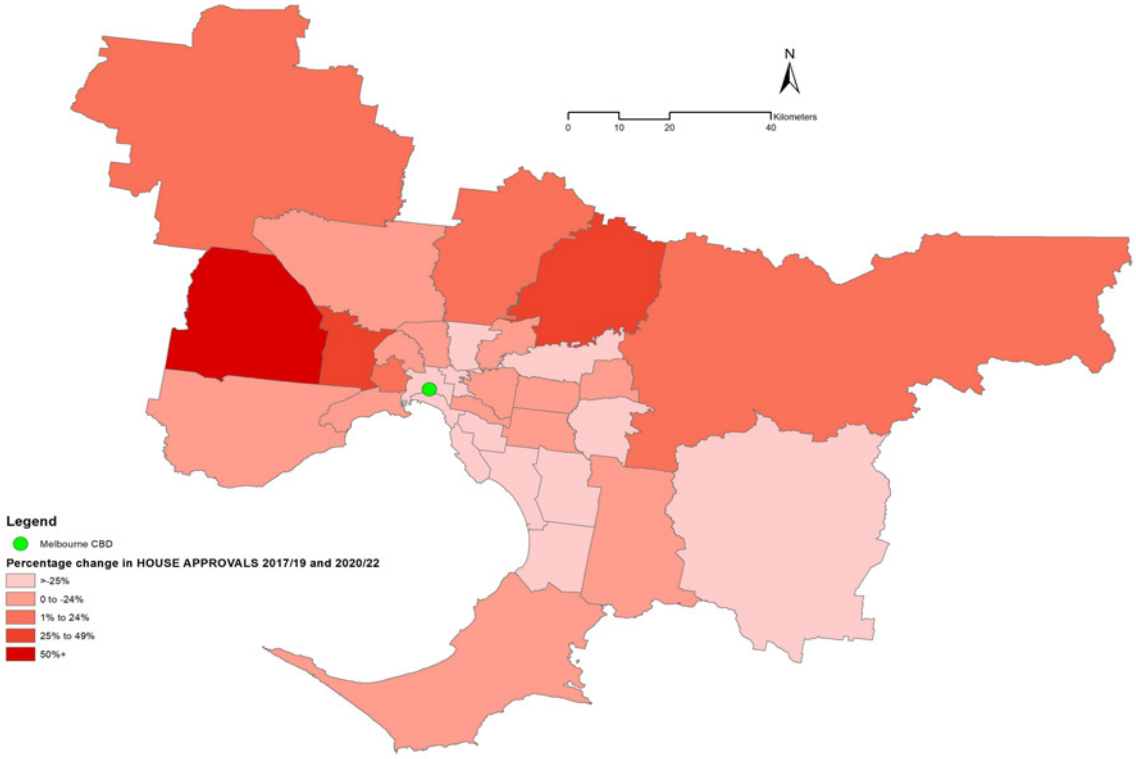
We would expect those capital cities benefiting most from the COVID-19 building stimulus measures to show significant increases in activity in areas dominated by greenfield house building. To do this, we split approvals into houses and other residential and examine the percentage change in the sum of approvals over the two periods. The darker the colour, the greater the increase in approvals, with the lightest two colours showing a decline. Figures 9 to 13 present the data for each of the five state capital cities.

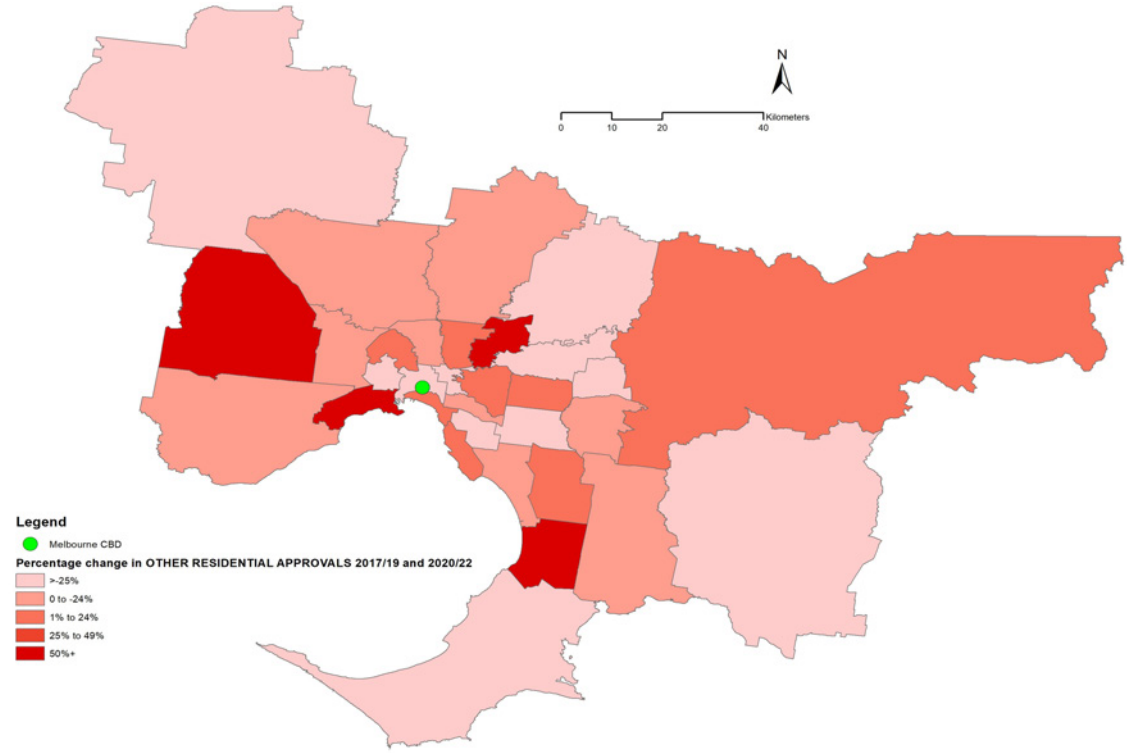
Figure 9: Change in building approvals 2017–19 and 2020–22: Greater Sydney



Source: ABS Building activity, Australia and ABS Table builder pro

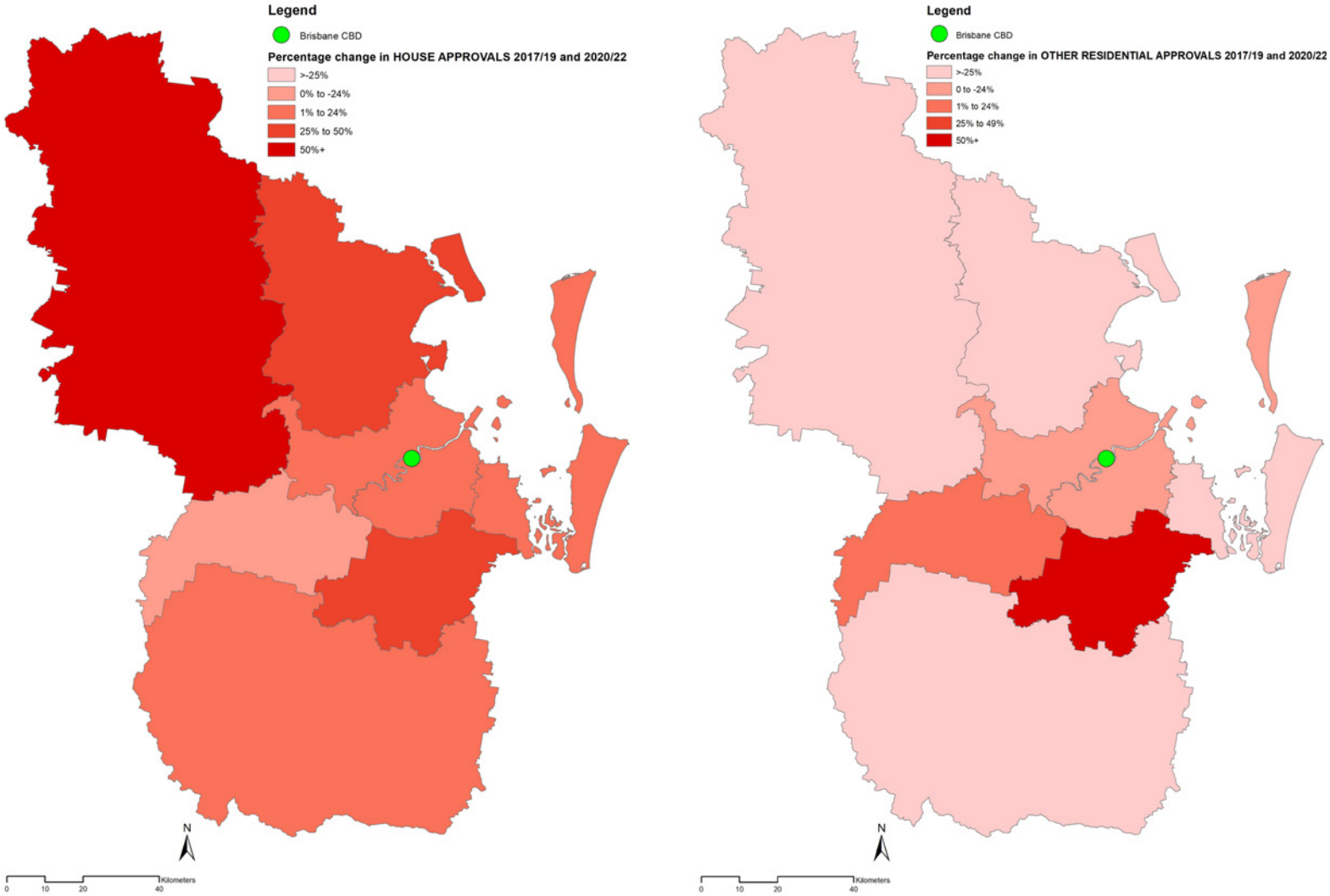
Figure 10: Change in building approvals 2017–19 and 2020–22: Greater Melbourne





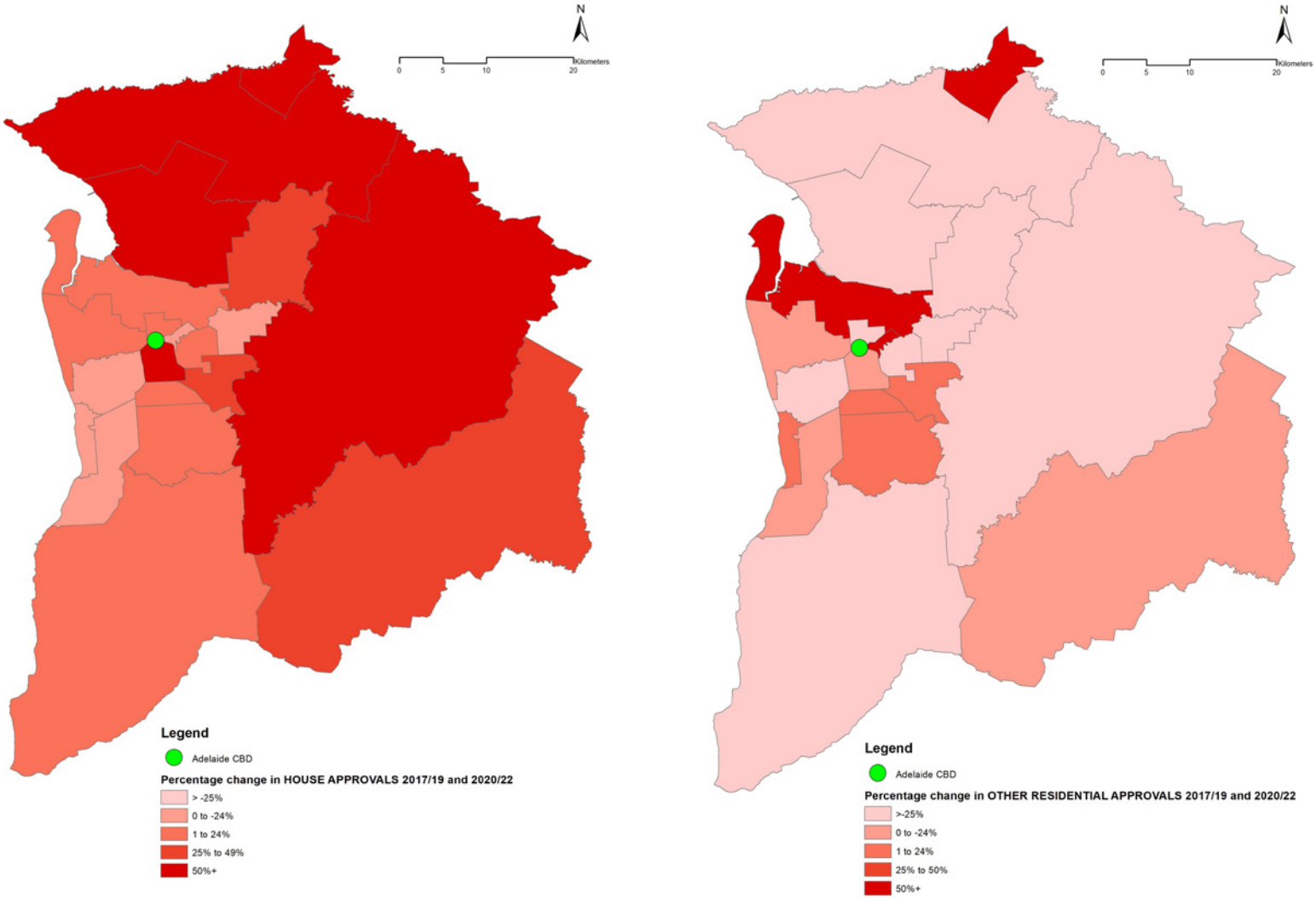
Source: ABS Building activity, Australia and ABS Table builder pro

Figure 11: Change in building approvals 2017–19 and 2020–22: Greater Brisbane



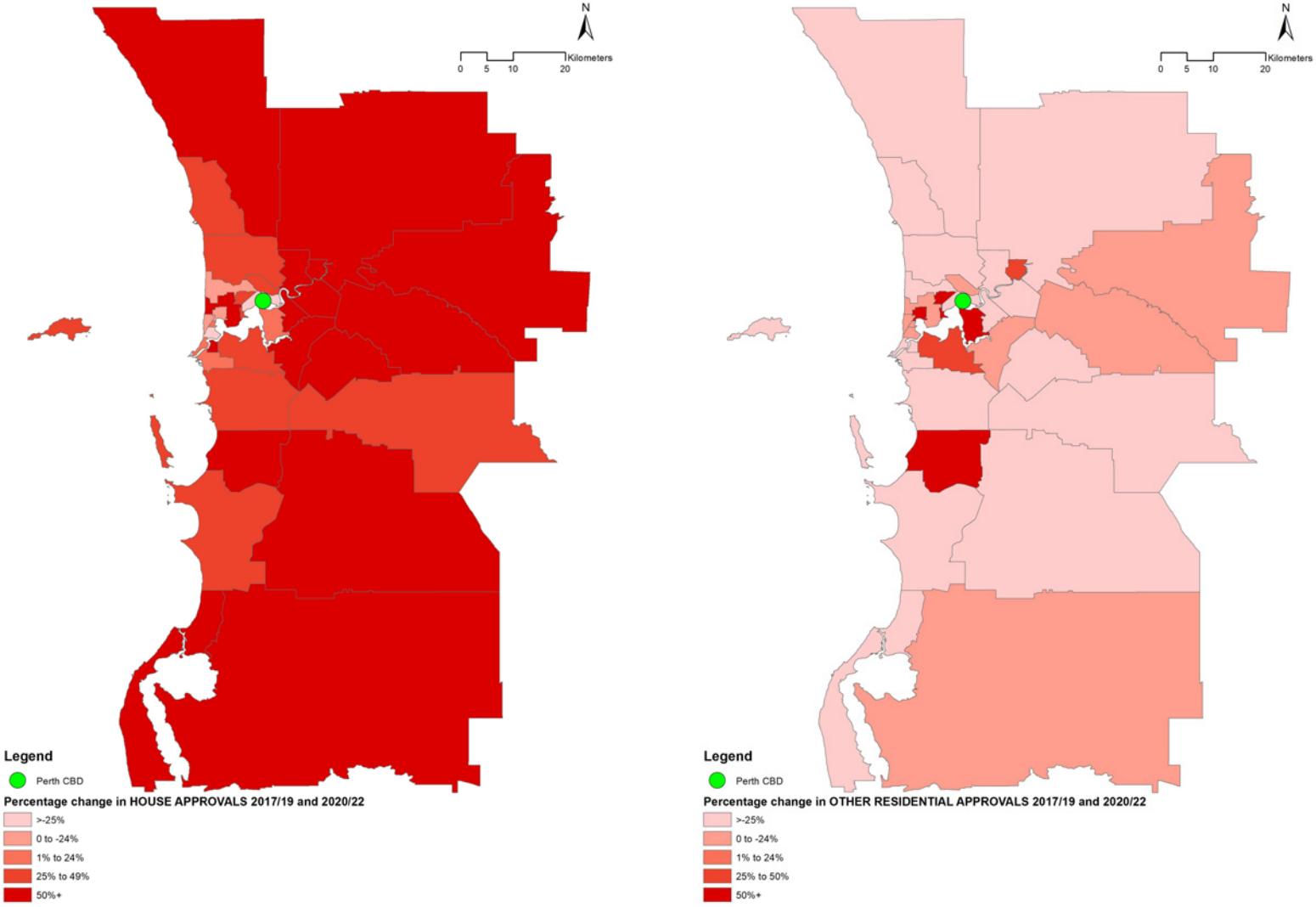
Source: ABS Building activity, Australia and ABS Table builder pro

Figure 12: Change in building approvals 2017–19 and 2020–22: Greater Adelaide



Source: ABS Building activity, Australia and ABS Table builder pro

Figure 13: Change in building approvals 2017–19 and 2020–22: Greater Perth



Source: ABS Building activity, Australia and ABS Table builder pro

The figures show a stark contrast between the outcomes for houses and other residential approvals, with strong growth in the former and a collapse in the latter. Among others, Perth, Adelaide and Brisbane observed a significant increase in building approvals during 2020–2022. This was driven by the uneven impact of the HomeBuilder stimulus, a policy that favoured the development of houses with a very limited impact on apartments (Leishman, Aminpour et al. 2022). Outer greenfield areas received a big boost in new supply, while the vast majority of inner areas across the country saw a contraction in the number of approvals.

This uneven shift in new supply was exacerbated by increasing construction costs leading to many multi-residential projects becoming unprofitable and, therefore, not proceeding (Rowley, Leishman et al. 2022). Of course, not all the change can be attributed to stimulus measures, as very low interest rates stimulated demand which, in turn, also drove new housing supply. Supply growth remains uneven across capital cities.

2.5 Summary

Australia relies on the private sector to deliver over 95 per cent of its new dwellings (Rowley, Leishman et al. 2022). The ongoing supply of new dwellings is essential if Australia has any chance of addressing housing affordability issues, although policy also needs to address the demand side. This chapter has shown that while dwelling supply increased by 1.7 million dwellings over ten years, supply was uneven, and housing diversity did not improve.

COVID-19 perpetuated the development of large, detached dwellings in outer areas of many states, while the repercussions of the pandemic stifled multi-residential development in the short term. As we shall see in the next chapter, price and rental growth outcomes strongly suggest that housing supply is failing to keep pace with demand and changing household types, and while new housing supply has a very limited impact on short-term price and rent rises, a continuous, strong supply of new stock is vital to address market outcomes.

Government needs to do everything it can to encourage new dwelling supply through improved infrastructure delivery, the release of development sites and planning system reform, while hoping market conditions are favourable, allowing the private sector to deliver the profits that will ultimately stimulate supply.

3. Housing demand

- **One in five households stated they changed what they wanted from their dwelling as a result of COVID-19. The main desire was for more space.**
- **Prices and rents increased rapidly during the COVID-19 period, fuelled by very low interest rates and consumer preferences.**
- **Populations grew in many regional locations, placing severe pressure on both ownership and rental markets. The number of dwelling transactions doubled in many areas.**
- **The number of dwelling transfers doubled in non-capital city locations between 2017 and 2021.**
- **In Victoria and WA, locations with the strongest price growth were sea and tree change locations and suburbs on the outer edge of the capital city area.**

The previous chapter examined the impact of COVID-19 on dwelling supply. In this chapter, we switch to the issue of demand, exploring market outcomes before and after the pandemic and how consumer preferences have changed.

3.1 COVID and changing housing demand—survey evidence

A survey conducted in June 2021 by the Bankwest Curtin Economics Centre (Crowe, Duncan et al. 2021) asked its 4,000 respondents whether COVID-19 had changed what they wanted from their housing. One in five respondents stated it had, ranging from 23 per cent in NSW, 20 per cent in WA and 17 per cent in QLD (the three states covered by the survey). There were significant variations across age groups, as shown in Table 10. The table shows that almost 30 per cent of those aged between 25 and 45 said COVID-19 had changed what they wanted from their dwelling, with older Australians the least likely to answer yes. Related to age are household types, with households containing children, including multi-generational households, the most likely to want something different from their dwelling.

Table 10: Has COVID-19 changed what you want from your dwelling? Age groups

Age group	Yes %
18-24 years old	14.0
25-34 years old	28.5
35-44 years old	29.5
45-54 years old	18.4
55-64 years old	6.0
65+ years old	3.6

Source: Bankwest Curtin Economics Centre (Crowe, Duncan et al. 2021)

Table 11: Has COVID-19 changed what you want from your dwelling? Household structure

Household structure	Yes %
One person household	15
Living with a friend / in a group household (i.e. two or more unrelated people who are not in a relationship)	22
Couple with no children living in the dwelling	13
Couple with child(ren) living in the dwelling	28
One parent family with child(ren) living in the dwelling	24
Living with parents (in the parental home)	18
Other	21
Multi-generational household (for example, a couple with children, living with their parents)	31
Parent living with adult children in the adult children's dwelling	15
Total	20

Source: Bankwest Curtin Economics Centre (Crowe, Duncan et al. 2021) and calculations by authors

Income was also a factor in determining whether a household had changed what they wanted from their dwelling, with higher income households much more likely to say it had. This may be related to the potential of realising such a change whereas low-income households were far more likely to be in a dwelling that was simply affordable rather than one that met their aspirations.

Only 10 per cent of outright owners stated COVID had changed what they wanted from their dwelling compared to 27 per cent of those in social housing and 24 per cent in the private rental market. The longer a household had lived in a dwelling, the less likely they were to have changed what they wanted, with those in a dwelling for less than a year at 28 per cent and those for more than 15 years at just 11 per cent.

Table 12: Has COVID-19 changed what you want from your dwelling? Household income

Household income	Yes %
Under $31,000	14
$31,000 – $59,999	15
$60,000 – $89,999	17
$90,000 – $124,999	21
$125,000 – $149,999	29
$150,000 – $174,999	27
$175,000 – $199,999	31
$200,000 or over	31
Total	20

Source: Bankwest Curtin Economics Centre (Crowe, Duncan et al. 2021) and calculations by authors

The table below shows *how* COVID changed what households want from their dwelling. Predominantly it was about having more space, both inside and out, and that was linked with the ability to work more from home.

Table 13: How has COVID-19 changed what you want from your dwelling?

	%
I want more outdoor space	37
I want more indoor space	29
I want a dwelling more suitable for working from home	28
I want to move closer to family/friends	23
I want my own place	21
I want to move to an area with more amenities	19
A dwelling with better internet connectivity	19
I want to move to a regional/rural location	16
I want to move to the middle/outer suburbs of a City	15
I want to move to another State/Territory	11

Source: Bankwest Curtin Economics Centre (Crowe, Duncan et al. 2021) and calculations by authors

Other survey work examining the impact of COVID on Australian households includes that published by Baker, Daniel et al. (2020; 2022a; 2022b) examining the impact of the pandemic on rental households. They found that rental households were hit particularly hard by COVID, and its impact is likely to 'persist for a considerable time and may emerge to be near-permanent features of the tenure' (Baker, Daniel et al. 2022a: 1).

3.2 Population changes

The COVID-19 pandemic led to the closure of international borders, creating a significant short-term decline in population growth from 1.4 per cent in March 2020 to 0.1 per cent one year later (ABS 2022c). Since the re-opening of international borders, population growth has increased, with the ABS revealing a 1.13 per cent June 2022 quarter annual increase, while KPMG (2022) reported a 1.7 per cent annual increase in December.

Generally, regional Statistical Areas, Level 3 (SA3), associated with recreational tourism or lifestyle, experienced significant population increases during the 2019 to 2022 period. Outer urban greenfield areas also experienced increased population growth similar to or greater than regional areas (ABS 2022c). Population growth will be affected by the supply of dwellings; therefore, it is not surprising that outer urban greenfield areas supporting new housing development generally reported the highest population growth outcomes during the COVID period.

KPMG (2022) produced an analysis of population growth between 2019 and 2022. They found the following:

- Queensland regional areas experienced strong population growth from 2019 to 2022, likely due to the relatively limited COVID restrictions and the region's popular tourism/recreational lifestyle.
- Victoria reported a 1.9 per cent annual population growth in December 2022, the second highest. The Victorian regional areas associated mainly with recreational tourism and lifestyle, recorded Victoria's highest regional population growth rates.
- WA recorded an annual population growth of 1.7 per cent in December 2022. The Augusta–Margaret River–Busselton area recorded an annual growth rate of 2.6 per cent due to the exodus of West Australians seeking a sea/tree change[6] lifestyle and the area's tourism popularity. Furthermore, the south-west experienced increased land development that facilitated population growth.
- NSW's population grew by 1.5 per cent annually. Regional locations in NSW generally did not experience the same population growth rate as the other states.

For the state capital cities, the outer urban greenfield areas dominated population growth.

- The fastest growing locations in the Greater Brisbane area are the outer greenfields SA3s such as Jimboomba, Springfield–Redbank and Browns Plains, which experienced a 6.3, 4.6 and 3.4 per cent annual increase, respectively.
- The Melbourne outer greenfields areas, including Wyndham to the south-west, Casey-south to the south-east, Melton–Bacchus Marsh to the north-west and Tullamarine–Broadmeadows to the north, all recorded annual population growth of around 3 per cent.
- Perth's most notable increase in population growth occurred in the SA3 Swan, which recorded a 3.4 per cent annual rise and contained typical first home buyer suburbs and rural locations such as Gidgegannup. The remaining Perth areas with high population growth are typical outer urban first home buyer areas south of Perth, including Armadale, Kwinana and Cockburn, reporting annual growth of approximately 3 per cent.
- Three outer urban greenfield areas provided Sydney's most significant growth increases. Rouse Hill–McGraths Hill to the north of Sydney CBD, Blacktown North in the north-west and Bringelly–Green Valley to the south-west all recorded substantial growth, with the population increasing annually by 12.1, 7.9 and 5.4 per cent, respectively. It is worthwhile noting that NSWs outer urban greenfield population growth is significantly higher than their regional areas.

6 A sea or tree change is defined as a change from a city based lifestyle to one that involves living in a regional/rural area either close to the coast or in the countryside.

In conclusion, COVID-19 created significant and distinct changes to population dynamics within each state. These included low or negative growth within inner urban areas, a growth in regional towns and cities, particularly those associated with sea and tree changes and strong growth in traditional first home buyer areas, primarily on the urban periphery. The increased preference to move away from inner city suburbs was encouraged by the propensity for working from home, eliminating some of the negative impacts of increased commuter times coupled with the relative affordability of outer urban areas.

The recently published AHURI enquiry examining how policy could promote smaller cities' growth (Beer, Crommelin et al. 2022) identified three main trends relating to population changes in regional areas: growth in population for areas located in proximity to i) major metropolitan centres, ii) coastal areas, and iii) loss of population in inland and remote towns. The authors associate this last trend with the weakening agricultural sector and the transition phase to the mining sector. COVID-19 accelerated a trend towards those regional areas associated with i) and ii).

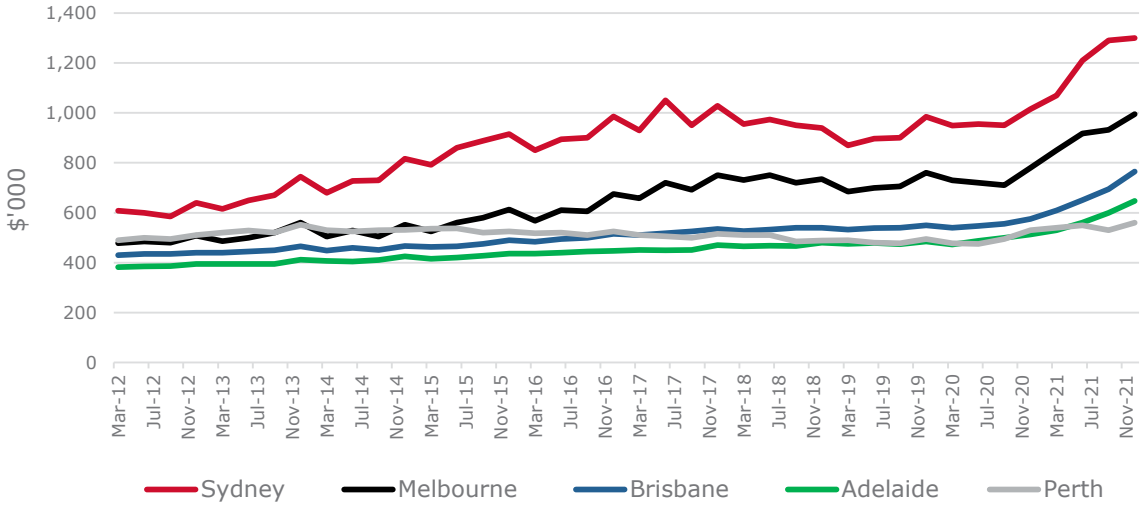
When examining the factors that shape an individual's decision to move to regional areas, Beer, Crommelin et al. (2022) found that the majority of participants in their survey (53%) that are currently living in bigger cities were open to moving to regional areas, with one in five prioritising employment and education opportunities as the main factors influencing a possible move. Further, half of the participants would consider moving to mid-size regional cities if good health care was available, along with maintaining their homeownership status. It seems regional population growth will continue even after the effects of COVID are forgotten.

3.3 Dwelling price movements—study period 2017-2021

This research concentrates on the period from 2017 to end-2021 to identify how COVID-19 affected housing market outcomes. Figures 14 through 17 go back further and show dwelling price movements over a 10-year period from 2012. Splitting dwellings into houses and attached dwellings, and by capital city and rest of state, there is clear evidence of increased prices during the COVID-19 period, commencing in early 2020.

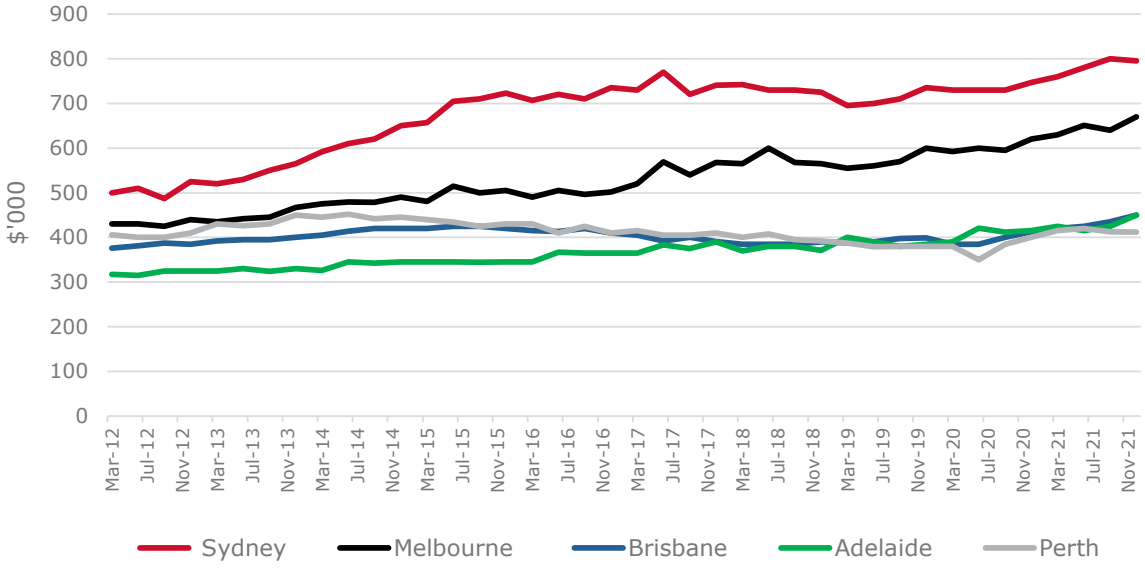
There were steep rises in house prices across four states, with more modest growth in Perth to the end of 2021. There was much slower growth in attached dwellings prices during the COVID period. Across the rest of state locations, house price growth was extremely strong in NSW and Victoria, while attached dwelling prices grew faster than within capital cities.

Figure 14: Capital city house prices



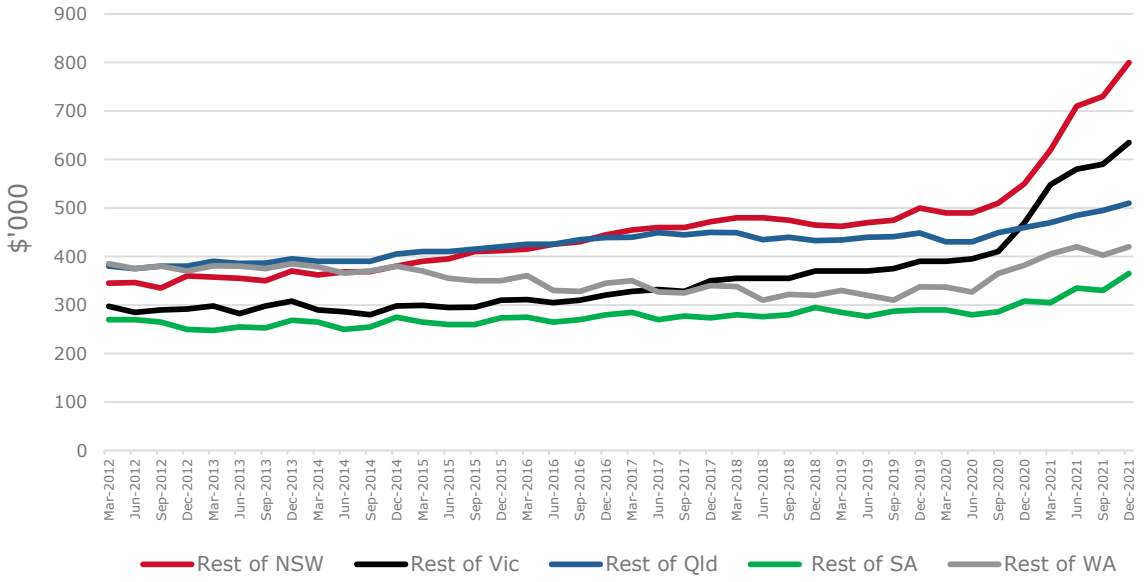
Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities

Figure 15: Capital city attached dwelling prices



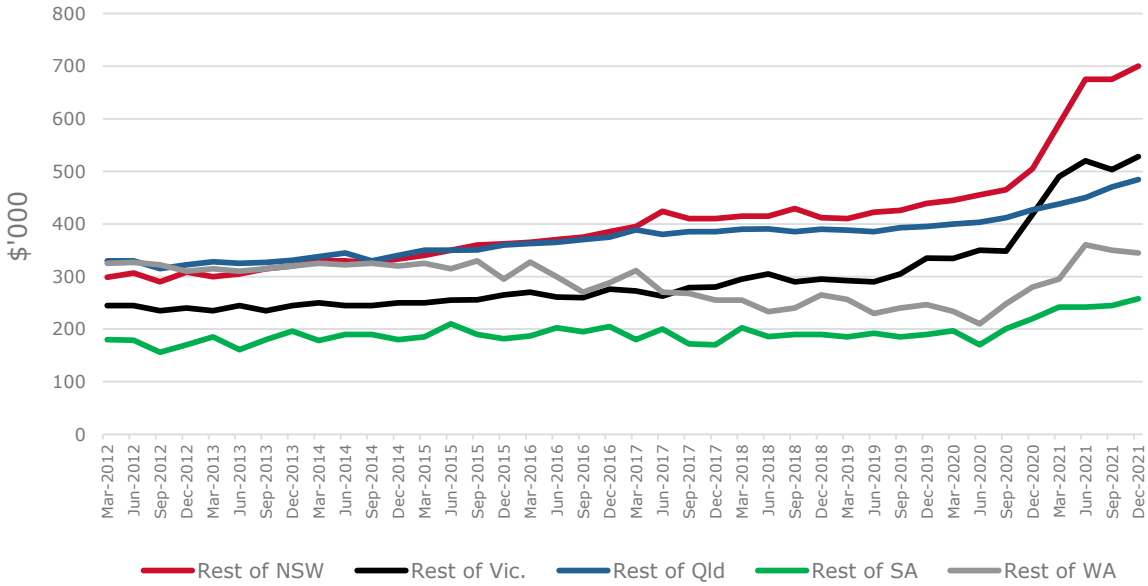
Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities

Figure 16: Rest of state house prices



Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities

Figure 17: Rest of state attached dwelling prices



Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities

One of the reasons behind the strong price growth is the balance between available established dwellings (see Section 2.3.1) and the number of transactions. Tables 14 and 15 present an index of established dwelling transfers (from ABS) with 2019 as the base and show significant growth in market activity in Brisbane, Adelaide and Perth, while the number of transactions fell in Melbourne.

For the rest of state locations, the number of transactions generally doubled from 2019 to 2021. With a big increase in market activity, yet limited listings available, price rises were inevitable. Given the level of transactions, listing levels remain low as dwellings are purchased almost as soon as they hit the market so stock levels cannot build. This lack of available options for purchase makes it less likely for households to list their dwellings, perpetuating the lack of available supply.

Table 14: Number of dwelling transfers: capital city

	Sydney	Melbourne	Brisbane	Adelaide	Perth
2017	112	115	113	105	103
2018	90	99	104	101	99
2019	100	100	100	100	100
2020	106	83	112	98	118
2021	101	92	160	132	134

Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities. Authors' calculations.

Table 15: Number of dwelling transfers: rest of state

	Rest of NSW	Rest of Vic	Rest of QLD	Rest of SA	Rest of WA
2017	115	104	106	99	96
2018	103	108	101	100	98
2019	100	100	100	100	100
2020	120	111	121	116	135
2021	203	213	197	182	221

Source: ABS cat 6416.0 Residential Property Price Indexes: Eight Capital Cities. Authors' calculations.

For rental markets, vacancy rates dropped dramatically following an initial rise in many capital city locations, as students moved away and many households moved to less populated locations. By the middle of 2021, vacancy rates started to fall rapidly as restrictions on movement were eased and populations started to return to capital city areas. By October 2021, vacancy rates were below 1 per cent in Perth, Adelaide, Hobart, Canberra and Darwin and for the combined regional areas (Domain 2022). The situation continued to tighten in 2022 (see Section 3.3.1).

The COVID-19 pandemic and lockdowns increased the desire for tenants to live in larger dwellings with fewer co-inhabitants, with the average household size falling from 2.55 persons in 2016 to 2.52 in 2021 (NHFIC 2022) further decreasing the vacancy rate.

Market outcomes in 2022

While our study period covers 2017–2021, it would be remiss not to comment on the significant turnaround in market activity in 2022, primarily caused by rising interest rates.

According to CoreLogic's daily home value index, Australian dwelling values declined by 5.3 per cent in 2022, the first fall in national annual dwelling values since 2018 (CoreLogic 2023a). The decline in dwelling prices was driven primarily by the Reserve Bank of Australia's (RBA) decision to tackle spiralling inflation by raising the cash rate in 2022, with the first increase coming in May.

The combined capital city index peaked in April 2022 before falling by 8.6 per cent. However, 2022 provided a year of contrasts across the Australian housing market, and the contrasts occurred not only for each capital city before and after interest rates started rising, but also the effects differed between the capital cities.

- Brisbane and Adelaide experienced substantial price growth in the first half of 2022, with Brisbane prices peaking in June, recording slightly less than 10 per cent growth, while Adelaide peaked in July, delivering 11.7 per cent growth. Adelaide prices declined marginally for the remainder of the year. On the other hand, Brisbane experienced a severe decline following the peak erasing the previous 6-month gains and recording a fall of 1.1 per cent for the year.
- Perth recorded a peak growth of 4.3 per cent in August before prices declined slightly and then plateaued in November. Perth then recorded a minimal gain in December, posting a 3.6 per cent gain for 2022.
- Sydney and Melbourne recorded the most significant falls in dwelling values. Once interest rates started rising in May 2022, Sydney prices exhibited a steep decline and recorded a 12.1 per cent fall for the 12 months. Melbourne had a similar experience with price gains decreasing by 8.3 per cent from the peak.
- Combined regional prices peaked in June 2022 before falling by 6.6 per cent; however, like the capital cities, the results across Australia were mixed. Regional prices in New South Wales, Victoria, Queensland and Tasmania peaked around the same time the RBA started raising interest rates, while regional prices in South Australia and Western Australia were at their cyclical peak at the end of 2022.
- NSW and Victoria's regional prices peaked in May, after that falling by 8.8 per cent and 6.0 per cent. Queensland prices peaked one month later in June before decreasing by 6.3 per cent.
- WA experienced the lowest growth from the COVID-19 trough even though prices increased by 31.5 per cent and peaked at the end of 2022. Regional SA led the price increases for 2022 and recorded 17.1 per cent growth annually.

In conclusion, the timing of these peaks and subsequent declines indicate that the adverse effects of rising interest rates largely outweighed any positive effect of population growth with the opening of international borders early in 2022. The preference for migrants to first rent may have contributed to the low price growth in Sydney and Melbourne, centres traditionally popular this demographic, in the first half of 2022. Furthermore, capital cities with lower median dwelling prices generally experienced a lesser impact from reduced borrowing capacity due to interest rate rises. There is further evidence of reduced borrowing capacity supporting affordable dwelling prices, with the suburbs in the lower quartile or broad middle of the market outperforming the upper quartile. In regional locations, the data indicates that prices fell in all states except for SA and WA as interest rates began rising.

Table 16: Dwelling price changes in 2022

	Month of peak	COVID through to peak growth %	Decline from peak %	12-month growth (2022) %
Capital cities				
Sydney	Jan 2022	27.7	-12.7	-12.1
Canberra	Jun 2022	38.3	-7.6	-3.3
Melbourne	Feb 2022	17.3	-8.3	-8.1
Brisbane	Jun 2022	42.7	-9.4	-1.1
Hobart	May 2022	37.7	-9.3	-6.9
Adelaide	Jul 2022	44.7	-1.3	10.1
Perth	Jul 2022	25.9	-0.6	3.6
Darwin	Aug 2022	31.1	-1.2	4.3
Regional areas				
Regional NSW	May 2022	47.6	-8.8	-2.7
Regional Vic	May 2022	35.0	-6.0	-1.3
Regional Qld	Jun 2022	42.7	-6.3	1.9
Regional SA	At peak	46.2	At peak	17.1
Regional WA	At peak	31.5	At peak	5.7
Regional Tas	Jun 2022	51.0	-5.1	2.4

Source: CoreLogic Hedonic Home Value Index, https://www.corelogic.com.au/__data/assets/pdf_file/0021/12954/CoreLogic-home-value-index-Jan-23-FINAL.pdf

In 2022, the rental market tightened even further, and the national vacancy rate dropped from 2.1 to 1.2 per cent. Subsequently, rents increased by 10.2 per cent in the 12 months to December 2022 and by 22.2 per cent since the upswing began in September 2020. The combined capital cities vacancy rate fell from 2.4 to 1.2 per cent, with rents increasing by 10.9 per cent. The combined regional locations saw their vacancy rate remain relatively stable, recording a 0.1 percentage point decrease from 1.3 to 1.2 per cent, and rents increased by 8.4 per cent for the 12 months (CoreLogic 2023a).

Concerning the individual capital cities, the changes in demand for rental properties in 2022 were particularly noticeable in Melbourne and, to a slightly lesser extent, Sydney, both recording a significant tightening in the vacancy rate in 2022. Market outcomes include (CoreLogic 2023a):

- Melbourne's vacancy rate fell from 3.0 per cent to 1.1 per cent in the year to December.
- Sydney's fell from 3.1 per cent to 1.6 per cent.
- Perth's vacancy rate fell from 1.1 to 0.5 per cent, with rents increasing by 11. 2 per cent.
- Brisbane's vacancy rate recorded a 0.6 percentage point decrease from 1.8 to 1.2 per cent. Brisbane recorded a 13.4 per cent rent increase, the largest among the major cities.
- Adelaide reported the lowest vacancy rate of 0.4 per cent, a fall of 0.2 percentage points over the 12 months. The tightness of Adelaide's rental market led to the second-highest rent increase, 12.9 per cent.

3.4 Market outcomes in case study states

In this section, we examine market outcomes across our two case study states, Victoria and WA, in more detail to understand reasons behind different rates of price growth and identify locations for our qualitative analysis. For this analysis, we concentrated at the suburb level to provide a more fine-grained spatial scale, which more closely reflects how local housing markets operate.

Data were purchased from CoreLogic for the purposes of identifying significant price and rent changes at the suburb level during the COVID period. The method used for ranking the top and bottom 50 suburbs in price growth in WA and Victoria from the start of 2019 to the end of 2021 is as follows.

CoreLogic suburb level back series Excel data file provided the initial data. The Automated Valuation Method (AVM) utilises property data sets, artificial intelligence modelling and hedonic regression techniques to create property valuations.

- The data were framed to include only WA and Victorian observations.
- The data were split into houses and units.
- Observations outside the dates ranging from 01/01/2019 to 31/12/2021 were removed.
- Suburbs with less than 300 properties with a valid AVM were removed for houses and units in Victoria.
- In WA, suburbs with less than 300 properties with a valid AVM for houses and 200 properties with a valid AVM for units were removed.
- The suburbs were then ranked based on the 3-year growth in median sales AVM value on 31/12/2021 for Victoria and WA.

Based on this ranking, the top 50 and bottom 50 suburbs were selected for units and houses in Victoria and WA.

The method for ranking the top and bottom 50 suburbs for rent growth in WA and Victoria from 01/01/2019 to 31/12/2021 follows the process above and then:

- Rental growth was calculated by the percentage difference from the rent from 31/01/2019 to 31/12/2021 for houses and units in Victoria and WA suburbs.
- The suburbs were ranked by rent growth.
- The top 50 and bottom 50 suburbs were selected based on this ranking.

Western Australian houses

The WA 3-year AVM growth ranking for houses revealed that the top four suburbs were in Pilbara mining export locations, with a further four more suburbs in the top 50.

Geraldton, in the mid-west of WA, and the surrounding suburbs were the dominant locations in WA's top 50, recording 17 of the top 50 suburbs. Geraldton has limited high density (unit) options, a rental vacancy rate of 0.4 per cent, and dwelling approvals at 20-year lows.

The south-west of WA also delivered significant price growth with eight suburbs in the top 50, including five located on the coast and three inland. The increases appear to be associated with an annual population growth of 3 per cent (ABS 2022c), stemming from lifestyle opportunities and investment speculation.

Rural and coastal suburbs on a perimeter outside the Greater Perth area recorded seven suburbs in the top 50, generally below the median house prices, and therefore would appeal to first home buyers.

Only three Perth metro suburbs are in the top 50, two of which are adjacent to Fremantle.

The key takeaways from these rankings are:

- only three of the 50 suburbs are in the Perth metro area
- the increase in the top four Pilbara suburbs is potentially a result of strong mining activity
- the growth in AVMs around Geraldton and Esperance is a result of COVID-19 stimulus and population movements
- price growth on the urban periphery is likely due to incentives for first home buyers and population movements
- the growth in the South West and Esperance is due to lifestyle choices.

Table 17: WA's top 50 suburbs for 3-year AVM house growth

Rank	Suburb	Location	Rank	Suburb	Location
1	Newman	Pilbara	26	Exmouth	Pilbara
2	South Hedland	Pilbara	27	Millars Well	Pilbara
3	Port Hedland	Pilbara	28	Djugun	Broome
4	Bulgarra	Pilbara	29	Waggrakine	Geraldton
5	Sunset Beach	Geraldton	30	Beachlands	Geraldton
6	Beresford	Geraldton	31	Drummond Cove	Geraldton
7	Spalding	Geraldton	32	Mount Tarcoola	Geraldton
8	Donnybrook	SW	33	Quindalup	SW
9	Bluff Point	Geraldton	34	South Boulder	Goldfields
10	Yallingup	SW	35	Castletown	Esperance
11	Utakarra	Geraldton	36	Kealy	SW
12	Mahomet's Flats	Geraldton	37	Ledge Point	Perimeter
13	Pegs Creek	Pilbara	38	Lancelin	Perimeter
14	Strathalbyn	Geraldton	39	Tarcoola Beach	Geraldton
15	Cowaramup	SW	40	Esperance	Esperance
16	Rangeway	Geraldton	41	Brigadoon	Perimeter
17	Bridgetown	SW	42	Henley Brook	Perimeter
18	Wonthella	Geraldton	43	Toodyay	Perimeter
19	Geraldton	Geraldton	44	White Gum Valley	Fremantle
20	Nannup	SW	45	Kununurra	Kimberley
21	Paraburdoo	Pilbara	46	Glenfield	Geraldton
22	West Beach	Esperance	47	Darlington	Perimeter
23	Kambalda East	Goldfields	48	North Fremantle	Fremantle
24	Forrestdale	Perth Metro	49	South Yunderup	Perimeter
25	Woorree	Geraldton	50	Margaret River	SW

Source: CoreLogic RPdata house price data. Calculations by authors.

Victorian houses

The Victorian suburb's house AVM ranking for 3-year growth revealed that the highest price growth was in regional locations, while the lowest occurred in Melbourne's urban and inner-city locations. Generally, there is a correlation between Melbourne's COVID lockdowns and the price growth of dwellings, whereby the periods in lockdown witnessed low or negative AVM growth, followed by a significant increase as the lockdowns eased. However, numerous regional suburbs did not experience the declines in Lockdown 6. The AVM growth for houses in Melbourne suburbs followed similar patterns to regional suburbs, except the growth was much smaller. Units in inner city Melbourne suburbs displayed minor growth around the beginning of 2021 but generally experienced negative growth on either side of this period.

Table 18: Dates and durations for Melbourne COVID lockdowns

	Start	Finish	Duration
Lockdown 1	30 March 2020	12 May 2020	43 days
Lockdown 2	8 July 2020	27 October 2020	111 days
Lockdown 3	12 February 2021	17 February 2021	5 days
Lockdown 4	27 May 2021	10 June 2021	14 days
Lockdown 5	15 July 2021	27 July 2021	12 days
Lockdown 6	5 August 2021	21 October 2021	78 days

The Gippsland region recorded seventeen suburbs in the top 50, including coastal and inland suburbs. The populations are relatively small; however, some suburbs have demonstrated significant population growth over the past five years. The suburbs are generally less than two hours' drive from Melbourne, with the coastal suburbs catering to tourism, particularly during holidays.

Ten inland rural suburbs in the western half of Victoria featured in the top 50 suburbs for AVM growth. These suburbs have similar characteristics, with populations between 1,000–10,000 and limited population growth between the 2016 and 2021 censuses. The outlier in this group is Bannockburn which is only 88 km from Melbourne and has experienced significant population growth.

The dwelling prices of Western Victorian towns and suburbs appear correlated with the application and easing of lockdowns in Melbourne. These locations generally experienced a decline in the 3-month AVM during Lockdown 2, followed by the most robust growth in early 2021. Unlike the Gippsland, Mornington Peninsula and Great Ocean Road suburbs, the 3-month AVM decline coincided with Lockdown 6 but increased again as the lockdown eased. At this stage, it is difficult to assess whether the slowdown during Lockdown 6 resulted from inaction from Melbourne buyers or a waning effect of the COVID-19 stimulus.

The key takeaways from the Victorian rankings are:

- Rural and regional suburbs dominated the top 50 for AVM house growth.
- The Gippsland region contributed the most suburbs to the top 50.
- The exodus from Melbourne to regional locations hit Melbourne unit prices, particularly inner Melbourne, harder than house prices.
- Suburbs in Western Victoria experienced slow growth during lockdown 6, while the Gippsland, Mornington Peninsula, and Great Ocean Road suburbs and towns experienced more robust during this period.

Table 19: Victoria's top 50 suburbs for 3-year AVM house growth

Rank	Suburb	Location	Rank	Suburb	Location
1	Mortlake	Western Victoria	26	Tootgarook	Mornington Peninsula
2	Sandy Point	Gippsland	27	Yallourn North	Gippsland
3	Somers	Mornington Peninsula	28	Morwell	Gippsland
4	Myrtleford	North-East Victoria	29	Orbost	Gippsland
5	Mount Beauty	North-East Victoria	30	Moe	Gippsland
6	Venus Bay	Gippsland	31	St Arnaud	Western Victoria
7	Aireys Inlet	GOR	32	Hamilton	Western Victoria
8	Cape Paterson	Gippsland	33	Cobden	Western Victoria
9	Churchill	Gippsland	34	Beechworth	North-East Victoria
10	Apollo Bay	GOR	35	Newborough	Gippsland
11	Koroit	GOR	36	Dimboola	Western Victoria
12	Crib Point	Mornington Peninsula	37	Jan Juc	GOR
13	Warrnambool	GOR	38	Rhyll	Gippsland
14	Sorrento	Mornington Peninsula	39	Korumburra	Gippsland
15	Ararat	Western Victoria	40	Foster	Gippsland
16	Warracknabeal	Western Victoria	41	Mount Martha	Mornington Peninsula
17	Blairgowrie	Mornington Peninsula	42	Yarrawonga	North Victoria
18	Rye	Mornington Peninsula	43	Cape Woolamai	Gippsland
19	Bright	North-East Victoria	44	Rosedale	Gippsland
20	Mirboo North	Gippsland	45	Beaconsfield Upper	Outer Melbourne
21	Stawell	Western Victoria	46	Bannockburn	Western Victoria
22	Anglesea	GOR	47	Tatura	North Victoria
23	Balnarring	Mornington Peninsula	48	Yarram	Gippsland
24	Wonthaggi	Gippsland	49	Kinglake	Outer Melbourne
25	Port Fairy	GOR	50	Terang	Western Victoria

Source: CoreLogic RPdata house price data. Calculations by authors.

3.5 Summary

The market analysis for our case study states highlights similar market outcomes for WA and Victoria despite very different COVID-19 experiences, with lockdowns far more severe in Victoria. Generally, price and rental growth outcomes were very different from those expected by the major banks, at least at the beginning of the pandemic. Record low interest rates fuelled consumer spending and allowed many households to bring forward purchasing decisions they may not otherwise have made if it were not for the pandemic. Price growth in regional areas was extreme with demand increasing as households took advantage of new working from home opportunities and increased borrowing capacity. Household preferences and local market outcomes are explored in the next chapter.

4. Local drivers of market activity

- **Real estate agents interviewed for this research attributed sudden spikes in local housing markets during COVID to a range of factors including COVID restrictions, working from home, government grants, favourable lending conditions, and comparatively little new housing supply or sale listings.**
- **Lifestyle changes with migration towards coastal and regional areas contributed to increased buyer activity, dwelling prices and rents in regional locations.**
- **The regional rental market suffered from a decrease in long-term rental availability. In Victoria, this was caused by the high demand for housing that pushed investors to sell; in WA, investors switched to short-term rentals to accommodate the higher tourist demand.**
- **Interviewees in both states noted how investors were exiting the private rental market, and the dwellings were being purchased by owner-occupiers. This contraction in supply contributed to a falling vacancy rate.**
- **A new pattern of property preference for larger properties—greater indoor and outdoor space—emerged, driven by longer durations in the home. In particular, extra rooms or separation was sought to allow work from home.**
- **In Victoria, real estate agents viewed the increase in demand and reduction in selling days as a temporary surge, which had largely tapered off by late 2021.**

One of the main aims of this report is to examine how COVID-19 has changed consumer preferences and, therefore, housing demand. While quantitative data are useful in exploring outcomes, qualitative data can help explain the reasons underpinning such outcomes. In this section, we discuss a series of interviews with real estate agents (REAs) and home builders in our two case study states of WA and VIC. A total of 17 interviews were conducted across the two states and the stakeholder groups.

Table 20: Interview schedule

	Completed
New house builders/developers (WA)	4
New house builders/developers (VIC)	2
Real Estate agents (WA)	6
Real estate agents (VIC)	5

Source: Authors

In order to determine key drivers of local housing markets before and during COVID, we interviewed six Western Australian real estate agents (WAREAs) and five Victorian real estate agents (VICREAs) representing different housing markets. These markets were selected based on the CoreLogic AVM house price growth criteria described in Section 3.4. During the interviews, REAs were asked to describe patterns of buying activity before and after COVID, differences in buyer and seller groups, property types and characteristics in most demand, changes in rental markets, and other factors in local housing markets over the 2020–2021 period.

For WA, the areas selected encompassed:

- The south-west of WA (including the holiday locations of Busselton, Dunsborough and Margaret River (WAREA 1)
- Geraldton and its surrounding suburbs (WAREA 2)
- Perth's south-eastern metropolitan suburbs (WAREA 3)
- Perth metropolitan eastern semi-rural/rural suburbs (WAREA 4)
- Perth metropolitan southern residential suburbs (WAREA 5)
- Fremantle and surrounding suburbs (WAREA 6).

Sharp housing price increases in Victoria during the COVID period were non-metropolitan. This came in the context of a previous period of sustained dwelling price growth primarily concentrated in Melbourne, inner Melbourne in particular. So, with an inversion of earlier growth trends, regional Victoria recorded the most significant housing price growth in the COVID period. These regions comprised Gippsland, Mornington Peninsula, Western Victoria, South East Coast, Great Ocean Road, North East Victoria, North Victoria, Outer Melbourne (Kinglake), Rural Geelong, and North West Victoria. Of these, only Mornington Peninsula and Outer Melbourne (Kinglake) form part of metropolitan Melbourne—by some but not all statistical definitions.

Consequently, the REAs interviewed in VIC covered regional areas; in particular, VICREAs worked across Western, North East, North Victoria and the South East Coast. For Victoria, the areas selected encompassed:

- Western Victoria (VICAREA1)
- South East Coast (VICAREA2)
- North East Victoria (VICAREA3)
- North Victoria (VICAREA4).

The research team also interviewed four Western Australian and two Victorian home builders to identify whether the purchasers of new houses had changed their preferences. The four WA builders delivered a range of products from one-off project homes, multi-residential housing, high-density housing, and dwelling renovations/additions. The first builder (WAB1) is predominantly involved in additions, often for families living in older three-bedroom and one-bathroom dwellings. Perth's inner-ring suburbs provided the primary locations for their clients. The second builder (WAB2) delivers multi-residential and high-density dwellings as part of a Tier 1 national building company. Their key markets are suburban locations with increased density due to recent zoning changes. The third WA builder's (WAB3) main product is one-off architect-designed residential dwellings mainly for families and mostly around the Fremantle area. The final interviewee (WAB4) is a small, 5-year-old family-run business delivering mainly single-story detached dwellings in the southeast quadrant of the Perth metropolitan area.

Home builders in Victoria proved harder to source for interviews, even though assistance was given by the Housing Industry Association and Urban Development Institute of Australia. Both Victorian home builders represent large, nationally active firms that deliver volume built single and detached dwellings in suburban growth areas. They operate primarily in Melbourne's designated growth corridors but with some estates in large regional Victorian centres.

Interviews with home builders covered changes in new housing demand and supply patterns. Builders were also asked to comment on their understanding of how the construction industry was affected by the onset of COVID-19 and how they adapted to the subsequent lockdowns and responsive fiscal building stimulus grants, including demand for new dwelling features.

The following sections discuss the findings of the interviews. These are organised around a number of emerging themes and issues: housing market activity, buyer and seller profile, government grants, construction costs and delays, property preferences, and post-COVID.

4.1 Housing market activity

Despite different patterns of price growth across the two states, the housing market behaviours identified through the interviews are remarkably similar. The main housing trends recorded by the VIC and WA REAs during the onset of the pandemic were:

- increased activity starting from the second quarter of 2020 after an initial period of uncertainty
- increased median house prices over 2020–2021
- reduced time on the market and a high volume of enquiries
- increase in land sales and take-up of housing and land packages in regional greenfield estates, which had previously been slow to develop.

Increased activity

In WA, the REAs interviews identified that after an extended period of market stagnation (from 2015), the market in Perth metropolitan areas started to recover in late 2019. The exception was the south-west holiday market which had yet to experience any improvement.

> The first shift we saw, which was significant, was the last quarter of 2019 … and that last quarter was a significant pickup in volume (WAREA4).

> The market price itself was pretty stagnant, had been stagnant for the previous couple of years, with no movement in price at all. And you know, if you've got a buyer for a property, you work pretty hard to try and get a deal together because we weren't sure there were other buyers out there (WAREA4).

As COVID lockdowns were implemented and international borders closed in the second quarter of 2020, all WAREAs reported a steep decline in buyer activity. In addition, the WAREAs identified a large amount of uncertainty and panic throughout the market, fuelled by media speculation and dire housing price forecasts by financial institutions.

> I think there was a big panic when COVID first hit. Everyone was really nervous. We didn't know what was going to happen. A lot of my buyers have lost jobs, so there was that big panic. It was in all industries. There was a big panic about what would happen in the market and whether it would crash (WAREA3)

> Here it obviously fell off a cliff for a couple of months. We thought it was going to be doom and gloom (WAREA6)

After the initial panic and decline in buyer activity, all six WAREAs reported a vigorous increase in the third quarter of 2020, which coincided with fiscal policy stimulus, including the introduction of the Australian Government HomeBuilder Program in June. Moreover, each WAREA interviewee agreed that buyer activity remained strong throughout the second half of 2020 and continued throughout 2021.

> May 2020 and June 2020 was definitely a big, big pickup in sales turnover (WAREA3).

> I would say in the middle of 2020, the market just started to take off (WAREA3).

Regional Victoria's REAs noted specific times and locations that experienced price increases, and all reported spatially and temporally defined increases in demand for housing in their areas in the wake of COVID. The Victorian REAs each reported an increase in median house prices of at least $100,000 over 2020–2021. Higher amenity regional and coastal areas were reported to have nearly doubled in price. For some areas, the increase in demand and reduction in market time was considered a temporary surge, which had largely tapered off by late 2021. However, all agents stated that the increases had been extreme and that they expected changes in entry-level prices to be sustained in the longer term:

> When COVID first started the average sale price in [city] would've been 350–370 grand, now the average sale price is closer to 500. In fact, for the last couple of months our team—and we keep an eye on these stats—the average sale price for us started with six … and we sell with volume, so it's a good average. A few years ago we would have done a handful of million dollar sales, three, four and they were celebrated because they were rare. If you were doing one a quarter, you were doing well. In 2021, we did seventeen of them. And in 2022 so far, and we're only halfway through August, we've already done 21 of them (VICAREA3)

Victorian home builders were also aware of increased sales and prices in regional areas. Demand for new greenfield homes increased (especially in response to HomeBuilder stimulus) but was particularly intense in non-metropolitan areas:

> Country definitely had a huge spike. So regional, regional definitely went up. So that Geelong corridor, so that's our country west. But going right through, Ballarat exploded. Right through pretty much all of those regional towns had a really big increase. (VAB)

Similarly, the WAREAs pointed out that the reduced listings and strong buyer demand for established homes led to demand outstripping supply. The disequilibrium created a situation whereby all WAREAs reported receiving multiple offers on a single listing for an established property, driving prices up well beyond expectation.

> In the last sort of two years and we've seen multiple buyers come into the market competition and push up prices (WAREA1).

> I'd say let's do a closing date sale. Let's get 5, 6, 7 or 8 offers. Let's get 50 people through and we will get offers $50,000–$100,000 above where we think we are. And it happened every single time. (WAREA6)

In regional WA, Geraldton recorded prices increase with rising buyer demand, and listings also increased to meet that demand, leading to significant increases in sales.

> As demand grew, the number of listings that were available sort of grew as well. So the turnover would be double what it was a couple of years before (WAREA2).

Reduced time of properties on the market and high volume of enquiries

Victorian real estate agents described increases in the numbers of interested parties and offers on all properties and, as a result, a much-reduced time on the market. This was noticeable in regional areas where property selling times were usually quite long.

> [COVID saw] just lots of buyer demand basically in a market where you did not really see a lot of it (VICAREA4).

Listing times generally fell from a few months to a few weeks:

> It was craziness, total nuts—buyers were falling from the sky, it was FOMO, it was fear of missing out, it was just nuts (VICAREA4)

Also, among the WAREAs, there was a general consensus that properties were selling much faster with the increased buyer activity.

> And then that fear of missing out continues to drive the first home buyers. There's all the fear of missing out in the real estate market, buying, which is not as bad as it was. It was much stronger, but it's still there. And things are taking longer to sell than they were, but it's still there. (WAREA6)

Land and housing packages

The COVID stimulus building incentives initially led to strong demand for land and new builds. However, among the WAREAs, there was also a common perception that new land development and dwelling construction did not increase immediate supply and, therefore, raised the demand for established dwellings. Initially, the building incentives led to strong demand for new builds, but this demand faded due to two significant factors. Firstly, construction times increased considerably, discouraging home buyers from building. Secondly, construction costs increased dramatically, negating the new home subsidy and reducing dwelling developments' financial viability. These two factors increased the demand for established dwellings. However, the south west region saw a different outcome, with land development increasing considerably.

> We had a huge increase in the land sale activity. My business does do a lot of subdivision land sales. And so we saw a real change there, probably unprecedented in the 7–8 years I've been working in the level of inquiry, particularly in that market (WAREA 1).

Back to normal?

In Victoria, the real estate agents and builders identified a sudden increase in buyer demand in regional areas in response to COVID restrictions in Victoria, which, for key periods, were spatially defined and focused on Melbourne. Lockdowns in metropolitan Melbourne—inside the so-called 'ring of steel'—were more restrictive and longer lasting than those outside metropolitan areas. Metropolitan residents were prevented from leaving Melbourne—however, purchasing property and moving to a new residence was permitted. The earlier periods of COVID saw intense levels of activity:

> It has been a very, very tiring time so yeah I'm looking forward to it being quiet in all honesty. We can sort of just get away from that really frantic pace of people just trying to make decisions with so many unknown things going on in the world (VICAREA2)

Agents and home builders suspected that regional areas would continue to see more demand than pre-COVID, including migrants from Melbourne. COVID has arguably resulted in a sustained reduction in the importance placed on commuting distances and more value placed on local services and amenities as well as on private housing space. However, markets have largely returned to pre-COVID patterns of activity.

> Definitely we're seeing now, the main group of people buying has kind of reverted back to pre COVID for me anyway. However, we're seeing quite a lot of that sort of baby boomer maybe 50 to 65 year olds that it's a consulting job two days a week in Melbourne and then they'll live the balance out here so lifestyle again, more so than people pulling out and coming full time. (VICAREA2)

> We have reverted back to that original market since the election and the interest rate rises. It is like a light switch has been turned off, and the buyers have just slowed right down and it's back to what you call a normal market in that you'll get constant transactions. (VICAREA4)

> I think the demand has eased already, and we know that from our work load, so that has levelled out a bit. In respect to pricing for [town] I don't think it will dive down, because there's not enough properties for competition (VICAREA3)

In WA, demand for regional locations was expected to calm but remain elevated on pre-COVID levels due to a continuation of remote working patterns.

4.2 Buyers' profile

In both states, the interviews revealed a shift in buyer profiles which were said to have included:

- buyers 'escaping' metropolitan areas
- buyers responding to conditions in Melbourne by seeking larger homes and more private space
- buyers taking up new opportunities to work from home in lifestyle locations
- new home/first home buyers taking up greenfield housing in regional estates who would not previously have considered non-metropolitan locations, and
- buyers bringing forward retirement and semi-retirement plans by selling dwellings and purchasing lifestyle properties.

In WA, first home buyers played a decisive role in buyer activity, encouraged by increased first home buyer grants and low interest rates. However, each location had its nuance. Many first home buyers were purchasing ex-investment properties listed for sale in the Fremantle, South East Perth metropolitan and Geraldton areas. The Geraldton WAREA noted the propensity for renters to buy the dwelling they were leasing. This experience is perhaps due to the relatively small nature of the local market.

> We've had very, very strong buyer activity from first-time buyers, and people are exiting rentals because the rents are going up. Interest rates are so low, it's cheaper to buy a house than rent a property (WAREA 3)

> What happened is a lot of the tenants are buying the properties that we listed because they couldn't find a rental. There was a lot of matching up of tenant and owner that was ready to sell (WAREA 2)

While first home buyers played a decisive role in the demand for dwellings in affordable suburbs, there was also a rise in homeowners upgrading. The upgrading was associated with a desire to move from higher to lower-density housing, creating an increased demand for separate family-sized houses on larger blocks of land while at the same time facilitating a decrease in demand for apartments.

The south metropolitan suburb WAREAs noted that the area is popular due to the strong-performing local high school, so it is often a target for second-home buying families. The south west WAREA also reported an increase in buyers with younger families.

> You'll probably find strong areas at the moment are anything with a family home. There is a serious shortage of good quality family homes (WAREA3)

> First-home buyers are probably looking for a three-by-one in a more affordable area. But around my area, it's that second home purchase. They're stepping up, and instead of having a $500,000 home, they're stepping up to that $1,000,000 property because they want that big four by two (WAREA5)

While homeowners may have been reluctant to go to market, contributing to the low supply, all WAREAs described an increase in the number of residential investors exiting the market. The interviewees conveyed that after years of minimal or negative capital growth in WA, investors took the opportunity to leave the market as property prices increased. Such activity led to a decline in rental listings and the rental vacancy rate over the same period.

> It was an opportunity for investors to bail out of the market. (WAREA5)

> Investment properties haven't seen much activity or growth over the last ten years, and now that things have picked up, a lot of people are exiting. In my region, if I didn't have investors selling, the stock level in Perth would be even lower. So, the increase in housing prices has encouraged more investors to sell (WAREA3)

> Now investors could realise that asset and take some money out that potentially they'd been wanting to do for a while but hadn't been given that opportunity (WAREA5)

VICAREAs and home builders attributed sudden spikes in local housing markets during COVID to intermingled factors—COVID restrictions, working from home, government grants, favourable lending conditions, and comparatively little new housing supply or sale listings. Whether migration from Melbourne to regional areas was explicitly responsible for fuelling housing demand was a high profile and political question.

However, VIC agents acknowledged an increased presence of Melbourne buyers trying to leave Melbourne and its COVID conditions. In some cases, Melbourne buyers were reported to be literally buying anything (sight unseen) to be able to leave Melbourne. This is related to leaving COVID restrictions and also to seeking space and amenities in country locations:

> Beyond that, the main shift I think we had was people just buying anywhere to get out of that real lockdown in Melbourne (VICAREA2).

> And so I would suggest that the FOMO [fear of missing out] kicked in for a lot of people, and obviously, with rules and regulations for lockdown in the metro areas, that would've had a direct impact for sure for people coming to our area (VICAREA3)

> Yes, certainly, particularly buyers looking to get out from Melbourne and sort of escape that city life and look for a bit more of a country lifestyle. (VICAREA1)

The capacity (and, for some time, the direct requirement) for professional workers to work from home was widely reported to have contributed to a shift in buyer profiles in regional Victorian areas. Metropolitan buyers could move to regional areas—perhaps near beaches or other points of interest—and retain their employment. However, they also responded to the practical pressures of working from home, sometimes with children and in smaller dwellings, which fed into demand for larger homes enabling more separation:

> Once COVID hit, the inquiry and the buying activity just went through the roof, so we were dealing then with a younger demographic. Families moving, people who could work from home or had the ability to suddenly, you know not have to go into an office, and there was also that intense fear of missing out so people were just buying sight unseen (VICAREA2)

> Also we were seeing, you know, working people that were figuring out okay, we're now able to work from home—so let's come to the country and do that and find this great lifestyle for our family. (VICAREA4)

New home builders/first home buyers were also entering into contracts for new greenfield housing in regional estates. Agents and builders reported that this included first home buyers who previously would not have considered moving out of Melbourne. Nevertheless, new homes in country areas represented improved affordability in terms of space and price for the buyers able to work from home and not needing to commute. In addition, home builder stimulus grants were sometimes taken up in more affordable country townships:

> So, I think it brought forward a lot of local purchases, but you also had that market moving out from Melbourne, that prior to COVID there's no chance they would have gone (VAB)

> But then there were also a lot of first home buyers that were able to make use of the government grants that were on offer at the time, and to be able to build that first home. So we found a real shift in land value, and also blocks of land selling that weren't quite selling before the pandemic (VICAREA1)

However, new home and first home buyer activity varied widely across Victoria. In more restricted and high-amenity locations, sale prices were reported to have risen to levels excluding first home buyers and pushing younger buyers out of these towns and regions:

> For first home buyers in [town] it's very difficult. I mean, I've got two adult kids myself, I've got two other kids. So for them to get their toe in the water they're probably going to have to buy in other areas like [town] or [town] or something like that, just to get their toe in the water. (VICAREA3)

More typically, moves to regional areas were by people with some existing connection to regional areas. Among these were people returning to areas they had grown up in or where their family still lived or making a more permanent move to regional areas where they had had second/holiday homes.

This related to another significant reported buyer group: those bringing forward retirement and semi-retirement plans by selling properties in Melbourne or elsewhere in regional Victoria and living off some of the resultant capital gains. These types of buyers had had a continued presence in most regional markets already, but during COVID, were bringing decisions forward:

> Houses that were just a general three bedroom, one bathroom house, were getting a lot more interest as people were sort of packing up and selling for a good price in the city, or a bigger town, and wanting more of a relaxed lifestyle (VICAREA1)

> Yeah, so plenty of people are coming to the area with the knowledge that they could semi-retire, if they've sold a house in East Bentleigh for 2.5 million and they can come here and say I'm going to spend 1 million dollars, which would get you a bloody nice house in [city], and then have 1.5 in the bank, so the biggest push is coming from those who are probably in that—dare I say it—40-55 year olds, who have still got a working life ahead of them if they want it, they don't need it—semi-retirement. (VICAREA3)

While new buyers from Melbourne contributed to demand—at the same time, all Victorian REAs also pointed to the continued importance of buyers from within regional markets:

> I still think that it was probably a, you know, a 60:40 split for regional being still your major source of buyers but certainly Melbourne buyers were driving the prices and you know their demand, certainly, definitely helped put a spike in the market. (VICAREA4)

> So for [town] we've always enjoyed buyers from Melbourne, Geelong, Canberra, historically. Obviously, that was more highlighted during COVID and I think a lot of our local people thought that metro buyers were flying up the freeway with a car-load of cash and buying the first thing they saw, and that was putting pressure on prices. But I explained that we'd always had metro buyers. (VICAREA3)

4.3 Seller profile

Increases in buyer activity and dwelling prices were noticeable in VIC and WA's regional 'sea change' and 'tree change'[7] locations during COVID. In VIC, increases were also seen, from a low base, in regional areas that had not seen population or housing growth in preceding decades, such as Western Victoria. In most areas studied, spikes in demand from new buyers and escapees from Melbourne coincided with fewer properties listed for sale. As a result, some housing sales were bought forward, but most agents said that sellers would then be buying in effectively the same regional market, adding to demand.

With state border closures during COVID, there was interest in moving interstate (usually to Queensland or sometimes closer to New South Wales). However, the conditions for doing so meant that Victorians had to be reasonably committed to the move, given that to migrate, they had to buy or lease a property without first inspecting it. Nevertheless, out-migrations and sales did happen on account of interstate migration.

However, the constrained capacity for moving interstate during COVID border closures was said to have dissuaded some potential sellers in regional areas, contributing to fewer listings relative to buyer interest:

> We had way less people coming onto the market. And also, I think that reflected the fact that a lot of people selling here didn't have the capacity to go elsewhere and actually physically look. (VICAREA2)

The Geraldton WAREA also remarked on the increased demand for three bedroom dwellings close to town, but with a minimal supply of this type of housing, the prices rose sharply. The interviewee noted that retirees from the eastern states contributed significantly to this demand, citing the affordability, weather and lifestyle as the major incentives.

Regional WA's south west experienced a shift from longer-term to short-term holiday rentals as the region became a prime holiday destination for Western Australians with the international border closure.

> And the prices that were being achieved for short-term rent were, you know dramatically above what they could achieve on a weekly basis on a permanent rental. So you had the double whammy of people taking the opportunity to sell during that period, but also taking the opportunity to rent on a short-term basis, which dramatically reduced the number of rentals in the market. (WAREA 1)

There was a general acknowledgement across all locations that rental vacancy rates decreased, and rents have increased significantly over the COVID-19 period. The lack of available rental properties is widely attributed to investors exiting the market and increased net interstate migration.

---

7 A sea or tree change is defined as a change from a city based lifestyle to one that involves living in a regional/rural area either close to the coast or in the countryside.

> There was a huge amount of transition back to Perth during COVID. It was huge and that's how there's a lack of rental properties now (WAREA 6).

> So the rentals market remains extremely strong and that's purely because of the lack of investors buying, as I mentioned. If I put ten homes on the market, six of them will be investors selling; this has been pretty constant for the last 12 months (WAREA 5).

The Geraldton WAREA believed their 'rent roll' declined by approximately 20 per cent, and the vacancy rate fell from 5 per cent pre-COVID-19 to less than 1 per cent. A major component of this dynamic was exiting investors from the market.

Property sales in Victoria's high-growth regions came significantly from investors who sold stock from the rental market. This, in turn, reduced rental availability and vacancy rates and instigated the displacement of private renters. All but one of the Victorian REAs reported that rental investors were more prominent in taking the opportunity to leave the market—with investors having fewer disincentives to sell (not needing to find a follow-on property).

In regional areas with relatively limited rental stock, agents reported that investors sold properties (generally to first home buyers and second home buyers)—contributing to steep declines in rental listings and vacancy rates in Victorian regional areas. In a context of relatively limited rental housing to begin with, this saw private rental stock reduced, tenants displaced from properties and townships, and increasing competition for the stock that remained. Real estate agents stated that sudden increases in sale prices provided a motive for the sale of regional investment properties, most of which were sold to buyers (including from Melbourne) as primary or secondary residences:

> We saw a big push on our investors divulging themselves of that investment … Yeah so certainly, any investor that would decide to sell was for one of two main reasons. Either first, they were always going to be cashing in, it's just timing, because there's always going to be some investors that go, it's time for me to liquify my asset, put it into whatever I'm doing or retiring or whatever. And then there are others that just decided to see that capital growth and take that money at the time because they thought the bottom was going to fall out. (VICAREA3)

Displacement of tenants and a reduction in already limited private rental stock in Victorian locations has manifested in insecure housing (crowding, marginal dwellings such as caravan parks) and visible homelessness. This has since been widely reported in regional Victoria.[8] The Victorian REAs interviewed said that sales of rental properties, coupled with increased demand for rental housing from existing residents and new arrivals, had been compounded by rising rents in remaining or new investment properties. Where investors did buy into the regional areas studied, these were at higher prices, which were in turn reflected in higher rents:

> But we have most of our young ones now can't, can't afford it, but also more than that, that they've got the double whammy because rentals are so hard to get the rental cost is so high now you know you're looking at $400 to $500 a week in this area. (VICAREA2)

8 See "'The worst I've seen': Country towns recording rises in homelessness", The Age, 5 December 2022, https://www.theage.com.au/national/the-worst-i-ve-seen-country-towns-recording-rises-in-homelessness-20221201-p5c2qh.html

Agents and home builders also voiced concerns about residential tenancy changes in Victoria, thought to have prompted investors to sell by favouring tenants over landlords more than preceding regulations:

> Yeah a net loss, down. People are just cashing in they're saying the market's good so let's get our money out and absolutely do not want to invest in residential housing because they've skewed it too far in the tenants' favour. (VICAREA4).

The HomeBuilder grant, in combination with low interest rates, was also stated to have been significant in bringing forward the upgrading of properties. Existing owners upgrading their homes sometimes sought rental housing in the interim—and delayed construction times (see below) fed into additional rental demand:

> So then we had this compounding problem in our area of people who were selling and then renting while they were building, and then those building estimate times have blown out. (VICAREA3)

4.4 Government grants

Interviewees pointed to government grants—most directly the HomeBuilder grant—as significant contributing factors to housing demand during COVID. The introduction of the building stimulus created an immediate increase in demand.

> That increased demand came during early COVID because the stimulus came in early … but that demand is still for the product that was already on the market (WAB2)

> The inquiries went up probably 300 to 400 per cent. So that was a huge demand to have to manage even just on the front end of answering the calls because every call is a potential client or someone who talks to someone else. That could be a potential client. (WAB1)

As a growing number of potential investors and renovators took on government grants, the WA builders noted that enquiries were coming from outside their usual target market. However, they did not change their 'traditional' delivery location, with both small and larger builders maintaining their preferred area. This was due to two main reasons. Firstly, the increase in demand for dwellings due to the building stimulus measures meant builders did not have to take on work outside their traditional locations. Secondly, there were issues with sourcing labour in other locations, particularly rural or regional; moreover, building sites in relative proximity allowed builders to move workers and contractors more efficiently.

In VIC, lower interest rates and first home buyer concessions were also mentioned as influencing households to bring home building and renovation plans forward. Home builders described an increased interest in regional housing markets, increased sales of new detached housing, and an increasing size of new homes as a result of the stimulus:

> COVID hit, no one knew what was going to happen, I think everyone was worried. Then the government introduced the home buyer stimulus for the new builds to get that all pumping and it just flew. (VAB)

According to the VIC builders, the HomeBuilder grant combined with other factors to shift buyer demand toward larger homes. Some metropolitan first home buyers were choosing larger homes and homes in regional areas when they previously would have bought based on locations in Melbourne:

> So when the stimulus package got announced we had people that then came back in and started spending more on the house, or changing to a bigger house. You know, they were really maxing out what they could get for it. So that's probably the change that happened to it. (VAB)

4.5 Construction costs and other delays

In WA, all builders reported a shortage of labour and materials, which has increased delivery time and costs. COVID-19 disrupted supply chains globally, and interstate and national borders' closure affected the labour supply, but the building stimulus 12-month period exacerbated these shortages. Nevertheless, even with the extra demand, none of the builders reported expanding their workload beyond their typical capacity. One of the primary reasons for not expanding capacity in an under-supplied industry is the potentially negative impact on reputations due to time overruns.

> To give everyone these grants and tell them they have to start the build within the first 12 months! They should have done it over four years. This drove demand in building over the next 12 months and increased trade prices. (WAB3)

Even though the builders interviewed did not take on extra contracts above their usual capacity, the shortages led to all builders reporting an average 3 to 6-month extension in the expected delivery times, depending on the job's complexity. This is because they felt the labour shortage first, followed by the shortage of materials.

> We are finding that we have to book our carpenter teams two to three months in advance to ensure we get them. Otherwise, the clients are waiting for another two to three months. (WAB1)

> So before COVID, if we needed roof timber, we needed to order two weeks before. Now we have to order 3 1/2 months before, which creates a lot of headaches trying to run the project on time. (WAB4)

WA builders mentioned that they are currently attempting to factor any potential future cost increases into contracts, but the uncertainty makes this problematic. The lack of materials and labour causes costs to rise, placing the builders in financial hardship for existing contracts. However, more recently, the interviewees reported a slowdown in demand from new and existing clients who do not wish to proceed due to increased costs. This slowdown is likely to reduce the rate of construction cost increases.

> On average, costs have gone up about 30 per cent across the board. Builders were running at a 15 per cent margin, which most did pre-COVID, and they signed a contract coming into COVID, and things have gone up 30 per cent. Not only are they not making their 15 per cent margin, but they are also losing 15 per cent. I make no margin if I build your house, which is $400,000, but it costs $450,000. I put up $50,000 of my own money to pay for your house, I mean, it is a pretty hard pill to swallow. (WAB4)

There was no significant building or construction methodology shift due to supply shortages, and the interviewed WA builders continued to deliver their usual products. Minor changes were suggested to clients regarding finishes, e.g. plastering, tiles and cabinetry. Moreover, these changes were often only for short-run or ad-hoc situations.

> We are drywalling walls because it is hard to find plasterers. So all the houses are being drywalled, instead of plastered … and that supposedly speeds things up. But then, of course, we have supply issues with the drywall. (WAB2)

Some parts of Western Victoria and around major regional centres in Victoria were sites for significant new housing starts in response to COVID and aided by home builder grants during 2020 and 2021. However, in most Victorian regional areas covered by the REA interviews, the extent of new construction or subdivision activity during COVID was quite limited. Partly this was through the 'perfect storm' of increased demand—for regional housing, new housing, and larger and renovated housing—coinciding with labour shortages and increases in material and construction costs. With lags of 18 months or more, homes contracted in 2020 and 2021 were still in the pipeline awaiting competition well into 2022:

> From there, I guess, increased volume for everyone, and the decreased supply coming in because of, you know, shipping being locked down, and all that sort of stuff that just created a perfect storm. So you know, we still got some pretty full books for the next 12 months of jobs to build. So from a build perspective we're pretty good with it. But yeah, it was unlike anything seen before I guess (VAB)

Most regional areas that saw the sharpest increases in housing prices during COVID also witnessed significantly limited new building capacity. They also had higher prices to begin with, tending to price out first home buyers. Home builders instead referred to growth in greenfield construction growth around the major centres of Geelong, Bendigo and Ballarat. Of the agent interviews, only the Western District real estate agent described substantial new home-building activity associated with the stimulus in a context of a comparatively affordable housing market.

> There was a couple of estates, one in particular … that we had on the market for a little while, and it did take some time to sell, and the pandemic really pushed that. I'm just trying to think how many new builds there were, but you know, I think we would have sold close to ten to a dozen blocks in that 2020–2021 period just because of those government grants that were on offer. (VICAREA1)

Building costs for new homes were said to have increased by around $150,000 over the COVID period. Furthermore, while there were increases in contracts for new housing builds, including in regional areas, construction (and other delays) meant the associated construction pipeline was some way behind. Agents and home builders highlighted planning constraints, supply chain uncertainties and increased material costs, and in particular, a shortage of tradespeople as explanations for this.

> It's horrible. It's terrible. We've still got trade issues. So, you know you've got your supply issues and everything like that. We've been getting hampered for probably about 12 months now, the last six months has been exceptionally bad. But yeah, it's not great out there at all. So, it seems from a supply perspective, that's probably stabilized now over the last month or so. Timber and steel seem to be okay now—our big thing was timber for it—that's been stabilized. But we've still got some real pressures with trades, just not enough trades. (VAB)

General issues with labour and the cost of materials combined with, in some high-amenity regional townships, planning and heritage controls that tended to preclude significant new housing growth—or to at least evoke substantial planning approval processes. Agents mentioned these as contributors to housing pressures in some regions. In other Victorian regional towns and cities, limited infrastructure (notably sewerage) is a complication for new housing supply.

In more isolated regional areas, agents indicated that labour shortages and materials costs were seeing existing homes increase in value and buyers avoiding new construction or homes needing renovation. Construction delays also sometimes contributed to pressure on local rental housing:

> Probably just the thing like getting trades, very difficult … I would suggest some changes now —I'm talking about 2022—are because it's so hard for people to get trades, a lot of people are looking for properties that are finished, that are done. That don't need the work because they can't do it themselves and the material is just so hard to come by. (VICAREA3)

4.6 Property preferences

From the interviews, it emerged that certain property types and features were in greater demand in light of COVID in both states:

- large properties including 'lifestyle', acreages and semi-rural properties and private open space
- studies (sometimes renamed 'home offices') or generally extra rooms or separation to allow the practical capacity to work from home, particularly with a family; and
- in Victoria's regional areas, internet connectivity and the technical capacity to work from home also emerged as essential features. In WA, REA agents from regional areas emphasised connectivity related to transport infrastructure and commuting.

Lifestyle

Outside the Perth metropolitan area, there was increased demand for locations associated with lifestyle or a sea/tree change. Before COVID, semi-rural or rural properties, often associated with lifestyle, were in low demand, but prices have since increased substantially. The South West, Geraldton and Perth Eastern semi-rural WAREAs reported buyers deciding that now was the time to buy their 'dream home' as the post-COVID future was uncertain.

It was noted that the relative affordability due to extended periods of low demand, low interest rates, and increased savings, associated with reduced non-discretionary consumption and travel, were also contributing factors.

> You had people that were probably looking to move down in the next sort of five years that took the plunge and have gone let's just do it now. (WAREA 1)

> The sort of lifestyle style properties or lifestyle suburbs where people are choosing to make a change, and I think a lot of that was driven by COVID in that they thought, why wait when you don't know how long this will carry on for and why are we waiting for something that we've always wanted to do. Locations within an hour and a half of the Perth CBD saw buyer activity out there absolutely go through the roof. (WAREA 4)

The WA builders believed outdoor space, including a private garage, was a top feature clients sought, even before the pandemic. This preference away from apartments and a trend towards smaller block sizes led to an increase in medium-density housing. Consequently, the builders reported increasing popularity for indoor areas having an open plan to facilitate outdoor-type activities because of decreasing block sizes. Second-storey renovations were also preferred over single-storey to maintain outdoor space.[9]

In Victoria, the quest for one's own space took its more extreme format in demand for larger rural properties during COVID, including 'lifestyle', acreages and semi-rural properties, often with the capacity to grow food. While any property outside of Melbourne was reported as being suddenly easier to sell, REAs said that larger semi-rural acreage properties were particularly sought after. This was reputed to be partly a response to the uncertainties and restrictions of urban life during COVID—metropolitan buyers moving to regional areas sought space, independence, and a sense of autonomy to buffer or bunker themselves and their families within large private properties:

> Really, really strong surge in your small acreage type properties. They became real popular—like your 5 acre properties with a house, your little farm properties. They saw huge gains. (VICAREA4)

> But some of the lifestyle properties on a few acres, yeah your smaller acreage ones … That segment of the market has surged, whereas the rest of its fairly standard just a massive rise in transactions. (VICAREA4).

Properties that previously were difficult to sell because they demanded work to maintain were more desirable during COVID. However, apparently, not all buyers understood the nature of semi-rural property occupation and maintenance, and in some areas, a preference for the COVID appeal of larger farm-like properties encompassed a general desire for space to the extent of not understanding how much space was actually involved:

> One is really food security which is an interesting one, you know they want a few acres they want to be able to have a clean water supply. They want to be able to grow their own, and be a little bit self sufficient that's really been something that's quite prevalent in what we've been asked for. (VICAREA2)

9 It should be noted that homes constructed during the pandemic were contracted prior to COVID-19. Therefore the new builds constructed during the pandemic do not reflect changes in demand due to COVID-19.

The 'home office' effect

For new dwellings contracted during COVID-19, builders did not report major design alterations but noticed three significant changes in clients' requests. First, the increased material and labour costs associated with supply chain disruptions and border closures from COVID-19 restricted the clients' capacity to finance all their requests. However, despite the restrictions due to increased costs, clients were also prepared to spend all their budget willingly.

Second, as working from home increased dramatically during the pandemic, clients desired an additional room that could be used flexibly as office space. The request could be an extra bedroom or reduced space previously allocated for the second living area and reallocated as office space.

Third, clients were looking to utilise their dwelling space for increased activities or hobbies from home that extended beyond work. Due to decreasing block sizes, this dwelling space utilisation may be an extension of an existing trend of larger indoor areas for activity. In apartments and higher-density housing, the study nook feature lost its appeal, replaced with a preference for an extra room, emphasising the importance of space to work from home or for home-based activities.

> People have to cut back on what they want because there are obviously price increases. But I could not say they are looking for a different thing as such. (WAB3).

> A traditional theatre room turns into a multifunction room. (WAB2)

> They are always wanting some flexibility and space. So it is not just bedrooms; they want those kinds of flexible spaces, whether it is an activity that's a study or more areas for separated living. (WAB1)

Buyers responding to COVID conditions in Melbourne usually sought larger homes, more private space, and dedicated spaces for home offices. This, combined with the home builder grant, saw new housing designs integrating additional rooms and separate study areas. Part of the increased buyer interest both in newly built homes and in regional areas during COVID was a greater value placed on home space (inside and outside), with the capacity to comfortably live and work from home taking more preference over commuting distance:

> Now, we even tried to work on that with our descriptive write ups for properties. We didn't use the word 'study' for our writeups anymore, it was 'home based office' (VICAREA3)

> We started doing a bit of stuff, just with our floor plans. And we tackled that pretty early just to make sure you've got your separate study area and everything like that. That's probably coming through more so now than when COVID first hit. Because the people that are getting into homes now, they've had to live with COVID the last two years, and sharing a house with kids interrupting, and whatever else is going on with it. So that change is probably coming through now in floor plans more than when COVID first hit. (VAB)

'Virtual' and 'physical' connectivity

Victorian REAs and home builders identified some consistent themes in shifting demand for property features during and on account of COVID. This was because of the overall solid demand for regional housing and increasingly acute rental shortages. To some extent, everything outside of Melbourne was in demand. Agents reported that buyers moving to regional areas to work from home enquired about internet connectivity and NBN/broadband connections. Some suggested that there was a difference between the perceived and actual importance of variation in internet speeds:

> Yeah, internet obviously was very important, having a good internet speed, being able to have the ability to work from home. (VICAREA1)

> Yes, I'd suggest the number one—well, not the number one—but one of the main questions that we were getting asked was the NBN reliability, and obviously that would be for people wanting to work from home. (VICAREA3)

In terms of local amenities sought by buyers post-COVID—sharp housing price increases from early 2020 onwards, and as noted, there was increased demand for any property outside Melbourne. However, agents mentioned a particular emphasis on coastal areas and proximity to mountains.

Also, they reported strong buyer interest in smaller towns with sufficient local services and connections to nearby centres—including public transport (rail) connections to larger cities and Melbourne. They described strong buyer interest in smaller communities thought to be safer and, hopefully, more welcoming. Towns with schools (including non-government schools) were of more interest to families. Pubs, community gardens, cultural activities, health care, and employment either locally or in nearby regional centres were also mentioned as drivers of housing preferences in the regions generally, but especially in Victoria's regional areas post-COVID.

> And then also I think the community that's been something that's really people have focused on, particularly with children, you know they want that sense of community, they want to know that the children have got that ability to move around in an area and have freedom. (VICAREA2)

In the south west of WA, the Busselton Airport upgrade encouraged families with remote FIFO employment to move to the location. Furthermore, increasing the working-from-home dynamic allowed people to become more flexible with the distance they lived from work.

> Look what we've anecdotally saying quite a significant increase in permanent population, particularly in the [town] region, and so a lot of the people that bought have bought and moved their family down here […] They like headed down here mainly due to the fact that work-wise they can either work from home or you know the FIFO situation down here is continued with more flights directly out of Busselton and to FIFO sites. (WAREA 1)

4.7 Summary

The interviews identified that in WA and Victoria, during COVID-19, the local housing market has seen increased demand for separate housing and larger dwellings and a spike in demand (new built) driven by the governments' HomeBuilder grants.

Contrasts between the COVID impact on the housing market in the two states are also visible: Victoria's market changes were much more in response to COVID restrictions—which were longer, more limiting, and more spatially targeted than in WA. In regional areas, and in particular, in Victoria, REA interviewed reported strong and sustained impacts on rental housing—through in-migration and the sale of investment properties and associated reductions in regional private rental stock during and after COVID. However, such an impact on the rental market was also felt in regional WA for different reasons. The WAREAs reported a decrease in vacancy rates, which were attributed to the exit of investors from the markets, an increase in net interstate migration, and the switch from long-term to a more profitable short-term rental market.

The HomeBuilder grant caused a significant uptick in demand by first home buyers, as well as an increase in demand for homeowners looking to upgrade to larger homes and blocks in locations that facilitate improved lifestyles. A significant driver was people's ability to work from home and a desire to upgrade during the pandemic rather than wait. Agents and builders alike attributed shifts in market conditions not only to COVID-19 but to the combined effects of government grants and lending conditions: a 'perfect storm' of demand for specific locations and increased dwelling sizes, which also coincided with labour and materials shortages.

Interviews indicated that shifts in demand for housing in regional Victoria as well as in regional and metropolitan WA, were related to a search for more internal and outdoor space—with the home office and flexible spaces to support working from home being the domain new features sought after by buyers. In regional areas, larger and lifestyle properties were in particular demand. In moving to regional areas, local amenities—schools, health facilities, local employment, nearby beaches and mountains, and rail/airport connectivity all factored into demand for housing in the COVID period.

5. Analysis of residential sales transaction data

- Residential transactional data for Victoria and WA were examined across two time periods in order to assess the impact of COVID-19 on transactions. Period 1 and Period 2 denote the time periods before and during the pandemic, respectively.
- Both WA and Victoria experienced similar price increases for houses and units across the two time periods.
- In both WA and Victoria, the increase in dwelling prices for regional areas was much higher relative to metropolitan areas across the two time periods.
- For WA, the number of transactions marginally increased from period Period 1 to Period 2, whereas for Victoria, the number of transactions decreased drastically.
- For Victoria, the price increases for houses were higher relative to units. This was especially the case for regional areas. Given the lockdowns caused by the pandemic, consumers preferred bigger homes in regional areas. There was no such effect for WA.
- Overall, houses still make up the majority of the transactions. Given little diversity and no significant increase (or certainly lags) in supply, most of the recent demand is directed at established housing.

5.1 Introduction

This chapter focuses on the fourth research question of this project—'Have the characteristics of housing transactions changed as a result of COVID-19?'—identifying whether consumer preferences for housing have shifted due to the pandemic. It is important for policy makers and developers to understand changing consumer preferences so that housing supply and demand are matched.

In order to carry out the analysis, we used transactional data from our two case study states, Victoria and WA. This data consists of sale price, date of sale, location, lot size, housing characteristics such as number of bedrooms, number of bathrooms, living areas etc. The analysis of these features before and after the pandemic provided evidence of any changes in consumer preferences. Given that Victoria experienced much higher levels of disruption due to the pandemic compared to WA, the comparison across states also attempted to capture the effect on consumer preferences and market outcomes.

Subsequent sections in this chapter consist of a description of the datasets and variables used in the analysis. The two methods of analysis are described in detail, together with the results from each analysis. The appendices contain further details regarding the data sources and selected results from the analysis.

Data and variables

For WA, the Valuer General (VG) dataset was accessed directly through Landgate, the state's land information authority. This dataset contains details of all of the residential sales transactions in WA. This includes the sale prices and dates for the last three transactions pertaining to an individual property (repeat sales), geo-location codes, property classification, zoning information and property attributes such as land area, construction materials and number of rooms (bed, bath, family, dining etc.). Certain data fields, such as names, were removed for confidentiality reasons.

The Victorian VG property data was comparatively more difficult to obtain. Data from the Australian Property Monitors (APM) group was obtained via an arrangement with Australian Urban Research Infrastructure Network. A subset of this dataset (for a specific time frame) was provided on special request. While the two data sets are from different sources, they both record individual transactions and include a number of common variables. These included transactional prices, dates, location of property as well as selected property characteristics.

However, there were some differences between the datasets across the two states. The WA VG data recorded the final sales information (incurring stamp duties), whilst APM data includes various stages and types of property transactions—for example, time of listing for sale. Nevertheless, it was possible to identify final transactions and dates using the 'event' field in the APM data.

One of the main differences across the two datasets was the availability of repeated sales in the WA VG data as well as sales transactions for vacant land. Both of these variables were not available in the APM data—in the case of repeat sales, specific property identities are removed and thus preclude this type of analysis. For this reason, this report does not include an analysis of vacant land sales. The analysis focused on the common variables that existed across both datasets. The exception was the use of repeat sales data present in the WA VG dataset. This information proved invaluable for assessing the impact of the pandemic on residential property prices. An alternative approach to identifying changes in common property types and locations was developed for Victoria.

One possible hypothesis was that consumers prefer bigger homes as a result of lockdowns. Given this, the variables that represent the size of a house were used in the analysis. These included land area/lot size, number of bedrooms, number of bathrooms, study, pool and number of carports/garage spaces. In addition to these variables, the sale price, date, location/suburb and property type of each transaction were also included in the analysis. The exact definitions of these variables are provided in the Appendices.

Creation of new variables

In addition to the raw variables, a set of new variables was created for the analysis. A key variable required was the indicator which defines the before and after time period of the pandemic. Given this definition, dwelling characteristics can be compared over time. The time period before the pandemic (Period 1) was defined as all transactions from 1 June 2017 to 31 December 2019, and the time period during the pandemic (Period 2) consisted of all transactions from 1 June 2020 to 31 December 2021.

It was expected that both of these 18-month periods were adequate enough to capture consumer preferences before and during the pandemic. It is important to note that the effects of the pandemic may not be over. However, for the purposes of analysis, an end-period date was required. Hence, this time period variable was constructed for both datasets.

Other new variables required for the analysis include a metropolitan indicator, a strata indicator and socio-economic indexes for areas (SEIFA) deciles. These variables measured the change in consumer preferences across different segments/subsamples.

For example, were there differences in dwelling characteristics between metropolitan and regional areas across the two time periods? Similarly, was there a shift in consumer preferences with regard to strata properties? The SEIFA deciles (index of disadvantage) were used to measure the change in consumer preference across the social-economic geographies between the time periods. The latest available SEIFA deciles at suburb level were obtained from the ABS[10]. All of the above variables were constructed for both datasets. A table containing brief definitions of newly created variables is included in Appendix 2.

Given that only the WA VG data contained repeat sales, this information was used to gauge the price difference across the time periods for a given property. Hence, a set of indicator variables were constructed to identify properties that were sold before and after the pandemic.

Data cleaning and summary

Upon close inspection of the datasets and the corresponding variables, there was evidence of non-residential transactions and some missing or non-sensical values for some key variables. As such, the datasets were cleaned prior to any analysis. This ensured that data was representative of open market residential transactions. The final data set for WA transactions contained 148,616 observations across the two time periods. Similarly, the cleaning of APM data led to 589,865 transactions across the two time periods.

Next, the summary statistics of the key variables in the analysis were calculated for both states. The results based on the summary statistics showed that most of the variables were similar across both states. However, there were a few exceptions. In both states, the majority of the transactions were houses (non-strata), with 78 per cent in WA and 83 per cent in Victoria. Similarly, most transactions were for properties located in the metropolitan area—81 per cent for WA and 70 per cent for Victoria.

With regard to the number of bathrooms, the most common value (mode) for both WA and Victoria was 2 (55 per cent and 54 per cent). This was also the case for the number of parking spaces. A vast of majority of the properties did not have a study room (79% for WA and 72% for Victoria).

10 https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa

With regard to differences, the most common number of bedrooms for WA was 4 (41 per cent) compared to 3 (44 per cent) for Victorian transactions. Other differences included the proportion of properties with a swimming pool—17 per cent for WA compared to 2 per cent for Victoria and the median land area (lot size)—635 sqm for WA compared to 620 sqm for Victoria. The median price for a property in WA across both time periods was $465,000 versus $630,000 in Victoria. Finally, the highest number of transactions for WA occurred in the 10th decile of SEIFA (least advantaged), followed closely by the 9th decile and then the 5th decile. For Victoria, the highest number of transactions occurred in the 9th decile, followed by the 8th decile. Note that some of the suburbs had a missing decile value due to the fact that the latest SEIFA information (at the time of writing) was for 2016. Hence, any suburbs established after 2016 would not have SEIFA score/decile. For both WA and Victoria, the number of such cases was less than 0.05 per cent of all transactions. For further details on the summary statistics for both datasets, please refer to Appendix 2.

5.2 The impact of COVID-19 on residential transactions: descriptive analysis

As a first step, a descriptive analysis was used to examine the impact of COVID-19 on residential transactions. The hypothesis was that consumers prefer bigger living spaces due to COVID-19 lockdowns (Parsell and Pawsen 2022; Bank of England 2022). If consumer preferences have shifted, then it will be reflected in an increased demand for larger dwellings.

A two-step approach was used to examine the differences across the two time periods (as defined in the previous section). Firstly, summary statistics for key variables across the two time periods were calculated. Secondly, both parametric and non-parametric tests were used to assess whether the differences in the mean values of key variables across the two time periods were significant. For continuous variables, the parametric t-test was used, and for discrete variables, the parametric Z-test for proportions was used. With regard to non-parametric testing, the Mann-Whitney U test was used to test for significance.

Prior to conducting this analysis, it is important to note the number of transactions in each state across both time periods. For WA, out of a total of 148,616 transactions, 73,780 transactions were in Period 1, and the remaining 74,836 transactions were in Period 2.

Given that both periods are equal in terms of length of time (18 months), there appears to be a slight increase in the number of transactions for Period 2. On the other hand, the number of transactions in Victoria dropped substantially from 333,235 transactions in Period 1 to 256,630 transactions in Period 2. Based on this, it appears that the trend in housing demand for housing was quite different between the two states.

WA transactions

This section covers the analysis of WA transactions across the two time periods. The summary statistics for each key housing variable across both time periods are provided in Appendix 3. The table below summarises the findings for WA transactions across the two periods and provides the results for statistical significance from both a parametric and a non-parametric test.

Table 21: Mean difference of housing variables across two time periods

Variables	Difference in means between two time periods	Parametric test (t-test)	Non-parametric test (Wilcoxon test)
Price	Increase	Significant	Significant
Land area	Decrease	Not significant	Not significant
Bedrooms	No change	Not significant	Not significant
Bathrooms	Increase	Significant	Significant
Study	No change	Not significant	Not significant
Pool	Decrease	Significant	Significant
Parking	Increase	Significant	Significant
Strata	Increase	Significant	Significant
Metro	Decrease	Significant	Significant
SEIFA score	Decrease	Significant	Significant

Source: Authors

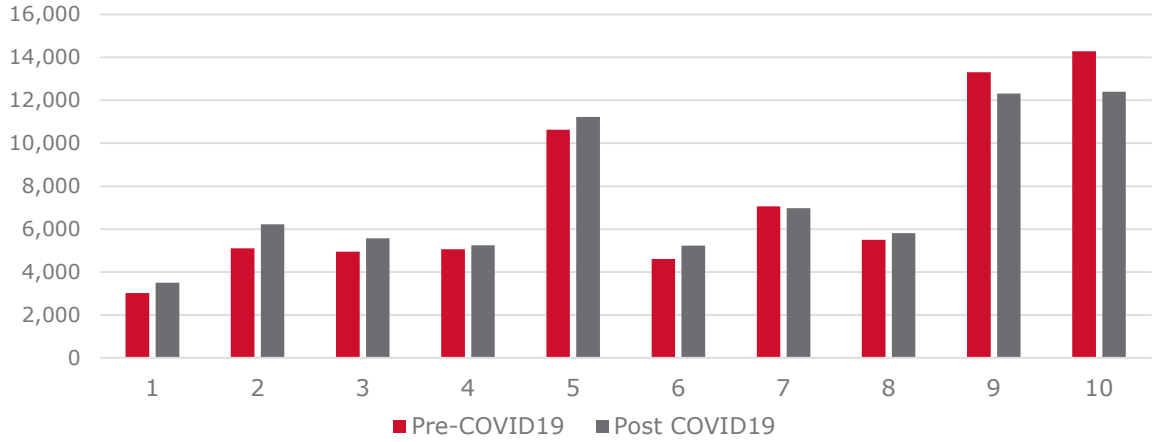
Based on the results presented in Table 21, the WA transactions showed that most dwelling characteristics did change significantly across the time periods. However, there were a few that did not, and these included the number of bedrooms and the number of study rooms. Although land area decreased across the two time periods, this change was not statistically significant. The remaining changes were all significant. Some dwelling characteristics have increased from Period 1 to Period 2, whilst others have decreased. The proportion of pools, metropolitan dwellings and SEIFA scores decreased. Whereas the number of bathrooms, parking and proportion of strata properties have all increased from Period 1 to Period 2.

The results indicate that regional transactions (non-metro) increased significantly. Given that the proportion of strata properties has increased, this runs contrary to the initial hypothesis that consumers wanted larger, detached dwellings due to the lockdowns. This could be a supply-side issue; with limited listings available, consumers may have little choice of available dwellings.

This may also be the reason why prices increased across the two time periods. The median price for a dwelling went from $453,000 in Period 1 to $475,000 in Period 2. Furthermore, the increases for strata properties were significantly higher compared to houses, which was also the case for regional properties compared to metropolitan properties. As mentioned earlier, these price increases reflect the increased demand for regional properties.

Although overall, the number of transactions increased from Period 1 to Period 2, a decrease occurred in the top two deciles (9 and 10, the most disadvantaged). For the remaining deciles, transactions actually increased from Period 1 to Period 2. Figure 18 illustrates this point. This implies that the demand for housing in geographical areas of relatively high disadvantage (economic and social) decreased across the time periods (although it still had by far the greatest number of transactions), whereas, for advantaged areas, the demand for housing increased during the same time period.

Figure 18: Number of WA transactions for SEIFA deciles across two periods



Source: Authors

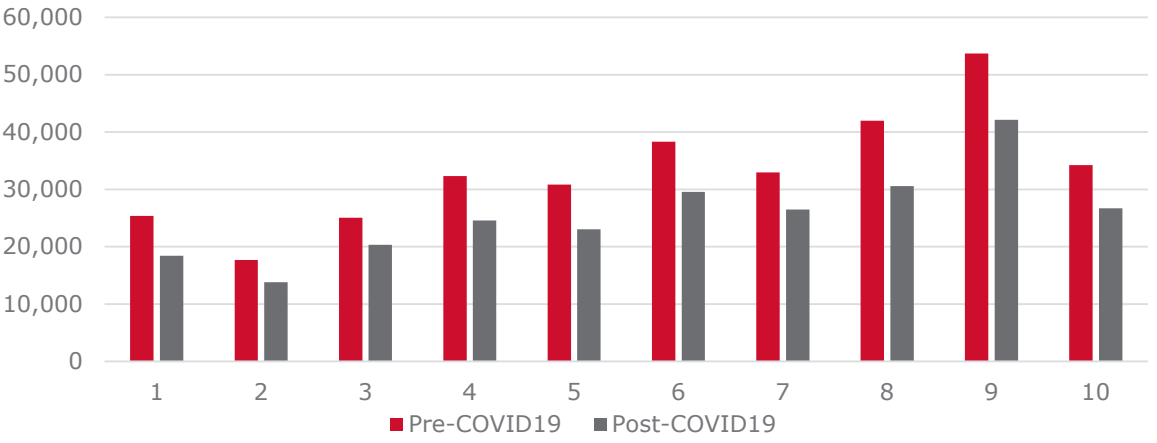
Victorian transactions

In comparing the means of key housing variables across two time periods in the Victorian data, there were no significant changes in the number of bedrooms and bathrooms. Even though the land area decreased from Period 1 to Period 2, this overall decrease was not significant. The one significant change across the two time periods was sale price. The overall increase was 12.5 per cent from Period 1 to Period 2. The price increase in the regions was much larger compared to the increase in the metropolitan area (29 per cent versus 10 per cent).

With regard to property type, both houses and units increased in price from Period 1 to Period 2. However, houses experienced a slightly higher price increase relative to units. This was the case across both metropolitan and regional areas. A greater interest in leaving Melbourne was reported in real estate agent interviews (see Chapter 4), as was a particular value placed on larger homes in regional areas. For further details on summary statistics for each time period of the APM data, refer to Appendix 3.

Figure 19 provides the results for the number of transactions in Victoria across the two time periods. The number of transactions for each decile is lower for Period 2 compared to Period 1, the opposite of WA. The largest decreases were experienced by the 8th and 9th deciles (areas of least advantage).

Figure 19: Number of Victorian transactions for SEIFA deciles across two periods



Source: Authors

State comparison

Comparing the results across both states, it is evident that the dwelling characteristics, such as number of bedrooms and the number of bathrooms, did not change over time. Although the land area/lot size decreased for both states, this was marginal.

There were differences across both states with regard to property type and geography. WA experienced an increase in the proportion of units relative to houses. Furthermore, the price increase for units was much higher than for houses. Whereas in Victoria, the price increase for houses was slightly higher than for units. In terms of geography, the price increase in regional areas was higher compared to metropolitan areas. This was the case for both WA and Victoria.

However, for WA, the price increase for units was higher in the regions compared to houses, whereas in Victoria, the house prices increased more relative to strata properties. This difference could be due to the prolonged lockdowns experienced in Melbourne (not the case of WA), hence the preference for larger detached housing, especially in regional areas.

Lastly, the states differed with regard to socio-geographic development. For WA, the number of transactions increased for low to mid SEIFA deciles and decreased by the upper two deciles. For Victoria, the number of transactions decreased across all deciles between Period 1 and Period 2.

5.3 The impact of COVID-19 on residential transactions: repeat sales analysis

The analysis and results presented in the previous section can be refined further if repeated sales data are used. Given that the same property can be tracked across the two periods, this setup was near perfect in terms of control. Hence, any difference in sale price across the two time periods can be attributed to time only.[11]

The WA VG data captures three of the latest sale prices with corresponding dates for each transaction. As a result, an analysis using repeated sales was carried out to measure the impact of COVID-19 on residential properties. However, this analysis was not possible for the Victorian APM data, as repeat sales values were not available.

Given this limitation, an alternative method of analysis was used. This consisted of constructing different housing profiles which were selected due to their frequency in the transaction data. The most common profile was a 3-bedroom house with one bathroom with no pool and average lot size in a particular location/suburb, followed by a 4-bedroom 2-bathroom house and then a 2-bedroom with 1-bathroom unit. By locking in a profile (dwelling characteristics and location), it was possible to assess the price change across the two time periods, i.e. compare the same profiles from Period 1 to Period 2. Given that Melbourne experienced prolonged lockdowns (compared to WA) and some geographic variation in the lockdown status across Melbourne, this method targeted areas that were most affected.

WA transactions

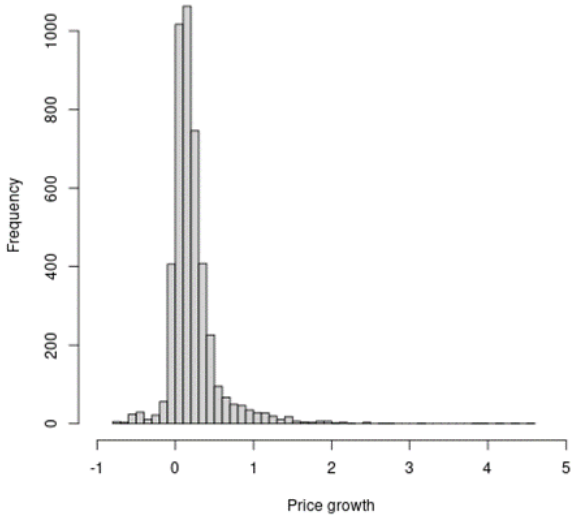
Using the initial data set as a starting point, the repeat sales properties were identified. These are transactions that contain more than one sale price along with the corresponding dates of sale. In addition to this, the initial sale must lie in Period 1, and the subsequent sale must lie in Period 2. Given these requirements, the repeat sales dataset was a much smaller subset of the original dataset. The resulting repeat sales WA VG data contained 4,453 transactions across the two time periods. Based on the two sale prices, a relative price growth variable for each property was constructed as follows:

Price growth across two periods = (sale price (Period 1) – sale price (Period 2))/(sale price (Period 1).

The empirical distribution for this variable is provided in Figure 20 below. The average price growth for repeated sales was 23 per cent (median 16%). Note that price growth was negative for some transactions.

11 Assuming that the property characteristics have not changed across the two time periods.

Figure 20: Distribution of price growth for repeated sales



Source: Authors

The extreme values (minimum and maximum) of this newly created variable were examined further. A natural question to ask is how much does price growth vary across key housing variables? For example, is the average price growth higher for properties with more bedrooms? In order to answer this question, the average price growth was calculated across all possible options for the number of bedrooms, shown in Table 22.

Table 22: Average price growth across number of bedrooms

Beds	Average price growth	N
1	25%	65
2	21%	690
3	24%	1,834
4	22%	1,727
5+	22%	137

Source: Authors

Based on the results from Table 22, the average price growth has no or little variation across the number of bedrooms. Hence, all options experienced similar price growth. This analysis was repeated for other key housing variables such as number of bathrooms, number of study rooms, number of parking spaces etc. The resulting tables are available in Appendix 3. Table 23 summarises the findings across selected housing variables.

Table 23: Variation in price growth across housing variables

Housing variable	Range	Variation in price growth
Bedrooms	1 to 5+	No
Bathrooms	1 to 3+	No
Study	0 to 2+	No
Parking	0 to 4+	No
Pool	0 and 1 (No/Yes)	No
Strata	0 and 1 (No/Yes)	No
Metro	0 and 1 (No/Yes)	Yes
SEIFA Deciles	1 to 10	Yes

Source: Authors

Based on the results in Table 23, the price growth across the two time periods did not vary with housing features such as the number of bedrooms, bathrooms, study rooms and parking. However, there was significant variation in price growth for regional areas and for selected SEIFA deciles. The 5th SEIFA deciles experienced the highest average price growth (26 per cent), followed closely by the 10th decile (25 per cent). On the other hand, the 8th decile had an average growth rate of 18 per cent, the smallest growth rate. However, it also had the smallest number of transactions relative to the rest of the deciles. This implies abnormal price growth occurred in the middle and highest SEIFA deciles. The number of transactions in those deciles also supported this.

The results also indicated that the average price growth for regional properties was 28 per cent compared to 21 per cent for metropolitan properties across the two time periods. This difference in price growth can be attributed to the increased demand for properties in the regional areas of WA across the two time periods. The metropolitan indicator was combined with the strata indicator to explore this result further. Table 24 contains the average price growth of repeat sales properties for all combinations of the metropolitan and strata indicator.

Table 24: Average price growth for all combinations of metro and strata indicator

Metro	Strata	Average price growth	N
0	0	27%	850
0	1	31%	160
1	0	22%	2,495
1	1	18%	948

Source: Authors

Based on the results in Table 24, it is clear that regional properties (metro = 0) have a much higher average price growth compared to metropolitan properties across the two time periods. Secondly, the average price growth rate for strata properties in the regional areas is 31 per cent compared to only 18 per cent for those in the metropolitan areas. Most other housing features did not have a significant impact on price.

Table 25 shows the average price growth for selected suburbs where repeated sales occur over the two time periods, i.e. first sale in Period 1 followed by the second sale in Period 2. The selected suburbs had transactions greater than 30, which numerically represents an adequate sample size. Note that the average price growth for repeated sales transactions in WA across the two time periods was 23 per cent. Furthermore, splitting this by metropolitan and regional transactions, the average price growth is 28 per cent (regional) and 21 per cent (metro).

Given this, the suburb of South Hedland (regional) had an unusually high growth rate (75 per cent). Metropolitan suburbs such as Claremont experienced a growth rate (31 per cent) significantly higher than the overall average. The metropolitan suburb of Baldivis experienced a growth rate of 12 per cent, well below the overall growth rate.

Table 25: Average price growth for WA suburbs with 30+ repeated transactions

Suburb	Average price growth	N
Baldivis	12%	64
South Hedland	75%	62
Ellenbrook	24%	52
Halls Head	22%	44
Australind	20%	44
Rockingham	25%	40
Secret Harbour	22%	38
Gosnells	19%	38
Warnbro	21%	36
Maylands	18%	35

Suburb	Average price growth	N
Como	17%	34
Claremont	31%	33
Scarborough	16%	33
Fremantle	26%	32
Thornlie	15%	32
Mount Lawley	21%	31
Clarkson	17%	31
South Perth	24%	30
Armadale	22%	30

Source: Authors

Victorian transactions

A sample of 17 suburbs/localities was selected for this analysis. The selection criteria considered geography as well as the volume of transactions for each of the housing profiles. Table 26 lists the selected suburbs along with the number of transactions for each housing profile for Period 2.

Table 26: Selected suburbs for Victoria

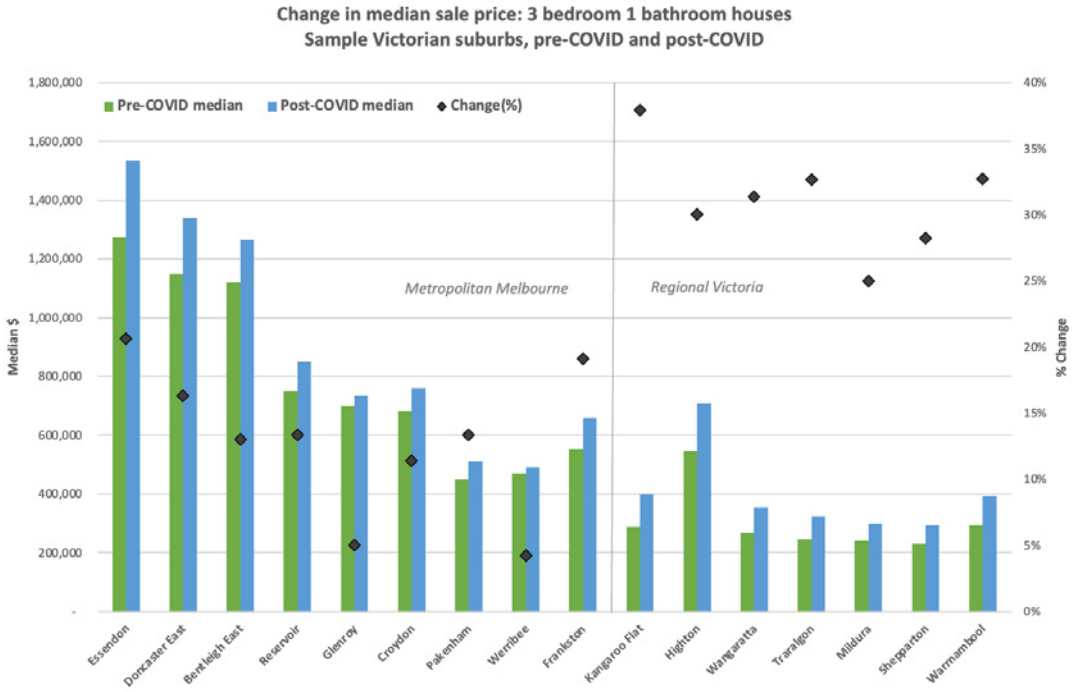
	Suburb	SA3	Metro/Regional	3-bed 1-bath house	4-bed 2-bath house	2-bed 1-bath unit
1	Essendon	Melbourne – Inner	Melbourne	83	95	169
2	Doncaster East	Melbourne – Inner East	Melbourne	93	254	69
3	Bentleigh East	Melbourne – Inner South	Melbourne	213	140	84
4	Reservoir	Melbourne – North East	Melbourne	526	124	330
5	Glenroy	Melbourne – North West	Melbourne	245	63	65
6	Croydon	Melbourne – Outer East	Melbourne	201	205	214
7	Pakenham	Melbourne – South East	Melbourne	157	1199	84
8	Werribee	Melbourne – West	Melbourne	424	655	95
9	Frankston	Mornington Peninsula	Melbourne	507	318	309
10	Sebastopol	Ballarat	Regional	242	74	75
11	Kangaroo Flat	Bendigo	Regional	205	117	51
12	Highton	Geelong	Regional	93	303	81
13	Wangaratta	Hume	Regional	321	207	58
14	Traralgon	LaTrobe – Gippsland	Regional	493	415	74
15	Mildura	North West	Regional	536	517	110
16	Shepparton	Shepparton	Regional	496	282	73
17	Warrnambool	Warrnambool and South West	Regional	391	316	110

Source: Authors

Figure 21 shows the changes in median price for the first profile across the two time periods. Based on this, the sale price for a 3-bedroom, 1-bathroom property in Period 2 was higher compared to Period 1 across all of the selected suburbs. Generally, the sale price for this profile was higher in metropolitan areas compared to regional areas. However, the change in sale price (from periods 1 to 2) was much higher in regional areas compared to metropolitan areas. Note that the base price (Period 1 price) was already quite high for metropolitan areas relative to regional areas.

There were regional Victorian suburbs where the median sale price increased by 25 per cent or more. For example, Kangaroo Flat (Bendigo) increased from $290,000 to $400,000 (38 per cent). Whereas the price changes for metropolitan areas ranged between 4 per cent (Werribee) and 21 per cent (Essendon).

Figure 21: Change in median price for 3-bedroom 1-bathroom houses across two time periods



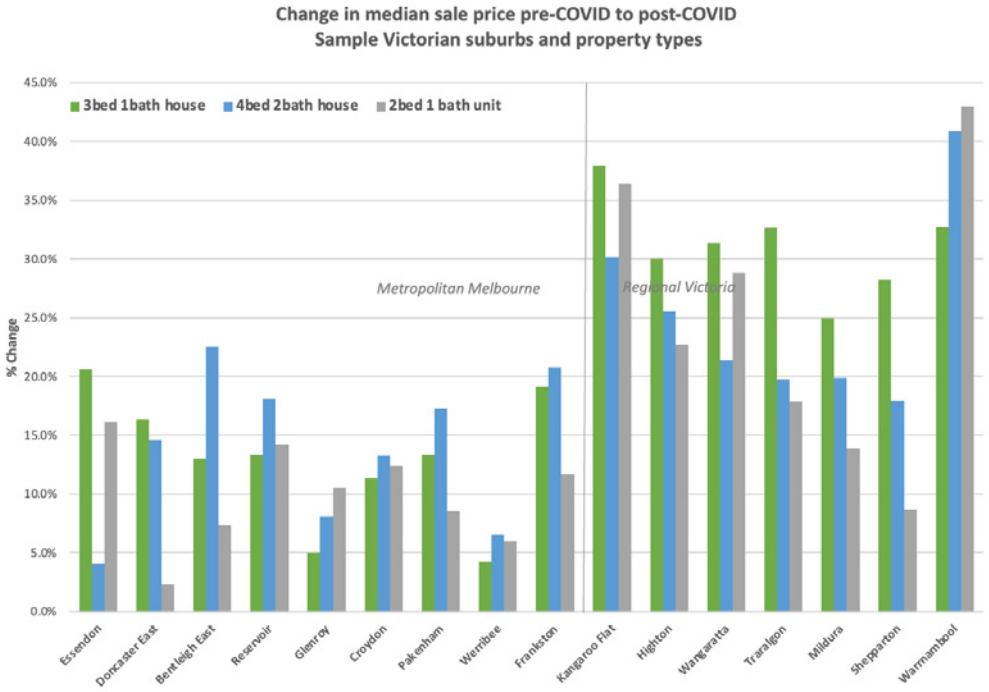
Source: Authors

Similarly, with regard to the second profile, 4-bedroom, 2-bathroom houses, the median prices increased in all of the selected suburbs between the two time periods. The selected suburbs in regional Victoria increased by 20 per cent or more, with notably higher rates of increase in Warrnambool (41 per cent). The median prices also increased in metropolitan Melbourne as well, by varying degrees (4 per cent -–23 per cent). As mentioned, metropolitan properties already had higher Period 1 prices compared to regional properties. Examples of price increases for this larger property profile in metropolitan Melbourne are Bentleigh East (20 per cent) and Frankston (18 per cent). For further details, refer to the chart titled 'Change in median sale price: 4 bedroom 2-bathroom houses' in Appendix 5.

Finally, for the third profile, 2-bedroom, 1-bathroom units, all of the selected suburbs experienced an increase in price. Similar to the previous profiles, the change in price was a lot higher in regional areas compared to metropolitan areas. The price changes in the metropolitan areas ranged between 2 per cent and 10 per cent, which is actually much lower compared to the other profiles. However, the price changes for this profile are between 5 per cent and 45 per cent, which is consistent with the other housing profiles. For further details, refer to the chart titled 'Change in median sale price: 2-bedroom 1-bathroom units' in Appendix 4.

Figure 21 summarises the findings for Victoria. It shows the change in median prices between Period 1 and Period 2 for all of the property profiles across the selected suburbs/locations.

Figure 22: Changes in median price for all property profiles at all selected locations



Source: Authors

The results indicate that regional suburbs in Victoria saw significant growth in median prices for each of the property profiles compared to metropolitan suburbs. The property profile with the largest increase was the 3-bedroom, 1-bathroom houses in regional areas. The only exception being Warrnambool, where units had the largest price increase.

This increased demand for 3-bedroom, 1-bathroom houses could be a result of consumer preference for regions, given the lockdowns in the metropolitan areas. However, the starting/base price of this profile was also a lot lower relative to metropolitan properties in Period 1. Additionally, these properties are part of the existing stock/supply, built over 30 years ago. As such, no conclusion can be drawn for consumer preference for this property profile.

For metropolitan areas, the second profile, 4-bedroom, 2-bathroom, experienced the most price increases for the selected suburbs. The only exceptions were Essendon, Doncaster East and Glenroy. This could be due to the consumer preference for more significant detached properties in the metropolitan area (as a response to COVID-19 lockdowns). Note that the starting prices for this profile were quite high in Period 1. This profile represents a newer build compared to the first profile.

Lastly, the third profile, 2-bedroom, 1-bathroom units, experienced the smallest price increase (on average) compared to the previous two profiles. The only two suburbs where units performed better than houses were Glenroy and Warrnambool. This confirms the lack of demand for smaller attached housing, especially during/after the pandemic. Similar to houses in regions, units also had a lower starting/base price in Period 1. These results are consistent with the real estate agent reports (Section 3.5).

State comparison

Due to data availability, there were differences in the method of analysis for both states. But, despite these differences, some of the results were similar. Both WA and Victoria experienced similar overall price increases across both metropolitan and regional areas. In both states the price increases for houses and units in regional areas were larger compared to metropolitan areas.

However, in Victoria, the price increase was larger for regional houses compared to regional units; in WA, the price increase in regional units was larger than in regional houses. The preference for larger detached housing in regional Victoria could be a response to the lockdowns experienced by Victorians. There was no evidence of this preference for WA. Note that for both states, the starting price (Period 1) of regional properties was much lower compared to metropolitan properties, and the number of transactions in regional areas was lower relative to metropolitan areas.

5.4 Conclusion

The objective of this chapter was to investigate whether the characteristics of housing transactions changed as a result of COVID-19. More specifically, did consumer preferences shift due to the pandemic? In order to carry out this investigation, transactional data from WA and Victoria was analysed across two time periods selected to capture the effects of the pandemic. The first set of analysis—descriptive analysis—was designed to assess changes in selected housing characteristics such as number of bedrooms, bathrooms, study etc., across the two periods for both states.

The second set of analyses was designed to refine the results of the first analysis, by assessing changes in repeated sales/transactions for a given property. This provided a good control framework. However, the transactional sales data for Victoria did not contain repeated sales. As such, the method of analysis for measuring change in Victorian transactions had to be adjusted.

The results from both analyses indicated the following:

- For WA, the number of residential transactions increased from Period 1 to Period 2, whereas for Victoria, the number of transactions decreased across the two time periods.
- Both states experienced a similar price increase for houses and units.
- For both states, the price increase for regional areas was much higher relative to metropolitan areas.
- For both states, the price increase for metropolitan houses was higher compared to metropolitan units.
- For WA, the price increase for regional units was higher than regional houses, whereas, in Victoria, the regional house prices had higher price increases compared to regional units.
- For WA, the number of transactions from Period 1 to Period 2 increased for low to mid SEIFA deciles and decreased for the two highest deciles. For Victoria, the number of transactions decreased across all SEIFA deciles.

Based on the above results, consumer demand for housing has led to increased prices for properties across both states. Given the relatively high price increases in regional areas, there was a strong demand, relative to supply, for properties in regional areas compared to metropolitan areas.

However, these increases could also be a result of a lower starting price (Period 1 price) for regional properties as well as stock availability in both metropolitan and regional areas. Most of the transactions in both states consist of established stock, so it is difficult to identify if consumer preferences shifted, or if consumers were driven to simply purchase whatever was available at a given time. Additionally, any shift in consumer preferences was only observed for current/existing stock, and the large number of new houses being developed on the back of the government's HomeBuilder and related state grants cannot be factored into the analysis.

Overall, consumers continue to prefer houses over units in metropolitan areas, where most of the transactions take place. Houses also make up the vast majority of the transactions. Hence, there is little to no diversity in housing across both states and time periods, and as a result, there was little or no variation in dwelling characteristics such as number of bedrooms, bathrooms, study and land area. However, the variation due to geography is much more evident. This result is also supported by a paper released by the Bank of England on COVID-19 and consumer preferences (Bank of England 2022).

6. Policy development options

This report examined the impact of COVID-19 on housing supply and demand. It addressed four key research questions:

- **RQ1:** How have housing markets changed in 5 years since the 2016 census, what are the key components and drivers of change, and what are the implications for low-income households?
- **RQ2:** How have patterns of dwelling supply (spatial pattern, density, structure, tenure) changed since 2016 and to what extent has COVID-19 driven recent supply outcomes?
- **RQ3:** Have households changed what they want from their dwelling as a result of COVID-19, and if so, what are the implications for the economy and housing and urban policy?
- **RQ4:** Have the characteristics of dwelling transactions changed as a result of COVID-19?

A comparison of ABS Census data suggests that housing markets have changed little in the last five years, but COVID-19 certainly caused disruptions to the normal operation of housing markets from late 2020 into 2022. It will be mid-2023 before the supply induced shocks caused by COVID-19, notably the stimulus driven increase in detached housing and cost driven contraction in apartment development, work through the market.

On the demand side, our interviews and analysis of market outcomes provide clear evidence of a shift in the preferences of a small proportion of consumers, leading to major repercussions for regional areas, in particular.

The shift to more flexible working arrangements allowed many households to make decisions around their dwelling location, causing rent and price increases in those locations that proved the most popular—notably sea and tree change areas in regional Australia. However, these COVID-19 induced patterns were quickly stifled by interest rate increases. Once mortgage interest rates increased and a household's capacity to buy was greatly diminished, demand fell across most of the country and affordability returned as the key driver of house purchase decisions for those outside the higher income groups.

Meanwhile, the rental market tightened on the back of population increases, household restructuring and a reduction in supply across many states as landlords cashed in on price rises during 2020 and 2021.

Many of the shifts caused by the pandemic, such as households seeking more internal and external space, remote working and smaller household sizes, were already taking place—COVID simply accelerated these trends. The pandemic brought forward the decisions of many households, increasing demand, leading to price and rent rises, especially in supply constrained locations. These price increases came to an end with interest rate rises. However, for the vast majority of households, particularly those on lower incomes where housing choice is severely limited by affordability, COVID changed nothing other than increasing competition in an already constrained rental market.

Across our case study states, despite very different COVID-19 experiences—prolonged lockdowns in parts of Victoria compared to largely external travel restrictions in WA—market outcomes were surprisingly similar, with regional and outer locations dominating price growth. It seems consumer preferences were shaped by general COVID restrictions rather than those that were location specific.

While it is almost impossible to plan for the type of disruption caused by COVID-19, there are some options governments could consider in order to minimise future impacts, and such options largely revolve around making housing markets more responsive to demand and supply shocks. In the sections below, we explore a number of ideas that should be considered when developing future housing and urban policies.

6.1 Responding to demand shifts and shocks

The pandemic showed just how quickly demand for housing can change and how prices and rents can rise rapidly as a result. There is always a lag between demand shifts and the supply response because of the time it takes to work through the development approval process and physically construct dwellings. There are a number of options available to government to make housing markets more responsive, and such options have been discussed over many years, in many reports, and have been raised by industry lobby groups on countless occasions. Less often discussed is how to ensure there is adequate supply in the established market, which is where the vast majority of new demand is absorbed.

Established supply

Figure 1 shows how prices rise when listings fall because demand exceeds supply with competition for limited available stock. Once housing availability is limited, consumers are reluctant to then sell because there are few options available to buy. Those dwellings that are put on the market sell very quickly, so stock cannot build. So how can the supply of established dwellings be increased? Removing stamp duty would help as it would generally increase the level of transactions in the market, as households may be more willing to sell without the upfront tax.

However, the best way to increase supply in the established market is to increase new housing supply. Providing new build options means owners in the established market have choice outside the established market where a purchaser would not be taking another established dwelling off the market.

New housing supply

Housing supply responds to increased market demand because increasing prices generate higher returns and lower risk for developers, increasing potential profits and stimulating new supply. The responsiveness of supply to demand is inhibited by the availability of sites and the development approval process. Industry lobby groups such as the UDIA and Property Council constantly highlight the need for approval reform to ensure development can occur more quickly and the need for a development ready pipeline of sites.

Development approval is not just planning but also issues around infrastructure and environmental approvals. While some state governments did introduce fast-tracked development approvals during the pandemic, concerns were raised that such powers were reducing the role of the local community in the development process. Striking a balance between community consultation, environmental protection, and responsive development outcomes is challenging, but critical.

It takes many years for new houses to appear on land that needs re-zoning or apartments to be completed on an infill site, often due to the inefficiency of the approval processes. Government needs to ensure that development approvals are as efficient as possible while maintaining the integrity of the process itself.

Planning to prosper by the Property Council of Australia and Urbis (2020) provided a range of ideas that would streamline the planning system and make supply more responsive to demand changes. The Australian Government's National Housing Accord discussed the importance of delivering new housing supply, highlighting measures necessary to speed up land release and streamline planning regulations. Establishing supply targets and measuring outcomes can help identify what is working and where intervention is required. The newly established National Housing Supply and Affordability Council will hopefully deliver meaningful advice on how to improve the delivery of new housing.

It should be noted that improved availability of sites, and an improved approval process, will not automatically result in increased dwelling supply, as development needs to be profitable to occur. If market conditions are correct (for landowners and developers), such improved availability will certainly lead to increased supply.

Dwelling supply targets and monitoring will make little difference other than allowing government to identify where intervention is required. Given the total reliance on the private sector to deliver new supply, policy makers need to understand what drives such supply. As Rowley, Leishman et al. (2022) discussed, the main driver of new supply is profitability, and the main driver of profitability is market conditions—factors beyond government control.

What is in the remit of government is to improve access to development sites. While access to sites and a shorter development process will certainly be a positive, it will not stop developers holding land until market conditions are favourable for them. If governments want to accelerate land release, they should attach enforceable timelines to developments to make sure the land is brought to the market in a timely manner and does not sit undeveloped until developers are able to maximise profits.

This could be via attaching financial penalties in the statutory development approval process and/or through providing incentives (such as infrastructure support) to expediate development outcomes. Governments should also take a more direct role in housing supply, including through large scale delivery of social and affordable housing.

It's not just the approval process inhibiting new housing supply—the capacity of the housing industry has been a real issue in many states, slowing the ability of the industry to deliver new dwellings. Labour shortages and costs have blocked new supply, particularly in WA, where it has been difficult to attract new workers. Supply chain issues have also resulted in significant construction cost increases, which prevents new supply because developments, particularly capital intensive multi-residential developments, are no longer financially feasible. Protecting supply chains and training an adequate workforce to respond to supply pressures is essential.

6.2 Regional housing markets

This report has shown how population shifts into regional towns and cities resulted in significant price and rent increases. Since mid-2022, demand pressures have eased, particularly in the ownership market. This begs the question of whether the COVID driven shifts to regional locations were a one off or whether such markets need intervention to ensure they are sustainable. Research by Beer, Crommelin et al. (2022) highlights how regional shifts were already starting to occur, particularly in coastal areas in close proximity to major centres, and COVID accelerated movements.

Often cited benefits of regional areas include access to affordable housing, however, COVID driven price rises have lessened that benefit; yet regional locations have other attractions such as the sense of community, less crowding and better access to natural amenities (Beer, Crommelin et al. 2022). With the flexibility of working from home likely to remain a key feature of future work, regional locations will remain attractive to households, although demand shocks such as those experienced between 2020 and 2022 are unlikely in the absence of another unexpected event.

Regional housing markets are volatile, and governments need to ensure an ongoing supply of development ready land in regional locations. These sites, to be development ready, need to include the necessary infrastructure enabling them to be quickly brought to market. While some states have development agencies that are very active in regional markets, such as Development WA, labour shortages, increased costs and general market uncertainty make development in the regions higher risk for the private sector. Such agencies are, therefore, critical in facilitating new regional supply.

Having development ready land that can be quickly developed in partnership with the private sector is the best solution to rapidly address increasing demand in the absence of direct government built form development. While this may mean sites sit vacant for a number of years, when demand does pick up, such sites can be brought to the market relatively quickly to avoid the supply vacuums which make regional markets volatile. Government partnerships with the private sector can also facilitate a more diverse supply in terms of size and tenure.

Our interviews suggested that buyers were purchasing dwellings regardless of their suitability. This mismatch between the needs of households and available supply can lead to the removal of entry level stock suitable for local first home buyers, having a negative impact on community sustainability. Displacing the local workforce is also an issue with new populations moving into regional areas. Understanding local housing needs, potential population movements into the area, and the type of housing required would help local planning for new supply. At present, there is little knowledge of how to prepare regional housing markets for population growth, which is likely to persist, given the prevalence of flexible work arrangements.

Given a long-term policy interest in most states to support regional populations and rebalance population pressures away from major cities, the disruptions caused by COVID—which suddenly increased population and housing demand in many regional areas—illustrate the need for supportive infrastructure (including the basics of sewerage and reticulated water) and policies to ensure these regional shifts are sustainable. The sudden realisation and impact of a large-scale shift in population toward smaller and medium sized Australian cities underscores the importance of some version of a national settlement strategy, long argued for.

6.3 Housing diversity

While studies have detailed the housing aspirations of Australians (Stone, Rowley et al. 2020), there is a disconnect between what households want, what is available on the established market and what is being built. Stone, Rowley et al. (2020) identified, through survey work, a strong demand for three-bedroom dwellings across age cohorts, yet census data analysis shows this type of dwelling is being replaced by larger houses.

Changing patterns of household formation, including big increases in single person dwellings and couple without children households, are not currently being met with changing patterns of new dwelling supply. A lack of housing choice is a major barrier to downsizing (James, Rowley et al. 2020). Smaller houses can facilitate access to home ownership and also provide an entry level point for investors to deliver private rental housing.

While many state governments have been working on trying to deliver more diversity, and address what industry refers to as the missing middle—smaller, medium density housing options in middle ring suburbs—it is usually easier for developers to deliver housing in outer urban areas where land is more available and planning simpler (Rowley, Leishman et al. 2022). This partly explains the uneven supply of new housing across the capital cities.

Governments must continue to work on policies that make it easier to deliver housing within existing urban areas, and this housing must deliver diversity, not simply be dominated by apartments. If such housing is profitable to develop, developers will build it and lowering approval risk is a start.

Delivering greater housing diversity in regional areas is a major challenge, given that the economics of many markets means medium and high density development is not financially feasible for the private sector. It will take a partnership between government and the private sector to deliver more diverse housing options in many regional areas. Supporting community and not-for-profit housing in regional areas—where traditional finance and development models are less feasible but where housing demand is acute—is also critical.

6.4 The private rental market

The contraction in vacancy rates across the country over the last two years has highlighted the volatility of Australia's private rental market. While demand for rental accommodation has risen, supply has not increased, as Australia is almost totally reliant on small, private investors to deliver supply, and volatile market conditions do not attract such investors into the market. While rents are rising, so is the cost of borrowing, making it an unattractive environment for new investors. Rising prices can often result in investors selling their investment property to owner-occupiers, reducing the private rental supply.

Government has been powerless to address a rental crisis in many parts of the country, hoping that private sector investment will increase and deliver new supply and that the completion of HomeBuilder driven stock will take some current renters out of the market. Many local markets, particularly in regional areas, have historically low vacancy rates with little change on the horizon. Simply put, the private rental market is broken and in need of repair. Unfortunately, government has few solutions at their disposal and none that will increase supply in the short term.

New supply is required at scale in the private rental market without distorting the rest of the housing market. Incentivising small landlords to purchase established dwellings will only contribute to declining affordability in home ownership. Incentivising investment in new developments would again distort the market and negatively impact first home buyers, among others. The mandatory provision of rental housing within new developments would deliver new supply but would be difficult to manage and would be unpopular with developers, potentially stifling new supply.

With the build-to-rent sector growing in Australia, government has an opportunity to attract new private sector investment into larger scale, professionally managed private rental accommodation offering flexible tenancies and potentially greater security. Federal and state governments should continue to look at policy settings necessary to encourage such investment. This type of development at scale is unlikely to distort other parts of the housing market while delivering a product that could attract longer-term tenants from a range of demographics.

Government itself could become a build-to-rent landlord, either directly or through the purchase of multiple units within new, multi-residential developments. Such a strategy would not only increase the supply of rental dwellings but would also de-risk multi-residential development for the private sector, increasing market supply.

Support for established community housing providers and not-for-profit housing models in the delivery and management of secure rental housing is vital, particularly in regional areas where many existing financial and development models for community housing (often based on large metropolitan sites) are not feasible. A lack of suitable smaller dwellings for downsizing, including for singles, is part of the acute rental challenge in regional areas. Considering dispersed models of build to rent, community housing, shared equity and other tenure housing is important.

While build to rent at scale might be a viable option within capital cities and larger regional locations, it is not feasible in many regional markets. These markets, particularly in traditional sea/tree change locations, have numerous short-term letting dwellings that could be made available to the private rental market. Government should consider greater regulation of such dwellings, such as restrictions on the number of letting days through to more extreme intervention, for example forcing suitable dwellings into the private rental market should the local vacancy rate drop below a certain threshold, say 1 per cent.

While clearly this would be unpopular with owners of such dwellings, a suitable supply of private rental accommodation is essential in these locations to ensure a local workforce and maintain local communities.

6.5 Affordable housing

COVID-19 was partly to blame for a widespread deterioration in housing affordability. Low interest rates and surging demand increased house prices across the country while vacancy rates in the private rental sector fell sharply due to population movements, contracting supply and changes to household structure. This affordability decline has increased the importance of affordable housing provision.

While national and state governments announced significant spending on social housing (Leishman, Aminpour et al. 2022), delivery has proved difficult, due to increased construction costs and lack of industry capacity. There have been numerous AHURI reports stressing the importance of affordable housing and the arguments around the direct provision of social housing, and we are not going to repeat them here; suffice to say that increased supply is critical.

As the HomeBuilder surge in construction increases capacity and construction cost pressures ease, government should accelerate its social housing building program as quickly as possible, to ensure the building industry has sufficient work to maintain capacity and to address the dire shortage of social housing.

6.6 Final remarks

The rapid rise of interest rates in 2022 has left us unable to definitively answer the question of whether the COVID-19 pandemic has permanently altered patterns of demand and supply. While the main elements of this research were conducted during 2022, a recent publication by CoreLogic (2023b), prior to report submission, discussed whether the housing market was going back to normal. Although the report did not draw any conclusions it highlighted a few key points which support our findings:

- As of March 2023, combined capital city dwelling prices are 10.4 per cent higher than March 2020 and the combined regional market is 30.7 per cent higher. Movements of people into regional areas have slowed, although are still slightly higher than pre-pandemic levels.
- There are significant variations across markets with Melbourne dwelling values now below their March 2020 levels while Adelaide is 43.7 per cent higher. Generally, more affordable markets have maintained pandemic induced price growth.
- The balance between the proportion of house sales and proportion of apartment sales is now back to pre-COVID levels, having significantly favoured houses during the pandemic.
- On average across the country, rents are now just over 23 per cent higher than they were in March 2020 and vacancy rates remain around 1 per cent with no prospects of relief on the horizon.

Supply shifted during 2020 and 2021 with a surge in detached dwellings and the collapse of apartment development. Building approval data for the first quarter of 2023 shows the level of detached housing development returning to pre-COVID levels while apartment development remains low due to construction cost issues. An eventual return to pre-pandemic patterns of supply and demand seems likely.

COVID-19 drove an increase in demand for established houses and a preference for regional areas and the outer suburbs. The subsequent decline in demand across large parts of the country, mainly due to interest rate rises and a drop in consumer confidence, means it is difficult to establish what demand patterns will look like once the market stabilises.

Will regional areas continue to prove popular as households permanently change working patterns, or will demand ease over time? Will demand for detached dwellings increase, or will affordability pressures result in a return to cheaper, higher-density products? These are questions that will be answered over the coming years, and future research should be conducted to determine whether COVID-19 has driven permanent changes to our housing market five years on from the first case.

For now, what lessons can policy makers learn from the COVID-19 pandemic?

- Demand can change very quickly, so Australia needs a much more responsive housing supply system.
- The current housing supply system can deliver detached housing in the outer suburbs on development ready land within 18 months but cannot respond within an effective timeline on land that requires re-zoning.
- The building stimulus measures had their desired effect but also delivered unintended consequences. These consequences arose for a number of reasons including the structure of the HomeBuilder program, unanticipated demand for stimulus payments, COVID driven supply chain and cost issues and workforce capacity constraints.
- The new dwelling supply pipeline, particularly for higher density products, can be turned off very quickly by rising construction costs. It is far slower to turn back on.
- Supply chains are extremely vulnerable and can quickly cause major delays and dramatically increase project costs.
- Regional housing markets require different policies compared to capital city markets, as supply is even less responsive to demand shocks. A stock of development ready land is essential if supply is to respond.
- The private rental market is broken. Government is powerless to intervene and deliver more supply. Government is almost totally reliant on market conditions improving and attracting new investors to ease the rental crisis.
- The direct provision of social housing is more important than ever, and additional spending is now popular policy.

References

ABC (2020) CBA warns Australia risks 32 per cent house price crash in a 'prolonged downturn', flags $1.5 billion coronavirus-hit to bank, *ABC News online,* https://www.abc.net.au/news/2020-05-13/coronavirus-commonwealth-bank-house-prices-economy-unemployment/12241338.

ABS (2022a) *Total Value of Dwellings,* Australian Bureau of Statistics, Canberra, https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/total-value-dwellings/latest-release.

ABS (2022b) *Australian National Accounts: National Income, Expenditure and Product,* Australian Bureau of Statistics, Canberra, https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-national-income-expenditure-and-product/latest-release.

ABS (2022c) *National State and Territory Population*, Australian Bureau of Statistics, Canberra, retrieved 23 January 2023, https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/sep-2022.

AIHW (2022) Home ownership and housing tenure, Australian Institute of Health and Welfare, Australian Government, Canberra, https://www.aihw.gov.au/reports/australias-welfare/home-ownership-and-housing-tenure.

ANZ (2021) *Housing Affordability Report: June Quarter 2021,* ANZ Corelogic, https://news.anz.com/content/dam/news/articles/2021/November/ANZ_CoreLogic_Housing_Affordability_Report_2021_Final_lr.pdf.

ANZ (2022) *Housing Affordability Report: Released May 2022*, ANZ Corelogic, https://news.anz.com/content/dam/news/articles/2022/May/ANZ_Housing%20Affordibility%20report%20May_2022_web.pdf.

AHURI (2023) *What is the difference between social housing and affordable housing – and why do they matter?* Australian Housing and Urban Research Institute, Melbourne, https://www.ahuri.edu.au/research/brief/what-difference-between-social-housing-and-affordable-housing-and-why-do-they-matter.

AHURI (2022) *Why does Australia have a rental crisis, and what can be done about it?* Australian Housing and Urban Research Institute, Melbourne, https://www.ahuri.edu.au/research/brief/why-does-australia-have-rental-crisis-and-what-can-be-done-about-it.

Baker, E. and Daniel, L. (eds) (2020) *Rental insights: a COVID-19 collection,* Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/research-papers/rental-insights-a-covid-19-collection, doi: 10.18408/ahuri3125402.

Baker, E., Daniel, L., Beer, A., Rowley, S., Stone, W., Bentley, R., Caines, R. and Sansom, G. (2022a) *The impact of the pandemic on the Australian rental sector*, AHURI Final Report No. 389, Australian Housing and Urban Research Institute, Melbourne, https://www.ahuri.edu.au/research/final-reports/389, doi: 10.18408/ahuri3126701.

Baker, E., Daniel, L., Beer, A., Bentley, R., Rowley, S., Baddeley, M., London, K., Stone, W., Nygaard, C., Hulse, K. and Lockwood, A. (2022b) 'An Australian rental housing conditions research infrastructure', *Scientific Data*, no: 9, article: 33, https://doi.org/10.1038/s41597-022-01136-5.

Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M., and Yannelis, C. (2020) 'How does household spending respond to an epidemic? Consumption during the 2020 COVID-19 pandemic', *The Review of Asset Pricing Studies*, vol: 10, no. 4: 834–862, https://doi.org/10.1093/rapstu/raaa009.

Bank of England (2022) 'How much of the housing price increase during the Covid pandemic was driven by a change in household preferences?' Bank of England, London, accessed 21 January 2023, https://www.bankofengland.co.uk/financial-stability-paper/2022/how-much-of-the-housing-price-increase-during-covid-was-driven-by-a-change-in-household-preferences.

Beer, A., Crommelin, L., Vij, A., Dodson, J., Dühr, S. and Pinnegar, S. (2022) *Growing Australia's smaller cities to better manage population growth*, AHURI Final Report No. 386, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/386, doi: 10.18408/ahuri3226001.

Buckle, C., and Phibbs, P. (2021) 'Challenging the discourse around the impacts of Airbnb through suburbs not cities: Lessons from Australia and COVID-19', *Critical Housing Analysis,* vol. 8, no. 1: 141–149, https://doi.org/10.13060/23362839.2021.8.1.530.

CoreLogic (2022a) Regional market update: Australia, CoreLogic Asia Pacific, Sydney, https://www.corelogic.com.au/news-research/reports/regional-market-update.

CoreLogic (2022b) 'Two years on: Six ways COVID-19 has shaped the housing market', Property Pulse, 22 March 2022, CoreLogic Asia Pacific, Sydney, https://www.corelogic.com.au/news-research/news/2022/two-years-on-six-ways-covid-19-has-shaped-the-housing-market.

Corelogic (2023a) 'Hedonic Home Value Index, 3 January 2023', National Media Release, CoreLogic Asia Pacific, Sydney, https://www.corelogic.com.au/__data/assets/pdf_file/0021/12954/CoreLogic-home-value-index-Jan-23-FINAL.pdf.

CoreLogic (2023b) Three years on from the pandemic: is the housing market going 'back to normal'? Research News, 3 March 2023, CoreLogic Asia Pacific, Sydney, https://www.corelogic.com.au/news-research/news/2023/three-years-on-from-the-pandemic-is-the-housing-market-going-back-to-normal.

Crowe, A., Duncan, A., James, A. and Rowley, S. (2021), 'Housing Affordability in WA: A tale of two tenures', Focus on Western Australia Report Series, No. 15, June 2021, Bankwest Curtin Economics Centre, Perth, https://bcec.edu.au/publications/housing-affordability-in-wa-a-tale-of-two-tenures/.

DoH (2020) *Australian Health Protection Principal Committee (AHPPC) on coronavirus (COVID-19) Statement on 22 March 2020*, Department of Health, Australian Government, Canberra, viewed 12 July 2020, https://www.health.gov.au/news/australian-health-protection-principal-committee-ahppc-coronavirus-covid-19-statement-on-22-march-2020-0.

Domain (2022) *Vacancy rates June 2022*, Domain Research report, https://www.domain.com.au/research/vacancy-rates-june-2022-1149519.

Evans, R., Rosewall, T., and Wong, A. (2020) *The Rental Market and COVID-19*, Reserve Bank of Australia, Canberra, https://www.rba.gov.au/publications/bulletin/2020/sep/pdf/the-rental-market-and-covid-19.pdf.

Hayne, J. and Conifer D. (2020) *Government to hand out $25k grants for housing construction, renovations to bolster industry,* ABC News online, https://www.abc.net.au/news/2020-06-03/government-coronavirus-construction-stimulus-renovations-25k/12317786.

Hu, M. R., Lee, A. D. and Zou, D. (2021) COVID-19 and Housing Prices: Australian Evidence with Daily Hedonic Returns, *Finance Research Letters*, vol. 43, 101960, https://doi.org/10.1016/j.frl.2021.101960.

James, A., Rowley, S. and Stone, W. (2020) *Effective downsizing options for older Australians,* AHURI Final Report No. 325, Australian Housing and Urban Research Institute, Melbourne, https://www.ahuri.edu.au/research/final-reports/325, doi:10.18408/ahuri-8118801.

KPMG (2021) *The impact of COVID-19 on Australia's residential property market,* KPMG Economics, https://assets.kpmg/content/dam/kpmg/au/pdf/2021/covid-impact-australia-residential-property-market.pdf.

KPMG (2022) *HomeBuilder National Partnership Agreement Review,* KPMG and Department of the Treasury, https://federalfinancialrelations.gov.au/sites/federalfinancialrelations.gov.au/files/2022-11/HomeBuilder-npa-review-report.pdf.

Leishman, C., Aminpour, F., Baker, E., Beer, A., Crowe, A., Goodall, Z., Horton, E., Jacobs, K., Lester, L., Torchia, S., Maclennan, D., Martin, C., Nash, M., Pawson, H., Rowley, S., Stone, W. and ViforJ, R. (2022) *Australia's COVID-19 pandemic housing policy responses,* AHURI Final Report No. 376, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/376, doi: 10.18408/ahuri3227801.

Li, X. and Zhang, C. (2021) 'Did the COVID-19 pandemic crisis affect housing prices evenly in the U.S.?' *Sustainability*, vol. 13, no. 21: 12277, https://www.researchgate.net/publication/355996372_Did_the_COVID-19_Pandemic_Crisis_Affect_Housing_Prices_Evenly_in_the_US.

Martin, C. (2021) 'Australian residential tenancies law in the Covid-19 pandemic: considerations of housing and property rights', *UNSW Law Journal*, vol. 44, no. 1: 197, https://doi.org/10.53637/LKIG7939.

Martin, C., Sisson, A. and Thompson, S. (2021) 'Reluctant regulators? Rent regulation in Australia during the COVID-19 pandemic', *International Journal of Housing Policy*, vol. 1-21, https://doi.org/10.1080/19491247.2021.1983246.

NHFIC (2022) State of the Nation's Housing 2021–22, National Housing Finance and Investment Corporation, Australian Government, Canberra, https://www.nhfic.gov.au/research/state-nations-housing-2021-22.

Van den Nouwelant, R., Troy, L. and Soundararaj, B. (2023) *Social and affordable housing: needs, costs and subsidy gaps by region,* City Futures Research Centre, University of NSW, Sydney, https://cityfutures.ada.unsw.edu.au/social-and-affordable-housing-needs-costs-and-subsidy-gaps-by-region/.

O'Keeffe, P., Johnson, B. and Daley, K. (2022) 'Continuing the precedent: Financially disadvantaging young people in "unprecedented" COVID- 19 times', *Australian Journal of Social Issues*, vol. 57, no. 1: 70–87, doi: 10.1002/ajs4.152.

Ong, R., Dalton, T., Gurran, N., Phelps, C., Rowley, S. and Wood, G. (2017) *Housing supply responsiveness in Australia: distribution, drivers and institutional settings*, AHURI Final Report No. 281, Australian Housing and Urban Research Institute Limited, Melbourne, http://www.ahuri.edu.au/research/final-reports/281, doi: 10.18408/ahuri-8107301.

Commonwealth of Australia (2022) *The Australian Dream: Inquiry into housing affordability and supply in Australia*, House of Representatives Standing Committee on Tax and Revenue, Australian Government, Canberra, https://www.aph.gov.au/Parliamentary_Business/Committees/House/Former_Committees/Tax_and_Revenue/Housingaffordability/Report.

Parsell, C. and Pawson, H. (2022) 'COVID-19 and the meaning of home: how the pandemic triggered new thinking on housing', *Housing Studies*, vol. 38, no. 1: 1–7, doi: 10.1080/02673037.2023.2148337.

Pawson, H., Martin, C., Sisson, A., Thompson, S., Fitzpatrick, S. and Marsh, A. (2021) *COVID-19: Rental housing and homelessness impacts – An initial analysis,* ACOSS/ UNSW Poverty and Inequality Partnership Report No. 7, Sydney, https://povertyandinequality.acoss.org.au/wp-content/uploads/2021/02/COVID19_Rental-housing-and-homelessness-impacts_report-1.pdf.

Pawson, H., Martin, C., Aminpour, F., Gibb, K. and Foye, C. (2022) COVID-19: Housing market impacts and housing policy responses – an international review, ACOSS/UNSW Sydney Poverty and Inequality Partnership Report No. 16, Sydney, https://povertyandinequality.acoss.org.au/wp-content/uploads/2022/03/COVID-19_housing-market-impacts-_Poverty-and-Inequality-Partnership-report-16_v1.pdf.

Prime Minister of Australia (2020) 'HomeBuilder' Program to Drive Economic *Activity Across the Residential Construction* Sector, Media release 4 June 2020, Australian Government, Canberra, https://ministers.treasury.gov.au/ministers/josh-frydenberg-2018/media-releases/homebuilder-program-drive-economic-activity-across.

Property Council of Australia (2020) *Planning to prosper: Boosting productivity, jobs and housing supply*, Property Council of Australia and Urbis, https://f.hubspotusercontent40.net/hubfs/2095495/_Communications/Planning%20to%20Prosper/PCA%20Planning%20to%20Prosper_Final_September%202020.pdf.

Rowley, S., Crowe, A. Gilbert, C., Kruger, M., Leishman, C. and Zuo, J. (2020) *Responding to the pandemic, can building homes rebuild Australia?* AHURI Final Report No. 341, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/341, doi: 10.18408/ahuri8126401.

Rowley, S., Gilbert, C., Gurran, N., Leishman, C. and Phelps, C. (2020) *The uneven distribution of housing supply 2006–2016*, AHURI Final Report No. 334, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/334, doi: 10.18408/ahuri-8118701.

Rowley, S., Leishman, C., Baker, E., Bentley, R. and Lester, L. (2017) *Modelling housing need in Australia to 2025*, AHURI Final Report No. 287, Australian Housing and Urban Research Institute, Melbourne, http://www.ahuri.edu.au/research/final-reports/287, doi: 10.18408/ahuri-8106901.

Rowley, S., Leishman, C., Olatunji, O., Zuo, J. and Crowe, A. (2022) *Understanding how policy settings affect developer decisions*, AHURI Final Report No. 384, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/384, doi: 10.18408/ahuri8124201.

Stone, W., Rowley, S., Parkinson, S., James, A. and Spinney, A. (2020) *The housing aspirations of Australians across the life-course: closing the 'housing aspirations gap'*, AHURI Final Report No. 337, Australian Housing and Urban Research Institute Limited, Melbourne, https://www.ahuri.edu.au/research/final-reports/337, doi: 10.18408/ahuri-5117001.

Thackway, W. T. and Pettit, C. J. (2021) 'Airbnb during COVID-19 and what this tells us about Airbnb's Impact on Rental Prices', *Findingspress.org*, https://doi.org/10.32866/001c.23720.

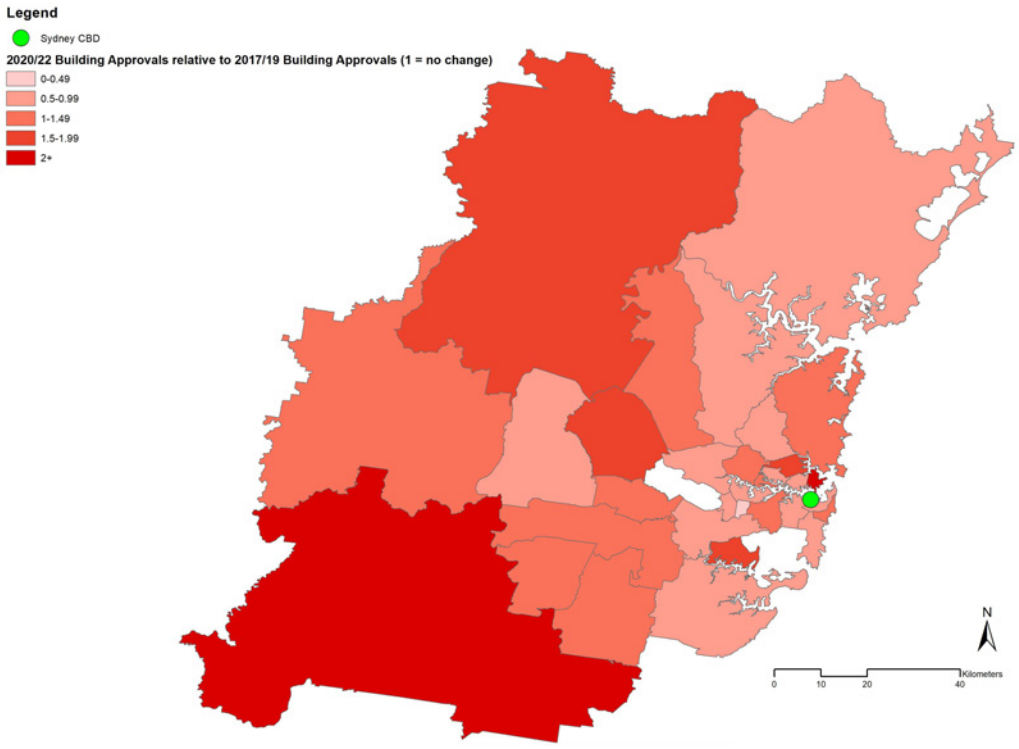
The Treasury (2022) HomeBuilder National Partnership Agreement Review, KPMG and the Treasury, Australian Government, Canberra, https://federalfinancialrelations.gov.au/sites/federalfinancialrelations.gov.au/files/2022-11/HomeBuilder-npa-review-report.pdf.

Troy, L., van den Nouwelant, R., and Randolph, B. (2019) 'Estimating need and costs of social and affordable housing delivery', City Futures Research Centre, University of NSW, Sydney, https://cityfutures.be.unsw.edu.au/documents/522/Modelling_costs_of_housing_provision_FINAL.pdf.

Appendix 1: Building approvals

The figures compare the number of approvals across each period, with an equal number given a figure of 1 and a figure of 2 calculated for a local government where approvals in 2020–2022 were double that of 2017–2019. As can be seen from Greater Sydney, it is the outer areas which saw the biggest jump in approvals while inner areas generally witnessed a contraction.

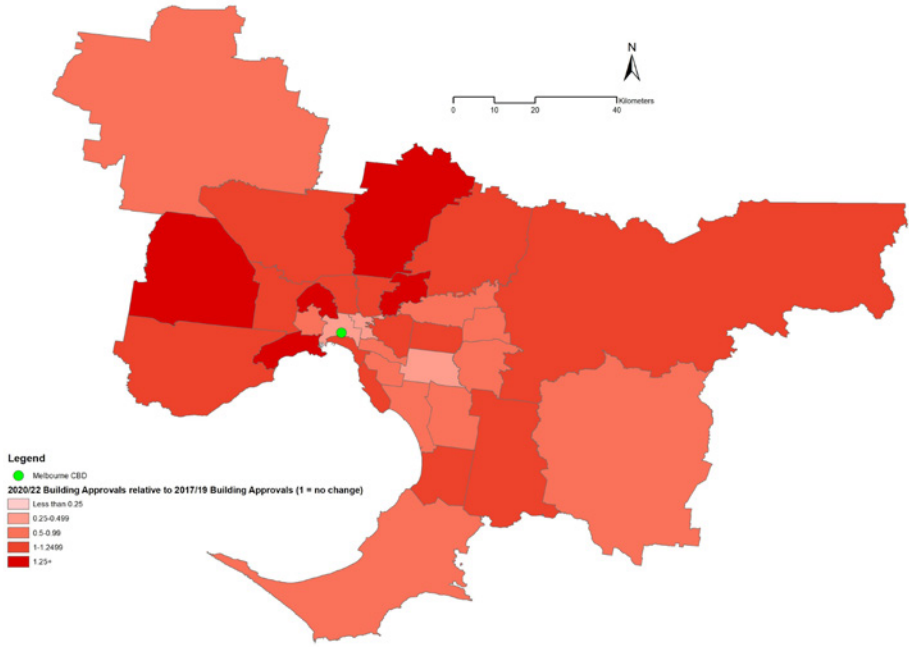
Figure A1: Difference in state level approvals 2017–19 and 2020–22: NSW



Source: ABS Building activity, Australia and ABS Table builder pro

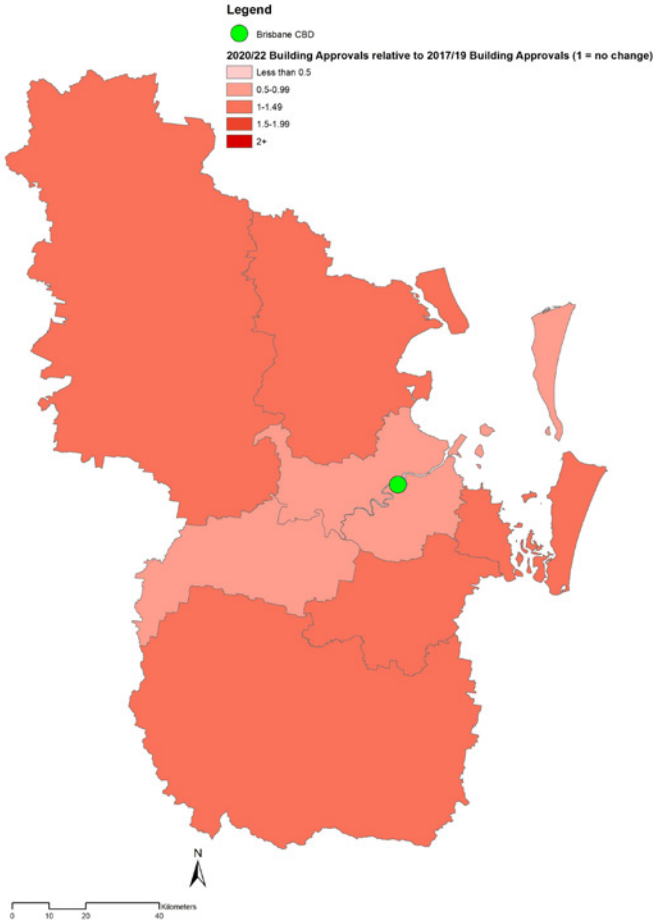
Greater Melbourne showed strong growth in approvals within middle ring areas while there was little change in Greater Brisbane.

Figure A2: Difference in state level approvals 2017–19 and 2020–22: Victoria



Source: ABS Building activity, Australia and ABS Table builder pro

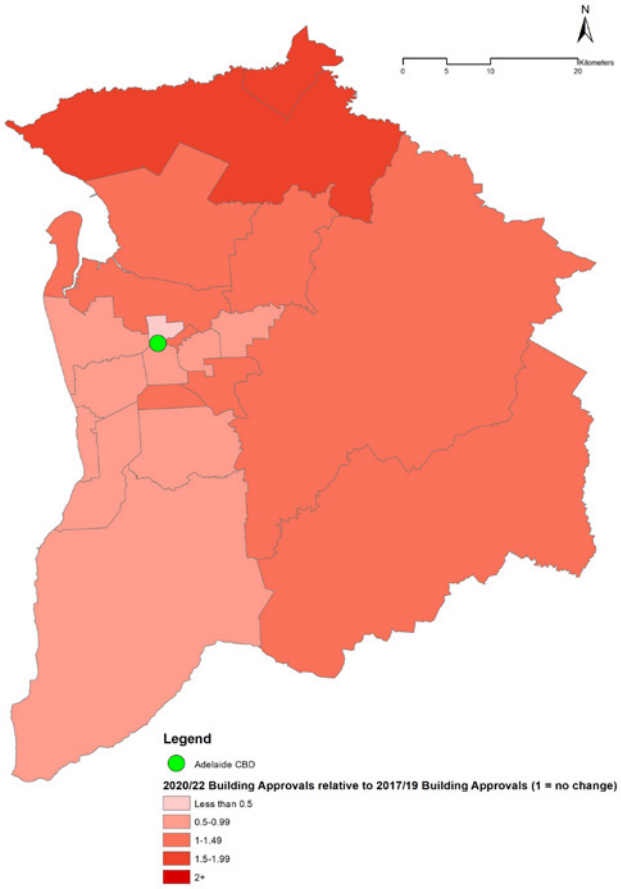
Figure A3: Difference in state level approvals 2017–19 and 2020–22 – QLD



Source: ABS Building activity, Australia and ABS Table builder pro

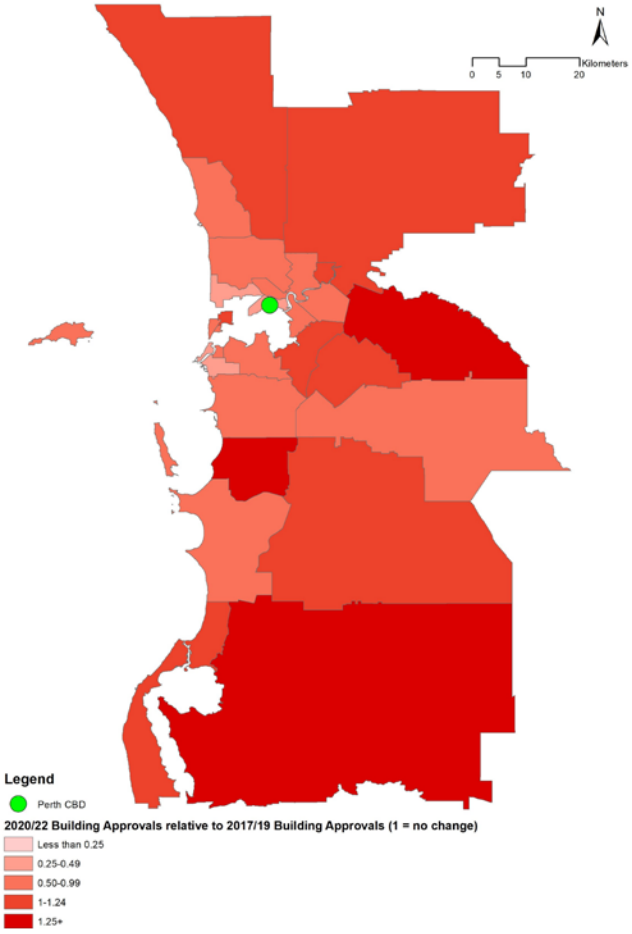
For Greater Adelaide, and especially Greater Perth there was very strong growth in outer areas where new house approvals dominate.

Figure A4: Difference in state level approvals 2017–19 and 2020–22: SA



Source: ABS Building activity, Australia and ABS Table builder pro

Figure A5: Difference in state level approvals 2017–19 and 2020–22: WA



Source: ABS Building activity, Australia and ABS Table builder pro

Appendix 2: Data

Raw variables – Common to both datasets

Land area	The land area of the land included in the sale (sqm).
Bedrooms	The number of bedrooms in the property.
Bathrooms	The number of bathrooms in the property.
Study	The number of study rooms in the property.
Pool	If the property has a pool. This includes both above and below ground pools.
Carports	The number of carports in the property. This includes both attached and detached carports.
Garage spaces	The number of garages in the property. This includes both attached and detached garages.
Sale price	The latest sale price of the property.
Date of sale	The latest date of sale of the property.
Suburb	The name of the suburb in which the property is located.

Created variables – Common to both datasets

Time period dummy	0: Period 1 1: Period 2 Time Period 1 was between the 1 July 2017 to 31 December 2019 (before pandemic) and Period 2 was between 1 June 2020 and 31 December 2021 (after pandemic).
Metropolitan indicator	0: property is located in the Metropolitan Area 1: property is located in a regional area.
Strata indicator	0: property is part of a Strata agreement 1: property is not part of a Strata agreement
Parking	Combined (summed) number of parking spaces available from all carports and garages.
SEIFA Deciles	The latest available (2016) ABS SEIFA deciles at suburb level. https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa

Appendix 3: Summary statistics

WA Data (VG)

Sale price (latest transaction)

Min.	Q1	Median	Mean	St dev.	Q3	Max.
$ 150,000	$ 350,000	$ 465,000	$ 581,606	$ 461,219	$ 650,000	$ 15,000,000

Land area

Min.	Q1	Median	Mean	St dev.	Q3	Max.
31	413	631	804	2,110	777	129,339

Number of bedrooms

Beds	N	Percent
1	1,750	1.178
2	19,646	13.219
3	60,941	41.006
4	61,286	41.238
5	4,369	2.940
6	564	0.380
7	45	0.030
8	8	0.005
9	4	0.003
10	3	0.002

Number of bathrooms

Baths	N	Percent
1	60,485	40.699
2	81,754	55.010
3	5,426	3.651
4	692	0.466
5	217	0.146
6	33	0.022
7	9	0.006

Number of study rooms

Study	N	Percent
0	117,675	79.181
1	30,570	20.570
2	358	0.241
3	11	0.007
4	2	0.001

Property has a pool

Pool	N	Percent
0 (No pool)	123,793	83.297
1 (pool)	24,823	16.703

Number of parking spaces

Parking	N	Percent
0	13,702	9.220
1	44,799	30.144
2	79,943	53.792
3	6,916	4.654
4	2,621	1.764
5	451	0.303
6	149	0.100
7	23	0.015
8	9	0.006
9	2	0.001
10	1	0.001

Dwelling type – Strata

Strata	N	Percent
0 (Non-Strata)	115,978	78.039
1 (Strata)	32,638	21.961

Property in the metropolitan area (Perth WA)

Metro	N	Percent
0 (Non-metro)	28,820	19.392
1 (Metro)	119,796	80.608

SEIFA Decile (Index of Disadvantage – Suburb level)

SEIFA Decile	N	Percent
1	6,528	4.393
2	11,317	7.615
3	10,522	7.080
4	10,299	6.930
5	21,845	14.699
6	9,831	6.615
7	14,031	9.441
8	11,311	7.611
9	25,631	17.246
10	26,676	17.950
Missing	625	0.421

Victorian Data (APM)

Variable		N	%
Location	Regional Victoria	175,816	29.8
	Metro Melbourne	414,049	70.2
Type	House	491,774	83.4
	Unit	98,091	16.6
Time period	Pre-COVID 2017-end 2020	333,235	56.5
	Post-COVID mid 2020-end 2021	256,630	43.5
Bedrooms	1 bed	16,308	2.8
	2 bed	101,241	17.2
	3 bed	258,331	43.8
	4 bed	180,017	30.5
	5+ bed	33,968	5.8
Bathrooms	1 bath	222,316	37.7
	2 bath	320,344	54.3
	3+ bath	47,205	8.0
Parking	1 parking	173,545	29.4
	2 parking	316,278	53.6
	3 parking	39,228	6.7
	4+ parking	60,814	10.3
Area (land) size	up to 300sqm	96,132	16.3
	300-600 sqm	177,058	30.0
	600-800 sqm	148,585	25.2
	800-1000 sqm	54,481	9.2
	1000+ sqm	113,609	19.3
Study	Without study	422,307	71.6
	With study	167,558	28.4
Pool	Without pool	576,137	97.7
	With pool	13,728	2.3
	TOTAL	589,865	100.0

Appendix 4: Summary statistics across time periods

WA Data (VG) – Period 1 versus Period 2

Time period	N	Percent
0 (Pre-COVID-19)	73,780	49.645%
1 (Post-COVID-19)	74,836	50.355%

Price	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	$150,000	$340,000	$453,000	$562,968	$434,444	$640,000	$15,000,000
Post-COVID-19	$150,000	$360,000	$475,000	$599,981	$485,478	$665,000	$14,000,000

Land area	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	31	434	648	812	2,095	782	127,383
Post-COVID-19	31	395	613	796	2,125	773	129,339

Number of Bedrooms	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	1	3	3	3.33	0.800	4	10
Post-COVID-19	1	3	3	3.33	0.804	4	10

Number of Bathrooms	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	1	1	2	1.63	0.595	2	7
Post-COVID-19	1	1	2	1.65	0.595	2	7

Number of study rooms	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	0	0	0	0.21	0.416	0	4
Post-COVID-19	0	0	0	0.21	0.413	0	4

Pool	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	0	0	0	0.18	0.383	0	1
Post-COVID-19	0	0	0	0.16	0.362	0	1

Parking	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	0	1	2	1.60	0.827	2	10
Post-COVID-19	0	1	2	1.62	0.829	2	9

Strata	Mean	St Dev
Pre-COVID-19	0.21	0.41
Post-COVID-19	0.23	0.42

Metro	Mean	St Dev
Pre-COVID-19	0.82	0.38
Post-COVID-19	0.79	0.41

Victorian Data (APM) – Period 1 versus Period 2

		Sale Price (median$)	Land Area (median)	Bedrooms (mean)	Bathrooms (mean)
Regional Victoria	Pre-COVID	375,000	699	3.23	1.59
	Post-COVID	483,500	697	3.28	1.63
	Change	108,500	-2.0	0.05	0.04
	Change (%)	28.9%	-0.3%	1.4%	2.5%
Metropolitan Melbourne	Pre-COVID	680,000	595	3.17	1.75
	Post-COVID	750,000	570	3.20	1.79
	Change	70,000	-25.0	0.03	0.04
	Change (%)	10.3%	-4.2%	0.8%	2.3%
Total	Pre-COVID	599,800	628	3.19	1.70
	Post-COVID	675,000	609	3.22	1.74
	Change	75,200	-19.0	0.03	0.04
	Change (%)	12.5%	-3.0%	1.0%	2.4%

Descriptive statistics – sale price

		Q1	Median	Mean	Q3	Standard Deviation
Regional Victoria	Pre-COVID	278,000	375,000	426,395	510,000	242,327
	Post-COVID	355,500	483,500	561,304	665,000	356,051
Metro Melbourne	Pre-COVID	542,000	680,000	861,050	950,000	632,287
	Post-COVID	595,000	750,000	968,281	1,100,000	733,068
Total	Pre-COVID	435,000	599,800	730,916	825,000	580,777
	Post-COVID	510,000	675,000	847,681	950,000	671,004

Descriptive statistics – property area (square metres)

		Q1	Median	Mean	Q3	Standard Deviation
Regional Victoria	Pre-COVID	546	699	5,551	977	271,116
	Post-COVID	542	697	4,002	994	70,866
Metro Melbourne	Pre-COVID	374	595	1,696	802	84,934
	Post-COVID	332	570	1,312	787	8,252
Total	Pre-COVID	410	628	2,850	855	164,510
	Post-COVID	379	609	2,109	846	39,212

Median value of properties across time periods - by location and property type

		Pre-COVID	Post-COVID	Change	Change (%)
Regional Victoria	Houses	380,000	495,000	115,000	30.3%
	Units	269,000	349,000	80,000	29.7%
	Total	375,000	483,500	108,500	28.9%
Metropolitan Melbourne	Houses	720,000	810,000	90,000	12.5%
	Units	536,500	598,000	61,500	11.5%
	Total	680,000	750,000	70,000	10.3%
All	Houses	615,000	700,000	85,000	13.8%
	Units	510,000	570,000	60,000	11.8%
	Total	599,800	675,000	75,200	12.5%

Appendix 5: Price growth across time periods (with controls)

WA Data (VG) – Price growth across repeat sales

Beds	Average price growth	N
1	25%	65
2	21%	690
3	24%	1,834
4	22%	1,727
5	20%	123
6	27%	13
8	14%	1

Baths	Average price growth	N
1	24%	1,916
2	21%	2,329
3	26%	174
4	31%	27
5	48%	5
~~6~~	~~203%~~	~~1~~
~~7~~	~~144%~~	~~1~~

Study	Average price growth	N
0	23%	3,599
1	20%	838
2	21%	14
~~3~~	~~9%~~	~~1~~
~~4~~	~~203%~~	~~1~~

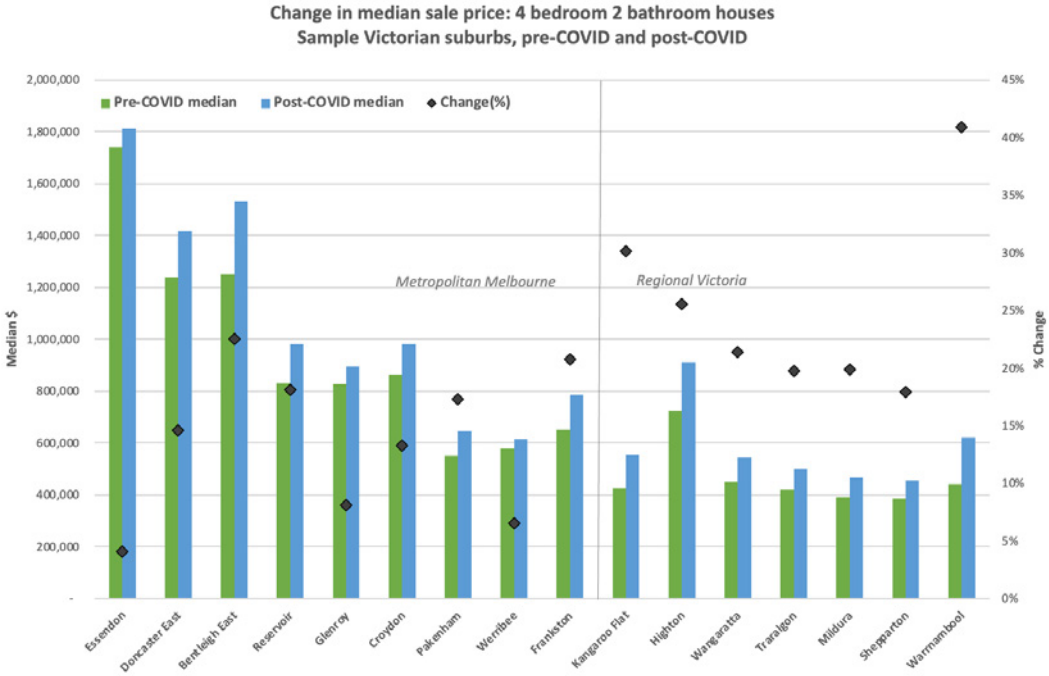
SEIFA Decile	Average price growth	N
1	22%	201
2	20%	320
3	23%	335
4	22%	292
5	26%	653
6	23%	347
7	22%	406
8	18%	318
9	20%	743
10	25%	822
NA	13%	16

Parking	Average price growth	N
0	24%	438
1	25%	1,454
2	21%	2,241
3	22%	214
4	18%	86
5	28%	14
6	15%	5
~~8~~	~~142%~~	~~1~~

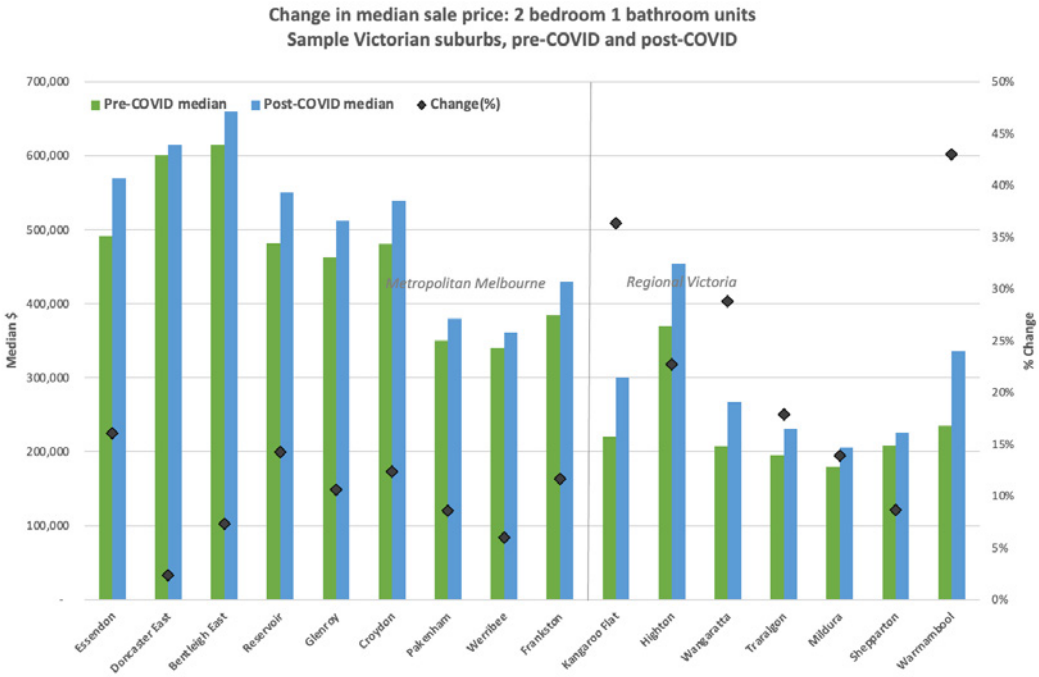
Metro	Average price growth	N
0	28%	1,010
1	21%	3,443

Pool	Average price growth	N
0	22%	3,671
1	23%	782

Victorian Data (APM) – Price growth for selected profiles



Strata	Average price growth	N
0	23%	3,345
1	20%	1,108



WA (VG) Data

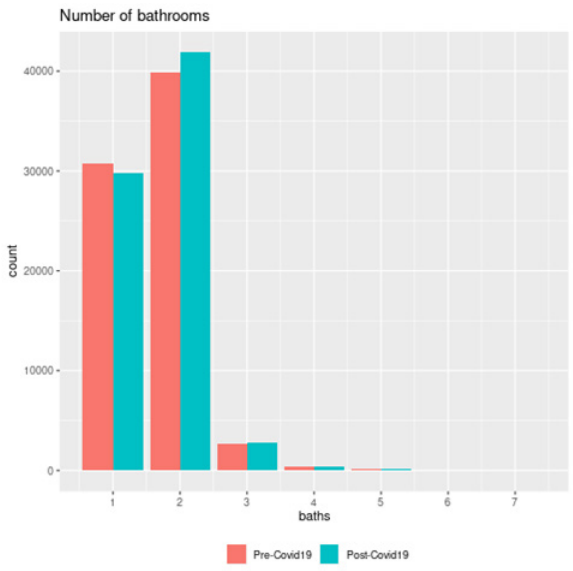
The steps outline below describe the exclusions applied to the VG data in order to prepare the dataset for the analysis.

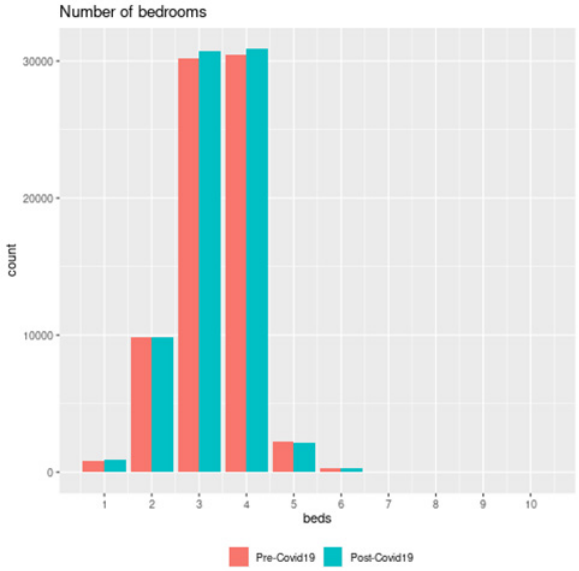
Exclusions	Number of observations
Original data set	258,122
Remove transactions where land use is not residential	211,650
Remove transactions where property use is not residential	161,535
Remove transactions where sale includes more than one lot	158,138
Remove transactions where sale is a vacant sale	157,402
Remove transactions where property classification is missing	157,276
Remove non-residential property classifications	154,895
Remove all transactions where number of units is greater than 0 and wall variable is missing	154,616
Remove all transactions where roof and wall variable are missing (all housing attributes are missing as well)	154,591
Remove all transactions where land area is non-sensical i.e. less than 15 sqm or more than 500,000 sqm	154,579
Remove all transactions where the number of bedrooms and bathrooms is equal to 0	154,543
Remove all transactions where the number of bathrooms is greater than 7	154,536
Remove one transaction where the number of study rooms equals 7	154,535
Remove all transactions where the latest sale price (sale1) is less than $150K	148,616

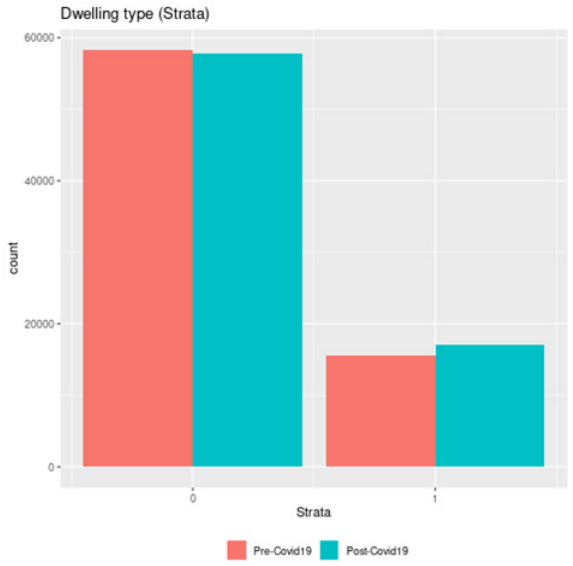
WA (VG) Data – Repeat sales

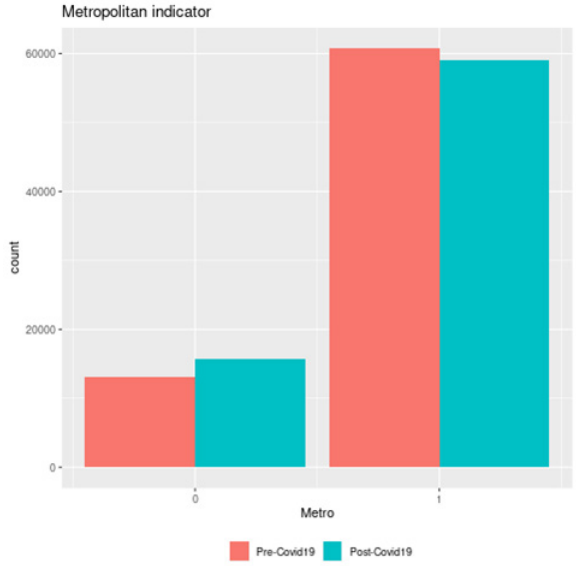
Exclusions	Number of observations
Data set used in the first analysis	148,616
Extract all post-COVID-19 transactions	74,386
Remove transactions where previous sale date is missing. This implies that the property has not been sold before.	65,755
Filter the previous sale date as per the dates for pre-COVID-19 time period (1st July 2017 to 31st December 2019)	5,653
Remove all previous transactions which include the sale of multiple lots (multi=1)	5,583
Remove all previous transactions which include a vacant sale (status2=1)	4,672
Remove all previous sale prices (sale2) which are less than $150K	4,453

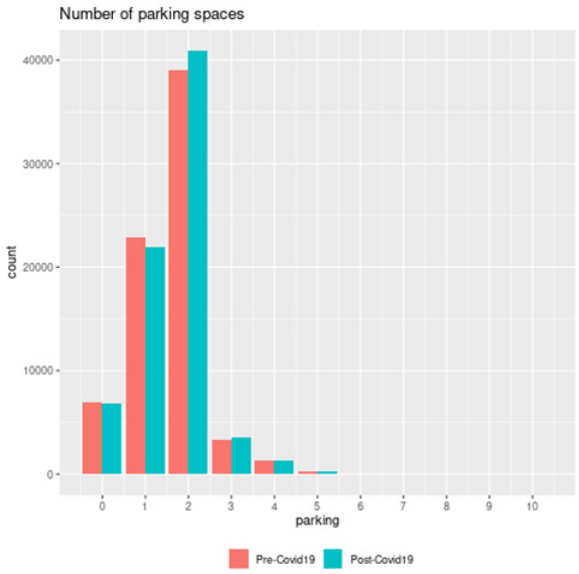
WA (VG) Data – Descriptive analysis

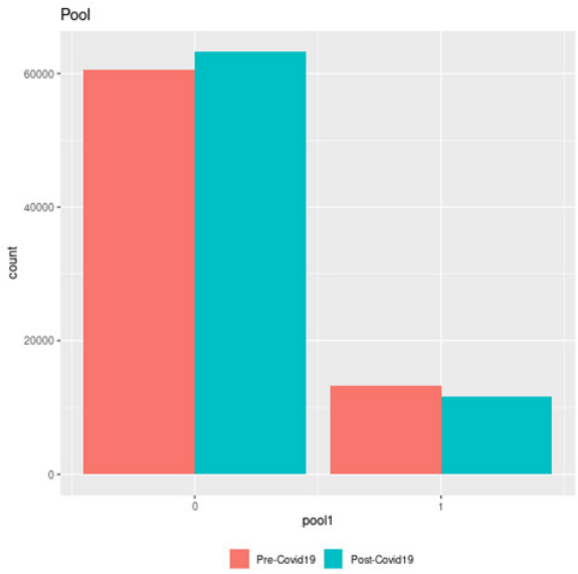


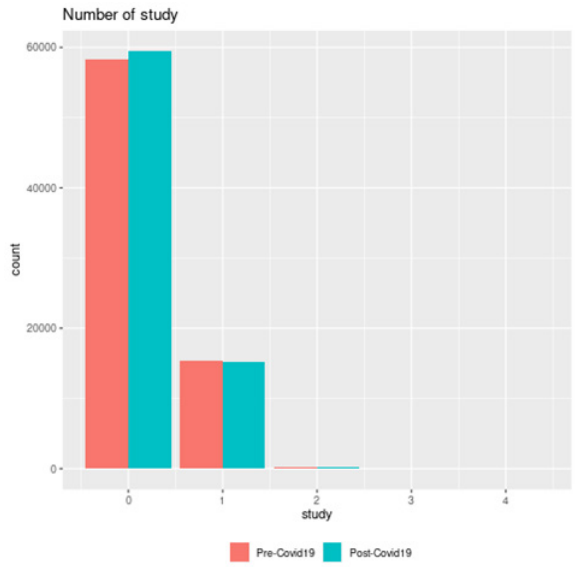







Number of parking spaces
count
parking
Pre-Covid19
Post-Covid19


Pool
count
pool1
Pre-Covid19
Post-Covid19


Number of study
count
study
Pre-Covid19
Post-Covid19

WA (VG) Data – Time between consecutive sales

The time between sales can provide an indication of sales activity for a given property. This variable is simply the difference between the latest and previous sales date and is measured in weeks. In this section, we examine if there is a difference in the average time between sales across the two time periods.

Time between sales – Overall results

Min.	Q1	Median	Mean	St dev.	Q3	Max.
0	319	516	591	360	800	4175

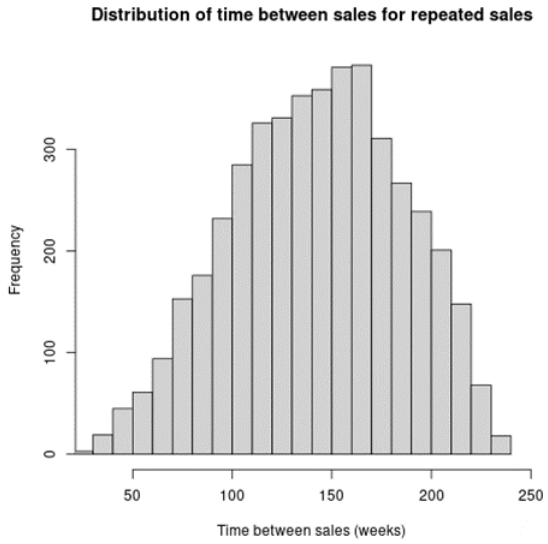
Note that the minimum value of zero represents time between sales that is less than one week i.e. less than 7 days.

Time between consecutive sales across the two time periods

Time between sales	Min	Q1	Median	Mean	St Dev	Q3	Max
Pre-COVID-19	0	299	514	581	356	789	3947
Post-COVID-19	0	338	519	600	363	809	4175

Based on the results of a non-parametric test, the average time between sales is significantly different across the two time periods. The results indicate that average time between sales has increased across the two time periods.

The above analysis is carried out on a restricted sample consisting on repeated sales where the first sale is in Period 1 and the second is in Period 2 (repeated sales data). Hence, the time of difference is equal to date of sale (Period 2) – date of sale (Period 1) for a given property. The distribution and summary statistics for this time variable is provided below.



Min.	Q1	Median	Mean	St dev.	Q3	Max.
29	112	145	143	43	175	237

Australian Housing and Urban Research Institute
Level 12, 460 Bourke Street
Melbourne VIC 3000
Australia
+61 3 9660 2300
information@ahuri.edu.au
ahuri.edu.au
twitter.com/AHURI_Research
facebook.com/AHURI.AUS
Australian Housing and Urban Research Institute