Inquiry into housing policies, labour force participation and economic growth

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Contents

List of tables

List of figures

Acronyms and abbreviations used in this report

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AHURI	Australian Housing and Urban Research Institute Limited
APRA	Australian Prudential Regulation Authority
AULUPP	Australian Urban Land Use Planning Policy
CBD	Central Business District
CRA	Commonwealth Rent Assistance
DHS	Department of Human Services
GCCSA	Greater Capital City Statistical Area
GFC	Global financial crisis
HES	Household expenditure survey
HILDA	Household, Income and Labour Dynamics in Australia
ISP	Income support payment
LGA	Local government area
LVR	Loan to value ratio
NILF	Not in the labour force
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
RR	Replacement rate
SA2	Statistical Area Level 2
SA3	Statistical Area Level 3
SRP	Supporting Research Project
UGB	Urban Growth Boundary

Glossary

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

Executive summary

- This Inquiry presents evidence on how housing policies might promote labour force participation and economic growth through four channels—housing supply responsiveness, labour mobility, employment decisions and consumption.

- Despite strong evidence of housing's large presence in the economy, it is often viewed as an adjunct of social policy with few economic consequences. The Inquiry findings highlight a critical need to reposition housing from the periphery to a more central place within economic policy debates.

- In terms of housing supply responsiveness, structural impediments may be weakening the trickle down of new housing supply to lower income groups, with potentially adverse implications for their ability to secure housing closer to where jobs are located. Hence, targeted government intervention might be needed to ensure adequate supply of affordable housing to vulnerable groups at the lower end of the market.

- Private renters exhibit higher residential mobility rates than those in other tenures. Because Commonwealth Rent Assistance is transferable, it provides opportunities for individuals to move to regions with better economic prospects.

- There is a case for implementing reforms to alleviate the adverse impacts of home ownership related tax concessions on labour mobility. However, there is a trade-off here because there is some evidence of home ownership's positive impacts on workforce engagement, and as a financial source of parental support for education and business start-ups.

- Reforms that strengthen public housing tenants' incentives to work will have only small positive effects on employment rates. An integrated approach that addresses multiple barriers to employment (e.g. drug and alcohol abuse programs, mental health skills and so on) is likely to be a more effective approach.

- A strong link exists between house price changes and consumption for middle aged and older households. The take-up of further debt among highly leveraged households exposes them (and the macroeconomy) to significant risk if house prices fall, or if interest rates rise. Hence, monetary policy levers, while not directly housing related, have important influences on housing wealth related consumption effects.

- There is little systematic integration of housing policy interventions at various government and spatial levels, nor is there an overarching agency that articulates how these interventions impact on economic outcomes nationally. A more considered and coordinated policy treatment of housing as an economic asset that has implications for nation-wide economic growth is clearly overdue.

Key findings

This Inquiry has generated a comprehensive evidence base to guide policy formulation that promotes labour force participation and economic growth in Australia. We focus on four key channels through which housing policies might affect labour force participation and economic growth—housing supply responsiveness, consumption, mobility and employment decisions.

Housing supply responsiveness

The estimated price elasticity of new housing supply is 4.7 per cent for houses and 3.9 per cent for units. These supply responses translate into a very small increase in the housing stock. Large increases in real house prices are needed to enable housing supply to match demand pressures resulting from population growth (assuming other supply drivers are unchanged).

The supply of units is overwhelmingly concentrated in job-rich areas. As the market penetration of units has grown, especially in our major cities, the urban network linking jobs and residences could be strengthened by these developments. A likely by-product is shorter commutes, which can be an important boost to productivity, especially in large metropolitan economies. New housing supply, and especially the supply of units, appears to be concentrated at the upper end of the price distribution. However, new housing supply in high price segments should theoretically push down the prices of existing properties as purchasers of new housing vacate their established properties. But this process does not seem to be working effectively in practice. It may be that structural impediments are weakening the trickle-down impact of new supply to lower income groups, with potentially adverse impacts on their ability to secure housing closer to where jobs are located.

Restrictive planning policies are more likely to hinder supply if they render development unprofitable. Indeed, developers will often be willing to work through restrictive controls if they can generate profit from a site. From a developer's point of view, a critical aspect of the planning system is the degree of certainty and consistency of advice that planning officers provide.

We find that the supply of units is less responsive to changes in price than houses. A key factor could be the greater complexity of the multi-unit development process. By the time a developer has secured the land and the necessary development approvals the market may have changed, and the development may no longer be profitable. This adversely impacts the quantity and timeliness of new unit supply in response to price shocks.

Consumption

A strong relationship exists between house price changes and household consumption for middle aged and older households. These results are consistent with the hypothesis that increases in house prices affect household consumption through the relaxation of a credit or collateral constraint that enables households to increase their borrowing in order to finance consumption. Following the global financial crisis (GFC), highly leveraged home owners have become more conservative. Conversely, the consumption outlays of investors—especially investors with debt—exhibit greater responsiveness to house price increases after the GFC. Indeed, the role of the collateral channel was amplified for investors following the GFC.

Labour mobility

Significantly higher rates of mobility are exhibited by individuals in private rental tenures than other tenures. Thus high and rising rates of home ownership can impede mobility and adjustment in the labour market. After controlling for a range of other characteristics, owner-occupiers with low loan-to-value ratios exhibit the lowest rates of geographic mobility. Among the unemployed, owner-occupiers with low loan-to-value ratios report lower rates of job search.

Further, the minimum wage at which unemployed searchers are willing to accept a given job offer is approximately 6 per cent higher for owners with low loan-to-value ratios than outright owners (after controlling for a range of observable characteristics).

Employment decisions

Housing assistance to private rental and public housing tenants has few employment effects. Among those eligible for Commonwealth Rent Assistance (CRA) and employed, its removal would only lift the predicted rate of continued employment from 91.1 per cent to 91.4 per cent. If a Job Commitment Bonus[1] of $2,500 were extended to all working age public housing tenants in receipt of income support payments, our model predicts that a little under 1 in 100 tenants eligible for Newstart or Youth Allowance would become employed.

On the other hand, higher levels of housing wealth seem to help older 'inactive' owners regain employment, and assist precariously employed younger owners to secure employment. In addition, rising levels of mortgage indebtedness are associated with longer working lives. Our model estimates indicate that for persons aged 45–54 years old) in 2001, mortgagors' odds of leaving the labour force at any given point in time are only 19 per cent of outright owners' odds of leaving the labour force *(all else equal)*. For persons aged 55–64 years old, mortgagors' odds of leaving the labour force at any given point in time are 27 per cent.

Beneficiaries of parental cash transfers or bequests are more likely to hold a bachelor degree than matched non-beneficiaries. The proportion of beneficiaries in the labour force is roughly the same as non-beneficiaries, but a significantly higher proportion are self-employed.

Policy development options

The Inquiry highlights ways in which housing markets and outcomes can be incorporated into economic policy thinking and decision-making in Australia. Specifically, the Inquiry findings give rise to a range of policy development options across different policy levers and tiers of government in Australia. At the federal level, these include CRA, fiscal measures and monetary policy. At the state level, the key relevant levers are public housing as well as planning and land use regulations. Local governments also share responsibility for the latter. Across all government tiers, large-scale subsidised delivery of affordable housing will need to be considered.

Commonwealth Rent Assistance

The evidence offered in this report confirms previous research findings which concluded that reforms to housing assistance are unlikely to have more than a small impact on employment participation. Because CRA is designed such that it is only withdrawn after entitlements to other income support payments (ISPs) is lost, it is a minor influence on the incentive to work. However, because it is geographically transferable, CRA can assist eligible individuals and households to move to regions with better economic prospects. Given the considerable heterogeneity in rental market conditions across Australia, there is a case for providing CRA at rates that match regional circumstances. This may enhance the ability of individuals to move to areas that offer better opportunities for employment and economic advancement, albeit with higher housing costs.

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[1] For more information on the Job Commitment Bonus, refer to the Department of Human Services (DHS) website: https://www.humanservices.gov.au/customer/services/centrelink/job-commitment-bonus.

Public housing

Public housing tenants have very low employment participation rates that have prompted some commentators to argue that it is due to welfare dependence. Our modelling results suggest that even though the typical public housing tenant can replace a relatively high fraction of 'in work income' when not working, these blunt financial incentives are not the main cause of their low rate of employment participation. Public housing tenants are a severely disadvantaged group who face multiple barriers to employment. Reforms that strengthen financial incentives to work will have only small effects on employment rates. An integrated approach that addresses barriers to employment for those in public housing (e.g. drug and alcohol abuse programs, mental health, skills and so on) is likely to be a more effective approach to improving the employment outcomes of public housing tenants. In addition, public housing policy could be revisited to ensure that such assistance is delivered in ways that are 'work friendly'. For example, there are barriers to inter-regional moves motivated by employment opportunities because a commute to the new job is not feasible, while a residential move could result in the loss of a subsidised and secure public housing tenancy. Reforms to allocation rules, or financial assistance to assist with higher housing costs on moving out of public housing, might assist.

Large-scale subsidised delivery of affordable housing

Policy thinking across all tiers of government around solutions to supply-side issues need to extend beyond traditional calls to release more land to narrow the gap between supply and demand. Structural impediments may be weakening the trickle-down impact of new housing supply to lower income groups, and adversely affect their ability to access housing in job-rich areas. Hence, targeted government intervention might be needed to ensure an adequate supply of affordable housing to vulnerable groups through direct subsidies, or indirect measures that improve financial incentives for profit-maximising developers to supply housing at the lower end of the market.

Planning and land use regulations

Thinking on planning reform should also extend beyond a simplistic notion that more planning controls mean weaker supply responsiveness. Hence, planning reforms need to focus on improving certainty and consistency throughout the planning process, in order to minimise potentially adverse impacts on profits for developers. In addition, the complexity and length of the multi-unit development process can be reduced if a more efficient land assembly and approval process were made available.

Fiscal measures

The institutional environment in Australia is characterised by favourable tax treatment for owner-occupied housing with implicit and explicit policy settings favouring owner occupation as a preferred housing tenure. At the federal level, these include tax exemptions such as the Capital Gains Tax exemption, and direct subsidies such as First Home Buyer grants. At the state level, they include land tax exemptions and stamp duty concessions. While such a bias may be justified given the extent of private and social benefits that derive from owner occupation, it can also create distortions in both housing and labour markets. The favourable tax treatment of home ownership is associated with a lower geographic mobility of individuals and households who own their home, and ultimately, the efficient functioning of labour markets. The replacement of stamp duties or transaction taxes with a broad-based land tax has been widely advocated because it is a potentially revenue neutral way of effectively addressing these market imperfections. Reforms in this direction have been introduced in the Australian Capital Territory, and this could be a signal motivating similar reform initiatives from the other state governments, though cooperation with the Australian Government is a likely pre-requisite. There is good

reason to believe that this reform package would ease inflationary pressures in housing markets and so improve the overall efficient functioning of the economy.

The accumulation of housing wealth by older Australians can be the source of positive labour market outcomes from three angles, though they have somewhat mixed implications for policy development. First, higher levels of housing wealth seem to help older 'inactive' owners regain employment. Second, recipients of intergenerational transfers have more financial assets that can act as a buffer to meet income shocks, and collateral to relax borrowing constraints. In view of these differences beneficiaries might take more risks, and are in a better position to borrow, whether it is to take advantage of educational opportunities, or finance business start-ups. However, it is important to empirically explore these ideas and establish whether intergenerational transfers are a source of dynamism and innovation (e.g. business start-ups); or, alternatively, contributing to a growing wealth inequality with the children of parents that lack large amounts of wealth failing to meet their educational and employment potential.

Third, growing numbers of Australian households are taking on higher levels of mortgage debt (relative to household incomes) and paying down their mortgages later in life. One interpretation is that increasing longevity has encouraged many Australians to plan longer working lives; carrying higher levels of mortgage debt later in life is therefore a financially prudent way of smoothing consumption over a longer life. On the other hand, there is the argument that soaring real house prices have not been anticipated, and as a consequence home buyers borrowed more in order to climb the 'housing ladder'. This is a source of 'mortgage stress' that is prompting mortgagors to extend their working lives. Both perspectives predict longer working lives; if this prediction is confirmed by the evidence it would assuage fears about productivity slow down due to population ageing related drops in participation rates.

Monetary policy

In countries that have experienced deleveraging since the GFC, attention increasingly has focused on the impact of debt on consumption. The take-up of additional mortgage debt among already highly leveraged households through the 'collateralisation effect' exposes those households to the risk of significant loss if house prices fall, or interest rates rise. This in turn may pose a systemic risk for the macroeconomy. Macro-economic policy-makers should take note of the potential risks associated with high levels of household debt and rising household income-to-debt ratios. Despite the significant benefits from a flexible mortgage system that allows households to borrow against their housing equity, there is a downside of repayment and investment risks that could be triggered by house price declines. In a number of countries with similar situations, regulations have been implemented to limit the growth of household indebtedness and the need to ensure robust prudential regulation remains an important policy priority.

The importance of housing policy integration

This research highlights the importance of applying housing policy thinking within Australia's multi-level system of government comprising federal, state and local levels. Because the Australian Government does not currently operate an explicit or overarching housing policy, housing policy interventions are spread across a range of portfolios including social security, tax, planning, etc., and each government tier has some responsibility for housing outcomes that influence the housing-economy link differently. Within the context of this Inquiry, we have found that:

- Subsidised delivery of affordable housing and planning regulations have impacts on housing supply responsiveness, which in turn affect access to housing that is close to job opportunities.

- CRA's transferable nature leads to greater opportunities for eligible individuals and households to move to regions with better economic prospects. On the other hand, public housing could be revisited to ensure that such assistance is delivered in a way that does not impede labour mobility.

- Housing-related fiscal measures, in particular those that affect incentives to accumulate wealth in owner-occupied housing, have important influences on the economy. On the one hand, they can adversely affect labour mobility. On the other hand, they can encourage workforce engagement and have potentially positive intergenerational impacts through parental support for further education and business start-ups. Growing mortgage indebtedness in later life can also lead to extension of working lives.

- Monetary policy levers, while not directly housing related, have important influences on housing wealth related consumption effects.

Overall, the Inquiry presents a comprehensive set of conceptual and empirical findings that collectively highlight a fundamental need to reposition housing from the periphery to a more central place within economic policy debates. A much deeper appreciation of the consequences of housing policies for economic outcomes is necessary if the potential for housing policy to promote economic growth is to be realised. A more considered and coordinated policy treatment of housing as an economic asset that has implications for nation-wide economic growth is clearly overdue.

The study

This Inquiry offers an integrated suite of quantitative and qualitative analyses to inform the following policy issue:

How might a range of housing policy mechanisms be implemented to support labour force participation and promote economic growth?

Despite strong evidence of housing's significant presence in the economy, it has traditionally been viewed by Australian commentators as an adjunct of social policy with few economic consequences. Indeed, housing is often viewed as a socially driven expenditure rather than as an essential infrastructure with growth and productivity benefits to the economy. Since the global financial crisis (GFC), there has been greater acceptance of the importance of the housing market to overall economic performance and financial stability. However, the literature suggests that there has been little appetite to rethink how housing policy levers could be exploited to achieve improved outcomes for the economy in the post-GFC era.

Yet, a plethora of policy instruments at federal, state and local levels influence the ways in which housing affects the economy. Some of these policy levers have direct impacts; others less so. For instance, policies that fall clearly within the housing sphere include CRA, public housing, planning regulations and subsidised affordable housing programs. Some other policy instruments do not strictly have housing objectives but nonetheless have significant impacts on housing outcomes (e.g. fiscal policy, monetary policy).

The Inquiry draws on an integrated economics, governance and spatial framework as well as empirical evidence to shed light on whether some of the causal mechanisms linking housing and economic growth are significant in Australia, including housing supply responsiveness, consumption effects, labour mobility and employment decisions. The policy implications of the findings are considered within an Australian-specific multi-level governance framework, as well as through varying spatial scales. Because the Australian Government does not currently operate an overarching housing policy, housing policy interventions are spread across a range of portfolios including social security, tax, planning, etc., and each government tier has some responsibility for housing outcomes that influence the housing-economy link differently. This

report fills an important gap in Australian research on the links between housing and the economy by generating an array of up-to-date empirical estimates that can be drawn on to inform housing policy reform in ways that promote labour force participation and economic growth.

The Inquiry evidence is generated from a mixed methods framework comprising four sets of quantitative exercises, two sets of qualitative analyses, and a national policy review. All the analyses are underpinned by extensive reviews of the international and Australian literature, which inform the development of methodological details and enhance interpretation of the Inquiry findings. The sample scope is Australia-wide across all the analyses within the Inquiry. Two criteria were consistently applied in the choice of datasets across all analyses—first, the timeframe should cover both the pre-GFC boom and post-GFC recovery years, and second, it should reflect the latest data available at the commencement of the analysis.

1   The economic case for housing policies

- This report presents key findings from an Inquiry program designed to develop a robust evidence base on how housing policies might support labour force participation and promote economic growth.

- Despite strong evidence of housing's huge scale in the economy, it has traditionally been viewed as an adjunct of social policy with few economic consequences in Australia. This viewpoint is concerning given that housing commands a significant share of investment, employment and consumption nationally.

- The Australian housing system is dominated by market processes that are lightly regulated by international standards. Hence, house prices and rents are important signals that help shape the allocation of land and labour between competing uses. Resource allocation decisions in turn affect the extent of economic development in Australia.

- The Global Financial Crisis highlighted the oversight in dismissing housing's importance in a new era of financial deregulation and economic volatility.

- What is currently lacking is a well-articulated conceptual and evidence base that identifies ways in which housing markets and outcomes can be incorporated into economic policy thinking and decision-making in Australia.

- This Inquiry is underpinned by an integrated economics, governance and spatial framework, and a mixed methods methodological framework.

1.1   Why this research was conducted

While there exists a large body of research linking housing to the economy internationally, the evidence in Australia is more sparse. There is a lack of a well-articulated conceptual and evidence base that identifies ways in which housing markets and outcomes can be incorporated into economic policy thinking and decision-making in Australia. This report aims to fill this gap by presenting key findings from an inquiry that has developed a robust evidence base to guide housing policy reforms that promote Australia's economic growth. The inquiry offers a suite of five interlinked research projects, and engagement with policy and industry through panel meetings, to inform the following policy issue:

How might a range of housing policy mechanisms be implemented to support labour force participation and promote economic growth?

International comparisons show that the economic importance of housing is greater in Australia than many other OECD countries. Figure 1 below displays a real housing price index series for Australia and other selected OECD countries from quarter 1 of 2010 to quarter 2 of 2015. The index is set to a base of 100 in the year 2010. The Australian real housing price index is represented by the black line.

First, the real housing price index of Australia is compared with OECD countries in aggregate. The figure shows that real housing price movements in Australia have more or less tracked the

real housing price movements of the OECD in aggregate in the aftermath of the global financial crisis (GFC). However, between 2011 and 2013, the real housing price index in Australia dipped below the OECD. However, by quarter 2 of 2015, Australia's real housing price index had grown by 10 per cent to an index of 110, which slightly surpassed the OECD housing price index growth rate of 5 per cent.

Comparing Australia with key Anglo-Saxon countries, we find that the Australian real housing price index has moved more or less in tandem with the US and UK. While Canada's and New Zealand's real housing prices appear to have surged ahead at a faster rate, Ireland has trailed behind other Anglo-Saxon countries as it has been particularly negatively impacted by the GFC.

The Australian housing market has remained relatively resilient throughout the GFC in comparison to most European countries. Hence, it is not surprising to find that the real housing price index in Continental Europe has tended to trend downwards since 2010. By 2015, Australia's real housing price index was higher than most countries in continental Europe, although it was still lower than Germany, Sweden and Norway.

Figure 1: Real housing price index, Australia versus selected OECD countries, 2010 Q1 to 2015 Q2

Scandinavia and Continental Europe

Legend: Germany, France, Italy, Netherlands, Belgium, Denmark, Finland, Norway, Sweden, Australia
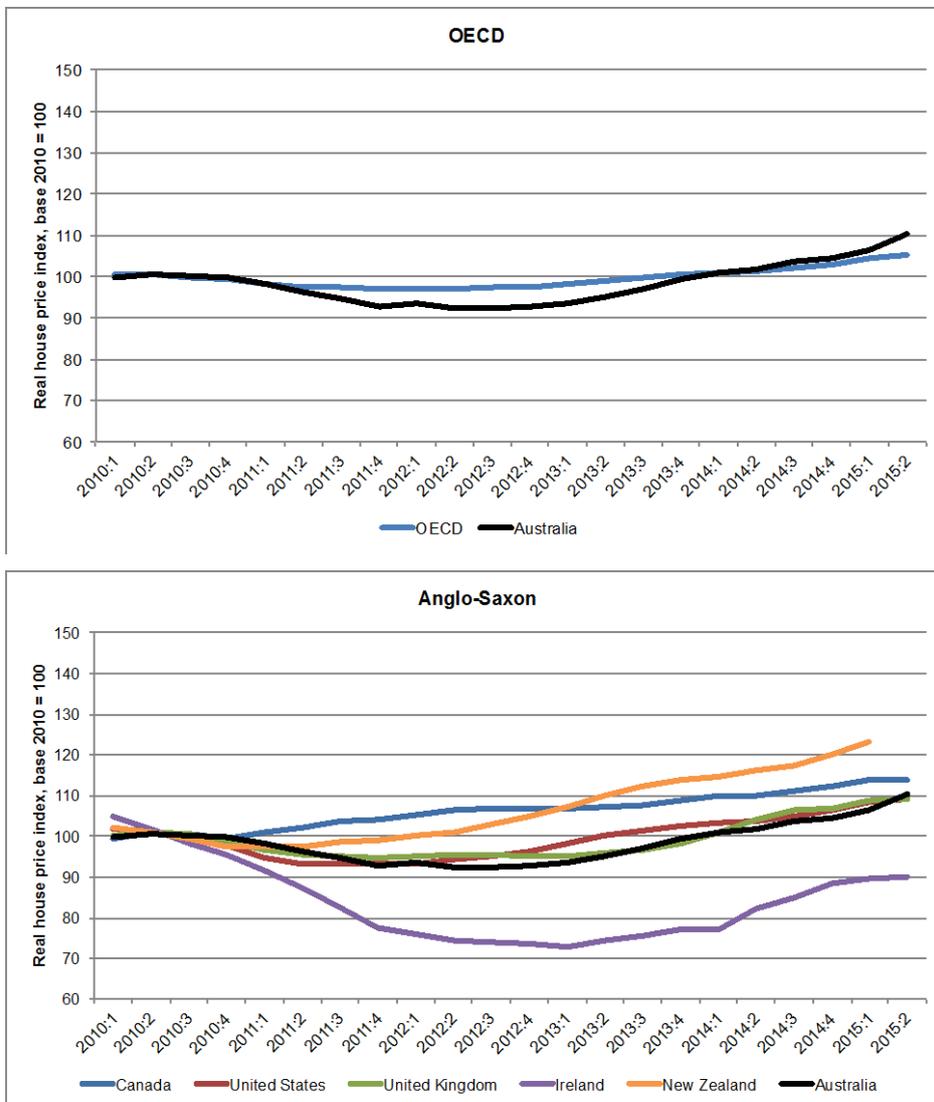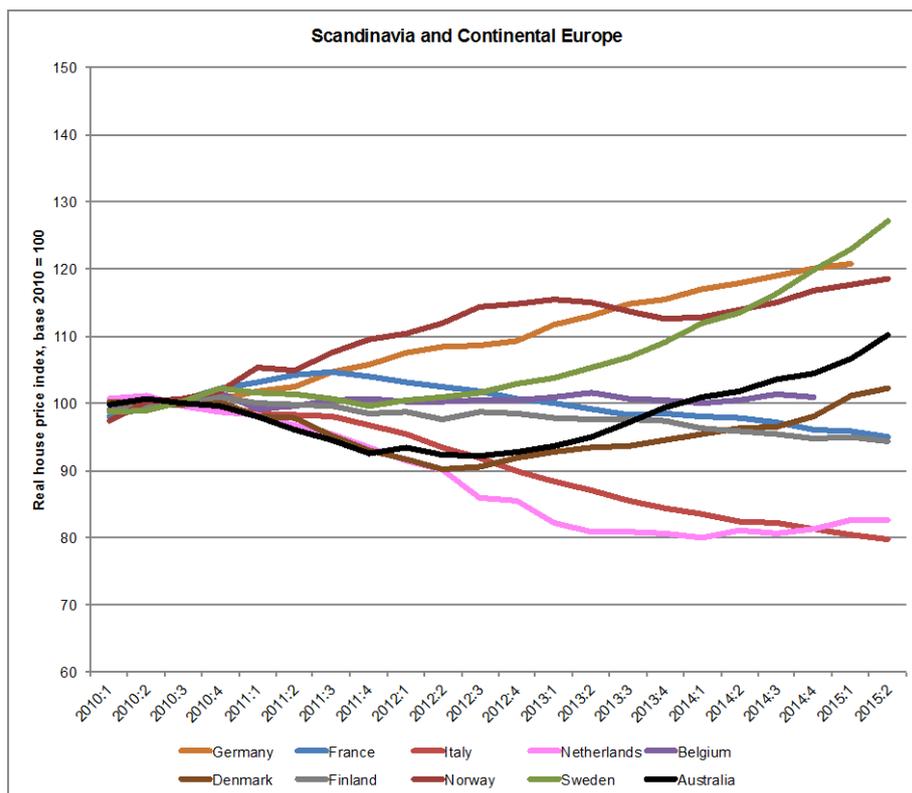
Notes: Base index, 2010 = 100. For Belgium, Germany and New Zealand, the index ends before quarter 2 of 2015.

Source: OECD data, available at: http://www.oecd.org/eco/outlook/focusonhouseprices.htm.

Delving further into the Australia context, the scale of housing in the Australian economy cannot be understated. Housing commands a significant share of investment, employment and consumption nationally. Its huge scale is depicted in Figure 2 below, which plots the value of different components of the household sector's balance sheet over the last two decades. Between 1995 and 2015, household net worth quadrupled from under $2 trillion to over $8 trillion. This increase was mainly driven by the steep rise in residential land and dwelling assets over this period. Even with the slight dip in residential asset holdings during the GFC, land and house values increased dramatically over the long-run. Hence, the value of residential assets owned by households spiked from $1 trillion in 1995 to over $5.4 trillion in 2015. The large size of this asset base is no surprise given that, according to the 2011 Census, of the 7.7 million total occupied dwellings in Australia 5.2 million of them were owner-occupied.

Moreover, the increase in housing asset accumulation has been accompanied by an even faster rate of build-up in housing debt. As shown in Figure 3 below, the housing debt to housing asset ratio climbed from 16 per cent back in 1995 to 28 per cent in 2015, indicating that property owners now have higher levels of mortgage debt secured against their property than before. The rise in debt-fuelled investment in property assets has implications for housing market stability. When indebted property owners and investors increasingly come to bank on continued house price gains, and low interest rates, the resilience of housing markets can be undermined. In an extreme scenario, a sudden spike in mortgage arrears and foreclosures could trigger contagion effects that tip the Australian economy into a deep recession.[2]

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[2] However, Bilston et al. (2015) have recently published findings showing that though household debt has spiralled, it remains concentrated on those households that are able to service the debt.

Figure 2: Components of household balance sheet, 1995 to 2015, billion $ in 2015 prices
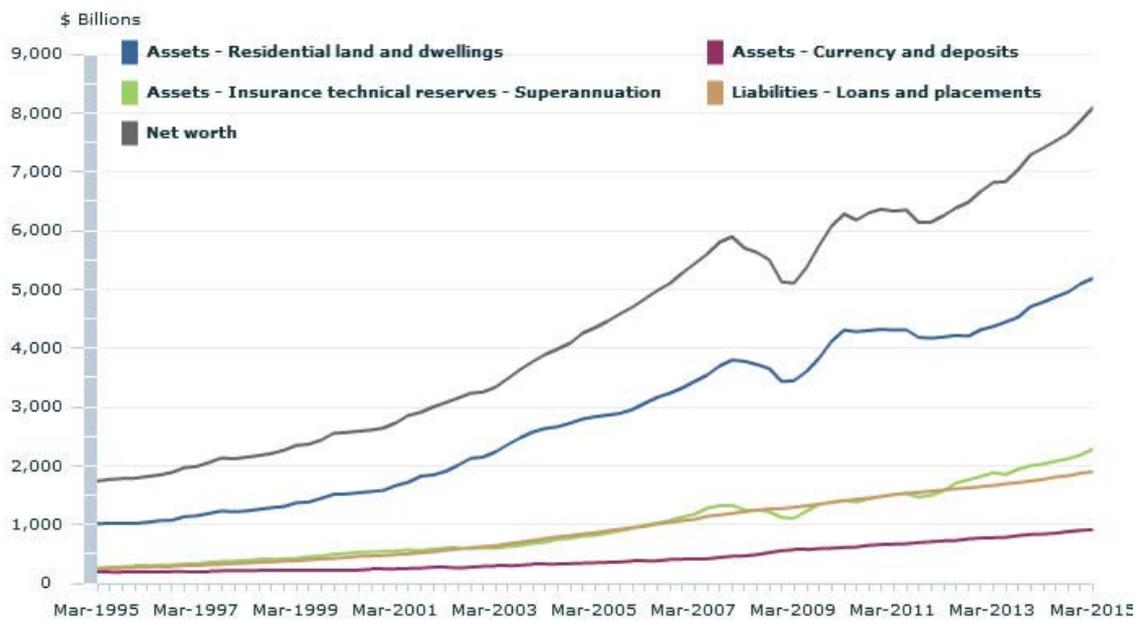
Source: ABS 2015a.

Figure 3: Ratio of housing debt to housing assets, 1995 to 2015, per cent
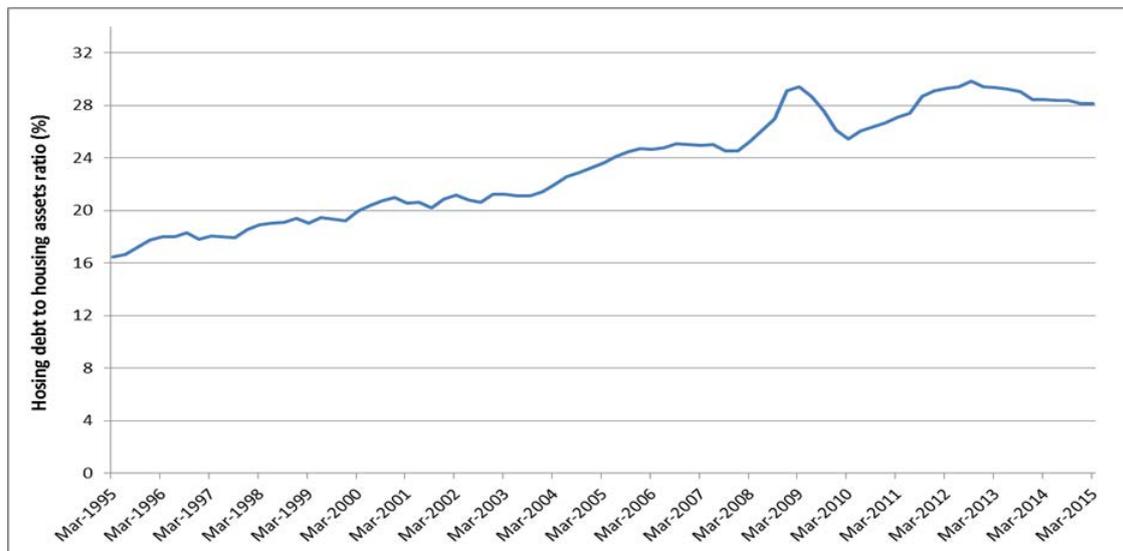
Source: RBA 2015.

Housing's huge scale in the economy is not just reflected in financial market figures. According to the 2011 Census, the construction industry is the fourth largest employer in Australia, employing over 8 per cent of the nation's workforce (see Figure 4 below). In terms of share of employment, the construction industry ranks just behind health care and social assistance, retail trade and manufacturing. However, the construction industry figures underestimate housing's contribution to employment. Persons working in the housing sector are likely to be found in other construction-affiliated industries as well, such as financial and insurance services and rental, hiring and real estate services.

Figure 4: Industry distribution of employed persons, 2011
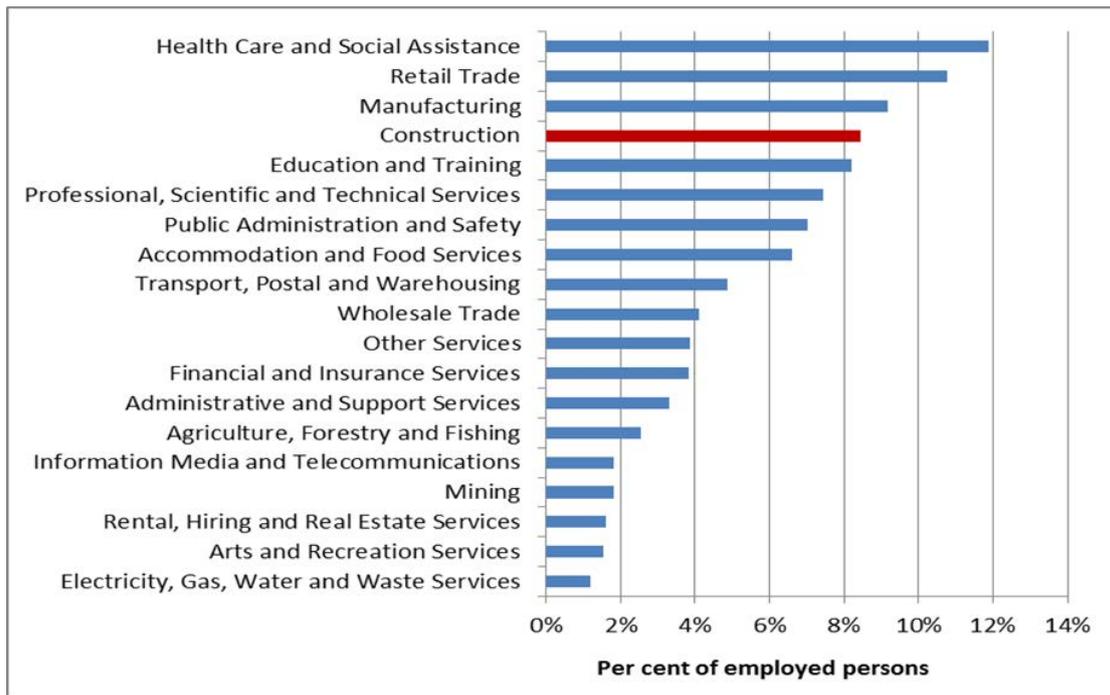
Notes: The percentages are calculated out of the number of employed persons who provide adequate information to assign them to an industry classification.

Source: 2011 Census

Apart from its evident importance in financial and labour markets, housing also makes up a significant share of households' consumption. Table 1 below illustrates how housing costs are taking up an increasing share of households' budgets in the last 30 years. Back in 1982 the median owner purchaser devoted just under 12 per cent of gross household income to meet housing costs (mortgage payments). The share of income allotted to rent payments has increased since then to 18 per cent, and the number of owner purchaser households paying more than 30 per cent of gross household income in rent has almost quadrupled from 168,000 to 654,000. The trends are similar in the private rental sector. Private rental households' housing cost burdens climbed from 17 per cent of gross household income in 1982, to 23 per cent in 2011. In 1982, around one in five private rental households paid more than 30 per cent of income in rent, but this had risen to one in three by 2011. Indeed, the number of private rental households paying more than 30 per cent of income in housing costs tripled from 233,000 to 787,000 over the 30-year period.

Table 1: Housing affordability trends in Australia, by housing tenure, 1982–2011

	1982	1990	2002	2011
Median gross housing cost to income ratio (%)				
Owner-purchasers	11.5	16.7	15.0	18.1
Private renters	16.6	20.6	22.2	23.4
Number with gross housing costs >30% of income ('000)				
Owner-purchasers	168	325	368	654
Private renters Number ('000s)	233	333	553	787
% with gross housing costs >30% of income				
Owner-purchasers	9.6	18.1	14.6	20.7
Private renters	21.9	27.1	31.0	34.6

Notes: The unit of analysis is the household. Owner-purchasers' and private renters' median housing cost to income ratios are calculated by dividing median mortgage payments and median gross rents by the median gross household income of those in the relevant tenure. Population estimates are generated using household weights in the surveys of income and housing.

Source: 1982, 1990, 1996, 2002, 2007, 2009 and 2011 surveys of income and housing from the ABS

Given the importance of housing to the Australian economy, housing policies are clearly critical levers that have significant influence over the economy. This Inquiry research program seeks to offer a robust evidence base to guide housing policy reforms that can promote Australia's economic growth via the following four empirical research questions:

What are the key drivers of housing supply responsiveness, and what do the identified effects imply for policies seeking to increase housing supply responsiveness in Australia?

How have house prices and house price induced increases in debt affected consumption spending in Australia since the GFC, and what are the implications for economic and financial stability?

How does tenure status, through potential impediments to mobility, impact on the behaviours and employment outcomes of individuals and households following a labour market shock?

Through what channels does housing impact employment participation?

In addition, we address the following conceptual research question:

How can an appropriate framework assist us to better understand the way in which housing policies contribute to economic growth, at multiple governance and spatial scales?

1.2 Policy context

Despite strong evidence of housing's huge scale in the economy, it has traditionally been viewed as an adjunct of social policy with few economic consequences in Australia. Maclennan, Wood et al. (2015: 8) observe that '(l)ocal housing planners, focussed on dealing with acute shortages of housing for poorer households or particular needs groups had little time or resource to devote to identifying housing constraints on the economy'. It is often viewed as a socially driven expenditure rather than viewed as an essential infrastructure with growth and productivity benefits to the economy.

The GFC in the late 2000s highlighted the oversight in dismissing housing's importance in a new era of financial deregulation and economic volatility. During the GFC, many countries

suffered significant economic instability, followed by a prolonged period of economic downturn and subsequently austere fiscal measures in the hope of recovery. Since the GFC, there has been greater acceptance of the importance of the housing market to overall economic performance and financial stability. However, Smith (2010: 263) observes that policy solutions in the wake of the GFC have been a rather 'business as usual' approach, albeit within a more regulated framework, while Maclennan and O'Sullivan (2012: 5) note that 'there remains little appetite to rethink how better housing outcomes could support the economy more effectively'.

The Australian housing system is dominated by market processes that are lightly regulated by international standards. Caldera Sánchez and Andrews (2011) ranks Organisation for Economic Co-operation and Development OECD countries in terms of the degree of rent controls and tenant-landlord regulations, based on the OECD's housing market questionnaire. They find that out of 30 OECD countries, Sweden ranks 1st as having the highest level of rent control, while Australia ranks much further behind at 24th. In terms of tenant-landlord regulations, Sweden once again ranks 1st as having the strictest regulations out of 31 countries, while Australia ranks 21st. Furthermore, Chiuri and Japelli (2010) calculate an index of mortgage market regulation for a series of OECD countries and finds that Australia has an index of just 0.1, indicating very light regulation by international standards as opposed to say, 0.5 for Germany and 0.7 for Austria. Because the Australian housing market is relatively unregulated, house prices and rents are therefore important signals that help shape the allocation of land and labour between competing uses. Resource allocation decisions in turn affect the extent of economic development in Australia.

Consider also regional economic growth, which occurs at an uneven pace across regions and cities. The Productivity Commission's (2014) *Geographic Labour Mobility* report suggested that spiralling house prices and rents in booming regions deter in-migration. The report compared residential mobility patterns between Australia and other OECD countries, and found that Australia has a relatively high rate of residential mobility. The report showed that individuals who are young, high skilled or without children are more likely to move across countries. Moreover, private renters also have higher rates of residential mobility than home owners and social housing tenants. The report identified several housing-related policies, including stamp duties and inefficient land-use planning processes that push up housing costs, and result in tenure decisions that impede Australian households' labour mobility and the long-term productive capacity of regional economies. It would appear that home ownership is negatively correlated with residential mobility. However, the data in the Productivity Commission's (2014) report is somewhat out of date so it is important to test for whether these hypotheses still hold using more recent data.

There is also a potentially important link with the price elasticity of housing supply, which has been addressed in the international literature (Glaeser and Gottlieb 2009; Boeri, Ichino et al. 2014), but much less so in Australia. When housing supply in a local area fails to respond speedily to positive productivity shocks (e.g. discovery of new minerals), the productivity gains can be squandered in the form of rising house prices. Maclennan, Wood et al. (2015) found that in several regional areas where the mining boom or mass tourist development are the source of major economic stimulus, industries resort to 'fly-in fly-out' adjustments in response to housing shortages, which in turn add to business costs.

Then there are the macroeconomics of housing market processes and the broad welfare role of housing in ownership societies like Australia. The primary home represents the most significant asset in the financial portfolios of most home owners, and baby boomers have reaped windfall gains from a decade-long housing boom prior to the GFC. Yates and Whelan (2009) have shown that a rise in housing wealth relaxes credit constraints, enabling home owners to increase their borrowing to finance consumption. However, these developments have arguably

contributed to greater economic instability, as evidenced by house price volatility during the GFC and their flow-on effects into the economy.

Housing wealth accumulation also has implications for aggregate labour force participation. Figure 5 below displays recent home ownership and labour force participation rates of key OECD countries. Countries are ranked in descending order by home ownership rate. Eastern European countries tend to exhibit the highest home ownership rates, such as Slovak Republic, Hungary and Czech Republic, where home ownership rates range from 80 to 90 per cent. High home ownership rates are also found in the 75 to 80 per cent range in Southern Europe; see for instance Spain and Portugal. In Anglo-Saxon countries such as Australia, New Zealand, UK and US, around two-thirds of households are home owners. Anglo-Saxon countries and countries in continental Europe tend to feature lower home ownership rates than Eastern and Southern Europe.

However, there appears to be a somewhat negative correlation between home ownership rates and labour force participation rates across the countries displayed in Figure 5. Labour force participation rates range between 70 and 80 per cent in Anglo-Saxon countries and countries in continental Europe. The Netherlands has the highest labour force participation rate of 80 per cent. Australia ranks highly as well, with a labour force participation rate of 77 per cent. On the other hand, the labour force participation rate in Italy is just 65 per cent.

Figure 5: Home ownership rates (2014) and labour force participation rates (2015) of OECD countries, per cent
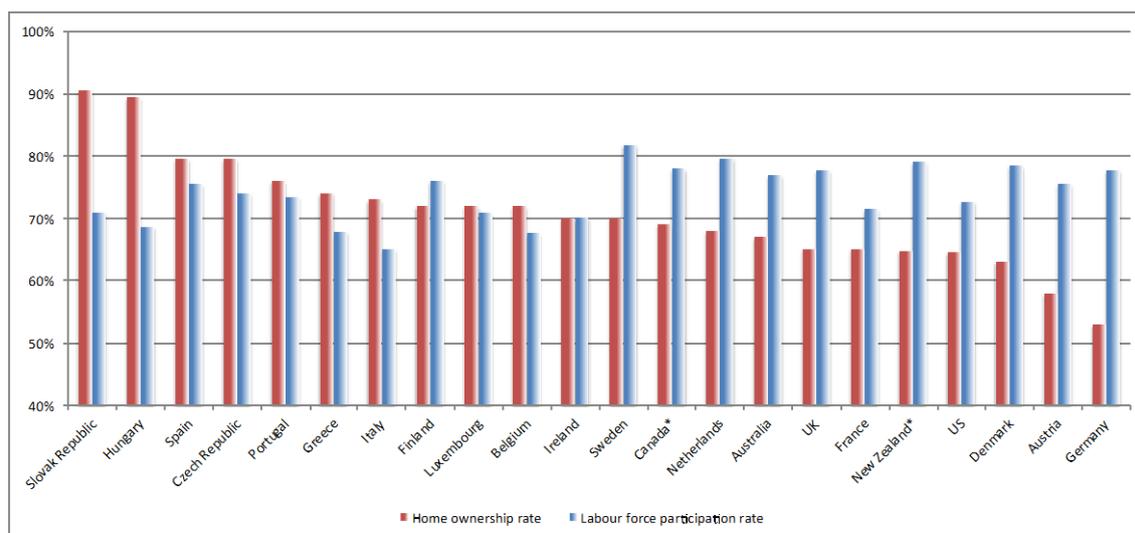
*Note: * The home ownership rates for New Zealand and Canada are for the years 2013 and 2011 respectively.*

Source: ABS (2015b) for Australia, Statistics Canada (2015) for Canada, Statistics New Zealand (2014) for New Zealand, US Census Bureau (2017) for the US, European Mortgage Federation (2016) for all other countries

The impact of home ownership on labour force participation can occur through multiple channels, and these can have potentially offsetting influences. First, the large housing capital gains accruing to baby boomers might facilitate early retirement (a 'nest egg' effect), and this may be a partial contributor to the general negative correlation observed in Figure 5.[3] Second,

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[3] The 2015 labour force participation rate of those aged 55–64 years was 65 per cent, above the OECD average for this age group of 61 per cent. Once again, countries in Eastern and Southern Europe tend to have lower labour force participation rates among older persons. An example is Italy, where the labour force participation

soaring house prices have inspired higher borrowing trends that have not abated since the GFC among pre-retirees (Ong, Haffner et al. 2013). This may compel indebted home owners to extend their working lives. It is important to therefore test for the hypotheses that housing wealth accumulation incentivises early retirement, but mortgage indebtedness extends working lives among older home owners. It is equally important to quantify the extent to which the two effects offset each other. Third, intergenerational transfers, an associated consequence of booming house prices, also might influence young people's labour supply and skill acquisition decisions.[4] However, the direction of impact is unknown. A relevant hypothesis here is that intergenerational transfers may blunt incentives to take up employment. On the other hand, it may encourage greater skill acquisition. These emerging trends add new channels through which housing can influence employment decisions in addition to the commonly known work disincentive effect of rental housing assistance documented in previous work (see, e.g. Dockery, Feeny et al. 2008; Wood, Ong et al. 2009).

Contemporary research into home ownership also suggests a widening of home ownership's welfare role (Parkinson, Searle et al. 2009; Wood, Parkinson et al. 2013). Home owners are increasingly using flexible mortgage products to unlock housing equity to smooth consumption at all stages of the life cycle, including pre-retirement years. There is a potential downside as retirement nest eggs (e.g. superannuation) might need to be raided, or working lives extended to pay off mortgages in later life, developments that could thwart policy proposals to encourage the drawdown of housing equity to support aged care needs (Productivity Commission 2011). We know little about this new welfare role and its implications for Australia's fiscal position, but this report will be an important source of ideas, hypotheses and evidence.

What is currently lacking is a well-articulated conceptual and evidence base that identifies ways in which housing markets and outcomes can be incorporated into economic policy thinking and decision-making in Australia. In the absence of a coherent and comprehensive assessment of housing's impacts on the economy, public funding decisions will likely be made in favour of infrastructure that is assumed to have greater growth and productivity benefits than housing, although this is not necessarily the case. This is especially true in stringent fiscal times, when governments are more likely to prioritise sectors that are expected to impact economic growth in well-defined ways.

1.3 An integrated framework for analysing the links between housing policies and the economy

This section draws on existing research to develop an integrated microeconomics and governance and spatial conceptual framework that underpins this Inquiry.

We begin by setting out a series of potentially intricate and salient connections between housing, labour force participation and economic growth. The literature notes that housing policies may influence economic performance through a range of channels, including housing supply, consumption patterns, labour mobility and work effort. Hence, conceptually speaking, there is a case for studying various aspects of housing more seriously with respect to its impacts on the economy. However, it is important not to prejudge the importance of these channels in practice before the evidence base exists to substantiate their significance. Hence,

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rate among the 55–64 year olds was 51 per cent (see https://data.oecd.org/emp/labour-force-participation-rate.htm).

[4] The youth unemployment rate in Australia matched the OECD average, at around 13 per cent in 2016, but it was much lower than the youth unemployment rates in countries with very high home ownership rates such as Italy, Portugal and Spain (see https://data.oecd.org/unemp/youth-unemployment-rate.htm).

we propose an Inquiry framework that would generate empirical evidence to determine whether housing supply, consumption, labour mobility and employment participation effects are significant in Australia. We also offer a conceptual innovation by unpacking how housing policies influence economic outcomes within an Australian-specific multi-level governance framework as well as through varying spatial scales.

1.3.1 Key channels—a microeconomics framework

Drawing on a wide-ranging review of seminal papers in the field of microeconomics, the Inquiry has identified four key channels through which housing policies affect labour force participation and economic growth—housing supply responsiveness, consumption, mobility and employment decisions (see vertical grey arrows in Figure 6 below).

Figure 6: Microeconomics framework
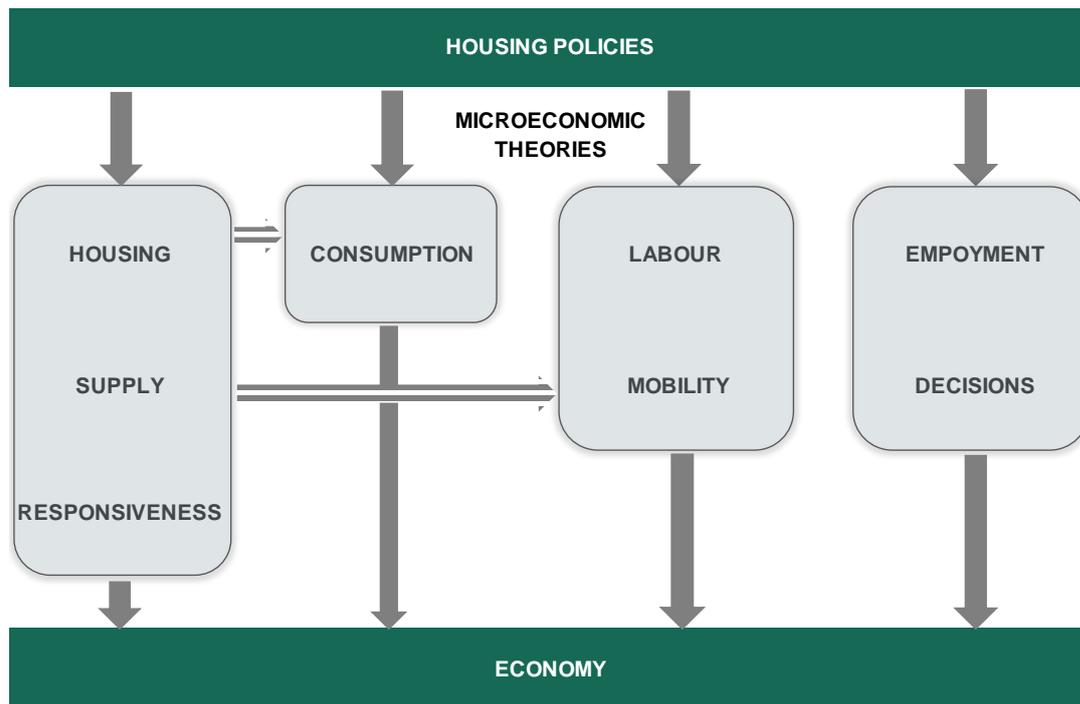
Housing supply responsiveness

A lack of responsiveness of housing supply can affect the economy through two channels (see horizontal grey arrows in Figure 6 above).

First, when housing supply is price inelastic, house prices become very sensitive to demand changes caused by financial, labour market or demographic shocks—a demand-side impact (Andrews 2010). Furthermore, the literature commonly argues that house price bubbles are more likely to occur when the housing supply is price inelastic (Ball, Meen et al. 2010). Cheshire (2014) notes that the more tightly controlled is the supply of housing, the more the incentives for property owners to treat housing as an investment asset to hold in expectation of future price increases, thus further fuelling housing shortages and house price increases in the economy. Hence, in an environment where housing supply is unresponsive to demand shocks, it is likely that house prices will end up gyrating around a rising trend in house prices, creating an undesirable situation of long-run housing market volatility (Girouard 2010; Maclennan 2010). Rising house prices and house price induced debt increases will in turn affect consumption spending in Australia.

Second, a lack of housing supply responsiveness can impede labour market flexibility—a supply-side impact. A migration framework by Glaeser and Gottlieb (2009) postulates that labour market decisions are often not made just on the basis of wage levels or career prospects, but they also factor in the associated cost of living in a new place of employment. If there are two adjacent regions X and Y and the former benefits from a productivity gain (a discovery of mineral deposits, for example), wages will begin to rise in X as employers seek to fill vacancies. Mobile labour will begin to move from Y to X. However, soaring house prices and rents will result if housing supply fails to keep up with demand pressures. Workers in more affordable housing markets may be unable to access housing in booming higher priced regions at current wage rates.

Consumption

The economics literature generally agrees that household consumption is positively correlated with housing and/or household wealth (Barrell and Davis 2004; Hiebert 2006). The underpinnings for this lie in the life cycle hypothesis or permanent income hypothesis (Modigliani and Brumberg 1954). In the simplest version of this framework, household consumption is assumed to depend on expected life-time income. Households smooth out fluctuations in current income by: borrowing against future earnings early in life; by accumulating wealth (through saving) when income is relatively high; and by drawing on that wealth (through dis-saving) when income is relatively low. Anticipated changes in wealth are built into consumption plans; unanticipated changes lead to a revision of those plans.

Yates and Whelan (2009) identify three key transmission mechanisms that explain the links between housing wealth and consumption: viz. a common cause effect, a direct wealth effect and a credit constraint or collateral effect. Their empirical analysis for Australia provide support for the collateral channel.

Globally, concerns have been expressed about rising household indebtedness in relation to the potential threat this poses for macroeconomic stability. A recent AHURI study (Atalay, Barrett et al. 2015) examined the evolution of household debt through 2002 to 2010 and found that increased housing wealth led to higher household debt. Excessive debt is seen as underlining economic stability with the size of debt service ratios being related to the size of subsequent output losses (Drehmann and Juselius 2012). Empirical evidence suggests that when household debt rises above trend, the likelihood of recession increases (Sutherland and Hoeller 2012). These concerns about economic and financial stability raise questions about the ongoing impact of housing wealth on consumption in light of associated increases in debt when rising household debt means net household worth has ceased to increase.

Labour mobility

Housing researchers have recognised for some time that the housing market is strongly tied to the efficient functioning of the economy by enabling adjustments to economic shocks such as an economic recession (Meen 2013). Apart from the elasticity effect on labour supply described above, the Oswald thesis (Oswald 1996, 1997) postulates that home ownership may have a causal impact on unemployment by limiting labour mobility because the transaction costs associated with home purchase deters labour market moves following the loss of employment.

The existing evidence on the Oswald thesis is mixed, with some limited support using aggregate data on a positive relationship between unemployment and home ownership rates. At the micro or individual's level there is less consensus. This likely reflects the fact that while housing tenure almost certainly has an impact on labour market outcomes, there are a variety of causal mechanisms through which housing impacts on labour market behaviours and outcomes.

The standard approach to considering this relationship through microeconomic foundations is to consider a model of job search. In particular, individuals are assumed to undertake job search

when faced with an employment shock that leads to a spell of unemployment or underemployment.[5] Job search is characterised by activities designed to find suitable employment, and behavioural responses such as geographical mobility and alterations to the reservation wage, i.e. the minimum wage offer required for an offer of employment to be acceptable.

Employment decisions

There is a significant body of Australian evidence that highlights the importance of housing assistance policies on the incentive to work. Studies such as Whelan and Ong (2008), Wood, Ong et al. (2009) and Dockery, Ong et al. (2011) indicate that housing assistance programs such as Australia's Commonwealth Rent Assistance (CRA) and rent rebates in public housing can adversely affect employment participation. Welfare locks have been identified as another potential concomitant of housing assistance programs as prospective public housing tenants nearing the top of the waiting lists are dissuaded from transitioning into employment so as to avoid losing their place on the waiting list. On the other hand, for some public housing residents, the ongoing tenure security afforded to them from the longer lease terms often accompanying public housing tenure can enhance their job prospects (Dockery, Feeny et al. 2008).

However, a less discussed (but arguably increasingly important) effect applies to home owners. A housing wealth effect potentially exists to influence the employment decisions of home owners through three separate channels. First, housing wealth provides a 'nest egg' that may in fact induce early disengagement from the workforce by mature age workers. On the other hand, it may constitute equity that can be used to promote business or human capital development through further education. Second, due to financial deregulation and growing mortgage innovation, many home owners have also been tempted to raid these 'nest eggs' as rising real house prices has also been accompanied by mortgage innovation that allow mortgagors to cash in housing equity by adding to existing mortgages (Parkinson, Searle et al. 2009). The labour market consequences of this growing indebtedness are very different from 'nest egg' effects. Third, intergenerational transfers, an associated consequence of booming house prices, might influence labour supply. As in the case of housing wealth, it may represent a 'nest egg' that weakens incentive to participate in the labour force or equity that is used to promote business ventures or further work training.

While the *types* of channels are identified based on microeconomic theory, the Inquiry recognises that housing policy *processes* flow through multiple governmental and spatial scales. These are explained in greater detail in the next subsections.

1.3.2 Key processes—a governance and spatial framework[6]

Australia has a multi-level system of government comprising federal, state and local levels. Hence, it is important to understand how the effects of housing policy might flow through different governmental scales to impact economic outcomes.

The past two decades have witnessed an intensive research focus on multi-level governance systems (Stephenson 2013). Multi-level governance has been developed as a framework to understand the policy interactions between multiple tiers of government where a superordinate

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[5] Models of job search can also be constructed for employed individuals. In this case, it is assumed that individuals desire a 'better labour market match' which is generally couched in terms of higher paying employment. In this situation, the data will reveal job-to-job transitions. As with unemployed job search, it is likely that housing tenure affects the nature of on-the-job search and employment-to-employment transitions.

[6] The key points in this subsection are derived from the final report of a project under this inquiry by Dodson, de Silva et al.'s (2017) report entitled *Housing, multi-level governance and economic productivity: An outline framework and its policy application*.

governance entity is established across multiple subordinate tiers of government. There is a substantial literature on multi-level administrative governance and on spatial planning (Salet, Thornley et al. 2003; Bradford 2004; Healey 2004; Tosics and Dukes 2005; Tewdwr-Jones and Allmendinger 2006; Stead and Meijers 2009) with regional development often a focus. Much of the literature is focused on the European context, where the establishment of the European Union from 1992 onwards created new questions around governance at multiple levels. The European Union sits above member state governments but influences the member states in terms of policy direction in a mix of direct and indirect ways. Appraisals of the Australian context for multi-level governance are much rarer with few recent studies (see e.g. Stilwell and Troy 2000; Gleeson 2001).

Although housing has occasionally been a focus of scholarship in the area of multi-level governance systems, relatively few authors specifically address housing issues under this framing and with relatively limited intensity (Cole 2003; Maclennan and O'Sullivan 2013; Muir 2013). Another weakness in the multi-level governance literature is that the connection between governance and economic productivity does not appear to have caught the attention of scholars to any significant degree with Perraton and Wells (2004) among the few contributors.

The multi-level governance perspective has been only relatively weakly applied in the context of urban and housing policy and rarely in terms of economic policy and planning at any geographic scale. Currently, policy deliberations in Australia tend to omit the multi-level governance and spatial context when considering the influences of housing policies on economic outcomes. This omission is particularly concerning within the Australian context, where governance is implemented within a federation system comprising the Australian, state and local governments. Each government tier has a different responsibility, thus influencing housing-economy processes differently.

1.3.3 An integrated microeconomic, governance and spatial framework

Figure 7 below extends the microeconomic framework developed in Figure 6 to offer an augmented framework that illustrates how the four key channels flow through different governance and spatial scales. We hypothesise that housing supply responsiveness is likely to flow through all governance and spatial scales. Consumption effects tend to be national in scope. However, the implications of the two employment channels largely flow through federal and state levels. Given the difference in the nature of each channel and the governance and spatial levels they flow through, it is anticipated that each channel will have implications for a different mix of policy instruments.

Figure 7: An integrated microeconomic, governance and spatial framework
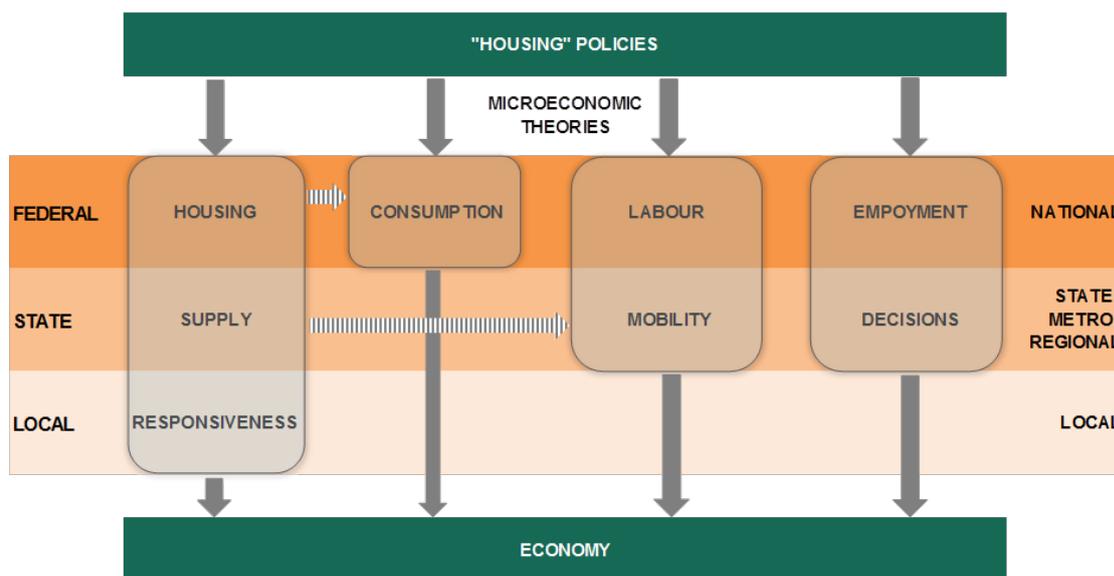
As pointed out in Dodson, de Silva et al. (2017), a range of policy parameters influence housing outcomes both *directly* and *indirectly*. Hence, the term 'housing' policies is used in a broad sense here to refer to policies that fall clearly within the housing sphere (e.g. planning and land use regulation) and other policy instruments that do not strictly have housing objectives but nonetheless have significant impacts on housing outcomes (e.g. monetary policy).

1.4 Research methods

The Inquiry methodological framework is set out in Table 2 below. The methodology is designed to shed light on the significance of both the channels and processes through which housing policies can influence economic outcomes. The Inquiry evidence is generated from a mixed-methods framework comprising four sets of quantitative exercises, two sets of qualitative analyses, and a national policy review. All the analyses are underpinned by extensive reviews of the international and Australian literature, which inform the development of methodological details and enhance interpretation of the Inquiry findings. The sample scope is Australia-wide across all the analyses within the Inquiry.

1.4.1 Quantitative analysis

This subsection describes the key data sources and analytical approaches used in the quantitative arms of the Inquiry research program. A critical element of the quantitative analysis is the use of panel or time series data to track changes in outcomes over time via econometric modelling strategies. Two criteria were consistently applied to the choice of dataset across all analyses—first, the timeframe should cover both the pre-GFC boom and post-GFC recovery years and second, it should reflect the latest data available at the commencement of the analysis.

Key data sources

The analysis of housing supply responsiveness (channel 1) draws on two key sources of monthly data that provide a time series showing variations in new housing supply and price over the period July 2005 to June 2014. First, building approvals data at the Local Government Area (LGA) from the ABS provide measures of new housing supply. Second, median prices are

obtained from data on transactions in all houses and units at the LGA level from CoreLogic RP Data, a property information, analytics and services provider.

The Australian Bureau of Statistics' (ABS) Household Expenditure Surveys (HES) form a series of repeated cross-sectional datasets spanning decades. While these datasets are not in principle panel in nature, households across the various HES years are 'stacked' to compile a pseudo-panel that allows an examination of households' consumption response to the significant changes in housing wealth stemming from house price changes around the GFC (channel 2).

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a key dataset employed to analyse the impacts of housing on labour market-related outcomes, i.e. labour mobility and employment decisions (channels 3 and 4). The HILDA Survey is the first nationally representative longitudinal dataset in Australia, which began in 2001. It has become a staple Australian longitudinal data source that offers a comprehensive range of household and individual-level information covering a wide array of themes. Of particular relevance to this Inquiry is information relating to individuals' labour market outcomes and demographic profiles, as well as their housing characteristics, such as housing wealth, mortgage debt, housing tenure etc.

Broad analytical approaches

Two broad analytical approaches are used in this Inquiry. These are explained in greater detail within each analytical chapter following on from this chapter. However, in this subsection we provide an overview of the broad approaches adopted—econometric modelling and microsimulation modelling.

To shed light on the extent through which housing policies influence economic outcomes via the four key channels identified in this Inquiry, we apply econometric modelling techniques. Econometric modelling is typically used for estimating relationships between an outcome (e.g. the decision to undertake employment) and a series of predictors (e.g. housing wealth, housing assistance status, age, gender, education, etc.). While the techniques are varied, econometric modelling's usefulness lies in the fact that it can provide a statistical estimate of the magnitude and direction of the link between a predictor and an outcome, while holding other predictors fixed. As such, it allows us to isolate the independent impact that a 'housing' predictor might have on an economic outcome by controlling for other potentially confounding predictors.

Econometric modelling techniques are applied to the analysis of the four channels in the following ways:

- The housing supply responsiveness analysis (channel 1) models the impacts of prices, cost, planning regulations, population, etc. (predictors) on the supply of new housing in Australia (outcome).

- The consumption analysis (channel 2) examines the statistical association between house prices and debt (predictors) and household consumption (outcomes) during the pre- and post-GFC period.

- The labour mobility analysis (channel 3) seeks to examine how housing tenure (predictor), through potential impediments to labour mobility, may influence job search, wages and job quality (outcomes) following re-employment.

- The employment decisions analysis (channel 4) seeks to ascertain the impact of housing assistance status, housing wealth, mortgage debt and intergenerational transfers (predictors) on employment decisions (outcome).

Microsimulation modelling is also employed in the analysis of housing's impact on employment decisions (channel 4). Here we exploit a housing market microsimulation model AHURI-3M that

is capable of combining the socio-economic data in the HILDA Survey with a tax-benefit module that allows calculation of tax liabilities and eligibility (as well as entitlements) for income support payments (ISPs), including housing assistance. We are then able to model the influence of housing assistance measures on the incentive to work and hence labour supply.

1.4.2 Qualitative analysis

Behind the secondary data on housing market supply adjustments, there are developers and housing construction companies, and their efficiency will reflect industry organisation and structure, as well as the regulatory environment and development approval processes governing their behaviour. Empirical estimations from secondary data are unlikely to offer insights into these angles.

Hence, five focus groups were held in Melbourne during 2016 to shed light on industry-specific views on institutional arrangements that potentially affect supply decisions by actors in the housing market in inner, middle and outer rings of metropolitan Melbourne. These focus groups comprised housing and residential land development representatives drawn from industry organisations and federal and state governments.

Table 2: Inquiry methodological framework

	Major channels				Process
	Housing supply responsiveness (channel 1)	Consumption effects (channel 2)	Labour mobility (channel 3)	Employment decisions (channel 4)	Spatial & governance scales
Literature review	✓	✓	✓	✓	✓
Quantitative	✓	✓	✓	✓	
	Econometric modelling	Econometric modelling	Econometric modelling	Econometric and microsimulation modelling	
Qualitative	✓				✓
	2 focus groups				3 focus groups
Policy review					✓
Sample scope	Australia-wide	Australia-wide	Australia-wide	Australia-wide	Australia-wide
Timeframe	2005–06 to 2013–14	1975–76, 1984, 1988–89, 1993–94, 1998–99, 2003–04, 2009–10	2001–14	2001–10	Policy review cover at least the last decade.
Unit of analysis	Local government areas. Metropolitan rings are defined as per Gitelman and Otto (2012).	Households	Persons	Persons	Focus groups chosen from metropolitan rings in Melbourne, defined as per Gitelman and Otto (2012).

2   Housing supply responsiveness[7]

This chapter investigates the key drivers of housing supply responsiveness at the local government area level in Australia. It examines the influence of price, planning and institutional settings on the responsiveness of new supply to changes in demand conditions.

Key findings from the study indicate that:

- A 1 per cent increase in the level of real housing prices is estimated to produce a 4.7 (3.9) per cent increase in new house (unit) supply. These gains translate into a very small increase in the housing stock.

- Most of the growth in new housing supply has been taking place in mid-to-high price segments. There seem to be structural impediments to the trickle down of new housing supply.

- Job opportunities are greater in urban areas than regional areas. As the market penetration of units grows, this may lead to shorter commutes with a boost to productivity as a likely by-product.

- The impact of planning regulations on housing supply responsiveness is mild, though there is some evidence of a positive link between growth accommodating controls and housing supply growth.

- Often the most important aspect of the planning system from a developer's point of view is the certainty and consistency of advice provided by planning officers.

- The development industry is extremely diverse, so policy settings will not have a uniform impact across this industry.

This chapter addresses the following inquiry research question:

What are the key drivers of housing supply responsiveness, and what do the identified effects imply for policies seeking to increase housing supply responsiveness in Australia?

To address this research question, this section will:

- Investigate the responsiveness of housing supply in various housing market segments, including spatial segments (e.g. metropolitan versus regional), price segments, and areas of varying population and job density.

- Uncover the key drivers of housing supply responsiveness in Australian housing markets.

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[7] The analytical findings in this chapter are derived from the final reports of two projects under this Inquiry:
- Ong, Dalton et al.'s (2017) report entitled *Housing supply responsiveness in Australia: distribution, drivers and institutional settings* (all sections).
- Dodson, de Silva et al.'s (2017) report entitled *Housing, multi-level governance and economic productivity: An outline framework and its policy application* (Sections 2.5 and 2.6).

- Highlight the ways in which institutional settings influence the responsiveness of housing supply to demand pressures.

2.1 Existing research

The perceived unresponsiveness of housing supply to demand pressures is an ongoing concern in Australia (Baker and Johnson 2014; Department of Social Services 2014; Housing Industry Association 2014). However, various studies have proposed that the nature of the housing supply 'problem' is more nuanced than simply an issue of dwelling shortage. For instance, a critical issue that has been highlighted in the academic and policy literature is one of a spatial mismatch between the locations of where housing is being supplied and where housing is desired, e.g. in areas with easy access to employment opportunities (Raphael 1998, Barker 2004; Dodson 2005). These studies propose that the *geography* of housing supply matters; a spatial mismatch exists between new housing supply and existing demand, the new housing supply will be less effective in alleviating housing shortage problems that tend to be more acute in locations with high population or employment density.

Another strand of literature has focused on the drivers of housing supply responsiveness. Most of these studies have been conducted in the UK and US (examples include Sinai and Waldfogel 2002; Malpezzi and Vandell 2002; Mayer and Sommerville 2000a, 2000b; Zabel and Paterson 2006). McLaughlin (2011, 2012) has offered some Australian contributions, but these focus on capital city level analysis rather than more refined geographical levels such as those equivalent to the metropolitan statistical areas commonly used in US studies. Existing studies point to a range of factors that are likely to drive housing supply responsiveness. Key drivers include price (both current and lagged) as well as cost variables (see for instance, Hwang and Quigley 2006). Some studies have also highlighted the importance of topographical (Saiz 2010) and climatic constraints (Fergus 1999).

The international literature has also applied a series of econometric models to uncover the impacts of planning regulations on housing supply at local and regional levels (Ihlanfeldt 2004; Gyourko, Saiz et al. 2008; Glaeser and Ward 2009; Hilber and Vermeulen 2014). Most of these studies again stem from the UK and US, which have different planning systems than Australia.

However, behind the secondary data on housing supply, there are developers and housing construction companies. Their efficiency reflects industry organisation and structure, as well as the policy environment governing their behaviour. Econometric estimations are unlikely to offer insights into these angles. Indeed, recent research has also highlighted the fact that the development industry is highly differentiated. Hence, new housing supply is not a single homogenous product, but rather it consists of a diverse range of products delivered by different types of organisations (Dalton et al. 2011; Rowley and Phibbs 2012; Dalton, Horne et al. 2013a; Dalton, Hurley et al. 2013b).

The findings in this chapter fill several gaps in the Australian literature. First, we highlight geographical differences in housing supply responsiveness. Second, this chapter analyses the price responsiveness of housing supply at a disaggregated LGA level. Third, using an innovative dataset on planning regulations, we empirically measure the impact of planning on housing supply in Australia. Finally, using a focus group approach, this chapter presents views from the housing industry on the influence of institutional settings, and governance and spatial scales on the responsiveness of the housing industry to demand pressures.

2.2 Analytical approach

This chapter applies a mixed methods framework of enquiry to address the key research questions.

First, econometric modelling is applied to estimate the relative importance of key drivers of new housing supply on an LGA basis over the period 2006–15. We draw on monthly building approvals data at the LGA from the ABS as a measure of new housing supply, and monthly median prices are derived from transactions in all houses and units at an LGA level from CoreLogic RP Data, a property information, analytics and services provider.[8]

The modelling[9] is conducted separately for houses and units, in recognition of the different house and unit development and construction phases that suggest differences in the dynamics between prices and new housing supply. The analysis relies on an ordinary least squares (OLS) specification which models the log of building approvals in month t as a linear function[10] of the change in the log of price between t and t-1, following a common approach used in the international literature that estimates the price elasticity of housing supply by modelling housing 'starts' as a function of the change in house prices and cost-shifters (examples include Mayer and Sommerville 2000a, 2000b). Following these studies, we also allow for lagged relationships between supply and prices by including price variables that are lagged up to five quarters. Other important explanatory variables include labour and material cost, population size, land use and geographic and climatic constraints on housing supply. Calendar year indicators are included to take into account movements in housing market and economic cycles, and state capital indicators capture unobservable city-specific factors that might influence new supply.

We estimate the impact of planning regulations drawing on a unique Australian survey called the Australian Urban Land Use Planning Policy (AULUPP) survey. It was designed to capture details of local planning schemes in Australia (see Gurran, Gilbert et al. 2013 and Gurran, Catherine et al. 2014 for further details). The AULUPP survey offers information on a range of local planning approaches

Overall, the survey contains information on over 350 planning instruments (see Ong, Dalton et al. 2017 for a list of these instruments). Survey questions addressed zoning for residential and mixed use development elicited information on: primary forms of density control (e.g. height limits, minimum lot sizes, and site coverage restrictions); the permissibility (subject to assessment) of diverse dwelling types; requirements for sustainable urban design features (e.g. passive energy utilisation and water sensitive urban design); special environmental protections (e.g. wildlife habitat corridors, special environmental impact assessment requirements or referrals to other government agencies); and the inclusion of objectives or requirements relating to diverse and/or affordable housing.

The first AULUPP survey was conducted online between 2007 and 2009 and therefore reflects the nature of planning controls nearly midway through our study period. All local governments in Australia were invited to complete a survey. The final dataset included information on 291

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[8] For details of the limitations of the building approvals and price data, and other data sources that were drawn on to measure the range of variables in the econometric model, please refer to Ong, Dalton et al. (2017).

[9] The modelling specification represents an advancement on the handful of past Australian studies that have attempted to model the drivers of housing supply. However, there is scope for adopting more complex panel estimation methods that allows for more robust measurement of the impacts of key drivers. The model limitations are detailed in Ong, Dalton et al. (2017).

[10] All continuous variables are converted to natural logarithms.

LGA's local plans, equivalent to around half of local government areas in Australia at the time the survey commenced. [11]

The planning interventions are classified into growth accommodating and growth restricting groups (see Ong, Dalton et al. 2017 for a list of interventions under each classification). According to this broad classification, there are 239 growth restricting instruments and 111 growth accommodating ones. Each control is multiplied by a factor of 1, 2 or 3 to reflect the degree to which a control is accommodating or restrictive. For growth accommodating instruments, a score of +3 indicates the highest degree of growth accommodation (e.g. high density residential zoning). For growth restricting instruments, a score of +3 indicates the highest degree of growth restriction (e.g. height limitations; minimum lot size requirements) (Rowley, Gurran et al. 2016).

To elicit industry-specific views on institutional settings and their impact on housing supply responsiveness, focus groups were held twice in Melbourne, in February and June 2016. Each group comprised eight members forming an industry panel that comprised housing and residential land development representatives from industry organisations and the Australian and state governments. Participants were recruited through the extensive networks that the research team has with senior housing industry stakeholders. The focus group meetings were semi-structured and allowed for dynamic exchanges on industry-specific perspectives about institutional arrangements that affect housing supply responsiveness.

Three other focus groups were held in Melbourne in August 2016. These focus groups were drawn from three different spatial rings in metropolitan Melbourne—inner urban development, middle suburban development and outer- or peri-urban development. Participants were recruited through snowballing and a mix of participants was sought from the land development and housing industry. There were around eight members in each focus group. The focus group conversations were structured around key housing policy instruments. Participants were asked to consider the influence of housing policy instruments on housing supply in relation to acquisition cost, operating cost, and capital gain or loss. Participants were asked to consider four specific 'case study' policies that might shape housing development—macro-prudential regulation, foreign investment laws, urban growth boundary (UGB) strategic planning, and local government development controls.

2.3 Distribution of new housing supply by market segments

On a nation-wide basis, the supply of houses has not changed much over the period 2005–06 to 2013–14. Over this period, an average of six house building permits were approved per 1,000 persons in the population in both metropolitan and regional areas. In contrast, there has been a significant change in the supply of units, both geographically and over time. In metropolitan areas, the supply of units has been growing since 2008–09. Indeed, between 2008–09 and 2013–14, the annual number of units per capita tripled from 1.2 to 3.5. However, the supply of units in regional areas has lagged well behind metropolitan areas.

We examine the building approvals data to determine whether new housing supply is directly adding to housing opportunities for low-income Australians by examining the distribution of approvals for houses and units across real dwelling price deciles. We find that over the period 2006–14, 80 per cent of house approvals were concentrated in the mid-to-high price deciles, but

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[11] For details of the limitations of the building approvals and price data, and other data sources that were drawn on to measure the range of variables in the econometric model, please refer to Ong, Dalton et al. (2017).

largely absent from the lower priced segments. In addition, the concentration of unit approvals increased from 79 to 84 per cent in the high 8th to 10th deciles between 2005–06 and 2013–14.

By analysing the growth in the stock of housing (all dwellings), as well as breakdowns into house and unit, we can estimate the growth in the housing stock since 2005–06 on the assumption that most approvals result in completions. We find that across Australia, housing approvals between 2005–06 and 2013–14 have added 15 per cent to the housing stock. We divide LGAs into ten equal sized deciles that are ranked in ascending order according to real median house values prices in 2005–06. An LGA's stock growth estimate can then be assigned to the decile that it has been classified into according to real median house prices in 2005–06.

The growth estimates for houses (blue) and units (red) in Figure 8 below represent the degree to which the stock of houses and units in different value segments have grown due to new construction since 2005–06.[12] The figure shows that the strongest growth in the stock of houses has been in the middle price segments (6th and 7th deciles). For units, the strongest growth has occurred in the high 8th and 9th deciles, reflecting to some extent their concentration in the inner rings of our metropolitan cities where housing is typically most expensive. In contrast, the most affordable areas have experienced the lowest proportionate growth in the stock of both houses and units.

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[12] There are some important caveats here. First, because all of an LGA's housing stock is placed in a decile according to its median price, it means that inexpensive housing in LGAs with a relatively high median price is assigned to high value segments, and vice versa for LGAs with a relatively low median price. Hence, while expansion in the stock of housing has been low in those LGAs with the most affordable housing, this need not be a concern if the relatively large expansion of the housing stock in LGAs with expensive housing is due to the construction of affordable housing units. Second, the growth estimates do not measure the net growth in the stock of housing in each value segment. This is because changes in each value segment can come about through demolitions, and conversions, as well as additions through new construction. Moreover, established housing back in 2005–06 can subsequently filter (down or up) as a result of depreciation, obsolescence and renovation.

Figure 8: Growth in the stock of houses and units between 2005–06 and 2013–14, by real price decile, per cent
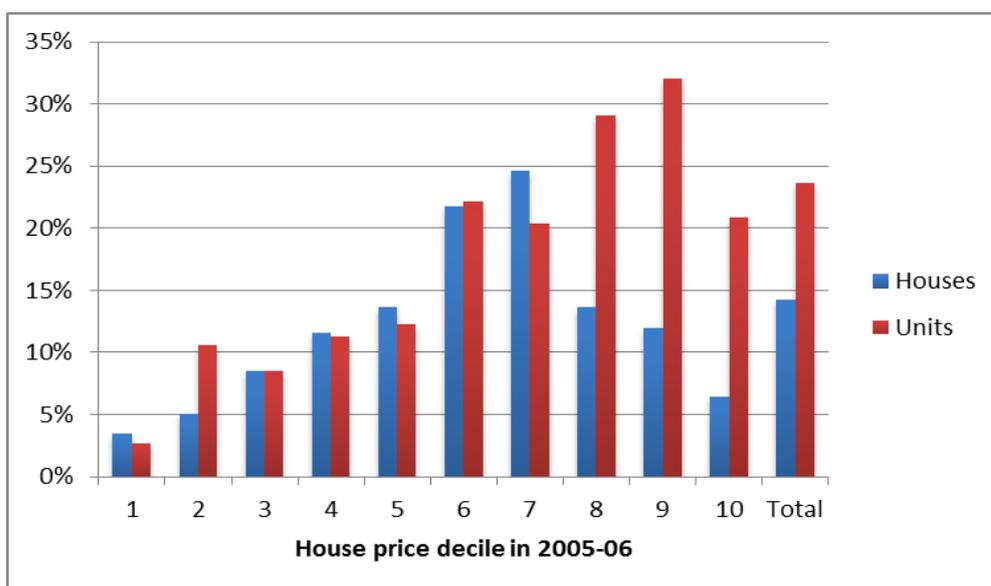
Notes: House and unit prices are expressed in real terms by inflating pre-2013 prices to 2013–14 price levels following Consumer Price Index movements. The house (unit) price deciles are calculated based on prices for houses (units) in 2005–06.

Source: Authors' own calculations from ABS cat. no. 8731.0 and 2006 Census, as reported in Ong, Dalton et al. (2017)

Table 3 below reports estimates that have important implications for economic productivity. LGAs are ranked from lowest to highest according to the number of jobs that are located within their geographical boundaries. LGAs are then grouped into deciles in ascending order. Hence, the first decile is occupied by the 'job poorest' 10 per cent of LGAs, and the highest decile by the 'job richest' 10 per cent of LGAs. It is notable that there is a strengthening of co-location of job opportunities and the supply of units. In 2010–11, more than 9 in every 10 units were approved in the 20 per cent of LGAs that are job rich. The positive spatial correlation between jobs and house approvals is somewhat weaker. However, as the market penetration of units grows, the urban network that links jobs with one's place of residence will be strengthened, likely leading to shorter commutes which will in turn boost productivity.

Table 3: Building approvals for houses and units by number of jobs decile, per cent by column, 2005–06 and 2010–11

Decile of number of jobs	2005–06			2010–2011		
	Per cent of jobs	Per cent of house approvals	Per cent of unit approvals	Per cent of jobs	Per cent of house approvals	Per cent of unit approvals
1	0.1	0.1	0.0	0.1	0.1	0.0
2	0.4	0.4	0.2	0.4	0.2	0.0
3	0.7	0.8	0.1	0.7	0.9	0.0
4	1.2	2.5	0.2	1.2	1.3	0.1
5	2.0	2.5	0.4	2.0	3.2	0.1
6	3.3	5.0	3.5	3.3	4.0	0.6

7	5.9	7.7	4.4	6.2	8.2	3.6
8	10.4	17.0	9.1	10.2	13.9	4.2
9	19.4	26.3	23.7	19.3	26.1	43.6
10	56.6	37.8	58.5	56.5	42.1	47.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
N		113,869	23,128		124,984	41,212

Notes: The deciles of number of jobs are measured contemporaneously.

Source: Authors' own calculations from ABS cat. no. 8731.0 and 2006 and 2011 Census, as reported in Ong, Dalton et al. (2017)

2.4   Key drivers of housing supply responsiveness

Drawing on the econometric model specified in Section 2.1, we estimate the log of building approvals in month t as a linear function[13] of the change in the log of price between t and t-1, and other explanatory variables. The price variables are of greatest interest so these are presented in Table 4 below, though the full range of results can be accessed from Ong, Dalton et al. (2017). In order to retain the full sample of LGAs for analysis, planning control variables (only available for a subset of the LGAs) are excluded.

The model for houses performs very well in terms of 'fit with the data'; its adjusted R-squared of 0.655 indicates that two-thirds of the variation in house building approvals can be explained by the combined explanatory variables in the model. The units model is weaker in terms of adjusted R-squared, but the F-stat is statistically significant at the 1 per cent level for both models, again suggesting an overall significant models in the case of both houses and units.

In the 'houses' model, the changes in both current and lagged price variables are positive and highly significant. The sum of the current and lagged price coefficients indicate that a 1 per cent increase in real house (unit) prices results in a temporary 4.7 (3.9) per cent rise in new approvals spread over the current period and ensuing 15 months. However, it is noteworthy that this supply response represents a very small addition to the housing stock of houses of under 1 per cent. As populations are increasing at 1 per cent or more annually across the nation, these elasticity estimates suggest that large increases in real house and unit prices are needed to meet the demand generated by even modest increases in population growth.[14] Another noteworthy point is that the supply of units clearly displays a weaker responsiveness to changes in prices. This could in part be due to statistical issues that make it difficult to precisely estimate unit price elasticities. However, this finding could also be partially attributable to the development process for units which is less orderly and more contingent, with greater barriers at each stage of the development process than the development process for houses (Rowley, Costello et al. 2014).

While not reported in Table 4, calendar year variables have been included in the model to reflect general housing market and economic conditions. These are negative and significant for houses and increasingly so, perhaps pointing to a longer run decline in the capacity of the Australian housing sector to increase new supply of houses. The calendar year variables are also negative, but insignificant, for units. Capital city differences are also revealed by the model.

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[13] All continuous variables are converted to natural logarithms.

[14] These elasticity estimates are significantly lower than those for the US. For example, Mayer and Sommerville (2000a) estimated a price elasticity of housing supply of 15 per cent using the same econometric approach.

Holding other factors constant, the supply of houses is higher in regional than metropolitan Australia. In particular, the supply side of the Sydney market is considerably weaker than that in regional Australia with monthly house approvals running at only 36.9 per cent of those in regional Australia (all else equal).

Table 4: Drivers of housing supply responsiveness, OLS model, houses and units, 2003–04 to 2015–16

	Coef.	
	Houses	**Units**
Price changes		
Change in log price	0.459 ***	0.103
Change in log price (t-1)	0.188	0.982 **
Change in log price (t-2)	0.353 ***	1.036 **
Change in log price (t-3)	0.40 8 ***	1.027 **
Change in log price (t-4)	0.185	0.673
Change in log price (t-5)	0.392 ***	0.672
Change in log price (t-6)	0.488 ***	0.556
Change in log price (t-7)	0.276 **	0.146
Change in log price (t-8)	0.279 **	0.135
Change in log price (t-9)	0.363 ***	0.645
Change in log price (t-10)	0.273 **	0.190
Change in log price (t-11)	0.292 **	0.515
Change in log price (t-12)	0.523 ***	0.455
Change in log price (t-13)	0.316 **	0.872 *
Change in log price (t-14)	0.313 **	0.230
Change in log price (t-15)	0.400 ***	0.700
Constant	-19.992 ***	-5.519 ***
Sample	42,880	26,721
F-stat	1554.100 ***	136.050 ***
Adjusted R-sq	0.692	0.239

Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. * Significant at the 10 per cent level. All continuous variables are converted in logarithmic form. In both models, the omitted categories for the binary variables are high humidity summer, warm winter, 2005–06 and areas that lie outside the Greater Capital City Statistical Areas (GCCSAs). The full set of regression results is reported in Ong, Dalton et al. (2017).

Source: Authors' estimates, as reported in Ong, Dalton et al. (2017)

Next, we report results that augment the model in Table 4 to include planning control variables. A novel aspect of this analysis is that it distinguishes between growth accommodating and restricting planning instruments. Hence, the model allows for the possibility that planning measures of different kinds could be statistically linked to housing supply in opposite directions. The planning variables are only available for 252 LGAs. Hence, this is a subset of the sample used in the model reported in the previous table. We are particularly interested in the planning variables, and the effect their inclusion has on the price elasticity of supply. We report these selected variables in Table 5 below, but the full range of variables are available in Ong, Dalton et al. (2017). The inclusion of the planning variables results in a sharp drop in the number of statistically significant lagged price variables in the case of both houses and units. The results indicate that the role of planning controls is more nuanced than commonly thought. In the case of both houses and units, the coefficient estimates indicate that growth accommodating controls are positively linked to new building approvals while growth restricting controls are negatively

associated with approvals. However, the relationship is only statistically significant in the case of growth accommodating interventions, and the coefficient estimates on the weighted growth accommodating and growth restricting variables are small.

Table 5: Impact of planning regulations on housing supply responsiveness, OLS model, houses and units, 2003–04 to 2015–16

	Coef.			
	Houses		Units	
Price changes				
Change in log price (t and t-1)	0.428	**	0.058	
Change in log price (t-1 and t-2)	-0.014		1.086	
Change in log price (t-2 and t-3)	0.287		1.044	
Change in log price (t-3 and t-4)	0.318		1.073	
Change in log price (t-4 and t-4)	0.146		0.876	
Change in log price (t-5 and t-6)	0.325	*	0.859	
Change in log price (t-6 and t-7)	0.482	**	0.841	
Change in log price (t-7 and t-8)	0.154		0.378	
Change in log price (t-8 and t-9)	0.155		-0.415	
Change in log price (t-9 and t-10)	0.408	**	0.694	
Change in log price (t-10 and t-11)	0.159		0.160	
Change in log price (t-11 and t-12)	0.175		0.900	
Change in log price (t-12 and t-13)	0.513	**	0.563	
Change in log price (t-13 and t-14)	0.181		0.910	
Change in log price (t-14 and t-15)	0.254		0.009	
Change in log price (t-15 and t-16)	0.371	*	1.144	*
Planning regulations				
Log of weighted score—growth accommodating planning instruments	0.041	***	0.081	***
Log of weighted score—growth restricting planning instruments	-0.004		-0.025	
Sample	23,144		17,255	
F-stat	781.79	***	75.04	***
Adjusted R-sq	0.677		0.210	

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. * Significant at the 10 per cent level. All continuous variables are converted logarithmic form. In both models, the omitted categories for the binary variables are high humidity summer, warm winter, 2005–06 and areas that lie outside the GCCSAs. In the house (unit) model, Canberra and Hobart are also omitted due to insufficient sample sizes in these categories. The full set of regression results is reported in Ong, Dalton et al. (2017).*

Source: Authors' estimates, as reported in Ong, Dalton et al. (2017)

2.5 Institutional settings and housing supply responsiveness

This section examines how institutional arrangements influence housing supply responsiveness. Within the housing industry, there are particular arrangements, or subsectors, that produce highly differentiated types of residential land and housing with distinct differences in shape, size, configuration, amenity, finance, vendor arrangements, building materials and methods of construction. Funding arrangement also varies, with larger, national firms having access to loan facilities while smaller organisations rely on project specific finance (Rowley, Costello et al. 2014). This section reports key findings from transcripts of the two focus group meetings held in February and June 2016.

Various key themes surfaced in relation to institutional barriers to the speed of responsiveness of the land and residential development industry as recognised by focus group participants. These had to do with the criteria of profit generation (with implications for supply responsiveness in the lower end of the housing markets), the complexity of multi-unit development, the operation of the planning system, and the need for certainty in the development process.

First, in relation to profit generation, regardless of the type of housing being produced, developers and builders require an acceptable return for bringing housing products onto the market. Focus group participants tended to highlight the inputs required, and the constraints and costs associated with them, highlighting the key criteria of being able to generate a profit:

> … you look at a market and you think, 'I can do…' … And so the first question I'd always ask on a project: Who am I going to sell it to? Can they afford it? Can they pay for it? …. And I deliver it for that much and make enough money out of it … the next thing I'd go to is always planning; can I actually produce what they want, sort of allowed … And then there's a bunch of things that come to the table: build costs, is there money available.

Because it makes financial sense to developers to control new supply of housing unless demand is exceptionally strong, developers are likely to hold land off the market until the time is right. This practice is likely to continue without intervention from policy-makers. Importantly, focus group participants thought the industry did not have much capacity to supply new housing in lower income segments of the market. As some of the developers noted:

> Yeah, the market is not going to produce sub-economic housing.

> … that's one problem for households on the bottom quartile, there's no way they can get into the market without subsidy.

Second, the complexity of the multi-unit development process generally makes it difficult for developers to respond quickly to changes in market demand. These include time required to assemble the site and secure planning approval (by which time market conditions may have changed such that the development is no longer profitable). Another complexity relates to the stock of already approved development proposals that have not commenced. These approved projects can be held by the original proponent or traded to another developer:

> From a point of supply … what you're (often) actually seeing is not the production of houses or units as the land prices have gone up; you're just seeing people trading. So people that typically produce are getting offered prices that they go, 'Why would I develop? Why would I take the risk on?' 'Here you go, take it'. I mean I'll just, I'll bank that.

Another complexity relates to fragmented land ownership in an area. The costs of negotiating with multiple private owners to create larger more viable development sites can be high and present a barrier to strategic redevelopment processes.

During the focus group discussions, the operation of the planning system was highlighted as a driver of supply responsiveness in metropolitan areas. A key view that emerged was that developers will work through restrictive planning controls if they can generate a profit from the site. Hence, developers are able to negotiate and accommodate the use of particular development controls.

Overall, developers strive for certainty in the development process so that profits can be forecasted with some accuracy. A developer may go as far as to avoid certain LGAs where they have had negative experiences in the past with local governments that are difficult to deal with or which have provided inconsistent advice.

Participants from the three focus groups held in August 2016 were asked to consider two Australian Government policies—macro-prudential regulation (rules set by the Australian Prudential Regulation Authority on bank risk profiles) and foreign investment laws (largely to encourage increased supply of new dwellings through foreign investments). At the state level, participants were asked to consider UGB strategic planning,[15] a Victorian Government planning instrument that aims to impose a spatial constraint on the urban expansion of metropolitan Melbourne. The fourth 'case study' policy for discussion comprised development controls that reflect state and local government statutory planning regulations regarding the type and location of land uses and the scale, size and height of development on that land.

In general, participants in the three focus groups displayed limited detailed understanding of macro-scale regulatory changes. State and local government regulation was viewed as more intrusive as the housing industry participants had to interact directly with the agents of the regulation, i.e. state and local government planners. However, the focus group participants did have a strong appreciation of the effects of regulations on the practical aspects of their business, especially in relation to the ways in which regulatory settings affect their ability to finance development and the capacities of purchase to fund their purchase of new dwellings. Hence, macro-level regulations were viewed as an abstract environmental force that determined overall market conditions and housing industry participants felt they had to adapt to these as best as possible.

2.6   Policy development implications

Our empirical findings indicate that the estimated price elasticity of new housing supply is 4.7 (3.9) per cent for houses (units). Large increases in real house prices are needed to enable housing supply to match demand pressures (assuming other supply drivers are unchanged). Policy reforms that promote the price responsiveness of housing supply in Australia to encourage more efficient use of the existing housing stock might be useful in this regard. Referring back to the integrated microeconomics, spatial and government framework, it is clear that the findings in this chapter have policy implications across all government and spatial scales.

At a federal level, housing tax preferences and asset test concessions fuel the demand for housing by promoting the accumulation of wealth in housing assets, exacerbating price pressures. In the absence of any action to limit these demand-side concessions, supply-side policy reform will be even more important. Those reforms should seek to promote the price

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[15] The UGB is a state instrument but is applied through local government planning schemes.

responsiveness of new housing supply. In addition, while monetary policy does not have a distinct housing objective, changes in interest rates do impact on the availability of finance for development, especially for smaller developers.

At state and local level, thinking on planning reform should also extend beyond a simplistic notion that more planning controls will impose greater barriers to supply responsiveness. Our econometric modelling results show that planning measures might not be the key factor influencing housing supply. Restrictive planning policies may potentially hinder supply only if they render development unprofitable. Indeed, developers will often be more willing to work through restrictive controls if they can generate profit from a site. Of course, this does not automatically imply that planning regulations have little impact on housing supply responsiveness. Often, from the developers' point of view, a critical aspect of the planning system is the degree of certainty and consistency of advice that planning officers provide. Hence, planning reforms that focus on improving certainty and consistency throughout the planning process, in order to minimise potentially adverse impacts on profits for developers, might be warranted.

We also find that the supply of units is less responsive to changes in price than houses. A key factor could be the greater complexity of the multi-unit development process. By the time a developer has secured the land and the necessary development approvals the market may have changed, and the development may no longer be profitable. This adversely impacts on the quantity and timeliness of new unit supply in response to price shocks. The complexity and length of the multi-unit development process can be reduced if a more efficient land assembly and approval process were made available, and if state and local governments can deliver greater certainty in the development process.

Overall, policy thinking on supply-side issues needs to extend beyond traditional calls to release more land to narrow the gap between supply and demand across all government tiers. While new housing supply in high price segments should theoretically push down the prices of existing properties as purchasers of new housing vacate their established properties, this process does not seem to be working effectively in practice. It may be structural impediments that are weakening the trickle-down impact of new supply to lower income groups, with potentially adverse impacts on their ability to secure housing closer to where jobs are located. Hence, targeted government intervention may be needed ensure adequate supply of affordable housing to vulnerable segments of the population through either direct targeted subsidies or indirect measures that improve financial incentives for profit-maximising developers to supply housing at the lower end of the market.

Finally, while we focus on new housing supply in this report, it is important to note that most of the demand for housing at any point in time is met from the stock of established housing. Hence, reforms that help promote more efficient use of this established stock to meet higher levels of demand are also important.

3   Consumption[16]

The goal of this chapter is to examine the contemporary effects of house prices and house-price induced increases in debt on general consumption spending in Australia, focusing specifically on how their links may have been affected by the GFC.

Empirical analysis of Australian data covering the period pre- and post-GFC finds that:

- There is a strong relationship between house price changes and household consumption for old and middle-aged households.

- Results are consistent with the hypothesis that the increases in housing prices affect household consumption through the relaxation of a credit or collateral constraint that enables households to increase their borrowing in order to finance consumption.

- Following the GFC, highly leveraged home owners' consumption behaviour has become more conservative as a consequence of house price movements.

- Conversely, investors—especially investors with debt—exhibit greater responsiveness in their consumption after the GFC. A comparison of investors with or without debt prior to and following the GFC highlights the amplified role of the collateral channel for investors.

This chapter addresses the following inquiry research question:

How have house prices and house price induced increases in debt affected consumption spending in Australia since the GFC, and what are the implications for economic and financial stability?

To address this research question, this section will present empirical analyses that uncover:

- Whether pre-GFC established links between house prices and consumer spending in Australia has been affected by the GFC.

- Whether the consumption response of households in different age groups has been affected by the GFC.

These analyses show the extent to which changes in house prices and debt have contributed to a change in the consumption response of households since the GFC.

3.1   Existing research

The existing literature on housing wealth and consumption can be roughly divided into two streams. The first examines the links between house prices and consumption. Most of the studies within this stream were conducted prior to the GFC and focused on the mechanisms

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[16] The analytical findings in this chapter are derived from the final report of a project under this inquiry by Atalay, Whelan et al. (2017) entitled *Housing prices, household debt and household consumption*.

that linked house prices to consumption effects. The second is an emerging strand of post-GFC literature that examines the associations and causal relations between debt and consumption.

The economics literature generally agrees that household consumption is positively correlated with housing and/or household wealth (Barrell and Davis 2004; Hiebert 2006). The underpinnings for this lie in the life cycle hypothesis or permanent income hypothesis. In the simplest version of this framework, household consumption is assumed to depend on expected life-time income. Households smooth out fluctuations in current income by: borrowing against future earnings early in life; by accumulating wealth (through saving) when income is relatively high; and by drawing on that wealth (through dis-saving) when income is relatively low. Anticipated changes in wealth are built into consumption plans; unanticipated changes lead to a revision of those plans.

In the lead-up to the 2008 GFC, much of the analysis of the relation between household wealth and consumption focused on the impact of rising housing prices and rising household net wealth. Yates and Whelan (2009) provide an overview of this literature, of the empirical results obtained to date, and of the three key transmission mechanisms that have been identified to explain this observed link: through a common cause effect (King 1990; Attanasio and Weber 1994; Attanasio,Blow et al. 2009); a direct wealth effect (Muellbauer and Murphy 1990) and a credit constraint or collateral effect (Campbell and Cocco 2007). Their empirical analysis for Australia, and the extension of this to include Canada (Atalay, Whelan et al. 2014) provide support for the collateral channel.

Generally, estimates of the magnitude of the links between house prices and household consumption vary widely and are usually restricted to the periods of house price booms. In addition, there is a lack of consensus regarding the size of this link and the nature of the causal relationship. An (unanticipated) increase in wealth may lead directly to a rise in consumption. On the other hand, such increases in wealth may induce higher consumption by relaxing credit constraints (Campbell and Cocco 2007). Moreover, simultaneous increases in wealth and consumption may be due to a common causal factor, such as productivity growth (Attanasio and Weber 1994).

While relatively little attention was paid to the potential links between debt and consumption, since the GFC, several studies by central banks and global institutions have investigated and uncovered a strong correlation between the growth in housing prices, the associated accumulation of household debt, and the extent to which the build-up of household debt amplifies recessions and weakens recoveries (IMF 2012).

A 2012 OECD Working Paper provides a useful overview of much the relevant literature up to the time of this research. It concludes:

> The empirical evidence shows that high debt levels impair the ability of households and enterprises to smooth consumption and investment and of governments to cushion adverse shocks. The empirical evidence also suggests that when private sector debt levels, particularly for households, rise above trend the likelihood of recession increases. Furthermore, when debt levels are high, recessions tend to be more severe. (Sutherland and Hoeller 2012: 2)

This work is reinforced by Mian and Sufi (2014), though they assert that the exact relationship between household debt, household spending and severe economic recessions are less clear.

This chapter builds on the limited existing literature on debt, and on previous analysis of the transmission mechanism by Yates and Whelan (2009) and Atalay, Barrett et al. (2016). We examine the extent to which different types of households are responding to high levels of debt by reducing their consumption and sheds light into the causal mechanism that might underpin such a relation.

3.2 Analytical approach

In the first instance, post-GFC data on home owners is used to duplicate and extend the analysis undertaken in the earlier, pre-GFC AHURI study of the impact of housing wealth on household consumption (Yates and Whelan 2009). The previous study relied upon a repeated cross section analysis generated from the unit record data available in ABS HES. The current analysis uses data on home owners covering the period from 1975 through to 2009–10. Data from all surveys have been used to generate cohort consumption profiles. This allows us to track the average expenditures of a particular cohort through time, even though no individual is observed more than once.

In practice the empirical analysis proceeds as follows. First, we 'stack' data from successive releases of the HES. Following this, households within the 'stacked dataset' are assigned into 5-year birth cohorts. That is, those with a household head born between 1920 and 1924 (1st cohort), 1925–29 (2nd cohort) and so on. The consumption and wealth of these pseudo-cohorts are then followed through time. Finally, the responses of different cohorts over time pre- and post-GFC, are analysed. Yates and Whelan (2009) provide a detailed list of studies that have adopted this methodology.

The advantage of this approach is that it allows the researchers to measure statistically the relationship between changes in house prices, household wealth and consumption and also to identify the possible transmission mechanisms operating to explain the impact of housing wealth on household consumption. To estimate consumption over the life-cycle, the study used data from eight HES spanning the period from 1975–76 to 2009–10. The latest survey (2009–10), conducted following the GFC, is used to examine the changes in the previously identified links between house prices and consumer spending expenditure patterns of various demographic groups relative to their pre-GFC patterns. The econometric methodology has been well established in the literature and is described in Yates and Whelan (2009).

When examining the impact of debt on consumption, the analysis incorporates a more extensive set of debt-related variables into the empirical specifications. In particular, it focuses specifically on behavioural differences between groups likely to be of particular interest such as outright owners and mortgage holders with varying LTV ratios and different levels of household debt. It also examines in more detail the role of the collateral constraint previously identified as the mechanism by which changes in housing prices affected household consumption. The interaction of key variables with post GFC dummies is used to determine the impact of the GFC on relevant behavioural responses.

The previous study examined the three potential mechanisms though which house price-induced increases in household wealth contributed to an increase in household consumption prior to the GFC. The three mechanisms considered included a direct wealth effect; a credit constraint or collateral effect; and a common cause effect. In the earlier AHURI study, the results indicated increased housing wealth led to higher household consumption as the collateral constraint on borrowing was relaxed and enabled households to borrow more (Yates and Whelan 2009).

One rationale for revisiting this analysis is that the GFC brought with it significant negative shocks to the economy and to housing wealth, both of which were associated with a dramatic reduction in the household consumption ratio, that is, the ratio of aggregate consumption to aggregate household income. At the same time, however, household borrowing remained high. In essence, the updated empirical analysis compares the consumption of different households in the 2000s pre-and post-GFC with that of the 1970s, 1980s and 1990s. This exercise draws from a pseudo-panel compiled using repeated cross-sections of the ABS Household Expenditure Survey (HES). It allows an examination of households' consumption response to the significant changes in housing wealth stemming from house price changes around the GFC.

3.3 Pre- and post-GFC consumption profiles of different age groups

This section presents key empirical findings on whether the consumption profiles of households in different age groups has been affected by the GFC. Brief descriptions of the econometric modelling approach are provided, but details of the econometrics, drawn primarily from Yates and Whelan (2009), are described in detail in Appendix A of Atalay, Whelan et al. (2017).

We begin by presenting a comparison of household consumption profiles over the period 1975–2009. The theoretical basis for the empirical analysis is the life cycle model in which households exhibit an age-consumption profile that has the familiar 'hump or inverted U shape' that indicates rising consumption until middle age followed by falling consumption trends in older age. We construct repeated cross sections by 'stacking' data from all HES years into a pooled dataset. A baseline specification expressing household consumption as a function of a number of observable variables that capture broad factors affecting household consumption over the life cycle is applied.

Two observations can be made from the results in Figure 9 below. First, strong consumption growth is observed throughout the late 1990s and early 2000s. Indeed, prior to 2009, consumption expenditure generally increases in each successive survey year with particularly large increases in 2003. Second, following the GFC, consumption by young and middle age households continued to increase but the consumption profile of older households remain relatively unchanged from 2003.

Figure 9: Household consumption expenditure by age and year of survey, 1975–2009
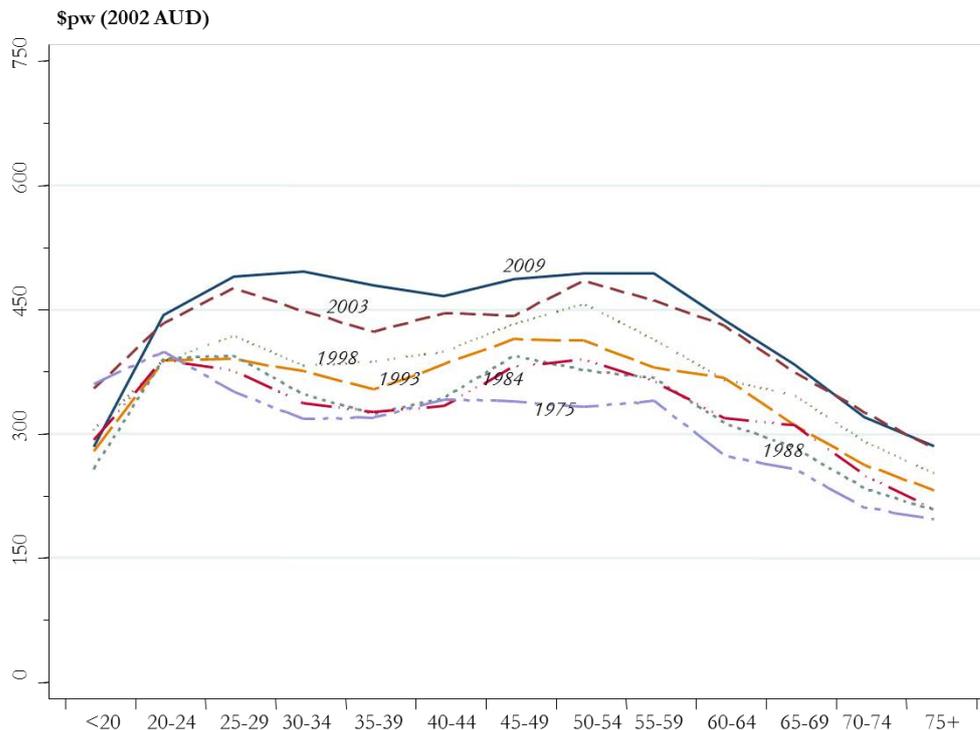
Notes: Values have been deflated to $2002 prices for comparability with the Yates and Whelan (2009) AHURI study.

Source: Authors' own calculations from pseudo-panel derived from ABS HES, 1975 to 2009–10, as reported in Atalay, Whelan et al. (2017)

Next, we present empirical findings on whether the consumption response of households in different age groups has been affected by the GFC. In Figure 10, (a) shows the average difference between actual and predicted consumption (the 'residuals') in each survey year. These residuals can be interpreted as the responses to the unexpected changes in income profiles of individuals. This particular exercise focuses on whether the consumption responses across three birth cohorts differ significantly between 2003–04 and 2009–10. In Figure 10 (b), the residuals are calculated for each of the following age groups: young (20–39 years), middle age (40–59 years) and older (60+ years).

A number of observations can be drawn for the pre-GFC period. First, actual consumption tended to exceed predicted consumption during the house price boom of the late 1990s and early 2000s (hence the positive residuals). Second, during the mid-2000s this gap was the largest for middle-age households and lowest for young households.

During the post-GFC period, we observe a reversal with actual consumption being much lower than predicted consumption for all age groups (hence the negative residuals). The greatest decline in the gap between actual and predicted consumption occur for households in the middle age group. The results highlight the heightened sensitivity of the middle age group to movements of the economic cycle during both the pre- and post-GFC years.

Figure 10: Gap between predicted and actual levels of consumption by age group, 1975–2009

Source: Authors' own calculations from pseudo-panel derived from ABS HES, 1975 to 2009–10, as reported in Atalay, Whelan et al. (2017)

3.4   Impact of house prices on pre- and post-GFC consumption

In this section, we drill down to the effects of house prices on consumption spending for all households. We use an imputation process to generate house price proxy for renters. We also examine how this link might have been affected by the GFC. We extend the regression specification from the previous section to incorporate housing price variables for 2003–04 and 2009–10 interacted with the year and age cohort dummies. The coefficients on these interacted terms indicate whether there has been a change in the impact of wealth on consumption between 2003–04 and 2009–10. Table 6 below presents key results from the regression that capture the effect of interacting house prices with 2003 and 2009 year indicators. The regression in this section contains the full range of socio-demographic variables likely to affect consumption, but only the housing-related effects which are of particular interest in this chapter are reported.

Three specifications are employed which exploit different measures of house prices—(1) self-reported house values, (2) instrumented house values, and (3) self-reported housing wealth. The instrumented measure in specification (2) addresses the possibility that self-reported house values in specification (1) may be endogenous to consumption.[17]

According to all three specifications, the largest house price effect on consumption belongs to middle-age cohorts, followed by the older cohorts. There are no significant differences between 2003 and 2009. The coefficients on the interaction terms in specifications (1) and (3) indicate that a $100,000 increase in housing wealth is associated with an increase in weekly household expenditure of over $30 in both 2003–04 and 2009–10 among the middle age cohort. Across all three specifications, the implied marginal propensity to consume among middle-age households is between 0.015 to 0.02.

Table 6: Effect of a change in house prices on consumption, 2003–04 and 2009–10

	Coef.					
	2003–04			**2009–10**		
	Self-reported house value	**Instrumented house value**	**Self-reported housing wealth**	**Self-reported house value**	**Instrumented house value**	**Self-reported housing wealth**
House price level * Young	12.43	-0.06	8.51	10.8	-3.74	6.02
House price level * Middle age	31.75***	17.38***	34.42***	34.2**	19.67***	31.2***
House price level * Older	18.03**	8.1**	18.49***	21.42	8.08**	12.01

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. The regressions also control for birth cohorts and other demographics—see Yates and Whelan (2009) for details. The full set of regression results is reported in Atalay, Whelan et al. (2017).*
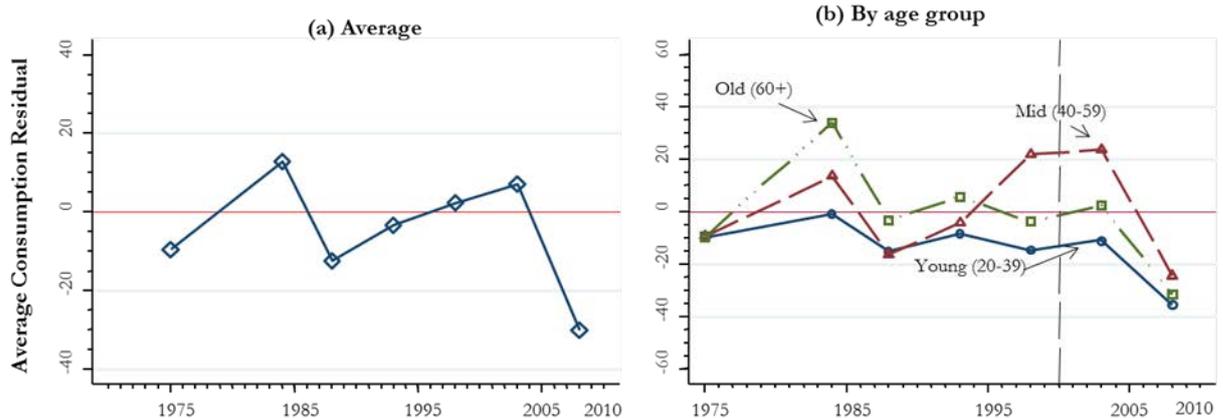
Source: Authors' own calculations from pseudo-panel derived from ABS HES 1975 to 2009–10, as reported in Atalay, Whelan et al. (2017)

We also examine the extent to which tenure status affects the consumption response to housing wealth. We extend the previous regression specification by adding tenure status interacted with house prices and year indicators. With this specification it is possible to compare the behaviour of households of different ages and in alternative tenures relative to their baseline patterns.[18] The results of this extended analysis reinforce prior findings that highlight the existence of a significant housing wealth effect on consumption.

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[17] For instance, households may reduce consumption to purchase additional housing or consider some forms of consumption purchases, such as durables in the form of household appliances or furniture, as increasing the value of their homes. For more details of the instrumental variable approach, refer to Atalay, Whelan et al. (2017).

[18] This specification may be subject to sample selection and endogeneity concerns. In any given age cohort some renters are likely to change tenure status over time. Hence, tenure status is not exogenous and observed behavioural changes are likely to be endogenous. Nonetheless, this specification has been used in the literature, and provides a robust check of our results.

3.5 Impact of housing debt on pre- and post-GFC consumption

In this section, we focus our investigation on the effects of housing debt, as measured by the loan to value ratio (LVR) on the link between housing wealth and consumption spending. Once again, we examine how this link might have been affected by the GFC. We extend the regression specification to incorporate LVR variables. Specifically, home owners are divided into three categorises owners with low LVRs of less than 0.5 (including outright owners), owners with medium level LVRs of 0.5 to 0.8, and owners with high LVRs of greater than 0.8. For the purpose of these specifications renters are an omitted category. The LVR categories are interacted with the house price variable and indicators for the years 2003–04 and 2009–10. This enables analysis of the pre- and post-GFC consumption responses of home owners who might face different borrowing constraints, in particular those with high LVRs who are most likely to face credit constraints. Table 7 below presents key results reflecting this three-way interaction. Once again, the regression in this section contains the full range of socio-demographic variables likely to affect consumption, but only the housing-related effects which are of particular interest in this chapter are reported.

The coefficients on the three-way interactions indicate that in 2003–04 households with higher LVRs report higher consumption, holding all other factors constant. This reflects the importance of the collateral channel in the pre-GFC period. In 2009–10, the difference in consumption response between home owners with different levels of LVRs disappears.

The regression results allow us to compare the 2009–10 coefficients with the 2003–04 coefficients for each home owner category. We find that among owners with low LVRs, there is a statistically significant increase in consumption between 2003–04 and 2009–10. On the other hand, among households with high LVRs, there is a statistically significant decline in consumption response between 2003–04 and 2009–10. Among owners with medium LVRs, there is no noticeable significant change in consumption response pre- and post-GFC. Taken together, this set of findings suggest that since the GFC, home owners with high LVRs have become more conservative, that is, they may no longer be increasing debt secured against their home to finance additional consumption.

Table 7: Effect of LVRs on consumption, 2003–04 and 2009–10

	Coef.	
LVR dummies * House prices	**2003–04**	**2009–10**
0 to <50%	30.31***	46.56***
50 to 80%	49.37***	45.50***
80% +	64.89***	47.13***

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. The regressions also control for birth cohorts and other demographics—see Yates and Whelan (2009) for details. The full set of regression results is reported in Atalay, Whelan et al. (2017).*

Source: Authors' own calculations from pseudo-panel derived from ABS HES 1975 to 2009–10, as reported in Atalay, Whelan et al. (2017)

3.6 Effect of house prices and housing debt on the pre- and post-GFC consumption of rental investors

A further extension focuses on the consumption behaviour of investors, defined as households that own a rental property.[19] Table 8 below presents key findings from a regression analysis that distinguishes between three key groups—rental investors with debt, rental investors without debt, and non-investor homeowners. Once again, renters form the omitted category. These categories are interacted with indicators for the years 2003–04 and 2009–10 and house prices.

There are at least two noteworthy findings. First, in both 2003–04 and 2009–10, investors without debt had a statistically significantly higher consumption response to an increase in house prices than other groups. This is consistent with a wealth effect from higher house prices for investors without debt. Second, between 2003–04 and 2009–10, there is a statistically significant increase in the consumption response of investors with debt. The findings suggest that the consumption responsiveness of investors with debt to house prices grew following the GFC.

Table 8: Effect of house prices and housing debt on rental investors' consumption, 2003–04 and 2009–10

	Coef.	
	2003–04	**2009–10**
Investor with debt	33.18 ***	55.11 ***
Investor without debt	59.86 ***	51.08 ***
Not investor	33.44 ***	29.78 ***

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. The omitted group is renters. The regressions also control for birth cohorts and other demographics—see Yates and Whelan (2009) for details. The full set of regression results is reported in Atalay, Whelan et al. (2017).*

Source: Authors' own calculations from pseudo-panel derived from ABS HES 1975 to 2009–10, as reported in Atalay, Whelan et al. (2017)

3.7 Policy development implications

The experience of economies across the globe following the GFC highlights the important role that household indebtedness can have for macroeconomic performance and macroeconomic policy settings. Notwithstanding sustained fiscal efforts on the part of governments and monetary stimulus from central banks in the period following the GFC, major economies have continued to experience lacklustre growth. Moreover, the period since the GFC has been characterised as one in which unconventional monetary policy has been widely adopted, partly in response to a perception that traditional policy levers around interest rates have proved somewhat ineffective. The period preceding and the experience following the GFC raises important policy questions around how such events can be avoided and what the appropriate policy response to such events may be. In countries that have experienced deleveraging since the GFC, attention increasingly has focused on the impact of debt on consumption even though, traditionally, economic theory has not regarded debt as having an independent impact on consumption. Rather, it has merely been a vehicle for facilitating consumption smoothing over the life-cycle. Post-GFC experience, however, has raised concerns that high levels of debt

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[19] This data is only available in the two latest HES surveys.

relative to assets or high debt servicing ratios may force indebted households to reduce consumption.

In Australia similar concerns have been raised with particular focus on the rise in housing debt among household investors, many of whom are the same households who used mortgage equity withdrawal to increase their consumption with the initial onset of the housing price boom (RBA, 2014). Our results in accordance with Finlay and Price (2014) show that this increase is seen as being driven by changes in behaviour by households with specific household characteristics, of whom older households with wealth and middle aged households with debt and investors are specifically identified.

The findings presented in this chapter have important implications for public policy and national wellbeing. Specifically, our findings relate to the stability of the macroeconomy. Our results also highlight the importance of considering the links between, and the impact of policy on household consumption, saving and house prices separately for different demographic groups.

Our findings are relevant for Australian Government policy-makers considering macroeconomic stability in Australia. The take-up of further mortgage debt among highly leveraged households through the 'collateralisation effect' exposes those households to the risk of significant loss if house prices fall or if interest rates rise. This in turn may pose a systemic risk for the macroeconomy. This is in contrast to a general belief in Australia that debt is held by those most able to service it, namely, higher-income and higher-wealth households. Macroeconomic policy-makers should take note of the potential risks associated with high levels of household debt and rising household income-to-debt ratios. Despite the large benefits of having a flexible mortgage system that allows households to borrow against their housing equity, this highlights a potential cost of such a system. In a number of countries with similar situations, regulations have been implemented to limit the growth of household indebtedness and the need to ensure robust prudential regulation remains an important policy priority.

4 Labour mobility[20]

The empirical analysis in this chapter examines the relationship between housing and labour market behaviours and outcomes. Adopting an economic approach, the conceptual foundation for the analysis is provided by the Oswald thesis and job search models. The analysis is quantitative in nature and identifies some stylised relationships between housing and behaviours and outcomes in the labour market.

Key findings include:

- Individuals in private rental accommodation exhibit the highest rates of geographic mobility.

- After controlling for a range of other characteristics, owner-occupiers with low loan-to-value ratios exhibit the lowest rates of geographic mobility.

- Individuals who indicate they are less likely to take financial risks exhibit less geographic mobility. Risk-averse individuals in private rental accommodation are approximately 2.5 per cent less likely to report moving relative to others in private rental accommodation.

- Among the unemployed, owner-occupiers with low loan-to-value ratios report lower rates of job search than other unemployed individuals. Further, reservation wages are approximately 6 per cent higher for this group compared to outright owners after controlling for a range of observable characteristics.

This chapter addresses the following inquiry research question:

How does tenure status, through potential impediments to geographic mobility, impact on the behaviours and employment outcomes of individuals and households following a labour market shock?

To address this research question, this section will present empirical analyses that uncover:

- the extent to which the geographic mobility of households differ across tenures following the loss of employment

- the impact of housing tenure related geographic mobility on the labour market and related behaviours for underemployed individuals

- the role of tenure status and housing costs in job search and the determination of reservation wages for the unemployed.

4.1 Existing research

The 'Oswald thesis' (Oswald 1996, 1997; Blanchflower and Oswald 2013) postulates that home ownership may have a causal impact on unemployment by limiting labour mobility. Oswald argues that the (im)mobility effect arises in part because the transaction costs associated with

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[20] The analytical findings in this chapter are derived from the final report of a project under this inquiry by Whelan and Parkinson (2017) entitled *Housing tenure, mobility and labour market behaviour*.

home purchase deters labour market moves following the loss of employment. The Oswald thesis and the associated empirical work have generated a significant literature, both theoretical and empirical in nature, over the past two decades. This reflects, in part, the implication that higher rates of home ownership might have deleterious impacts on the efficient operation of labour markets by inhibiting mobility. Such a finding is in contrast to the generally positive effects of home ownership that have been identified elsewhere (Diezt and Haurin 2003). Subsequent analysis of the propositions associated with the Oswald thesis have sought to distinguish the more nuanced implications of home ownership for labour market outcomes. For example, theoretical analysis has sought to distinguish the effect of tenure on the incidence and duration of unemployment spells (Coulson and Fisher 2009; Munch, Rosholm et al. 2008). While home owners may tend to become unemployed more often, the constraints associated with owner-occupation mean that spells in unemployment are generally shorter for home owners compared to individuals in rental tenure. Similarly, the implications of housing status for tenure in employment (Battu, Ma et al. 2008), wages (Munch, Rosholm et al. 2008), job search behaviour and willingness to commute have all been explored in a theoretical context (Eliasson, Linsgren et al. 2003). The implications of home ownership for mobility behaviours have also been brought into sharp focus by experiences such as that of the United Kingdom (UK) in the 1990s and the United States (US) in the 2000s, where many home owners found themselves experiencing negative equity following the decline in house prices (Henley 1998; Farber 2012).

Tenure status and housing markets have the potential to impact on labour mobility through a variety of mechanisms.[21] First, unemployed owner-occupiers may remain unemployed for longer because acceptance of offers of employment requires geographic mobility and associated transaction costs. In turn, some home owners may accept jobs that do not represent a high-quality match in the areas in which live to avoid the difficulties and costs associated with moving. Such behaviours may reflect the risk aversion exhibited by individuals and households when considering the costs and benefits associated with mobility decisions (Productivity Commission 2014:187–188; Kan 2003). It is also the case that areas with greater economic opportunities may be 'mismatched' with the pool of available job seekers. In this case, the availability of appropriate and affordable housing in job-rich areas may limit the labour mobility and overall economic efficiency. In turn, individuals and households may reside outside their area of employment resulting in longer commuting times.

Studies that have sought to identify the nature of the relationship between housing tenure and labour markets have traditionally relied on aggregate data. Early studies focused on the relationship between the aggregate unemployment rate and homeownership rates at some well defined spatial level such as a country, state or local government region. The results using aggregate data are mixed. While some early studies found a positive correlation between the level of unemployment and the homeownership rate (Oswald 1996, 1999; Isebaert, Heylen et al. 2015), subsequent studies failed to verify the earlier results or found a somewhat more muted relationship (see for example Flatau, Forbes et al. 2002; Green and Hendershott 2001). A more recent study of Belgium uses a relatively small spatial unit of analysis and finds a significant positive relationship between homeownership and unemployment. With a 1 per cent increase in the rate of homeownership in a district implying a fall in the employment rate by about 0.35 percentage points (Isebaert, Heylen et al. 2015).

A key constraint of analyses that rely on macro or aggregate data is the inability to identify the underlying behaviours that link housing and labour markets. Recent studies examining the links

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[21] There is an additional impact not directly related to labour mobility. Blanchflower and Oswald (2013) propose that regions with high rates of home ownership enforce restrictive planning regulations and 'not in my backyard' (NIMBY) sentiments that stifle the birth of new enterprises because home owners fear that negative externalities (congestion and so on) will adversely impact home values.

between housing and employment adjustment outcomes have tended to rely on micro level data at the individual or household level. These analyses have focused on the underlying optimising decisions of individuals or households using an economic framework. Consider, for example, the problem facing an unemployed individual who is searching for a job. The economic approach posits that a successful match between the unemployed individual and a potential employer will be driven by the costs and benefits associated with search behaviour and the matching process. Housing-related considerations are likely to be one important factor in such a setting. Consider an owner-occupier with a mortgage. The financial constraints imposed by the requirement to make regular mortgage payments will likely impact on the intensity of job search activities and the willingness of an unemployed individual to accept an offer of employment. In a similar fashion, the cost associated with moving for a household may be an important determinant of the whether an offer of employment is acceptable and therefore the duration of an unemployment spell. For a range of reasons, the cost of geographic mobility is likely to differ substantially across housing tenures.

The analysis in this chapter adopts a microeconometric approach and seeks to shed light on those underlying relationships that link housing and labour market behaviours and outcomes. In doing so, the analysis makes a number of novel contributions. For one, the analysis extends contemporaneous data and incorporates a range of controls that have not been used in previous studies. Like earlier studies, we consider the relationship between patterns of mobility, employment status and housing tenure. Further, we examine a range of related behaviours and outcomes including job search activities and changes in reservation wages among the unemployed.[22] The analysis also considered the quality of employment and how behaviours are affected by the incidence of underemployment. Significantly, the analysis draws on a rich panel dataset that allows controls for unobserved heterogeneity across individuals to be incorporated into the analysis.

4.2   Analytical approach

The analytical approach adopted in this chapter is quantitative in nature. In particular, a series of statistical relationships that seek to capture the key relationships of interest are estimated using data drawn from waves 1 to 14 of the HILDA Survey. The HILDA dataset has two important advantages over other datasets that have been used in analysis such as this previously. First, the repeated observations on individuals allows for transitions and behaviours over time to be analysed. Moreover, the longitudinal nature of the data provides an opportunity to control for unobserved heterogeneity across individuals. The second key advantage of the HILDA is the rich set of covariates available. As a result, the implications of the job search models which underpin the conceptual framework can be explored in a more nuanced manner than has previously been done in the literature. For example, the analysis uses information on unemployment spells and behaviour during those spells to identify how housing tenure is related to behaviours and outcomes of interest. These include geographic mobility, the intensity of job search behaviours and reservation wage levels among the unemployed. Each of these behaviours is expected to have an impact on the likelihood and duration of unemployment, and therefore the relationship between home ownership rates and aggregate unemployment that forms the basis of the Oswald (1996, 1997) thesis. For example, an unemployed individual may set a lower reservation wage, but simultaneously search less intensively for employment opportunities. While the former response will tend to reduce the length of any unemployment spell, the latter will tend to increase it. The net effect may be for the expected length of the

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[22] The reservation wage is the lowest acceptable wage that an unemployed individual would deem acceptable to accept an offer of employment.

unemployment spell to remain unchanged. An analysis of these behaviours offers the potential to gain greater insight into the relationship between tenure and mobility.

Further, the rich natures of covariates available in the HILDA data provide opportunities to explore how other aspects of the economic environment influence the outcomes of interest. For example, while much of the focus has been on the unemployed, underemployment remains of considerable concern to policy-makers. The detailed information on desired hours of employment allows for the analysis of this group of individuals. Similarly, the constraints that households face, by virtue of the level of indebtedness can also be examined. Detailed information on the loan-to-value ratio of households and therefore the potential spatial lock-in experienced by such households can be analysed. It is also possible to incorporate detailed information at relatively fine spatial levels, such as unemployment rates and house prices, using the information available in HILDA and external sources such as the Australian Bureau of Statistics.

The analytical approach consists of specifying three sets of statistical models that capture the key relationships of interest as described below.

First, we model the probability of an individual moving geographically between period t-1 and t. Geographic mobility is measured for the individual and for the household separately. Moreover, geographic mobility may be measured by considering short moves such as those across small spatial units, or more substantial moves such as those associated with an interstate move. The statistical analysis uses a random effects probit specification, with separate analyses conducted for all individuals, those who are unemployed and those who are identified as under-employed.

For the unemployed, two behaviours are examined—a measure of job search behaviour by the unemployed and the unemployed individual's (log) reservation wage. In relation to the former, the number of alternative job search activities that are undertaken over a given period of time. The statistical methodology applied to the search models uses a count data specification reflecting the fact that the number of search activities is given by a small number of discrete non-negative values.

In all three statistical models, it is possible to control for a range of observable characteristics such as age, gender and education levels using the rich set of covariates available in HILDA. Other explanatory factors, such as the unemployment rate measured at the local level are also incorporated into the specifications by merging the HILDA data with other publicly available information. Significantly, in all specifications a vector of housing-related information is included as explanatory variables. A series of alternative specifications are developed in which the housing tenure of the individual is included in the analysis, and/or information on the individual's housing costs. Additionally, data on the value of housing in the individual's local area are also included to assess whether local housing market characteristics are important determinants of the behaviours and outcomes of interest.

4.3 Housing tenure and geographic mobility

We begin by estimating the determinants of the mobility of all responding individuals across waves of the HILDA Survey. Mobility is defined as a change in address across adjacent waves of HILDA. The dependent variable is a discrete variable that takes on a value of 1 if a person has moved between consecutive waves, and 0 otherwise. The statistical model used to capture the relationship between mobility and its correlates is a random effects probit model. Such an approach is useful when the variable of interest, in this case mobility, takes one of two discrete values; either an individual is observed to move, or not. In Table 9 below, housing-related variables are successively added to the specification, reflecting key themes identified in the literature. For instance, the literature highlights how owners are not a homogeneous group, hence a distinction is made between outright owners, owners with a mortgage, and different

levels of mortgage indebtedness as measured by the loan-to-value ratio (LVR). The omitted category comprises outright owners in Table 9.

The key findings are largely as expected and consistent across model specifications. In specification (1), we find that private renters are the most likely to exhibit geographic mobility. The marginal effects indicate that private renters are approximately 15 percentage points more likely to report moving than outright owners. Social renters are more likely to move than outright owners, but owners with a mortgage are slightly less likely to move. Specification (2) indicates that it is those with a high LVR (>=0.8) and those with a low LVR (<0.5) who are less likely to move than outright owners. When the sample is restricted to those individuals who are unemployed or underemployed, private renters again show the greatest likelihood of moving.

Interestingly, when local area housing costs, housing arrears and individuals' own housing costs are added into the model in specification (3), the coefficients on the owner-occupier variables become insignificant. The negative housing cost coefficient indicates that an increase in housing cost is associated with a lower probability of moving. Conversely, higher local area housing costs measured at the SA3 level and being in arrears on housing costs are also associated with an increased probability of moving.

Table 9: Probability of moving, random effects probit regression, 2001–14

	Coef.		
	(1)	(2)	(3)
Owner with mortgage	-0.011***	-	-
LVR <50	-	-0.012***	-0.007
LVR >=50 & <80	-	-0.005	0.001
LVR >=80	-	-0.015**	-0.007
Private renters	0.154***	0.154***	0.154***
Social renters	0.035***	0.035***	0.036***
Rent free	0.124***	0.124***	0.122***
Years at address	-0.003***	-0.003***	-0.003***
Average area (SA3) house value/10,000	-	-	0.002**
Area unemployment rate SA3	-	-	0.001
Couldn't pay rent/mortgage	-	-	0.009*
Monthly housing costs/100	-	-	-0.000**
Wald Chi^2	10,121.55***	10,124.75***	8,820.86***
LR test of rho	408.81***	407.10***	314.38***
No. observations	108,441	108,441	96,107

Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. * Significant at the 10 per cent level. Coefficients reported in this table are marginal effects and associated standard errors from a random effects probit specification. The omitted group is the outright homeowner. The regressions also control for gender, age, education, state of residence and time. The full set of regression results is presented in Whelan and Parkinson (2017). The smaller sample size for specification (3) reflects missing data about included housing-related variables.

Source: Authors' own calculations from waves 1 to 14 of the HILDA Survey, as reported in Whelan and Parkinson (2017)

While not reported here, we estimate a series of models that distinguish between short and long distance moves. In particular, models in which mobility is defined as a move across SA2 regions, moves across SA3 regions, and a move across states are also estimated. There is some evidence that unemployed individuals are more likely to make longer moves though the probability is relatively small. There is also some evidence that individuals make more substantial moves across SA2 and SA3 boundaries when local area house prices are higher.

4.4 Housing tenure and job search activity

In this section, we examine the job search behaviour of *unemployed* individuals across all 14 waves of HILDA. In each wave, unemployed individuals are asked whether they have engaged in various job search activities over the previous four weeks and to nominate various job search activities such as answering advertisements for jobs, checking with registered employment agencies, and contacting friends or relatives. Following Morescalchi (2015) and Böheim and Taylor (2002), we measure job search intensity as the total number of different types of activities that are used over the preceding four-week period.

The model's dependent variable is a number between zero and eight reflecting the number of job search activities that an unemployed individual has reported undertaking over a four-week period. A series of Poisson regression models are estimated where the regression fits a statistical relationship between the number or 'count' of job search activities and a series of explanatory variables.[23] As in the mobility regression analysis reported in the previous section, housing variables related to tenure and housing costs are included in more detail in successive specifications.

The results in specification (1) of Table 10 below indicate that unemployed owners with a mortgage display lower job search intensity than unemployed job seekers in other tenures. This is the only statistically significant finding in relation to housing tenure in the model. In specifications (2) through (5), owners with a mortgage are disaggregated according to their LVR. The results in specification (2) are consistent with owner-occupiers with low LVRs reporting lower job search intensity than outright owners, the omitted category. However, those with higher LVRs exhibit search intensity that is similar to outright owners.

Additional information around housing costs such as local area housing costs, housing arrears and individuals' own housing costs are included in specification (3). Local area housing costs do not appear to be important for the intensity of job search. However, individuals who have experienced housing arrears in the previous year exhibit more intensive job search behaviour. The negative coefficient on direct housing costs suggests that unemployed owner-occupiers with higher mortgage commitments, and hence higher housing costs, search less intensively.

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[23] Count data models of this form are appropriate in situations where the dependent variable takes on a limited number of discrete values. In this case, the number of job search activities varied between 0 and 8.

Table 10: Job search intensity, Poisson model, 2001–14

	Coef.				
	(1)	(2)	(3)	(4)	(5)
Mortgagor	-0.194**	-	-	-	-
Mortgagor (LVR<0.5)	-	-0.221**	-0.221**	-0.259**	-0.145
Mortgagor (0.5>LVR>0.8)	-	-0.146	-0.150	-0.267	-0.096
Mortgagor (LVR>0.8)	-	-0.187	-0.190	-0.323	-0.091
Private renter	0.141	0.145	0.145	0.048	0.161
Public housing	-0.211	-0.208	-0.210	-0.201	-0.128
Rent-free	-0.201	-0.198	-0.199	-0.229	-0.220
Unemployment rate	-0.004	-0.005	-0.006	-0.004	-0.004
Unemployment duration	0.002***	0.002**	0.002***	0.003***	0.002***
Unemployment duration squared	0.000	0.000*	0.000**	0.000**	0.000**
Local housing costs	-	-	-0.004	-0.008	-0.004
Couldn't pay rent/mortgage	-	-	-	0.412***	0.413***
Actual housing costs	-	-	-	-	-0.011**
No. obs.	3,459	3,459	3,451	2,916	2,916
Psuedo R^2	0.022	0.022	0.022	0.027	0.027

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. Coefficients reported in this table are marginal effects and associated standard errors from a count data model. The omitted group is the outright homeowner. The regressions also control for gender, age, education, major statistical region and time. The full set of regression results is presented in Whelan and Parkinson (2017). A random effects model was also estimated and the results from that analysis are similar to those reported in this table.*

Source: Authors' own calculations from waves 1 to 14 of the HILDA Survey, as reported in Whelan and Parkinson (2017)

4.5 Housing tenure and reservation wages

In this section, we model the reservation wages of unemployed individuals in waves 1 through to 14 of the HILDA data. In each wave of the HILDA dataset, unemployed individuals are asked the minimum hourly wage at which an offer of employment would be acceptable. The model is estimated using a standard ordinary least squares (OLS) equation. Following Brown and Taylor (2015) and Addison, Centeno et al. (2004), the dependent variable is the log of reported hourly reservations wages.

Table 11 below once again displays a series of model specifications and selected results analogous to those reported in the previous sections of this chapter. The model findings indicate that unemployed owners with a mortgage have reservation wages that are 4.4 per cent higher than outright owners, controlling for other potentially confounding factors. Conversely, public renters report reservation wages that are approximately 6 per cent lower than those reported by outright owners. When owners with a mortgage are disaggregated according to their LVR in specification (2), the analysis indicates that owner-occupiers with low LVRs report higher reservation wages than outright owners. Note that the analysis of job search intensity indicated that this group also reported lower job search intensity.

The regression results in specification (3) suggest that local area housing costs exhibit a statistically significant positive relationship with reservation wages. That is, higher local area housing costs are associated with higher reservation wages by unemployed individuals. It is important to stress, however, that care needs to be taken before characterising this as a causal

relationship.[24] After taking into account housing costs and holding other factors constant, the statistical analysis suggests that private and social renters have reservation wages approximately 8 per cent lower than those for outright owners. More specifically, owners with higher LVRs, private renters and social renters have on average successively lower reservation wages, though in general reservation wages increase with housing costs.

Table 11: Reservation wage, OLS model, 2001–14

	Coef.		
	(1)	(2)	(3)
Mortgagor	0.044***	-	-
Mortgagor (LVR<0.5)	-	0.063***	0.005
Mortgagor (0.5>LVR>0.8)	-	0.021	-0.063**
Mortgagor (LVR>0.8)	-	0.018	-0.076**
Private renter	-0.019	-0.022	-0.081***
Public housing	-0.057**	-0.060***	-0.081***
Rent-free	-0.004	-0.006	-0.006
Unemployment rate	-0.002	-0.002	-0.003
Unemployment duration	-0.000***	-0.000***	-0.000**
Unemployment duration sq	0.000	0.000	0.000**
Local housing costs	-	-	0.012***
Couldn't pay rent/mortgage	-	-	-0.028
Actual housing costs	-	-	0.006***
No. obs.	3,459	3,459	2,916
R^2	0.446	0.447	0.476

Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. Coefficients reported in this table are marginal effects and associated standard errors from an OLS specification. The omitted group is the outright homeowner. The regressions also control for gender, age, education, major statistical region and time. The full set of regression results is presented in Whelan and Parkinson (2017).

Source: Authors' own calculations from waves 1 to 14 of the HILDA Survey, as reported in Whelan and Parkinson (2017)

4.6 Policy development implications

The findings from the analysis have some important implications for housing-related policy development. Broadly speaking, these can be couched in two key areas—tax and transfer policy—which span both the Australian Government and state policy domains.

In terms of tax policy, the analysis of geographic mobility has highlighted the significantly higher rates of mobility exhibited by individuals in private rental tenures. This is a pattern that is consistent with existing empirical evidence and highlights the potential impediments to mobility and adjustment in the labour market that high rates of homeownership *might* create. Such

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[24] For instance, it is possible that high reservation wages and in turn higher wages may directly raise housing costs. In that case, causation runs from wages (and reservation wages) to housing costs. Alternatively, it may be the case that unobserved regional characteristics exist that are not included in the statistical model and which are associated with high housing costs, higher wages and higher reservation wages.

impediments are of course important in the context of the Oswald thesis which posits a positive relationship between unemployment rates and the level of homeownership.

The findings in this chapter highlight some clear policy challenges at both federal and state levels. The institutional environment in Australia is characterised by favourable tax treatment for owner-occupied housing with implicit and explicit policy settings favouring owner occupation as a preferred form of tenure. While such a bias may be justified given the extent of private and social benefits that derive from owner occupation, this also potentially creates a distortion to the extent that the favoured treatment of owner-occupation limits the geographic mobility of individuals and households and, ultimately, the efficient functioning of labour markets.

From a policy perspective, the analysis in this report and the institutional environment more generally highlights the need to ensure that tax policy is as neutral as possible. That is, it does not favour one tenure unduly over another. The replacement of state stamp duties or transaction taxes with a broad-based land tax has been cited as one potential means by which such an outcome could be achieved. While moves in this direction have been made in the Australian Capital Territory, this is likely to be a policy that offers a range of advantages to governments more generally, while minimising the negative impact of tenure choice on the ability of individuals and households to respond to adverse labour market shocks. Such a policy would likely improve the overall efficient functioning of the economy more generally.

In terms of transfer policy, the analysis highlights that private renters exhibit substantially higher rates of geographic mobility than individuals in other tenures. An important feature of the Australian transfer programs is that the Australian Government's private rental subsidy in the form of CRA is transferable. Significantly, this provides opportunities for individuals and households on CRA to move to regions with better economic prospects. Given the heterogeneity in rental markets across Australia, it is possible that consideration could be given to providing CRA at rates that match regional circumstances. This may enhance the ability of individuals and households to move to areas that offer better opportunities for employment and economic advancement, albeit with higher housing costs. Similarly, the state-provided public housing policy could potentially be revisited to ensure that such assistance is delivered in a way that removes impediments for individuals to engage in the labour market, especially to the extent that mobility may entail the loss of a subsidised secure tenure.

In a general sense, the analysis points to the need to ensure that the unemployed receive support in a holistic manner. There is little direct evidence from the analysis that individuals across tenures differed in their job search intensity, it is nonetheless the case that it is important that support is available for those in receipt of housing assistance to return to gainful employment. Reports by the Productivity Commission (2015) and the New South Wales Government (New South Wales Government 2015), highlight the need for tenants in public housing to receive support that is comprehensive and complementary in a way that provides opportunities to engage with the labour market. Such policy responses may include opportunities to upgrade skills in addition to providing measures that enable geographic mobility so as to ensure that individuals locate to regions with better economic opportunities.

5   Employment decisions[25]

The purpose of this chapter is to investigate the role of current housing assistance arrangements, housing wealth and mortgages in individuals' employment decisions, taking into account taxes as well as the full array of income support programs in Australia. The study also explores whether bequests or parental transfers that are typically financed (directly or indirectly) from housing wealth lower work effort and educational attainment.

Key findings from the study indicate that:

- Housing assistance to private rental and public housing tenants has few employment effects.

- Higher levels of housing wealth seem to help older 'inactive' owners regain employment, and assist precariously employed younger home owners to secure their employment.

- Rising levels of mortgage indebtedness are associated with longer working lives.

- For persons 45–54 years old (55–64) in 2001, mortgagors' odds of leaving the labour force are only 19 per cent (27%) of outright owners' odds of leaving the labour force *(all else equal)*.

- Beneficiaries of parental cash transfers or bequests are more likely to hold a bachelor degree than matched non-beneficiaries.

- The proportion of beneficiaries in the labour force is roughly the same as non-beneficiaries, but a significantly higher proportion are self-employed.

This chapter addresses the following inquiry research question:

Through what channels does housing impact employment participation?

This section will present empirical analyses that address the following issues:

- Whether different government transfer programs, and especially housing assistance, blunt the incentive to work, and how such effects vary by age cohort, wage range, geographical location and individual/demographic characteristics.

- The impacts, in terms of direction and magnitude, of Australia's tax and benefit system—particularly housing assistance—on employment participation decisions.

- The role that housing wealth and mortgage debt play in shaping employment participation decisions at different stages of individuals' working careers.

- The impact of intergenerational transfers such as bequests on work effort and participation in skills and training programs.

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[25] The analytical findings in this chapter are derived from the final report of a project under this inquiry by Cigdem-Bayram, Ong et al (2017) entitled *A new look at the channels from housing to employment decisions*.

To undertake the above research inquiry, we rely on the HILDA Survey, focusing particularly on years 2001 to end of 2010. Our summary of the research findings begins with an overview of past studies.

5.1 Existing research

5.1.1 Housing assistance and the incentive to work

Housing assistance is an important part of most western developed countries welfare states, and so it is likely to have an important influence on the financial rewards to be gained from employment. Australian studies confirm that financial incentives to work are substantially weaker among public housing tenants as compared to other segments of the population (Wood, Ong et al. 2005; Dockery, Feeny et al. 2008; Dockery, Ong et al. 2011). For instance, Dockery, Ong et al. (2011) show that public housing tenants are typically able to replace 40 cents in every dollar of work income, while the rest of the population are only able to replace half of that amount. Other studies have shed light on the effects of these replacement rate (RR) measures on employment participation. Examples include Whelan and Ong (2008), Wood, Ong et al. (2009), Dockery, Ong et al. (2011), and the Productivity Commission (2015). They generally show that housing assistance programs can have negative impacts on employment participation, though their magnitude is small.

The rationing of public housing combined with low-income eligibility thresholds is associated with declining employment activity among those queuing on public housing waiting lists. This is consistent with a 'welfare lock' effect due to individuals on waiting lists maintaining their income below the minimum income limit in order to remain eligible. The effect arises if those in the queue job search less intensively, or even decline job offers as they near the top of waiting lists.

Dockery, Feeny et al. (2008) present evidence in support of this welfare lock hypothesis and demonstrate that for males transitioning into public housing in Western Australia, the probability of being employed increases by 12 percentage points relative to employment prospects when remaining on the waiting list. For females, the employment gains are smaller at 4 percentage points. However, findings presented by the Productivity Commission (2015) suggest that a housing stability rather than welfare lock effect is responsible for the substantially higher employment rates among public housing tenants compared to applicants.

Another strand of research has employed behavioural microsimulation modelling techniques to evaluate the impact of various policy options on the incentive to work and employment participation. However, to date none have specifically focused on evaluating CRA and public housing programs.

5.1.2 Housing wealth and the incentive to work

Less is known about the relationship between housing wealth and labour force participation. The few published studies are focused chiefly on the association between housing wealth and retirement. Australian studies tend to report a statistically significant link between housing wealth and early retirement (Atalay, Barrett et al 2016; Knox 2003; Warren 2013). Knox (2003) uses HILDA to analyse the retirement intentions of respondents belonging to the Baby Boomer generation. The author finds that both owner-purchasers and outright owners intended to retire an average two years sooner (at 60 years of age) than renters or persons who lived rent free.

Warren (2013) models the most common pathways into retirement for older Australians using the first eight waves of HILDA. The author found that transitions from part-time employment to non-participation were higher among both men and women who have achieved outright ownership of their homes. Home equity and other household wealth are also important determinants in the retirement decisions made by men but not women.

Atalay, Barrett et al. (2016) use waves 1–12 of HILDA to investigate the links between house prices, household debt and labour supply. They find that older home owner females respond strongest to house price changes. Middle aged women in rental housing respond to house price increases by increasing labour market participation rates. The authors attribute the latter group's response to home ownership aspirations and efforts to relax borrowing and repayment constraints. In contrast, younger partnered persons who have already achieved home ownership reduce their hours of work in response to housing price (wealth) gains.

5.1.3 Intergenerational transfer of wealth and the incentive to work

Housing wealth remains the most important component of households' wealth portfolios. The majority of households will therefore directly or indirectly draw down on housing wealth in order to finance *inter vivos* transfers, and it will be an important part of bequests. There is now some evidence of links between transfers and labour supply (Brown, Coile et al. 2010; Holtz-Eakin, Joulfaian et al. 1993, 1999) though the results are mixed.

Early findings reported in Holtz-Eakin, Joulfaian et al. (1993) show that in the US generous inheritances depress a person's labour force participation. For instance, a person receiving a $150,000 inheritance is four times more likely to exit the labour force as compared to someone who received $25,000. Relatedly, Brown, Coile et al. (2010) found that receiving an inheritance increased the probability of retirement, especially among those who did not anticipate becoming a beneficiary. Results obtained by Holtz-Eakin, Joulfaian et al. (1999) are not so conclusive; inheritances appear to have little effect on retirement decisions. There are no known studies in Australia.

5.2 Impact of the tax and benefit system on the incentive to work

Two key questions are addressed in this section:

- Do different government transfer programs, and especially housing assistance, blunt the incentive to work? How do any such effects vary by age cohort, wage range, geographical location and individual/demographic characteristics?

- What are the impacts, in terms of direction and magnitude, of Australia's tax and benefit system—particularly housing assistance—on employment participation decisions?

5.2.1 Incentives to work

Our key measure of the incentive to work is the RR, an estimate of the proportion of income replaced when an individual is not working. Median RR profiles of three groups—the employed, unemployed and those not in the labour force—have been computed in each year of the sample timeframe (2001–10). For the typical employed person, income when not working will replace a little under one-third of income when working. For most, there is therefore a serious financial 'penalty' on losing employment. Among the employed there is some evidence of an upturn in RRs over the years 2001–09. There is a stark contrast between the incentive to work of the employed and the unwaged; those of the unwaged who are not seeking work are very blunt, but they are also weak among the unemployed. The unemployed end the first decade of the new millennium with RRs of between 50 and 60 per cent; they are nearing 70 per cent for those who have dropped out of the labour force. The median RR measure is more variable among the 'unwaged' (unemployed and not in the labour force) with no discernible overall trend over the timeframe 2001–10, though in 2009 and 2010 there is a sharp increase in the RR of those not in the labour force.

There is a marked difference in the incentive to work across the wage distribution. Table 12 below explores this by grouping the 2010 sample of *wage earners* into ten equal groups ranked from lowest to highest according to their annual gross wages and salaries. Roughly 70 per cent

of the annual income of the bottom 10 per cent of all employed persons is replaced on leaving employment; but only a little over 10 per cent is replaced when annual wages place a person among the highest 10 per cent of wage earners. The incentive to work is then blunt at the bottom end of the wage distribution.

Table 12: Median RR (%) by wage decile, 2010

Wage deciles	Wage ranges, $	RR in 2010	Median annual wages, $ (0,000s)
Lowest 1	1,040–21,892	70.9	14.8
2	22,100–32,240	45.8	27.9
3	32,292–39,104	38.5	36.4
4	39,156–46,800	33.5	43.6
5	46,852–52,260	28.9	50.3
6	52,364–60,164	26.5	57.2
7	60,268–69,992	23.3	65.0
8	70,148–82,732	19.7	77.5
9	82,784–104,000	16.8	92.7
Highest 10	104,052–416,416	11.2	135.3

Notes: The sample is persons aged 25 years and over. The wage measure is individuals' annual gross wages and salaries from all jobs in 2010.

Source: Authors' own calculations from the 2010 HILDA Survey, as reported in Cigdem-Bayram, Ong et al. (2017)

5.2.2 Impact of the tax and benefit system on labour market status: modelling estimates

Our modelling initially focuses on the drivers of the year-on-year transitions described in the previous table. We start by reporting findings from an analysis of year-to-year transitions made by those employed in wave t and the strength of these employment ties in *t*+1. The estimates are generated from a random effects logit model. It models the odds of retaining employment in period *t+1* ($2002 \leq t+1 \leq 2010$) for all individuals aged 25 and over conditional on being employed in period t ($2001 \leq t \leq 2009$).

We begin by discussing random effects logit model estimates where the focus is on the factors shaping loss of employment (see Table 13 below). The dependent variable equals 1 if a person is employed in *t*+1 (their employment is enduring), 0 if they are unemployed or not in the labour force (NILF) in *t*+1.

Our major interest is in the role of RRs, which will in part reflect housing assistance, as well as the direct effects that housing wealth and mortgage debt might have on the bonds that cement employment ties. Since wealth accumulation and indebtedness is expected to play an especially important role in the continued employment participation decisions of employees as they approach pension age, we interact the wealth and debt variables with age group dummies (45–54 years; 55–64 years and 65 years and over). We also include various personal characteristics as controls.[26]

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[26] See Cigdem and Wood (2017) for a full list of control variables and their definitions.

The coefficients in a logit model do not have a ready interpretation; we therefore report estimated odds ratios. In the case of continuous variables, it is the ratio of odds occurrence with respect to a one unit difference in the predictor. Consider first the RR variable. The odds ratio estimate is a statistically significant 0.98 and therefore indicates that a 1 percentage point increase in the RR lowers the odds of remaining employed by 2 per cent. This odds ratio estimate confirms the importance of RRs.

Housing assistance increases RRs; so, for example, among those eligible for CRA median RRs are 60 per cent; but in the absence of CRA the median falls to 58 per cent. We can use these imputed RRs and the logit model to estimate CRA's impact on employment attachments. Our findings suggest that it is very small; at actual RRs with CRA present we forecast continued employment among 91.1 per cent of employed CRA clients. At imputed RRs that assume no CRA predicted, continued employment is lifted to 91.4 per cent. This is a negligible impact (less than 1%) and is in part due to the very high year-on-year employment rate in the sample that limits the scope for any further increase. But it also reflects the small influence that CRA has on RRs.

The other housing-related incentive measures (mortgage debt, house value) yield interesting findings. More indebted older home owners are found to have stronger employment attachments. This is especially important among the cohort (55–64 years of age) approaching pension age, where our model implies that a mortgagor who takes on a $100k larger mortgage, has odds of continuing in employment that are 1.18 times those of a mortgagor in the same age cohort, but a $100k smaller mortgage. This finding has potentially important implications for future employment participation among mature age workers.[27] In the last 30 years, the proportion of home owners with a mortgage in this age cohort has soared, as has their typical outstanding mortgage debt. Increasing employment participation among older workers could ameliorate the fiscal stress on government budgets that is associated with an ageing population. On the other hand, the house value variable (gross housing wealth) offers inconclusive findings. It would seem that households that have benefited from large capital gains, and/or aggressively traded up in owner occupied housing markets, are just as likely to remain employed while they approach pension age as those owning relatively low amounts of gross housing wealth.

However, when we model three-way transitions between employment, unemployment and not in the labour force (using a multinomial model) we find that higher home values for under 45s favour continued employment relative to unemployment. The effect is quite large; a $100k boost in home values leaves the odds of continued employment at 1.14 times the odds of unemployment. This could reflect a collateral effect whereby those younger workers whose employment is threatened are better able to 'go it alone' if they can draw on housing equity to help start a business. By the time owner-occupiers reach middle age, home values' influence on employment participation choices has reversed. Beyond age 45, increases in home values cut the odds of continued employment relative to unemployment.

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[27] The following observations are subject to an important caveat. While the logit model controls for various personal characteristics, there remain potentially important omitted variables that could confound interpretation. For example, the higher mortgage debt could be the preferred choice of those that had always expected to extend working lives beyond pension age given planned consumption profiles over the life course. There are those that have added to mortgages in order to smooth or bring forward consumption, and were prepared to do so because they expect to work beyond pension age. They therefore achieve a preferred consumption profile over their life cycle. It is not the higher mortgage debt that is cementing employment ties but increasing longevity and plans to work longer.

Table 13: Odds ratio estimates of the probability of retaining employment in time *t+1* as opposed to (i) becoming unemployed; or (ii) moving out of the labour force, 2001–10

Variables	Random effects logit Coef.	Multinomial logit Coef.	
	emp. in t+1 vs unemp. or NILF in t+1	*emp. in t+1 vs unemp. in t+1*	*emp. in t+1 vs NILF in t+1*
RR (%)	0.984***	0.987***	0.985***
Primary home debt ($00,000s)	1.035	1.024	1.024
Home value ($00,000s)	1.017	1.138***	0.986
Aged 45–54* Primary home debt ($00,000s)	1.036	1.088	1.035
Aged 55–64* Primary home debt ($00,000s)	1.182**	0.965	1.211**
Aged 65 and over* Primary home debt ($00,000s)	1.180	0.668	1.172
Aged 45–54* Home value ($00,000s)	1.017	0.885**	1.048*
Aged 55–64* Home value ($00,000s)	0.994	0.854***	1.040
Aged 65 and over* Home value ($00,000s)	1.025	1.575	1.044
Observations	37,419	37,419	37,419
Number of persons	7,892		

*Notes: *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. * Significant at the 10 per cent level. Models also include controls for demographics and health characteristics (including age range dummies for persons aged 45–54, 55–64 and 65 and over), human capital, labour market status and income, as well as annual wave indicator variables and controls for Major Statistical Regions (variables to denote state capitals and balance of state). Complete coefficient results are available from the authors upon request.*

Source: Authors' own calculations from the 2001–10 HILDA Survey, as reported in Cigdem-Bayram, Ong et al. (2017 forthcoming)

Our modelling also permits analysis of the unwaged (unemployed and not in the labour force) and the analysis of variables influential in determining the probability of *gaining* employment in wave *t*+1 *conditional* on being unwaged in wave *t* (see Table 14 below). Consider first the odds ratio estimates obtained from a random effects logit model of re-engagement with employment; all explanatory variables are again measured at wave *t*. The key RR variable lowers the chances of a move into employment; in this model, a one percentage point increase in the RR lowers the odds of gaining employment by 1.4 per cent relative to the odds of remaining unwaged. Housing debt and wealth are unimportant as far as younger (under 45 years) age groups are concerned, in part because rates of home ownership are lower among young people, especially if unemployed or not in the labour force.[28] However, once our sample reach middle age, housing debt variables become very important; a 45–54 (55–64) year old home buyer with a $100,000 additional mortgage debt burden has odds of gaining employment that

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[28] The home ownership rate among those aged under 45 is 46.3 per cent for all persons irrespective of their employment status in *t*+1; it is 44.3 per cent among the unemployed and NILF in *t*+1. The homeownership rate in the all age groups whole sample is 70.1 per cent.

are 39 per cent (40%) higher than those of the less indebted home buyer. Those occupying homes with a higher home value are also more likely to find an employment opportunity, especially the group aged between 55 and 64 years. An important control when trying to measure the effects of these housing variables is superannuation balances. Though these balances are found to make moves into employment less likely, they are statistically insignificant.[29]

We can also simulate the effects of housing assistance on re-engagement (with employment) rates by using this logit model's coefficient estimates to forecast probabilities of gaining employment over the sample timeframe CRA is investigated here.[30] Among the unwaged that are eligible for CRA, median RRs are 67 per cent; but in the absence of CRA the median falls to 60.[31] Our findings indicate that at actual RRs employment is predicted to be only 17 per cent of CRA clients who were unwaged one year previously. At imputed RRs that assume no CRA, employment is lifted to 17.4 per cent, a 0.4 percentage point increase in the employment rate. While CRA eligible clients are a higher proportion of the unwaged than they are of the employed, the small impact is more to do with a modest fall in the RR of CRA eligible clients. In multinomial estimates we find that primary home debt appears to be an important driver among the under 45s, and the scale of the effect is substantial; a $100,000 increase in mortgage debt increases the odds of employment relative to unemployment by around 20 per cent. Home value and superannuation wealth[32] are unimportant determinants of employment status in t+1 among this younger age cohort, however they are important among the older cohorts. Home value has a significant positive role in determining transitions into employment versus out of the labour force in t+1 across all three of the older age cohorts that we define in our model (45–54 years, 55–64 years and 65 years and over).

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[29] Superannuation balance estimates are not reported here but can be accessed from Cigdem-Bayram, Ong et al. (2017).

[30] In a case study we also use our model to predict the employment impacts of an employment bonus program on public housing tenants (see Cigdem-Bayram et al. 2017 for details).

[31] Among those who were employed in period t, 790 individuals (or around 13.3% of the sample used for estimatin) were eligible for CRA between years 2001–09.

[32] Estimates of the impact of superannuation balances are not reported here but can be accessed from Cigdem, Bayram, Ong et al. (2017).

Table 14: Odds ratio estimates of the probability of gaining employment in time *t*+1 as opposed to (i) remaining unemployed or (ii) remaining out of the labour force, 2001–10

Variables	Random effects logit Coef.	Multinomial logit Coef.	
	emp. in t+1 vs unemp. or NILF in t+1	emp. in t+1 vs unemp. in t+1	emp. in t+1 vs NILF in t+1
RR (%)	0.986***	0.981***	0.988***
Primary home debt ($00,000s)	1.015	1.191	1.011
Home value ($00,000s)	0.994	1.027	0.983
Aged 45–54* Primary home debt ($00,000s)	1.385***	1.129	1.257***
Aged 55–64* Primary home debt ($00,000s)	1.404***	0.722**	1.320***
Aged 65 and over* Primary home debt ($00,000s)^	1.297	NA	1.246
Aged 45–54* Home value ($00,000s)	1.023	1.058	1.040
Aged 55–64* Home value ($00,000s)	1.404***	1.018	1.047**
Aged 65 and over* Home value ($00,000s)	1.045	1.474	1.048***
Observations	27,709	27,709	27,709
Number of persons	5,799		

Notes: See Table 4 notes. ^Variable was omitted from the multinomial model estimating transitions into employment in t+1 versus unemployed in t+1, as a result of too few records of persons aged 65 and over and in mortgage debt. Complete coefficient results are available from the authors upon request.

Source: Authors' own calculations from the 2001–10 HILDA Survey, as reported in Cigdem, Bayram, Ong et al. (2017).

5.3 Housing wealth, mortgage debt and employment ties

In this section we take a closer look at those approaching retirement age (45–64 years) and the factors shaping decisions to withdraw from the labour force. The sample design comprises home owners aged 45–64 years in 2001 who are therefore approaching retirement over the study period 2011–10. Among those aged 45 to 54 years of age year-on-year transitions out of the labour force average 5 per cent over the study period; in the older 55–64 years subgroup year-on-year exits out of the labour force average 16 per cent. Most of those transitioning out of the labour force do not return before the end of the study period (2010) and are most likely permanently retired.

These middle-aged home owners are a key group for policy-makers because employment participation wanes as retirement approaches, and typically drops off sharply once pension age is reached. Ageing of the Australian population could then reduce economy-wide employment participation rates with adverse consequences for economic growth. Owner occupied housing has a potentially important role, though the direction of overall effects is uncertain. On the one hand, home owners' rising levels of housing wealth could accelerate early transitions out of the workforce as the beneficiaries of capital gains feel that early retirement has become more financially viable. On the other hand, Australian home buyers are paying off larger mortgages later in life, and this could correlate with longer working lives. And higher levels of housing wealth will not necessarily impact in one direction only; it can act as collateral that helps relax borrowing constraints and thereby facilitate business start-ups and self-employment initiatives.

We report findings from a proportional hazard model that is a multivariate technique suitable for analysis of the timing of events (see Table 15). In this case the end of a spell in the labour force.[33] The model includes various socio-economic and demographic (control) variables that might shape decisions on the timing of an exit from the labour force. We also add key variables to detect whether differing housing circumstances are related to transitions out of the labour force once these control variables are included. The key housing variables are first an indicator variable for mortgagor status, and second the amount of housing equity that the owner has stored in their primary home. The other obvious private source of financial security in retirement is superannuation, and so we add the balances held in superannuation plans and accounts as a variable in the model specification.

On controlling for measurable personal characteristics we learn that mortgagors in both age cohorts have stronger labour market ties. In the younger (older) age group the odds of leaving the labour force are only 19 per cent (27%) of outright owners' odds of leaving the labour force *(all else equal)*. The amount of housing equity that an owner-occupier has stored in their homes has no straightforward impacts on decisions to leave the labour force. Furthermore, the size of superannuation balances is not correlated with decisions to leave the labour force. We think this is because those with larger superannuation savings are more likely to be employed on permanent contracts. The older group (55–64 years) that are approaching pensionable age can fall back on an income buffer that on average replaces nearly 50 per cent of their in-work income. However the modelling results fail to detect statistically significant effects from the RR variable measuring the fraction of income that is replaced on transitioning out of the workforce. This could be because work satisfaction is a more relevant consideration in the later stages of work careers. It implies that reforms to tax and benefit programs (including housing assistance) that are designed to sharpen the incentive to work of the elderly are unlikely to be effective.

The empirics suggest that the trend to repayment of mortgages later in life could have important economy-wide effects. The longer working lives will help offset some of the productivity consequences that arise due to an ageing population. However, there are important caveats. Those paying off mortgages late in working careers might have planned to work later in life and therefore decided to carry higher levels of debt later in life. In other words their indebtedness follows a plan to work longer rather than indebtedness causing longer working lives. These different preferences with respect to working lives might be correlated with the measurable household characteristics that are included as variables in model specifications. Caution is nevertheless warranted; unmeasured personal characteristics correlated with both preferences between work, leisure and consumption as well as mortgage choices could be a source of bias in model estimates.

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[33] Wood, Ong et al. (2014) use the same technique to model the duration of spells in housing affordability stress. An explanation of this modelling technique is presented in that report.

Table 15: Hazard model estimates of probability of exiting the labour force for persons aged 45–54 and 55–64 years—odds ratios

Variables[34]	Odds ratio	
	Aged 45–54	Aged 55–64
RR	0.995	0.995
Mortgagor	0.192***	0.273***
Housing equity ($0,000s)	0.987**	0.991
Observations	3,218	1,263

Notes: Standard errors are clustered by cross wave ID. *** Significant at the 1 per cent level. ** Significant at the 5 per cent level. Sample is confined to persons who were home owners at beginning of labour force spell (t1). Constant term is suppressed from hazard models. Model also includes time indicators and Major City indicators that are suppressed for space considerations. Reference categories are: outright owners, married with kids, year 11 and Sydney. Complete coefficient results are available from the authors upon request.

Source: Authors' own calculations from the 2001–10 HILDA Survey, as reported in Cigdem, Ong et al. (2017).

5.4 Intergenerational transfers, employment and earnings

The role of intergenerational transfers has attracted increasing attention as home-owning baby boomers have reaped large capital gains that can be unlocked using flexible mortgage products. Since the primary home is the largest component of most households' wealth portfolios and is more liquid than superannuation balances (before preservation age—55 years), the steep increase in house prices since the mid-1990s provides baby boomer parents with growing opportunities to give their children 'a helping hand'. It would seem that baby boomer parents are doing just that. We estimate that in any one year of our study timeframe (2001–12) 5.9 per cent of Australians benefit from a parental cash transfer, and roughly 1.4 per cent receives bequests.

We explore these ideas using a propensity score methodology that first identifies (using HILDA) those receiving a bequest or cash transfer from parents between 2001 and 2010. Instead of simply comparing outcome measures across beneficiary and non-beneficiary groups, the method matches each beneficiary to a control that was not a recipient but was equally likely to receive an intergenerational transfer (given their personal characteristics such as age, number of siblings and so on). The approach tries to mimic randomised clinical trials where patients that share the same ailment are randomly assigned into two groups, a treatment group that receives medication, and a control group that is given a placebo (see Wood and Cigdem 2012). Our key findings are:

- Recipients of both bequests and parental cash transfers have better qualifications than non-beneficiaries. However, these differences are only statistically significant for cash transfer beneficiaries. For example, 29 per cent (18%) of cash transfer (bequest) beneficiaries have a bachelor's degree, while only 21 per cent (15%) of the matched controls have a bachelor's degree.

- Bequest beneficiaries have larger bank balances to bridge unexpected shocks. At an average $26,000, their bank balances are more than double those of the matched controls.

- Both bequest and cash transfer beneficiaries are also more likely to have been awarded a bachelor degree and engaged in some form of self-employment even though the proportion

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[34] See Appendix 1 (Ong, Dalton et al., 2017) for a list of variable names and their corresponding definitions.

of beneficiaries and non-beneficiaries in the labour force are roughly the same. This could be the result of borrowing constraints that are relaxed by transfers; or the role of transfers as an income buffer that promotes risk taking in, say, new ventures.

Regardless of the causal channels, it would seem that the circulation of housing wealth between generations is then helping to shape the economic opportunities of younger generations. The business start-ups that intergenerational transfers seem to promote may have significant economic spin offs for productivity and economic growth. On the other hand, the children of 'lifetime' renters are bypassed by these wealth circuits, with the danger that wealth inequalities become more entrenched.

5.5 Policy development implications

Recent Australian Government policy initiatives that aim to lift employment participation have varied, but these typically fall into three types. The first focuses on delaying eligibility for non-work sources of retirement income, including the age pension and superannuation payouts. The second aims to incentivise workforce participation by lowering the tax on income earned through tax offsets. The third is a general tightening of eligibility criteria for ISPs.

Reforms to both the Australian Government (CRA) and state (public housing) assistance programs have played a negligible role in policy-making with regard to incentives to work. The evidence offered in this chapter confirms previous research findings which conclude that reforms to housing assistance are unlikely to have more than a small impact on employment participation. In the case of public housing tenants, this is because of multiple barriers to employment that need to be addressed alongside any move to sharpen the incentive to work. Reforms to CRA are also likely to be ineffective in promoting employment. This is because CRA is designed such that it is only withdrawn after entitlements to other ISPs are lost. As a result CRA is a minor influence on the incentive to work.

Furthermore, none of the above initiatives account for the fact that the majority of older Australians have typically accumulated large reserves of housing wealth, encouraged by tax and means test concessions that offer preferential treatment of the family home. They can increasingly draw down on this housing wealth without undergoing a costly application process as a result of financial innovations that have turned housing wealth into an 'ATM' that borrowers can draw down as and when they choose (Ong, Jefferson et al. 2013). This growing fungibility of housing wealth will likely play a role in influencing decisions to either continue or withdraw from the labour force as pensionable age approaches.

The housing wealth of older Australians is also likely to affect the education and work career paths of their adult children. This is because parents may dip into (or bequeath) their housing wealth in order to assist their children. Those anticipating transfers from their parents may factor this expectation into their education and employment decisions. We know little about how this intergenerational circulation of housing wealth is impacting young adults' working careers and education outcomes. It is important to empirically explore these ideas and establish whether intergenerational transfers are a source of dynamism and innovation (e.g. business start-ups), or, alternatively, contributing to a growing wealth inequality with the children of parents that lack large amounts of wealth failing to meet their educational and employment potential.

There is yet another housing-related development with potentially important implications for labour markets and hence productivity. It is the observation that growing numbers of Australian households are taking on higher levels of mortgage debt (relative to household incomes) and paying down their mortgages later in life (Wood, Ong et al. 2014). One interpretation of this phenomenon argues that increasing longevity has encouraged many Australians to plan longer working lives; carrying higher levels of mortgage debt later in the life cycle is therefore a financially prudent way of smoothing consumption over a longer life. On the other hand, there is

the argument that soaring real house prices have not been anticipated, and as a consequence home buyers borrowed more in order to climb the 'housing ladder'. This is a source of 'mortgage stress' that is prompting mortgagors to work harder and extend their working lives. Both perspectives predict longer working lives; if this prediction is confirmed by the evidence it would assuage fears about a productivity slow down due to population ageing related drops in employment participation rates.

The research findings are particularly timely given an accelerating rate of population ageing in Australia. Population ageing has prompted fears of an enduring economic slowdown because participation rates fall as pensionable age approaches, and then decline sharply beyond that age. Holding all else constant, an ageing population will lead to a decline in productivity and lower GDP per capita if policy reforms are not put in place to encourage the extension of working lives among ageing Australians and to promote workforce participation among those from disadvantaged backgrounds.

6   Policy development options

Australian housing policy-making takes place within a multi-level governance system, with responsibilities distributed across three tiers—federal, state and local government. Housing policies also affect economic growth's impact at different spatial levels. Hence, our policy development options are brought together within an integrated framework that recognises a multi-scalar and multi-level context. Our aim is to promote housing policy's capacity to meet economic objectives. We do so by shedding light on the significance of various channels and processes through which housing policy affects labour force participation and economic growth.

6.1   How can an appropriate framework assist us to better understand the way in which housing policies contribute to economic growth, at multiple governance and spatial scales?

Drawing on a wide-ranging review of seminal papers in the field of microeconomics, the Inquiry has identified four key channels through which housing policies affect labour force participation and economic growth—housing supply responsiveness, consumption, and mobility and employment decisions.[35] However, what is currently lacking is a well-articulated conceptual and evidence base that identifies ways in which housing markets and outcomes can be incorporated into economic policy thinking and decision-making in Australia. In the absence of a coherent and comprehensive assessment of housing's impacts on the economy, public funding decisions will likely be made in favour of infrastructure that is assumed to have greater growth and productivity benefits than housing. This is especially true in stringent fiscal times when governments are more likely to prioritise sectors that are expected to impact economic growth in well-defined ways. This Inquiry establishes a sound conceptual and empirical evidence base that can be drawn on to inform housing policy reform in ways that promote labour force participation and economic growth.

The Inquiry's conceptual framework features an added innovation. Australia has a multi-level system of government comprising federal, state and local levels. Hence, it is important to understand how the effects of housing policy might flow through different governmental scales to impact economic outcomes. The multi-level governance perspective has been only relatively weakly applied in the context of urban and housing policy and rarely in terms of economic policy and planning at any geographic scale. Currently policy deliberations in Australia tend to omit the multi-level governance and spatial context when considering the influences of housing policies on economic outcomes. This omission is particularly concerning within the Australian context, where governance is implemented within a federation system comprising the Australian (federal), state and local governments. Each government tier has a different responsibility, thus influencing housing-economy processes differently.

Dodson, de Silva et al. (2017) provide an inventory of the main housing policy instruments that have economic effects at varying governance and spatial scales. The inventory has been prepared via a review of the existing literature and background knowledge of housing policy. As indicated earlier in the report, there is a range of policy parameters that influence housing supply both *directly* and *indirectly*. Hence, the term 'housing' policies is used in a broad sense here to refer to policies that fall clearly within the housing sphere (e.g. planning and land use

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[35] These do not constitute an exhaustive list of channels through which housing might affect economic growth. For instance, an area that is not going to be covered in this Inquiry is the use of housing wealth as collateral for business start-ups (for which there is some international evidence).

regulation) and other policy instruments that do not strictly have housing objectives but nonetheless have significant impacts on housing outcomes (e.g. monetary policy).

In Table 16 below the inventory is structured according to the Australian (federal), state and local government tier, with commentary provided as to the economic effects that are understood to derive from each housing policy instrument as per Dodson, de Silva et al. (2017). The table clearly shows that there is a large number of policy instruments within the housing system, at multiple levels of government. Indeed, all levels of government operate in some way to influence the operations of the housing system.

Table 16: Inventory of housing policy instruments

|	Policy instrument	Mechanism	Key actors	Spatial scale
Federal	Home Buyer Grants	Cash subsidy	Home purchasers	National
	Commonwealth Rent Assistance	Cash payment	Low-income renters	National
	Monetary policy	Wholesale interest rates	Lending institutions	
	Monetary policy	Exchange rates (floating)	Foreign investors	National
	Commonwealth-state housing agreement	Bilateral agreement supporting dwelling supply	Australian, state and territory governments	National
	Taxation policy	Negative gearing	Residential landlords	National
	Macro prudential regulation	Capital requirements of lenders and borrowers	Lending institutions, borrowers	National
	Superannuation tax concessions	Portfolio allocation	Superannuation equity holders	National
	Taxation policy	Capital Gains Tax concession	Property owners	National
State	Home Buyer grants	Cash subsidy	Home purchasers	State
	Revenue policy	Stamp duty	House purchasers	State
	Revenue policy	Land tax	Land owners	State, metropolitan
	Tenancy regulation	Residential tenancies legislation (various)	Landlords and tenants	State
	Planning and land-use regulation	Urban growth boundary	Local governments, developers	Metropolitan
	Public housing	Direct housing supply	State housing agencies, public renters	State, local

	Policy instrument	Mechanism	Key actors	Spatial scale
State & local	Planning and land use regulation	Zoning and overlays	Local governments, developers	Metropolitan
Local	Municipal planning	Land-use decisions and zoning	Local proponents, council	Local
	Municipal rating	Rates and levies	Local councils, households	Local with state commonalities

Source: Dodson, de Silva et al. (2017).

A selected group of 'housing' policy instruments from Table 16 most relevant to this Inquiry are integrated back into the conceptual framework set out in Figure 7 to provide a visual capture of the house policy instruments affected by each of the four key channels—housing supply responsiveness, consumption, mobility and employment decisions—and their operation through specific governance and spatial scales. This integrated framework is set out in Figure 11 below.

Of the four channels analysed in this Inquiry, housing supply responsiveness is likely to flow through all governance and spatial scales. Consumption effects tend to be national in scope. However, the implications of the two employment channels largely flow through federal and state levels. Given the difference in the nature of each channel and the governance and spatial levels they flow through, it is anticipated that each channel will have implications for a different mix of policy instruments.

Figure 11: Housing policy instruments within an integrated microeconomics, governance and spatial framework
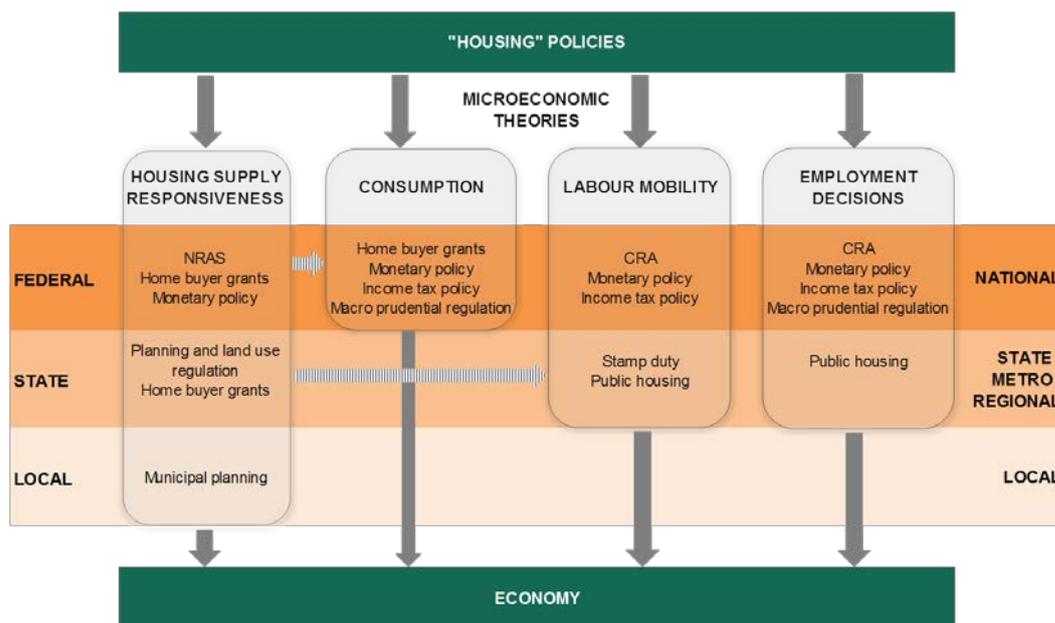
6.2 What are the key drivers of housing supply responsiveness, and what do the identified effects imply for policies seeking to increase housing supply responsiveness in Australia?

Our empirical findings indicate that the estimated price elasticity of new housing supply is 4.7 (3.9) per cent for houses (units). These price gains translate into a very small increase in the housing stock. Large increases in real house prices are needed to enable housing supply to match demand pressures (assuming other supply drivers are unchanged). Policy reforms that promote the price responsiveness of housing supply in Australia to encourage more efficient use of the existing housing stock might be useful in this regard. At present, housing tax preferences and asset test concessions fuel the demand for housing by promoting the accumulation of wealth in housing assets, exacerbating price pressures. If no action is taken to limit these demand-side concessions, supply-side policy reform will be even more important. Those reforms should seek to promote the price responsiveness of new housing supply. While we focus on new housing supply in this report, it is important to note that most of the demand for housing at any point in time is met from the stock of established housing. Hence, reforms that help promote more efficient use of this established stock to meet higher levels of demand are also important.

Thinking on planning reform should also extend beyond a simplistic notion that more planning controls will impose greater barriers to supply responsiveness. Our econometric modelling results show that planning measures might not be the key factor influencing housing supply. Restrictive planning policies may likely hinder supply only if they render development unprofitable. Indeed, developers will often be more willing to work through restrictive controls if they can generate profit from a site. Of course, this does not automatically imply that planning regulations have little impact on housing supply responsiveness. Often from developers' point of view, a critical aspect of the planning system is the degree of certainty and consistency of advice that planning officers provide. Hence, planning reforms that focus on improving certainty and consistency throughout the planning process, in order to minimise potentially adverse impacts on profits for developers, might be warranted.

We find that the supply of units is less responsive to changes in price than houses. A key factor could be the greater complexity of multi-unit development process. By the time a developer has secured the land and the necessary development approvals, the market may have changed, and the development may no longer be profitable. This adversely impacts on the quantity and timeliness of new unit supply in response to price shocks. The complexity and length of the multi-unit development process can be reduced if a more efficient land assembly and approval process were made available.

There are several other related policy development implications. First, while monetary policy does not have a distinct housing objective, changes in interest rates do impact on the availability of finance for development, especially for smaller developers. Second, if government can deliver greater certainty in the development process, supply responsiveness is likely to be greater, holding all other factors constant.

Finally, policy thinking around solutions to supply-side issues needs to extend beyond traditional calls to release more land to narrow the gap between supply and demand. While new housing supply in high price segments should theoretically push down the prices of existing properties as purchasers of new housing vacate their established properties, this process does not seem to be working effectively in practice. It may be that structural impediments are weakening the trickle-down impact of new supply to lower income groups, with potentially adverse impacts on their ability to secure housing closer to where jobs are located. Hence, targeted government intervention may be needed to ensure adequate supply of affordable housing to vulnerable segments of the population through either direct targeted subsidies or indirect measures that

improve financial incentives for profit-maximising developers to supply housing at the lower end of the market.

6.3 How have house prices and house price induced increases in debt affected consumption spending in Australia since the GFC, and what are the implications for economic and financial stability?

The experience of economies across the globe following the GFC highlights the important role that household indebtedness can have for macroeconomic performance and macroeconomic policy settings. Notwithstanding sustained fiscal efforts on the part of governments and monetary stimulus from central banks in the period following the GFC, major economies have continued to experience lacklustre growth. Moreover, the period since the GFC has been characterised as one in which unconventional monetary policy has been widely adopted, partly in response to a perception that traditional policy levers around interest rates have proved somewhat ineffective. The period preceding and the experience following the GFC raises important policy questions around how such events can be avoided and what the appropriate policy response to such events may be. In countries that have experienced deleveraging since the GFC, attention increasingly has focused on the impact of debt on consumption even though, traditionally, economic theory has not regarded debt as having an independent impact on consumption. Rather, it has merely been a vehicle for facilitating consumption smoothing over the life-cycle. Post-GFC experience, however, has raised concerns that high levels of debt relative to assets or high debt servicing ratios may force indebted households to reduce consumption.

In Australia similar concerns have been raised with particular focus on the rise in housing debt among household investors, many of whom are the same households who used mortgage equity withdrawal to increase their consumption with the initial onset of the housing price boom (RBA 2014). Our results in accordance with Finlay and Price (2014) show that this increase is seen as being driven by changes in behaviour by households with specific household characteristics, of whom older households with wealth and middle-aged households with debt and investors are specifically identified.

The findings have important implications for public policy and national wellbeing. Specifically, our findings relate to the stability of the macroeconomy. Our results also highlight the importance of considering the links between, and the impact of policy on household consumption, saving and house prices separately for different demographic groups.

Our findings are relevant for policy-makers considering macroeconomic stability in Australia. The take-up of further mortgage debt among highly leveraged households through the 'collateralisation effect' exposes those households to the risk of significant loss if house prices fall or if interest rates rise. This in turn may pose a systemic risk for the macroeconomy. This is in contrast to a general belief in Australia that debt is held by those most able to service it, namely, higher-income and higher-wealth households. Macroeconomic policy-makers should take note of the potential risks associated with high levels of household debt and rising household income-to-debt ratios. Despite the large benefits of having a flexible mortgage system that allows households to borrow against their housing equity, this highlights a potential cost of such a system. In a number of countries with similar situations, regulations have been implemented to limit the growth of household indebtedness and the need to ensure robust prudential regulation remains an important policy priority.

6.4 How does tenure status, through potential impediments to mobility, impact on the behaviours and employment outcomes of individuals and households following a labour market shock?

Significantly higher rates of mobility are exhibited by individuals in private rental tenures than other tenures. This is a pattern that is consistent with existing empirical evidence and highlights the potential impediments to mobility and adjustment in the labour market that high rates of homeownership *might* create. The findings highlight some clear policy challenges in the Australian context. The institutional environment in Australia is characterised by favourable tax treatment for owner-occupied housing with implicit and explicit policy settings favouring owner occupation as a preferred form of tenure. While such a bias may be justified given the extent of private and social benefits that derive from owner occupation, this also potentially creates a distortion to the extent that the favoured treatment of owner-occupation limits the geographic mobility of individuals and households, and ultimately, the efficient functioning of labour markets.

From a policy perspective, the analysis in this report and the institutional environment more generally highlights the need to ensure that tax policy is as neutral as possible. That is, it does not favour one tenure unduly over another. The replacement of stamp duties or transaction taxes with a broad-based land tax has been cited as one potential means by which such an outcome could be achieved. While moves in this direction have been made in the Australian Capital Territory, this is likely to be a policy that offers a range of advantages to governments more generally, while minimising the negative impact of tenure choice on the ability of individuals and households to respond to adverse labour market shocks. Such a policy would likely improve the overall efficient functioning of the economy more generally.

In terms of transfer policy, an important feature of the Australian transfer programs is that rent subsidy in the form of CRA is transferable. Significantly, this provides opportunities for individuals and households to take housing assistance measures if they move to regions with better economic prospects. Given the heterogeneity in rental markets across Australia, it is possible that consideration could be given to providing CRA at rates that match regional circumstances. This may enhance the ability of individuals and households to move to areas that offer better opportunities for employment and economic advancement, albeit with higher housing costs. Similarly, public housing policy could potentially be revisited to ensure that such assistance is delivered in a way that removes impediments for individuals to engage in the labour market, especially to the extent that mobility may entail the loss of a subsidised secure tenure.

In a general sense, the analysis points to the need to ensure that the unemployed receive support in a holistic manner. There is little direct evidence from the analysis that individuals across tenures differed in their job search intensity, it is nonetheless the case that it is important that support is available for those in receipt of housing assistance to return to gainful employment. Reports by the Productivity Commission (2015) and the New South Wales Government (New South Wales Government 2015), highlight the need for tenants in public housing to receive support that is comprehensive and complementary in a way that provides opportunities to engage with the labour market. Such policy responses may include opportunities to upgrade skills in addition to providing measures that enable geographic mobility so as to ensure that individuals locate to regions with better economic opportunities.

6.5 Through what channels does housing impact employment participation?

The evidence offered in this report confirms previous research findings which conclude that reforms to housing assistance are unlikely to have more than a small impact on employment participation. Among those eligible for CRA and are employed, its removal would only lift the predicted rate of continued employment from 91.1 per cent to 91.4 per cent. If a Job Commitment Bonus of $2,500 were extended to all working age public housing tenants in receipt of income support payments, our model predicts that a little under 1 in 100 tenants eligible for Newstart or Youth Allowance would become employed. In the case of public housing tenants this is because of multiple barriers to employment that need to be addressed alongside any move to sharpen work incentives. Reforms to CRA are also likely to be ineffective in promoting employment because Commonwealth rent assistance is designed such that it is only withdrawn after entitlements to other ISPs is lost. As a result CRA is a minor influence on work incentives.

Furthermore, none of the above initiatives account for the fact that the majority of older Australians have typically accumulated large reserves of housing wealth, encouraged by tax and means test concessions that offer preferential treatment of the family home. They can increasingly draw down on this housing wealth without undergoing a costly application process as a result of financial innovations that have turned housing wealth into an 'ATM' that borrowers can draw down as and when they choose (Ong, Jefferson et al. 2013). This growing fungibility of housing wealth will likely play a role in influencing decisions to either continue or withdraw from the labour force as pensionable age approaches.

The housing wealth of older Australians is also likely to affect the education and work career paths of their adult children. This is because parents may dip into (or bequeath) their housing wealth in order to assist their children. The recipients of transfers therefore have more financial assets that can act as a buffer to meet income shocks, and collateral to relax borrowing constraints. In view of these differences beneficiaries might take more risks, and are in a better position to borrow, whether it is to take advantage of educational opportunities, or finance business start-ups. The evidence confirms expectations about education and business start-ups, but whether this is because beneficiaries are less risk averse or better able to relax borrowing constraints awaits further research. It would therefore seem that the intergenerational circulation of housing wealth helps recipients achieve their educational goals, as well as establish business ventures that might not otherwise 'get off the ground'. It is important to empirically explore these ideas and establish whether intergenerational transfers are a source of dynamism and innovation (e.g. business start-ups), or, alternatively, contributing to a growing wealth inequality with the children of parents that lack large amounts of wealth failing to meet their educational and employment potential.

There is yet another housing-related development with potentially important implications for labour markets and hence productivity. It is the observation that growing numbers of Australian households are taking on higher levels of mortgage debt (relative to household incomes) and paying down their mortgages later in life (Wood, Ong et al. 2014). One interpretation of this phenomenon argues that increasing longevity has encouraged many Australians to plan longer working lives; carrying higher levels of mortgage debt later in the life cycle is therefore a financially prudent way of smoothing consumption over a longer life. On the other hand, there is the argument that soaring real house prices have not been anticipated, and as a consequence home buyers borrowed more in order to climb the 'housing ladder'. This is a source of 'mortgage stress' that is prompting mortgagors to work harder and extend their working lives. Both perspectives predict longer working lives; if the evidence confirms this prediction it would assuage fears about a productivity slow down due to population ageing related drops in employment participation rates.

6.6 Final remarks

This Inquiry research program has investigated key channels through which housing can impact labour force participation and economic growth in Australia. There exists a myriad of housing-related policy levers that influence economic outcomes. As such, this report fills an important gap in Australian research on the links between housing and the economy by generating an array of up-to-date empirical estimates that can be drawn on to inform housing policy reform in ways that promote labour force participation and economic growth.

The Inquiry has uncovered some key areas for housing policy reform to promote economic growth and labour force participation. Because the Australian Government does not currently operate an explicit or overarching housing policy, housing policy interventions are spread across a range of portfolios including social security, tax, planning, etc., and each government tier has some responsibility for housing outcomes that influence the housing-economy link differently. At the federal level, these include CRA, fiscal measures and monetary policy. At the state level, the key relevant levers are public housing and planning and land use regulations. Local governments also share responsibility for the latter. Large-scale subsidised delivery of affordable housing is influenced by all government tiers.

These potential reform measures have been discussed in detail in the previous section in this chapter. Hence, we conclude by drawing together the strands of policy discussion to highlight some broad strategic priority directions that will likely enhance economic growth and labour force participation through housing policy levers.

The first strategic priority that will potentially give rise to significant economic benefit is policy integration, across government tiers and portfolios. A key example is public housing. Reforms that strengthen financial incentives to work will be unlikely to have meaningful impact on public housing tenants' employment outcomes *unless* they are integrated with other measures that alleviate barriers to employment for the tenants (e.g. drug and alcohol abuse programs, mental health, skills, etc.) and reduce concerns over tenure security that hinder labour mobility. Large-scale delivery of affordable housing to low-income households will require targeted government intervention to areas most in need of new housing supply. Once again, this will likely entail close coordination across all tiers of government in order to deliver the funding and planning frameworks that enable the delivery of agreed supply targets.

The second strategic priority relates to the need to address long-term entrenched structures within our fiscal system that contribute to an inflationary bias in land and property markets through meaningful reform measures. The favourable tax treatment of property heightens demand tensions in the housing market so that if governments are unwilling to curb these concessions, their continued presence makes supply-side policy reform even more important. Tax concessions for owner-occupied housing also limit the geographic mobility of individuals and households who own their home, and ultimately, the efficient functioning of labour markets. The replacement of stamp duties or transaction taxes with a broad based land tax is an economically sound reform that replaces one of the most inefficient taxes within the Australian tax system by one of the most efficient taxes. Such a policy would likely improve the overall efficient functioning of the economy more generally. However, once again, an integrated approach between the Australian and state governments will clearly be needed for such a reform to succeed. While stamp duty and land taxes fall under the domain of the state, a transitional arrangement will be necessary during which there is a clear role for the Australian Government to help meet the state's revenue shortfall (Wood, Ong et al. 2016).

Other adjustments may be confronted with fewer political hurdles than large-scale tax reform. A third and important strategic priority is to enhance existing housing measures that support employment outcomes and economic growth. CRA is an important and apposite example. Because it is transferable, CRA in its current form already provides opportunities for individuals

to move to regions with better economic prospects. Hence, consideration could be given to providing CRA at rates that match regional circumstances to enhance the ability of individuals to move to areas that offer better opportunities for employment and economic advancement, albeit with higher housing costs. In another example, planning measures are likely to offer greater support for delivery of new housing supply if certainty and consistency of advice throughout the planning process can be prioritised.

A fourth and final strategic priority is to address a fundamental need to reposition housing from the periphery to a more central place within economic policy debates. A much deeper appreciation of the consequences of housing policies for economic outcomes is necessary if the potential for housing policy to promote economic growth is to be tapped into. A more considered and coordinated policy treatment of housing as an economic asset that has implications for nation-wide economic growth is clearly overdue.

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