



Research Paper

Sustaining fair shares: the Australian housing system and intergenerational sustainability

**National Research Venture 3: Housing
affordability for lower-income Australians**

Research Paper No. 11

authored by

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
AWE	Average Weekly Earnings
AWOTE	Average Weekly Ordinary Time Earnings
CSHA	Commonwealth State Housing Agreement
CPI	Consumer Price Index
CRA	Commonwealth Rent Assistance
FHOG	First Home Owners' Grant
GDP	Gross Domestic Product
IGR	Intergenerational Report
NATSEM	National Centre for Economic and Social Modelling
NRV	National Research Venture
OECD	Organisation for Economic and Social Development
PC	Productivity Commission
RBA	Reserve Bank of Australia
SIHC	Survey of Income and Housing Costs
WCED	World Commission on Environmental Development

EXECUTIVE SUMMARY

This report was motivated by the omission of any consideration of housing in either of the Intergenerational Reports (IGRs) released in Australia in 2002 and 2007 (Commonwealth Treasury, 2002, 2007). Those reports examined the fiscal implications of an ageing population. This report writes the missing housing chapters. It examines the intergenerational sustainability of Australia's system of housing assistance over the next 40 years – the same time period covered by the Intergenerational Reports – under assumptions consistent with those made in those reports. At the same time, it broadens the IGRs' examination of sustainability (limited to fiscal sustainability for the Australian government) by looking more broadly at the intergenerational sustainability of Australia's housing system.

Sustainability means the needs of the present generation can be met without compromising the ability of future generations to meet their own needs. For housing, sustainability is defined in terms of the ability of the current system of housing provision to prevent any increase in housing stress – that is, in the proportion of households who are paying 30 per cent or more of their incomes on housing – with a focus on lower-income households. For the system of housing assistance, sustainability is defined in terms of the ability to maintain the current policy settings without any increase in demands on government expenditure, consistent with the definition of fiscal sustainability that means all obligations, current and future, can be met without changing current policy settings.

To provide a context for considering the future of the Australian housing system, chapter 2 of the report provides an overview of the Australian housing system as it has developed during the post WWII era. This charts the rise of home ownership and public housing, and the market and policy forces underlying these developments. It shows that home ownership for younger households has declined systematically since the mid-1970s. In contrast, older households are increasingly outright home owners or public tenants. Housing costs as a proportion of incomes have been rising since the early 1980s. Chapter 2 identifies the key drivers affecting affordability, including dwelling prices, interest rates and household income.

Methodology

Intergenerational sustainability for housing and housing assistance is determined by modelling the impact of potential changes in tenure and housing costs in relation to household income. Chapter 3 provides a full account of the model used in this report to make projections of housing stress outcomes and future levels of government expenditure on housing. The modelling used NATSEM's STINMOD, a micro simulation model of Australia's tax and transfer system. This model is benchmarked on data from the ABS Survey of Income and Housing Costs in 2000/01 and 2002/03. The data was up-rated to 2006 using a standard set of inflators, and by applying changes in the tax/transfer system that occurred from 2002/03 to 2006.

To produce the base case results for this project, the data in the model was 'aged' from 2006 to 2025 and 2045 using demographic assumptions consistent with those made in the Intergenerational Reports. Housing costs and household incomes in the survey data also were projected to 2025 and 2045 in line with assumptions made in the first IGR (IGR1) about key economic indicators (such as GDP and inflation). The second IGR (IGR2), with its updated assumptions, was released after the analysis for this report was completed.

Specific assumptions about the future pattern of housing tenure in Australia were necessary to enable projections to be made about what will happen to housing stress levels and housing expenditure. The baseline model used in this study makes conservative assumptions built on longer-term housing trends rather than recent rapid rises in housing costs. The assumption made about housing tenure in the baseline model is that there are no further declines in home ownership rates among the young and that the incremental catch-up as they grow older is the same as has occurred in the past. Six alternative scenarios explored the sensitivity of the findings to different assumptions about housing costs, tenure change and wages growth in the future.

Key findings

Both the number of households in Australia and real household income per household are projected to continue to increase over the next 40 years. As a result of the combined impact of these trends, the gap between house prices and incomes is likely to continue, with no improvement in housing affordability. Along with a number of social changes already in place (such as later partnering, more single-parent and single-person households) and those projected to occur in the future (as a result of an ageing population), this means the current low levels of home ownership rates among younger households are likely to be the same or lower in the future. It also means it will be increasingly difficult for low- and moderate-income households who have deferred home purchase to become home owners before they retire. These households will remain in the private rental market where, in the baseline model, future rents are assumed to increase in line with real household incomes.

The key findings from the baseline modelling undertaken for this report show that over the 40 years to 2045:

- The total number of households in Australia is projected to increase by 50 per cent (from 8.1 million in 2006 to just over 12.1 million in 2045).
- The number of households in housing stress – defined as housing cost to income ratios of at least 30 per cent – is projected to increase by 77 per cent (or 18,500 households per year).
- The number of lower-income households in housing stress is projected to increase by 84 per cent (or 13,500 households per year).

These effects are projected to be most severe in the private rental market:

- Over the next 40 years, the total number of households in the private rental market in Australia is projected to increase by 80 per cent (from 1.8 million in 2006 to 3.3 million in 2045).
- The number of lower-income households in housing stress in the private rental market is expected to increase by 120 per cent (or 12,000 households per year) over the next 40 years.
- The incidence of housing stress among lower-income households in the private rental market is expected to increase from 52 per cent to 65 per cent over the next 40 years.

Programs of housing assistance considered in the study are found to be on the borderline of being fiscally unsustainable:

- Real expenditures on Commonwealth Rent Assistance (CRA) are projected to increase by 170 per cent from less than \$2 billion in 2006 to over \$5 billion in 2045 (measured in 2006 dollars). Over the same period, IGR1 predicts real GDP to increase by 121 per cent. As a percentage of GDP, CRA expenditure as a proportion of GDP is projected to increase by 23 per cent from a relatively

- Combined housing expenditures on the two key direct housing assistance programs covered in this report (CRA and First Home Owners' Grant) are expected to increase in real terms by 50 per cent over the next 40 years. As a percentage of GDP, the combined housing expenditures decrease from 0.31 per cent of GDP in 2006 to 0.27 per cent in 2045.

While these specific results are sensitive to the particular assumptions made about key variables, the broad conclusions drawn from them are robust to a range of alternative assumptions about the same variables. These results can be found in more detail in chapter 4, while the results of the sensitivity analyses are reported in chapter 5.

The results and the supporting sensitivity analysis are unequivocal. Unless major, unanticipated economic, social or policy changes emerge, Australia's current housing system and its system of rental assistance are unsustainable according to the definitions of sustainability given above. Australia's current system of housing assistance based on its two key direct housing assistance programs is fiscally sustainable only if the support for first home owners continues to decline in real terms, as projected in this report. Overall, in the future as in the past, the majority of Australians will have affordable, secure housing over their lives. However, over the next 40 years there will be an increasing number and an increasing proportion of households in the private rental market in housing stress. This will occur despite a significantly higher burden being placed upon the public purse of the current rental assistance system. From intergenerational sustainability and equity perspectives, the main question is how to ensure fair shares of housing for all Australians.

Policy implications

Chapter 6 discusses the wider implications of this research. The key policy question posed is: "What can be done over the coming decades to ensure future generations have the housing opportunities that have been available to current generations?"

The pattern of results projected for 2025 and 2045 shows that the extent of housing affordability problems is likely to grow over that period. This highlights the risks to government and society of not addressing the sustainability of the housing system in the next decade. Policies to improve housing affordability for first home buyers and lower-income renters will be critical to reverse the downward trend in home ownership among the present generation of young adult households, and to offset the impact of the projected large numbers of ageing renters in housing stress upon the cost of housing, income support and institutional care programs.

The findings indicate the importance of maintaining and improving existing housing policies – especially Commonwealth Rent Assistance, assistance for marginal home buyers, and funding under the Commonwealth State Housing Agreement sufficient to sustain the existing system of public housing – to prevent the projected increase in housing stress. Alongside these measures, stronger policy action needs to be directed towards increasing the existing supply of affordable housing to further contain housing stress and to improve intergenerational equity. This would include:

- Building additional low-cost housing suitable for first home buyers. In particular, this strategy would help to ensure that the next generation continues to share the benefits of home ownership. It would also improve the effectiveness of present (and proposed) subsidies to home buyers and reduce the pressures on house prices that such subsidies tend to have otherwise;

- Investing in additional public housing or, alternatively, introducing incentives for private investment in affordable rental housing that can be secured for long-term use by lower-income households; and
- Having an integrated program of public, not-for-profit and private housing to provide an increased range and number of independent living units to meet the projected growth in older renters, who are both in housing stress and at risk of requiring more expensive institutional care as their frailty increases.

Other broader policy actions are essential to complement housing assistance measures to achieve intergenerational sustainability of the Australian housing system in the long term. The most far-reaching measures would involve reform of taxes and charges applying to residential land and housing to provide for more equitable outcomes for future generations, and to promote greater equity within generations, especially between owners and renters.

A second example would be to ensure that emerging policies to improve environmental sustainability are designed so they do not have adverse effects on housing affordability for future generations and vulnerable groups. Thirdly, regional development policies could be directed at taking the pressure off capital city housing markets and providing more housing choices by encouraging growth in well-endowed regional areas.

Overall, this study has reinforced the concerns about achieving fair shares in housing in Australia that have been expressed over the past generation and earlier. Intergenerational inequalities in housing are likely to increase substantially unless major, ongoing changes are made to housing-related policies. The findings demonstrate that in order to be attentive to intergenerational sustainability and fairness in Australia, analyses and actions must give housing a central place.

1 INTRODUCTION

1.1 Background and purpose

Housing is one of the cornerstones of the Australian way of life. The home provides shelter and a base for family, social and leisure activities. Its location affects access to work, shopping, and educational and community facilities. The cost of housing can have a crucial bearing on standard of living and, in turn, the housing industry is one of the key drivers of employment and economic growth. Government is closely linked to housing not only through provision of housing assistance to first home owners, and public and private tenants, but also more broadly through taxation, regulation and fiscal policies.

Since Australia began its recovery from the World War II there have been ongoing improvements in housing along with economic growth. In the immediate post war period, the stock of both private and public housing grew rapidly and home ownership rates rose substantially. From that time until the present, the quality and size of housing increased steadily and increasing housing values have generated substantial wealth for many home owners and investors.

Over recent decades, however, house prices have grown faster than incomes, and housing is becoming less affordable for many households. First-time buyers have delayed entry to home ownership, public housing has declined and the private rental sector is not meeting the needs of lower-income households. There is increasing concern that access to housing, and its benefits enjoyed by the post-war generations, may be reduced for future generations of Australians. The number of Australians who cannot afford their own homes or gain access to public housing is increasing and could increase appreciably more.

This report examines the intergenerational sustainability of the Australian housing system. It was motivated by the absence of housing or housing policy in either of the Australian Government's Intergenerational reports (IGR1 and IGR2) (Commonwealth Treasury, 2002; Commonwealth Treasury, 2007), notwithstanding housing's potential importance for intergenerational sustainability. This report aims to fill this major gap in information concerning public and policy choices ahead for housing in Australia by providing an intergenerational report for housing. It examines the implications of current housing trends on the housing opportunities available to future generations. It has been undertaken in conjunction with AHURI's National Research Venture 3: Housing Affordability for Lower Income Australians (NRV3) and builds on NRV3 research results.

This first chapter begins with the key research questions identified for this project. It follows with a discussion of the key concepts in intergenerational sustainability of housing, and indicates how these are interpreted for the purposes of this report. The chapter concludes with an overview of the approach taken by the research and an outline of the report's structure.

1.2 Research objectives and key questions

The broad purpose of the research is to anticipate possible futures in order to inform future public policy choices for Australian housing. While popular housing debates understandably focus on immediate concerns, this research looks further ahead to the longer term: specifically, over two periods of 20 and 40 years. It is important to emphasise that the research findings are based on projected scenarios rather than predictions of the future. Indeed, public and government responses to the projected

scenarios may stimulate policy changes that could improve housing outcomes during and beyond the period covered by this report.

1.2.1 Key research questions

The key research questions addressed in this report are as follows:

1. What is meant by intergenerational sustainability and equity in relation to the Australian housing system?
2. What features of the Australian housing system have affected intergenerational sustainability and equity over the past 50 years, at present, and in projections to 2025 and to 2045?
3. What implications do changes in direct and indirect government housing assistance have for the standard of living of people at different stages of life, especially vulnerable groups?
4. Are current forms of housing assistance sustainable under different scenarios of economic and social change and policy choices?

The first of these questions is addressed below.

1.3 Intergenerational sustainability and Australian housing

The concept of sustainability has its origins in the 1987 United Nation's World Commission on Environmental Development (WCED) report, "Our Common Future", (commonly known as the Brundtland report, after its chair). In this report, sustainable economic development was defined as:

development seeking to meet the needs of the present generation without compromising the ability of future generations to meet their own needs. (WCED: 1987, p. 49)

By definition, therefore, sustainability is inherently a concept that involves intergenerational issues. It is predicated on a concern with equity across generations.

Chiu adds just one word, to define sustainable housing development as:

development that meets the housing needs and demands of the present generation without compromising the ability of future generations to meet their needs and demands (Chiu, 2004, p. 65)

This original definition reflected a concern with the earth's capacity to meet the demands being made on its limited environmental resources by expanding needs and wants. Over time, definitions have broadened from environmental concerns to incorporate the triple bottom line of economic, social and environmental concerns, recognising that these are interrelated and that the need to take all into account can require trade-offs between them. For example, environmental considerations can involve economic costs that fall unevenly on social groups and translate into substantial social costs and accentuate inequalities. Decision-making is made more complex when triple bottom line criteria apply to issues that have long-lasting repercussions, and hence are significant for intergenerational equity.

However expressed, the broad concept of intergenerational sustainability that underpins increasing public concern is that future generations may have fewer life-long benefits than do current and past generations. A concern with intergenerational sustainability is, by definition, a concern with intergenerational equity. In terms of housing, it implies that future generations enjoy the same housing standards and opportunities as do current and past generations.

1.3.1 Fiscal sustainability

In Australia, the concept of intergenerational sustainability was brought to the fore by the Treasurer's landmark Intergenerational Reports (IGR1, 2002; IGR2, 2007). These focused explicitly on the major challenges presented to the fiscal sustainability of the Australian Government by the implications of demographic change associated with the ageing of the population.

A Treasury definition of fiscal sustainability is that 'all obligations, current and future, can be met without changing current policy settings' (McKissack and Comley, 2005: fn3, p. 2). Intergenerational equity is interpreted as 'fairness in the distribution of public resources between generations of Australians' (IGR1, p. 14). Attempts to achieve intergenerational equity are assumed to have failed if the cost of paying for the lifestyle of the current generation is transferred to future generations. In other words, fiscal sustainability is understood to imply that present generations do not impose budgetary burdens on future generations, thus requiring them to bear higher tax burdens than the current generation.

Thompson (2003) suggests that these concepts of intergenerational equity and sustainability can be philosophically and economically contested. She provides an analysis of the basic assumptions in the Intergenerational Report and an overview of some of the major competing views about social justice and obligations of present generations to future generations. For example, the IGR report assumes that future generations will have further higher real incomes, which suggests that they will have a greater capacity to pay for government services. Further, expenditure by current generations can benefit future generations as well as their own. This applies with particular force to expenditure on housing capital and environmental protections that will have benefits far into the future. She concludes that the goal of preserving the next generation's well-being seems best underwritten by a fair outcomes approach to justice and suggests that, as such, it implies that the distribution of resources among members of each generation should also be a major concern of policy makers.

The National Strategy for an Ageing Australia (Andrews, 2002) and later the Productivity Commission (PC) (2005) provide a more comprehensive analysis of population ageing and sustainability. They acknowledge the economic and fiscal issues while pointing out the productive opportunities presented by an ageing population and the positive actions that can mitigate the costs of population ageing. These reports underscore growing recognition that planning, investment and constructive change are essential to maintaining standards of living and quality of life for future generations. Concerns for economic and fiscal sustainability arise within broader concerns for environmental sustainability.¹

1.3.2 Housing sustainability

Issues of intergenerational sustainability apply with particular force to housing and the built environment. Land and residential development are expensive, enduring investments that affect successive residents and broader populations far into the future. The pervasive consequences include the adequacy and amenity of accommodation, environmental and social costs generated by transport patterns, and ongoing private and public costs in servicing debt and maintaining investments. Households are sensitive to the price of new housing and this affects the overall housing market. At the same time, the environmental sustainability of housing and

¹ The sustainability of Australian cities also has been raised as a major public issue by the House Standing Committee on Environment and Heritage (2005). The environmental imperatives to conserve energy and land confront Australian's long standing attachment to private cars and large homes on suburban blocks.

communities can be improved more cost effectively at the time of the initial investment. Triple bottom line decision making is essential for government action concerning land use and building controls, investment in roads and other infrastructure, and direct and indirect housing assistance for individuals and families.

In the UK, the concept of sustainability is being applied in national housing and urban policy. In its five-year plan, which focused on the role of housing in creating sustainable communities, the (then) Office of the Deputy Prime Minister (ODPM) claimed that:

A flourishing, fair society based on opportunity and choice for everyone depends on creating sustainable communities – places that offer everyone a decent home that they can afford in a community in which they want to live and work, now and in the future (ODPM, 2005a, p. 5).

In a paper prepared for an inquiry into the future of home ownership, Meen (2005) discusses alternative concepts of sustainability in the context of sustainable home ownership. His most important conclusion is the recognition that sustainability cannot be considered in isolation from underlying economic and social conditions. He makes a number of key points:

- Future owner-occupation rates cannot be considered as an extrapolation of past trends because market conditions can change.
- Environmental concepts are not directly applicable to housing. While housing generates environment problems such as pollution and congestion, land itself can only change in its use and it is not used up in any direct sense.
- In sustaining home ownership we need to consider the ongoing costs of maintenance and repair associated with physical deterioration.
- Sustainability needs to be considered in the context of underlying economic trends as they influence housing markets, with consequences for affordability for households and profitability for builders and landlords.
- From a broader social perspective, it is important to consider how home ownership can contribute to social capital in any community, for example, by enhancing the stability of local neighbourhoods. (Meen, 2005, p. 10)

Together these points highlight the potential complexities of operationalising definitions of a sustainable housing system, even when this is constrained to owner-occupation as just a part of the whole housing system. The concept of sustainability of the housing system in this report is not based on an assumption of primacy of owner-occupation. It is based, instead, on the relationship between housing costs and household incomes.

1.3.3 A working definition of a sustainable housing system

This report addresses two aspects of sustainability in relation to the housing system:

- Housing sustainability that applies to the housing system and the capacity of successive generations to gain access to appropriate, affordable housing; and
- Fiscal sustainability as it applies to the housing assistance system.

In relation to the former, the assumption made in this work is that the key to a sustainable housing system lies in ensuring that acceptable housing remains affordable – both at the point of a household's initial entry into the housing market, and sustained over its lifetime. For housing, sustainability is defined in terms of the ability of the current system of housing provision to prevent any increase in housing

stress – that is, in the proportion of households who are paying 30 per cent or more of their incomes on housing, with a focus on lower-income households.

This operational definition is consistent with the points raised by Meen and is consistent with the conceptual definitions provided above. It makes no assumptions regarding how sustainability is determined by tenure, but tenure outcomes will have a significant impact on whether a specific set of economic and social trends are likely to result in a sustainable housing system with particular housing policies. The significance of tenure arises because the housing cost to income ratio tends to decrease for home owners as they age (and as they pay off their mortgage). For private renters, however, it is likely to increase if there is a fall in household income after retirement.

In assessing housing sustainability the report is based on the following assumptions:

- market forces will (continue to) dominate housing outcomes; and
- affordability is defined by the 30/40 rule; that is, housing is affordable if households pay no more than 30 per cent of their income to cover their housing costs, and the primary concern is with households in the lowest 40 per cent of the income distribution.

While the definition of sustainability is not tenure dependent, the primary focus in the modelling undertaken is on housing affordability for home purchasers and for private tenants, since it is in these two tenures that households are most likely to experience affordability problems.

This report focuses on the housing outcomes of successive cohorts moving through periods of history. The key analytical questions concern the differential impact of housing and policy on people at particular stages of the lifespan at each of the three periods of history: 2006, 2025 and 2045. The time between these periods approximates roughly to a generation and broadly defines key life stages.

The fiscal sustainability aspect of housing sustainability is addressed in a manner consistent with the approach undertaken in the IGRs. It examines the cost to government of housing assistance for the same three periods under the assumption that current policy settings remain unchanged.

1.4 Report overview

This first chapter has presented the research questions and key concepts that have guided the research on the intergenerational sustainability of Australian housing. It has raised the social equity and public policy context for modelling scenarios for the future of Australian housing.

Chapter 2 provides an overview of the Australian housing system as it has developed over the post-WWII era. It charts the rise of home ownership and public housing, and the market and policy forces underlying these developments. It shows that home ownership for younger households has declined systematically since the mid-1970s. In contrast, older households are increasingly outright home owners or public tenants. Housing costs as a proportion of incomes have been rising since the early 1980s. The chapter identifies the key drivers affecting affordability, including dwelling prices, interest rates and household income.

Chapter 3 outlines the modelling approach taken to develop scenarios for housing tenure and affordability to 2025 and then to 2045. The modelling was based on NATSEM's STINMOD, a micro-simulation model of Australia's tax and transfer system. This is based on data from the ABS Survey of Income and Housing Costs (SIHC) 2000/01 and 2002/03 and up-rated to 2006 using a standard set of inflators

including CPI and Average Weekly Earnings, and applying changes in the tax/transfer system from 2002/03 to 2006. The resultant model, STINMOD06A, was then 'aged' from 2006 to 2025 and 2045 by adjusting the household weights in the SIHC data so that the resultant data sets had characteristics that matched ABS household projections (to 2025) and Productivity Commission projections (to 2045). These are consistent with population projections in the Treasurer's Intergenerational Reports. A 'cohort trajectory' method was employed to project housing tenure for 10-year age groups to 2025 and then to 2045. In the baseline model, housing costs and income in the survey data were projected to 2025 and 2045 according to assumptions consistent with those employed in the IGR. In consultation with the Project User Group, alternative scenarios were developed to explore the sensitivity of the results to different assumptions about tenure, income and housing costs for the future. Two technical appendices related to the modelling are included with this report. Appendix A discusses the interactions between the demographic and economic variables that affect housing costs and housing outcomes and provides a rationale for the assumptions made about these outcomes in the base model. Appendix B provides a historical overview of past trends in these key variables and highlights their impact on assumptions made about future trends affecting housing market outcomes.

Chapter 4 presents findings from the baseline model and Chapter 5 present results from the additional scenarios. These chapters present these key housing outcomes for households at different life stages, income levels and geographical areas. In both chapters tenure projections and housing costs from the modelling are shown for 2025 and 2045. Housing sustainability is reflected in the proportion of households with housing costs in excess of 30 per cent of income, with a particular focus on households in the lowest 40 per cent of the income distribution. These households are defined as being in housing stress.

Chapters 4 and 5 also outline how the fiscal sustainability of the current housing assistance system would be affected by projected changes in housing tenure and costs. STINMOD06A enabled estimation of the cost to the Commonwealth Government of continuing two of its primary interventions in the housing market – Commonwealth Rent Assistance (CRA) and the First Home Owner Grant (FHOG). Projections were not made for expenditure under the Commonwealth State Housing Agreement because CSHA expenditure is not based on any formulaic basis (as is CRA or FHOG). However, the scenarios assume that, in the absence of a major policy change, there would be no increase in the absolute number of public and community housing tenancies.

Chapter 6 interprets the findings in terms of projected pressures upon the intergenerational sustainability of the Australian housing system. It suggests that unless new directions are taken in government policy, the core stability underlying Australian housing – in terms of home ownership, public housing and affordable housing costs – is likely to be strained significantly. A continuing reduction in access to home ownership and public housing would see large numbers of households entering their middle and later years at high risk of housing stress. The adverse consequences of more pressure in the Australian housing system are likely to emerge most among low-income private tenants in all age groups. Chapter 6 considers the broader implications of these possible changes as well as illustrative policy options that could better sustain Australian housing for future generations.

2 THE AUSTRALIAN HOUSING SYSTEM

This chapter provides a brief account of the evolution of the Australian housing system from its post-WWII development to its present manifestation. It is important to understand this history because investment in housing and patterns in its occupancy evolve over decades, with enduring consequences for successive generations. Australian housing today reflects earlier eras of immediate post-war relief of housing shortages, improvements to older housing that had deteriorated during the Depression and the war, massive suburban development of new homes, and the infill of newly built flats. The public sector has been integral to these developments, not only in the construction of government housing but also in land use regulation, urban infrastructure investment, macro-economic policy, and subsidies for younger people to buy homes or for low-income tenants to pay rent. Understanding this history helps us to appreciate that in the decades ahead, private and public sector action will in turn be setting the legacies for Australian housing for the rest of this century and beyond.

The system of housing provision in Australia is dominated by market provision of housing. The tenure of housing is of particular importance given its centrality to occupants' security and control over their homes, their costs of housing, and their accumulation of assets. At the 2001 Census, around 70 per cent of private dwellings were occupied by owners (both with and without a mortgage) and around 25 per cent were occupied by households paying rent to a private landlord or living rent free. Households paying rent to a public or not-for-profit landlord occupied the remaining 5 per cent of dwellings. Similar results hold for the 2006 Census.²

This chapter provides a historical review of the major factors, including government policy, that have contributed in Australia to the rise of home ownership and changes in private and public tenancies. It also identifies relatively recent new directions in housing patterns, including a short analysis of what might have driven these changes, and highlights the implications of these changes. It is a selective overview. A more comprehensive review can be found in Milligan (2003).

2.1 The development of the Australian housing system

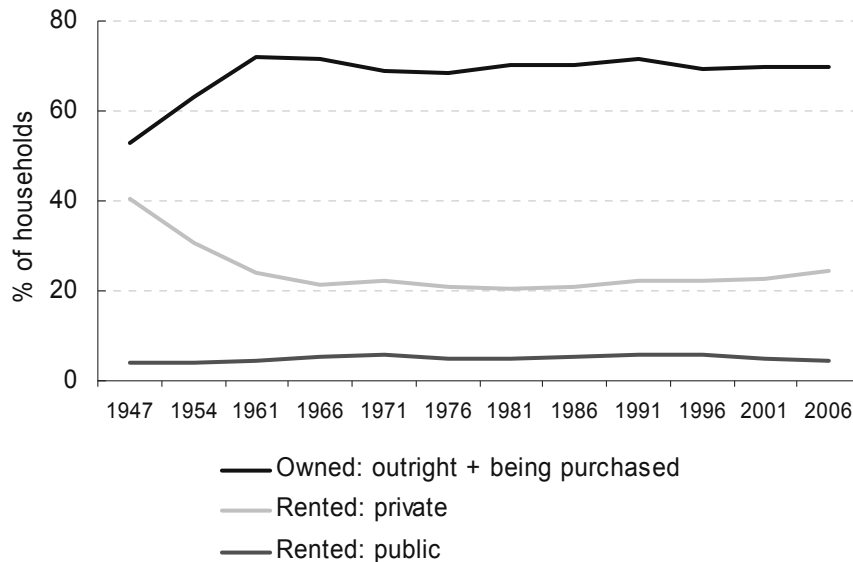
2.1.1 Home ownership

Home ownership in Australia grew rapidly in the immediate period following WWII, reaching its current level of around 70 per cent by 1961, with home ownership then, and now, being the preferred tenure of both renters and owners (Wulff, 1993). As Badcock and Beer (2000) have argued, there is nothing preordained about the emergence of home ownership as the dominant tenure. Its post-war growth occurred during the long boom of the 1950s and 1960s when economic and demographic factors combined to generate a period of unprecedented economic growth and at a time when there was a severe post-war housing shortage. Bourassa et al. (1995) suggest that these factors, combined with the effects of rent control that limited building for private rent, meant home ownership was the only viable alternative for households unable to access government rental housing. The willingness of these

² Tenure data used in this report are derived from census data on occupied private dwellings, excluding visitor only and not classifiable households (because no household data are available for such households to provide the cross-classification by age employed in the research). In the data reported, rent-buy is included with purchase data; rent not stated is included in the private rent category and rent free is included in the residual 'other tenure' category. Tenure not stated is allocated pro-rata across all tenures. In 1961 and 1991, data for other tenure types (including rent free) were combined with not stated data. In 1966 and 1971, owner and purchaser data were combined. Prior to 1991, no data were collected on rent-buy schemes or other tenures.

households to borrow to finance their access to home ownership was underpinned by low interest rates, and secure and rising incomes generated by strong economic growth and associated low unemployment (Paris, 1993). Their ability to use borrowed funds to gain access to home ownership was underpinned by house prices that, for most households, were affordable in relation to incomes (as shown in Table 2.1 later in this chapter).

Figure 2.1: Nature of occupancy, 1947–2006



Source: 1961, special request tabulations from census data; prior to 1961, Social Indicators Australia 1992. ABS Catalogue 4101.0. Public-private split for 1947 rental data estimated. Residual 'Other tenure type' not charted.

Home ownership has been supported both implicitly and explicitly by government policies. In order to overcome post-war housing shortages, the central government stimulated housing construction through its influence on the supply and cost of mortgage finance. In negotiation with the states, a new funding agreement entitled the 1945 Commonwealth State Housing Agreement (CSHA) was also announced. While the first Agreement delivered funding solely for the provision of public housing (with working families and returned soldiers the intended targets), the second directly supported the expansion of home ownership by providing mortgage finance at a subsidised rate of interest, and by permitting the sale of public housing to sitting tenants on extremely favourable terms. Ongoing war service home loans provided loans on similar terms to past and present defence service personnel. By 1965, direct government lending represented 34 per cent of housing loans outstanding in Australia (Milligan, 2003).

Additional direct assistance was provided primarily through a variety of deposit assistance programs targeted at marginal first home buyers, often accompanied by state government rebates on stamp duties (Dalton, 2001). Such assistance, however, was suspended in 1990 with the cessation of the First Home Owner's Scheme, the last in a long series of deposit assistance schemes dating back to the 1960s.

The withdrawal of Commonwealth-funded assistance occurred at a time when the first concerns were beginning to be expressed about the sustainability of the high home ownership rates observed since 1961, as will be discussed below. Direct assistance

was not reinstated until July 2000, to compensate new home buyers for the anticipated impact of the newly introduced GST on house prices.

Until the early 1980s, direct assistance for owner-occupation was supplemented by a regulatory environment that influenced the supply and cost of mortgage finance by imposing interest rate and asset controls on the major providers of housing loans (initially the savings banks). In the mid-1960s a publicly owned and funded mortgage insurance corporation supported the expansion of second-tier lending institutions (the permanent building societies) (Dalton, 2001).

The main form of assistance for owner-occupation is provided indirectly through the income tax system via exemptions or concessions for owner-occupied housing (Yates, 2003). Owner-occupiers are exempt from capital gains tax and pay no tax on the income derived from their housing. Unlike mortgaged landlords, however, interest payments for mortgaged owner-occupiers are not tax deductible. These tax concessions are reinforced by state land taxes, which generally exempt owner-occupied residential property. The Commonwealth and states thus provide significant tax benefits for high-income households with substantial wealth in their owner-occupied properties.

As will be indicated in section 2.2, in broad terms, owner-occupation has provided those households who have gained access with secure and affordable housing. It has also provided them with most of their household wealth.

2.1.2 Social rental housing

While home ownership traditionally has been central to the Great Australian Dream, not all households have been able to access the benefits of affordability and security it provides. For many lower-income households, home ownership may be neither accessible nor even appropriate. Until the 1980s, public housing was the favoured approach for assisting those on low incomes who were unable to access affordable housing in the private market. In the pre-war period it was initially introduced as a slum clearance measure. Subsequently, as well as a means of redistributing income to the poor, it was seen as a response to various social problems. New construction of public housing also has played a role in promoting economic growth, reviving a depressed building industry and assisting the development of particular regions (Hayward, 1996; Jones, 1972).

While there was an emerging public housing movement in a number of states prior to World War II, it was only the response to post-war shortages that resulted in significant Commonwealth Government involvement in public housing. The series of CSHAs, beginning with the first in 1945, have been the main vehicle for funding public housing in Australia. The stated CSHA objectives have changed over time, but an ongoing guiding principle has been to assist people requiring access to appropriate and affordable housing (see for example, Commonwealth of Australia, 2003).

During the 1950s and 1960s, public housing tenants were required to cover only the (subsidised) historic costs of housing provision. They also received a rebate if the rent charged exceeded a given percentage of their income, generally between 18 and 20 per cent. Tenants' housing costs thus did not increase with changes in the market value of their housing. Further, as new dwellings were added to the stock, the increased costs of public housing were shared by all tenants rather than being borne by new entrants, as is the case with individual home ownership. As argued by Yates (1997), this provided an approximately equal treatment of public renters with home owners in that:

each benefited from increases in the implicit rental value of housing as the value of the capital stock increased. Pooling of rents in public housing forced an intergenerational sharing of the benefits of the increased value of the housing stock [whereas] any intergenerational sharing of the benefits of home ownership arises only as existing owners pass on the accumulated benefits of ownership through bequests to their heirs. (Yates, 1997, p. 267)

In the mid-1970s, concerns to better target public housing subsidies led to a move from cost to market rents, with rent rebates for those unable to afford market rents. This was seen as providing an incentive for those with higher incomes to find their housing solutions in the private rental market (Dalton, 2001). However, the loss of higher-income households from public housing, together with policy changes designed to give priority to those with the highest needs, have resulted in a situation of declining rent but rising service costs per tenant. Consequently, by the turn of the century, most public housing authorities in Australia were in an unsustainable position whereby their aggregate rent revenue was insufficient to cover their aggregate operating costs. This situation combined with declining real value of capital funding from the mid-1990s has contributed to an absolute decline in the total housing stock from its peak of just under 400,000 dwellings in the mid-1990s (AHURI, 2001; Hall and Berry, 2004) and “is widely regarded as having undermined the financial and social sustainability of Australia’s public housing systems” (Donald et al., 2001, p. 1).

The private rental sector increasingly is the only source of housing for many lower-income households who cannot access public housing or afford home ownership.

2.1.3 Private rental housing

Throughout much of the past half century, private rental in Australia was widely regarded as a tenure of transition for young and mobile households moving out of the parental home and into independent living – a stepping stone towards home-ownership. For many such households it is a tenure of choice. For others, however, increasingly, it is seen as a residual tenure (Kendig and Paris, 1987) – the tenure that remains for households not served by home ownership or public rental. Wulff (1997) pointed to the existence of what she called the ‘long term’ segment of the private rental market, a market that serves many who are caught permanently there or who re-enter private rental after falling out of home ownership. More recently, Burke and Pinnegar (2007) have described these households as being ‘trapped’ in the private rental market. While some private tenants prefer the flexibility and economic and lifestyle benefits of renting, most would choose home ownership if they could afford it.

Private tenancies can provide a cost-effective solution to the immediate housing needs of many households in part because rents have not kept pace with increases in house prices. A number of reasons for this phenomenon can be offered. One explanation is that the private rental market is an unsophisticated market dominated by ‘mums and dads’ investors who become landlords of a property or two either by accident or because they see a bricks and mortar investment as providing them with long-term security (Beer, 1999; Yates, 1996). Another explanation is that the 1999 changes to the capital gains tax and the post-2000 house price boom (covered below) have enabled rental investors to make advantageous use of the tax system and negative gearing to trade off short-term losses for long-term gains. A further explanation for why rents have been relatively suppressed could be that most households in the private rental market do not have the capacity to pay any more.

From very modest beginnings in 1958, means-tested rent subsidies for private tenants have been gradually enhanced, especially over the past two decades. A series of changes from the mid-1980s has provided for wider coverage, increases in thresholds

and maximum rates payable and indexing of payments. The present subsidy, known as Commonwealth Rent Assistance (CRA), is available to all recipients of pensions and allowances who are renting privately. This payment, currently almost \$70 per week for a family with four children, can make a considerable contribution towards reducing the impact of high housing costs. However, CRA still is inadequate to prevent many households from having housing costs that absorb an unacceptably high proportion of their income. Affordability outcomes are discussed below.

2.2 Emerging market trends

For many years, Australia has been well served by the system of housing provision built on a dual foundation of home ownership for the majority and public rental housing for a small minority. By the early 1980s, on average, housing costs absorbed less than 12 per cent of household income.

Long-term structural shifts in housing markets over the past 20 to 25 years have challenged these traditional foundations. One of the motivating factors for this study on the intergenerational sustainability of Australia's housing system was a concern that these changes are increasing the pressure that housing costs and housing assistance have put on household and government budgets. Some of the housing market drivers that have contributed to these changes are considered later in this chapter.

This section provides a review of underlying trends in the key variables that will influence the sustainability of the Australian housing into the future, focusing specifically on factors that determine affordability outcomes.³ Affordability of home ownership is declining primarily as a result of house prices increasing more rapidly than incomes. The increasing difficulties faced by first-time buyers have been accompanied by declining home ownership among younger households. Private renters as well as home purchaser households are experiencing increasing affordability problems. Polarisation of wealth between owners and tenants is increasing. Each of these trends has contributed to major concerns about the sustainability of the current housing system in Australia. They also raise concerns about the amount of housing assistance needed to ensure that households have access to adequate, affordable and appropriate housing.

2.2.1 House prices increasing more rapidly than incomes

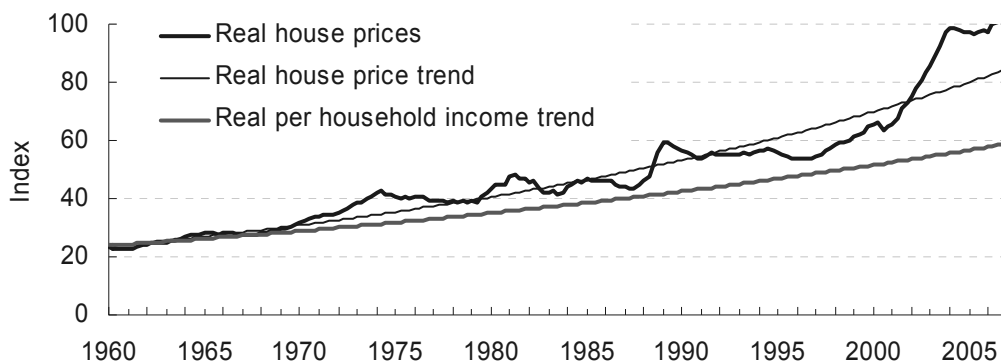
At the end of the 1950s, the decade when Australia's home ownership rate had grown most rapidly, it took less than four years of average earnings (which were around \$2,000 at the time) to pay for the median house price of around \$7–8,000. Today, it takes approximately eight years of average earnings (around \$50,000) to pay for the Australian median house price of around \$400,000 (and significantly higher in several capital cities). The relationship between house prices and incomes is one of the key factors that determine whether owner-occupation remains accessible for households aspiring to home ownership. The other is the cost and availability of mortgage finance.

Much media attention has been directed to how the house price to income ratio now makes Australia one of the least-affordable housing markets in the developed world. (The major sources for this claim are the biannual Reserve Bank of Australia Financial Stability Reviews and the annual Demographia reports, e.g. Demographia 2007, even though the latter only cover Anglophone countries.) It is less widely recognised that

³ The information and arguments in this section rely heavily on those presented in Yates (2007b) and Yates and Milligan (2007).

the gap between house prices and incomes had emerged long before the post-2000 house price boom. Figure 2.2 shows that prices have been rising faster than household incomes since as far back as 1970, when the overall home ownership rate reached its current level.

Figure 2.2: Real house prices and household income per household, 1960–2006



Source: Yates (2007b)

Much of the increase in house prices has been attributed to the increased availability of mortgage finance following the post-1980s deregulation and liberalisation of the financial system. In particular, this argument has been used to explain the 1987–1989 and 2000–2003 house price booms. Such booms create cyclical problems of access to home ownership. The more significant factor for intergenerational sustainability, however, is the longer-term divergence between house prices and earnings. This structural trend generates a more fundamental housing affordability problem that will now be addressed.

2.2.2 Accessibility outcomes

Access to housing depends on the relationship between house prices and incomes and on the cost of housing finance, which affects borrowing capacity. The gap between house prices and what households can borrow given their income and contemporary interest rates – the deposit gap – potentially provides a significant wealth constraint on those households’ ability to become home owners.

The increasing deposit gap faced by moderate-income households is illustrated by the affordability index in Figure 2.3. The underlying data on incomes, house prices and interest rates are presented in Table 2.1. In the 1950s and 1960s, when home ownership was affordable for moderate-income households, average weekly earnings were sufficient to support a loan that was more than adequate to purchase the Australia-wide median-priced home. There was no deposit gap. By the 1970s, however, with the onset of inflation, access to housing became more difficult as a significant deposit gap began to emerge. Aspiring moderate-income households then had to save the equivalent of one year’s income before the loan they could afford, combined with their savings, would be enough to purchase a median-priced home. By the 1980s, this savings requirement had increased to more than two years’ income.

Table 2.1: Access to home ownership based on AWE: 1951–2006

	Median house price ^a	Interest rate ^b	AWOTE ^c	Affordable loan ^d	Deposit gap	Deposit gap/annual income	House price/annual income	Interest cost/annual income ^e
	\$	%	\$	\$	\$	%	%	%
1951	\$4,621	3.90	\$23	\$5,724	-\$1,103	-92	386	19
1956	\$6,932	6.10	\$37	\$7,395	-\$463	-24	360	23
1961	\$8,697	5.50	\$46	\$9,738	-\$1,041	-44	364	22
1966	\$9,650	5.38	\$58	\$12,423	-\$2,773	-92	320	22
1971	\$12,200	7.25	\$78	\$13,989	-\$1,789	-44	302	25
1976	\$32,900	9.88	\$165	\$23,880	\$9,020	105	383	27
1981	\$55,600	11.50	\$270	\$34,539	\$21,061	150	396	28
1986	\$85,500	15.50	\$410	\$40,337	\$45,163	212	402	29
1991	\$122,500	13.00	\$561	\$64,664	\$57,836	198	420	29
1996	\$148,400	9.75	\$673	\$98,120	\$50,280	144	424	27
2001	\$212,800	6.80	\$825	\$154,598	\$58,202	136	496	24
2006	\$388,889	7.55	\$1,045	\$183,040	\$205,849	379	716	25

Sources:

a. from 1986, HIA median established house prices, HIA/CBA Housing Reports; prior to 1986, moving median established house prices, for Melbourne from BIS Shrapnel data; (data for 1951 to 1961 generated from applying 5 per cent trend growth from 1950 to 1966 to 1950 to 1960 data); for 1991, the only period when data overlapped, the HIA price was 9 per cent above the BIS Shrapnel price

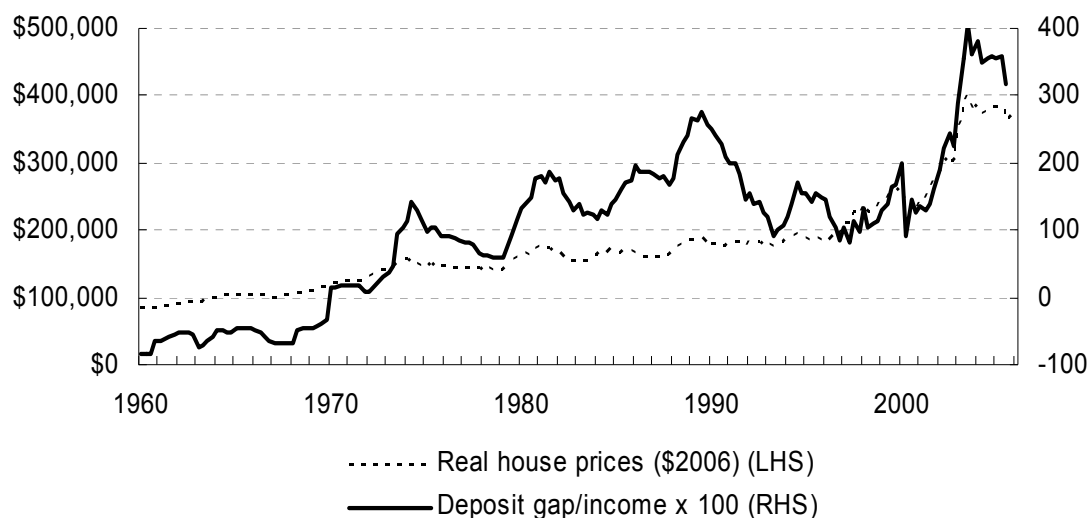
b. from 1960, RBA, Table F05 standard variable rate housing loan at June; prior to 1960 RBA OP 8A, Table 3.21 predominant rate over calendar year

c. RBA Table G06, Average weekly ordinary time earnings, full time adults, June quarter (ABS 6302.0 Table 3); data from June 1971 to June 1981 derived from AWE (national accounts); data prior to 1971 based on annual averages of AWE male earnings for financial years; prior to 1970 RBA Occasional Paper No. 8A Australian Economic Statistics 1949-50 to 1982-83; for the periods when 2 sets of data were available, the OP 8A data are 5-10 per cent higher than AWOTE;

d. based on repayments at 30 per cent gross annual income

e. based on maximum affordable, not actual, loan

Figure 2.3: Deposit gap measure of housing accessibility, 1960–2006



Source: Yates (2007b) based on data as for Table 2.1

The decline in interest rates through the 1990s brought a considerable improvement in affordability but the house price boom from 2000 raised affordability problems to an all-time high. Households on average weekly earnings would have to save three or four times their annual income to meet the current deposit gap associated with median-priced dwellings. They would need to save even more once the state-based transaction costs associated with home purchase are taken into account.⁴

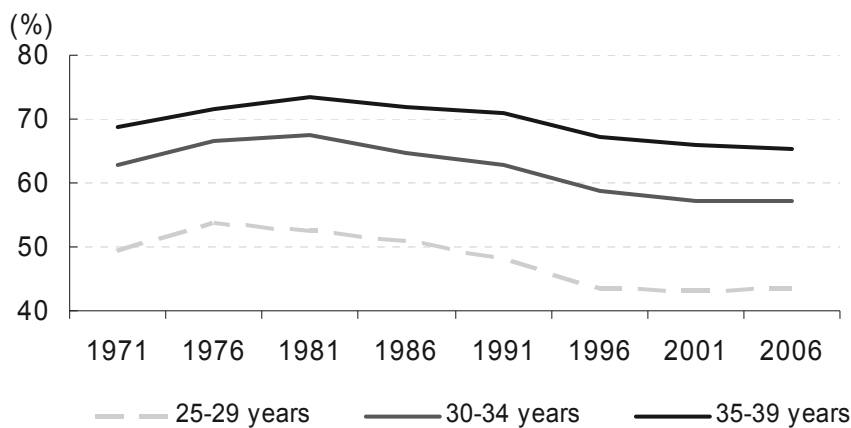
Aspiring purchasers who do gain access do so by a variety of means. Increasingly, access to home ownership has depended on having two earners in the household, with consequent repercussions on childbearing and family life. Repayment burdens can exceed the indicative 30 per cent assumed in the chart and table above. A further option is to purchase a dwelling that is cheaper than the Australia-wide median assumed in the affordability measure reported here, with associated implications regarding size, standard and location.

For households on lower incomes, none of these strategies enables them to access home ownership. Difficulties in buying have been accentuated by social changes such as later partnering among the young and more split households. The increasing numbers of single-income households can find it especially difficult to overcome the home ownership threshold.

2.2.3 Declining home ownership rates

Social changes and declining affordability have had a discernible impact on home ownership rates among younger households. Since the beginning of the 1980s, when the deposit gap increased from one to more than two years' income, the proportion of owner/purchaser households in the 30–34 year old age group and in the 35–39 year old age group has declined systematically. For younger 25–29 year old households, this systematic decline began in the mid-1970s.

Figure 2.4: Home ownership rates for younger households, 1971– 2006



Source: Yates (2007b), based on special request tabulation of census data, updated with special request tabulation from 2006 Census. Age breakdowns are not available for 1966; for 1961, the home ownership rates for the 3 age groups included in the chart were, respectively, 54, 64 and 71 per cent. Age refers to the reference person in the household. Table 3.2 provides age specific rates for 1981, 2001 and 2006.

Declining home ownership rates among those approaching mid-life raises important questions as to the lifelong housing attainment of these cohorts. While some may be delaying home ownership, it seems unlikely that many will buy for the first time after

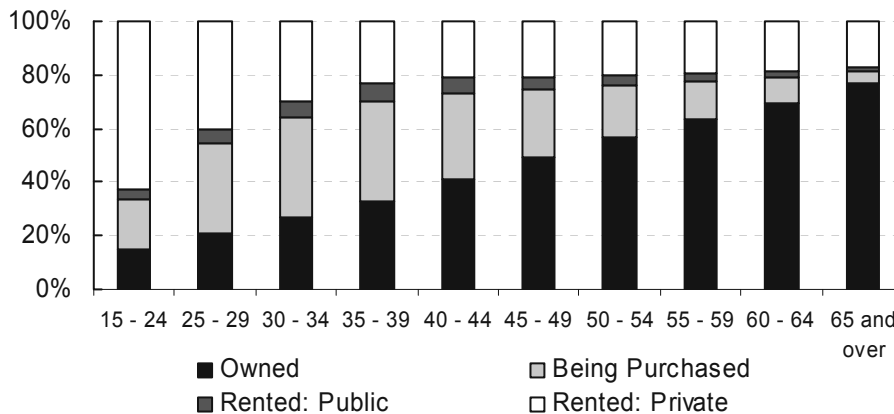
⁴ The impact of state-based developer charges are embodied in observed house prices.

reaching 40 years of age. These households will be moving from the younger to the middle to the older generation over the 40 or so years ahead envisaged in the Intergenerational Report. Their inability or choice not to become owners during their prime household formation years raises significant doubts about whether Australia's home ownership rate will be sustained at its current level of 70 per cent by 2045. This has critical implications for the intergenerational sustainability of the Australian housing system.

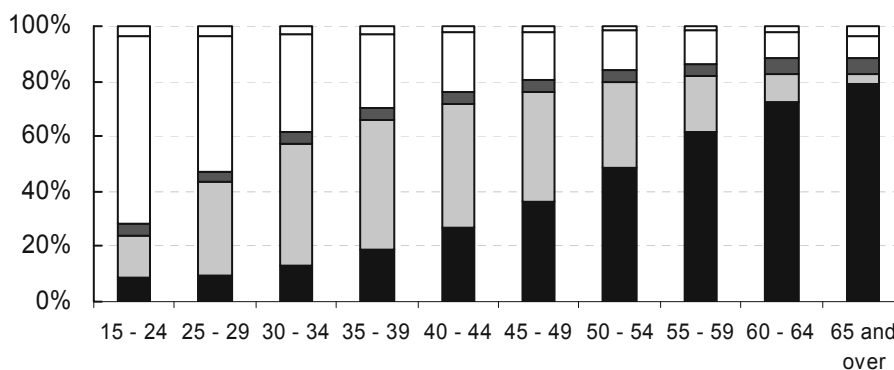
Any delay in home buying, or the inability to ever do so, imposes increased pressure on the rental sectors and, given the decline in social rental housing, the pressure falls heavily on the private rental market. Figure 2.5 shows the changing age distribution of households in the key tenures over the 40 years from 1961 when the Australian housing system could be defined as reaching maturity because the level of home ownership stabilised. By 2001 the slow-down in the growth of home ownership among the young had been in place for more than 30 years.⁵ During this time the people who had just entered their twenties in the 1960s had moved on to their sixties after the turn of the century.

Figure 2.5: Tenure by age, 1961 and 2001

1961



2001



Source: special request tabulation, census data

This figure clearly shows the impact of changes in the foundations of Australia's housing system on successive generations. Increasingly, the private rental market is

⁵ In 2001, the data include a category for 'other tenure type' (indicated at the top of the bars in the lower half of Figure 2.5). This category was not recorded in 1961. Data for 2006 show an increase in the proportion of households with a mortgage in each age group in 2006 but broadly similar overall age specific home ownership rates as in 2001. Results for 2006 can be found in Table 3.2.

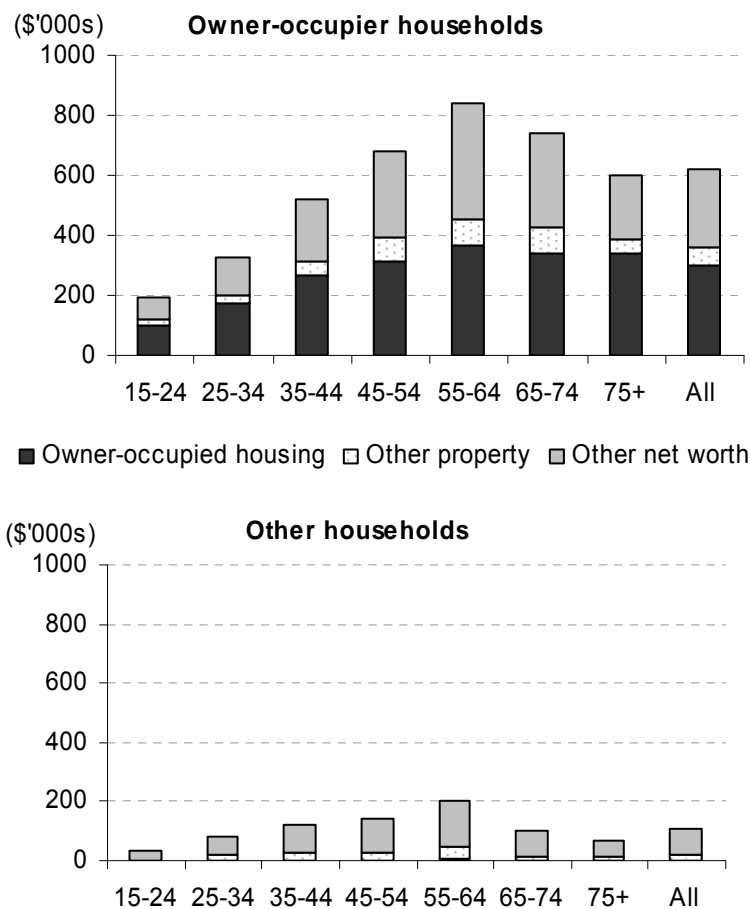
servicing the young. Home ownership, and very particularly, outright home ownership, and public rental housing have become the domain of older households. The figure also shows the increasing reliance on mortgage finance. The proportion of households with a mortgage has increased for every age group below the retirement age group.

The overall stability of home ownership in Australia (which has remained more or less at 70 per cent since 1970) has been largely attributable to population ageing. Using Household Expenditure survey data for a slightly shorter time period (1975 to 1994), Yates (2000) shows that higher home ownership rates for an increasingly large proportion of older households has offset the reductions of home ownership rates earlier in adulthood. Using HILDA survey data, Kohler and Rossiter (2005) suggest that some of the increase in the proportion of older households with a mortgage can be explained by their greater propensity to use the equity in their owner-occupied property to underpin investment in rental property. Their propensity to do so was strongly correlated with household income.

2.2.4 Wealth polarisation

The persistent upward trend in real house prices since the 1960s (Figure 2.2) and the increasing age of owners (Figure 2.5) have contributed to the extreme polarisation of wealth by tenure (shown in Figure 2.6).

Figure 2.6: Household net worth by age of reference person and tenure, 2003–2004



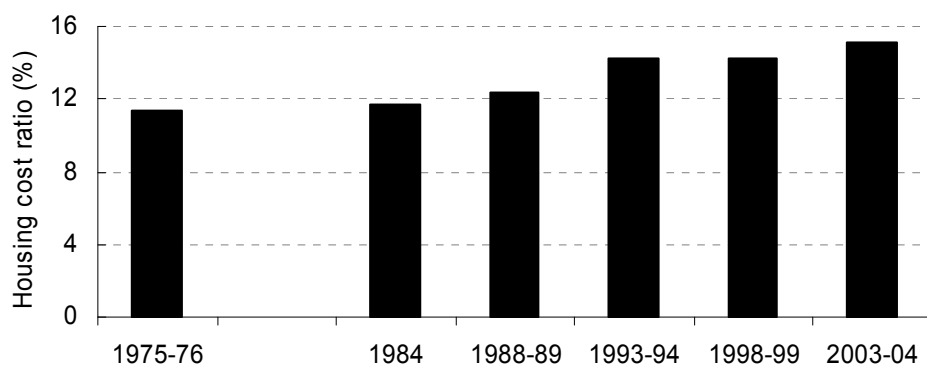
Source: Yates (2007b), from ABS Survey of Income and Housing 2003-04

Not only do owner-occupier households, by definition, hold all the owner-occupied housing wealth in Australia, they also hold nearly all the non-housing wealth. This wealth is extremely unequally distributed. Not all home owners have benefited from increases in housing wealth. Yates (2007b) points to the intergenerational inequities that arise from housing wealth being concentrated among older generations (earlier cohorts) as contrasted with the younger generation today. These are outcomes of Australia's current system of housing provision.

2.2.5 Changing housing costs

Rising housing costs have had a more immediate impact on changes in intergenerational sustainability than the distribution of housing wealth. Over the past few decades, housing costs have absorbed an increasing proportion of household incomes, rising by 30 per cent from an average of around 12 per cent of household incomes in the 1970s and 1980s to an average of around 15 per cent by 2003/04.

Figure 2.7: Average housing cost as a proportion of household income, Australia, 1975/76 to 2003/04



Source: Yates and Milligan (2007), from ABS Household Expenditure Surveys 1975/76 to 2003/04; housing costs for purchasers defined to include mortgage repayments (principal and interest) and rates.

Average housing cost ratios, however, disguise a considerable variation between households. The 15 per cent average for 2003/04, for example, hides a variation from a 1 per cent average for outright owners in the highest income quintile to close to a 50 per cent average for private renters or purchasers in the lowest income quintile.⁶ What will happen to the future relationship between housing costs and incomes is a further question that adds to concerns about the intergenerational sustainability of Australia's housing system.

A key indicator of the intergenerational sustainability of the Australian housing system is the proportion of households paying 30 per cent or more of their income in meeting their housing costs. This reflects a housing cost to income ratio that is more than double the Australia-wide average of 15 per cent. Intergenerational sustainability will depend critically on outcomes for lower-income private renters and purchasers and on the proportion of lower-income households who are private renters or purchasers. The case for this has been made in Yates and Milligan (2007). It is therefore particularly important to monitor and project the proportion of lower-income households with such high housing costs.

⁶ These proportions in the text are taken from Table 10, ABS Cat No. 4130.0.55.001 Housing Occupancy and Costs, Australia, 2003-04. Unlike the data in Figure 2.7, they do not include repayment of principal for purchasers.

This approach drives the results obtained from this study and is discussed in detail in Chapter 3.

2.3 Drivers of change

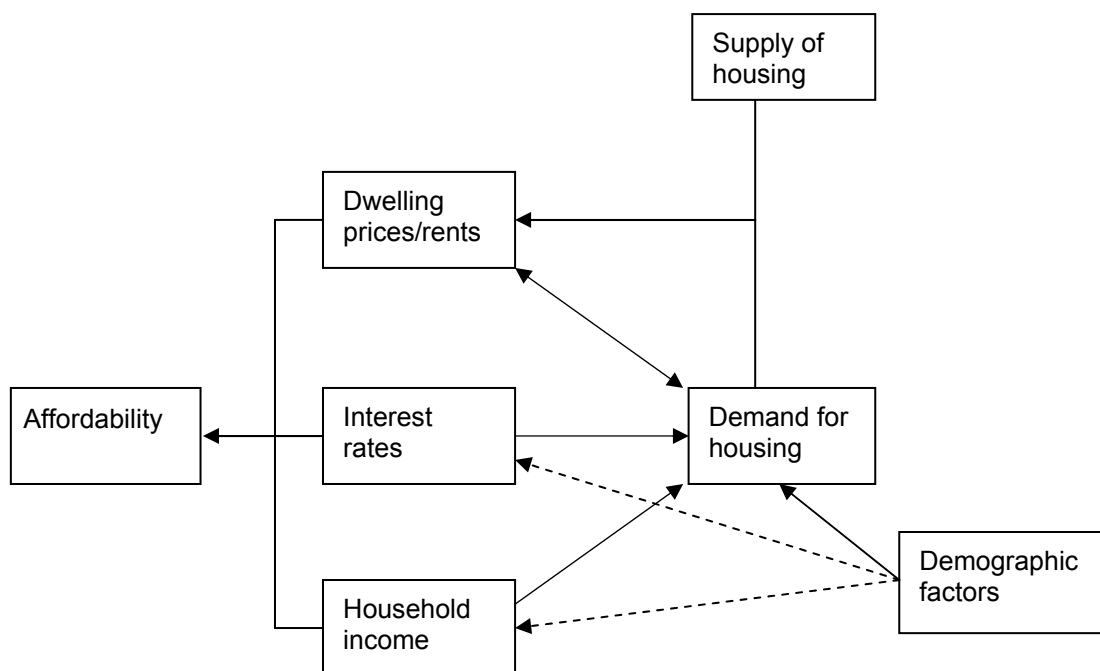
Housing tenure and costs in relation to income are taken in this report to be the key outcomes likely to affect the intergenerational sustainability of Australia's housing system in the future. Future outcomes will depend on a range of underlying, or structural, factors affecting housing markets in Australia and a number of drivers of change affecting these key variables. This section provides a brief overview of these factors and some of the drivers that affect them.

2.3.1 Structural factors

A summary of the way in which affordability is affected by the underlying factors that influence housing markets in Australia is illustrated in Figure 2.8. These factors are considered only briefly here. The Productivity Commission Report on first home ownership (2004) provides an accessible and more comprehensive overview.

The key drivers of affordability outcomes are dwelling prices, rents, interest rates and household incomes. These are affected by the supply of and demand for housing, which, in turn, are affected by many factors. On the supply side, the cost of provision is affected by: the availability of land; land development processes and policies; infrastructure costs (including development charges); the cost of construction; and property-related taxes. On the demand side, key factors include: household growth (in turn, affected by natural increase, immigration, household formation); real incomes, real household wealth and the distribution of both income and wealth; tax concessions to both owner-occupied and rental housing; concessions to first home buyers; returns on alternative investments; cost and availability of finance for housing; and the institutional structure affecting housing finance provision.

Figure 2.8: Factors affecting affordability



Source: Yates and Milligan (2007), derived from Figure 1.1, Productivity Commission (2004)

Housing demand can be met through both rental and owner-occupied housing. For assessing the sustainability of the housing system, the modelling described in Chapter 3 assumes that tenure matters only insofar as it affects affordability outcomes. If the 2001 pattern of housing costs is sustained through to 2025 and 2045, households that do not become home owners during their peak earning years will be more likely to have affordability problems later in life than households who do become owners.

Any of these drivers in the housing market can change affordability outcomes. Some have a direct impact on housing costs or income, while others have an indirect impact on tenure outcomes. The assumptions made in this report about the broad trends in the key economic and demographic factors are consistent with those made in the Intergenerational Reports. Chapter 3 will discuss these factors and their assumed impacts on tenure and affordability outcomes. More detail is provided in the Technical Appendices at the conclusion of this report.

2.3.2 *Specific drivers of changes*

Stakeholders involved in consultations undertaken prior to the renegotiation of the 2003 CSHA identified a number of exogenous and endogenous drivers that affect key housing outcomes (Donald et al., 2001). Most of these drivers remain relevant some five to six years later. At a broad level, the main exogenous drivers of change (that is, outside the housing system) were seen as demographic change, the impact of economic globalisation, and associated changes in investment preferences. Endogenous drivers (that is, within the housing system) were associated with the loss of affordable rental stock.

Exogenous drivers of primary interest or concern include:

- *Australia's ageing population.* This affects housing needs and preferences with respect to the size of housing, amenity levels, geographical location, and access to and links with services (e.g. health, home care and aged care facilities).
- *smaller households.* These result from the ageing of the population, falling fertility, an increase in "split" families and a range of associated changes.
- *globalisation.* This has led to greater disparity of income and wealth, increasing "casualisation" of work, greater uncertainty about future earnings from employment, rapid growth in some regions and industry sectors, and marked decline in others. While globalisation may have increased average real income and wealth, increased disparity in these potentially has negative consequences in the housing arena as a result of an increased need for housing assistance, a reduced capacity to take on long-term debts (such as mortgages) and, arguably, the beginning of an overall decline in home ownership.
- *increasing investment opportunities.* The increasing sophistication of investors, particularly at younger ages, has seen savings being directed to the share market and other forms of investment, rather than housing. Funds available for housing have also been limited by compulsory superannuation, higher education debts and lifestyle preferences, all of which may contribute to observed declines in home ownership among younger households.
- *growth of superannuation savings.* The increase in the availability of patient capital for long-term investment, as a result of compulsory and tax-advantaged superannuation, could provide increased opportunities for institutional investment in the housing sector.

In the last few years investment opportunities and superannuation are the drivers that have changed most notably. From 1 July 2007, superannuation benefits paid from a taxed source either as a lump sum or pension will be tax free when paid to people

aged 60 or over; further, contributions to superannuation and earnings in these funds are highly tax advantaged.⁷ Superannuation now joins owner-occupied housing as a highly tax-advantaged form of saving. This is of particular value for older households approaching retirement (Davidson and Guest, 2007). These policies may increase the incentive for these households to invest in superannuation (rather than housing) and may add to the decline in home ownership rates.

2.3.3 *Housing policy drivers*

Endogenous drivers identified by stakeholders involved in consultations undertaken prior to the renegotiation of the 2003 CSHA include the following:

- The lack of substantial growth in social (public and community) housing, which has increased reliance on private sector rental housing and on Commonwealth Rent Assistance for low-income people. At the same time, the availability of affordable private rental housing for low-income people is falling rather than increasing.
- The shrinking availability of social housing has driven much tighter targeting to people with complex needs, which in turn has placed pressure on housing authorities to alter the type, configuration, location and services associated with public housing.

These endogenous drivers reflect significant changes from the housing policies that have underpinned the foundations of the Australian housing system and its tenure and affordability outcomes. Dalton (2001) suggests that three broad policy transitions have contributed to observed outcomes:

- The first, and the largest transition in federal government housing policy, was the move away from policies that supported home ownership. Dalton argues that, during the 1980s and 1990s, all the major policy settings that (directly) support purchasers (including lower- and moderate-income households) changed. The primary driver he identifies is the early 1980s deregulation of the financial system and the subsequent privatisation of the Commonwealth Bank, the largest single provider of finance for housing. Financial deregulation removed the favoured status that mortgage finance had enjoyed. It also removed the constraints that existed on the cost and supply of mortgage finance. The increased availability of mortgage finance, along with the liberalisation of the finance industry that followed, is one of the key explanations for the post-2000 house price boom that added to the constraints on first home buyers.
- The second transition Dalton points to is the increasing targeting of public housing system, beginning in the late 1970s but accelerating in the 1980s and 1990s. This change has limited the capacity of public housing to serve as a safety net not only for the most disadvantaged but also for the working poor (an original target group for public housing in its post-war materialisation).
- The third transition is the significant increase in Commonwealth Rent Assistance. This has increased relatively steadily in real terms since the early 1980s. By way of contrast, Commonwealth and state outlays under the CSHA have declined in real terms since the mid-1980s. In effect this represents a shift from provision of affordable and secure housing, a supply side strategy, to provision of cash assistance, a demand side strategy.

⁷ See http://simplersuper.treasury.gov.au/documents/decision/html/final_decision-01.asp, downloaded 10 June 2007.

2.4 Summary

This chapter began with a brief history of the development of the post-war system of housing provision in Australia, focusing specifically on the role of tenure. As far back as 1987, Kendig and Paris outlined the importance of housing tenure and costs for Australians:

The central purpose of housing markets is to provide affordable and suitable accommodation for millions of households in the future as well as the present. ... For the majority of households, the private housing market is responding effectively and efficiently ...

Owners and buyers have considerable control over the use and modification of their home, and security of occupancy. Costly mortgage repayments and other outlays in the early years of buying are more than offset in later years ... The main payoff is that owners have an appreciating asset which generates substantial amounts of unearned and tax free wealth ...

Public housing is a national investment which, unlike the private benefits in the inheritance of owner-occupied housing, can be retained in collective ownership and passed along for use by future generations on low and moderate income households.

Private rental can be viewed as a residual sector because it has the least advantages for consumers.

In considering alternatives for the future, it is important to recognise that tenure patterns and their meanings and consequences, are by no means fixed and immutable ... The political consensus which now underlies majority home ownership – and minority exclusion – could shift dramatically if Australia were to change as much over the next two generations as it did over the past (Kendig and Paris, 1987, pp. 27–9).

The historical overview presented in this chapter suggests that this assessment is as relevant today as it was 20 years ago when it was written. Over the passage of just one generation, housing access and affordability have deteriorated significantly.

This chapter has also described the major drivers that have an impact on housing affordability – indirectly through tenure change and directly through housing costs in relation to income. These housing market drivers have contributed to the development of the present housing system and will be crucial influences on its sustainability over the next 40 years. The next chapter will outline the methodology employed for identifying how key changes in the housing market drivers in the decades ahead could affect the intergenerational sustainability of Australian housing.

It is important in concluding this chapter to re-emphasise that the research findings are based on projected scenarios rather than predictions of the future. Indeed, public and government responses to the projected scenarios may stimulate policy changes that could improve housing outcomes during and beyond the period covered by this report.

3 MODELLING HOUSING SUSTAINABILITY

Because the key indicator for determining the sustainability of the housing system over time is taken to be the number (and proportion) of households with affordability problems, affordability outcomes for all households provide the focus of the modelling undertaken in this report. These, in turn, depend on two key outcomes of the drivers outlined in the previous chapter: the projected demographic structure of the population over time, and their housing circumstances.

The model described here is not based on explicit behavioural information. One reason for not attempting to develop a formal behavioural model for this report was that data constraints limit such modelling to a specific time period, and hence to patterns of behaviour that may not reflect the significant changes that are likely to take place in the housing system over the next 20 and 40 years as a result of demographic change and the ageing of the population. The approach used, however, is informed by behavioural modelling undertaken by numerous researchers, and the relevant material employed is discussed in the Technical Appendices to this report.

This chapter briefly reviews the modelling approach used, based on assumptions about the two main drivers that contribute to affordability outcomes. It begins with an overview of the assumptions made regarding demographic and economic change and the implications of these assumptions about housing costs and tenure, made for what is described as the base model. These are classified as discretionary and non-discretionary assumptions. The former are based on projections derived from external sources that are retained without change in the analysis, and covered in Section 3.1. The latter are specific assumptions about variables that were not covered in the IGRs. Where relevant, the assumptions in the base model are informed by those employed in IGR1 (the only IGR available at the time the modelling was undertaken for this report), but a sensitivity analysis in the form of alternative scenarios is undertaken to determine the extent to which results would change if the assumptions were changed. These discretionary assumptions are covered in Section 3.2. Section 3.3 outlines the alternative scenarios modelled.

The number of variables about which assumptions are made is limited, for two main reasons. First, a simple framework is adequate to capture the critical drivers affecting sustainability. Given all the uncertainties that exist in projecting housing outcomes 20 to 40 years ahead, and given the assumptions that need to be made even for the limited number of variables described below, the refinement associated with more detail is seen as unwarranted. Secondly, the cost of a more complex model would be prohibitive.

3.1 The model

The analysis of housing sustainability over the next 20 and 40 years is based on a projected version of STINMOD, NATSEM's microsimulation model. STINMOD models Australia's tax and transfer system and is based on the Australian Bureau of Statistics Survey of Income and Housing Costs (SIHC) which, inter alia, contains detailed unit record information relating to a household's income, housing and demographic characteristics. A User Guide for STINMOD can be found in Vu (2005).

3.1.1 STINMOD06A

The version of STINMOD (STINMOD06A) used in this study was derived from the 2000/01 and 2002/03 SIHCs with data up-rated to 2006 using appropriate inflators. As such, it reflects the demographic structure of the population, household incomes and (adjusted to trend) housing costs for 2006. It embodies the age-specific tenure

structure as at 2000/01 and 2002/03. Bremner et al. (2002) provide technical information on how the STINMOD base file is derived and, in particular, on the methodology used to adjust incomes and housing costs from the period of the survey to the current period (in this case, 2006).⁸

The results for the numbers and proportions of households with high housing costs in the future (derived from the modelling exercise undertaken for this research) are benchmarked against estimates derived from the 2006 base file. The 2006 estimates are extremely conservative both in relation to the number of households with housing costs in excess of 30 per cent of income and, particularly, in relation to the number of lower-income households in housing stress. Possible factors contributing to underestimation include the inflators used in STINMOD to up-rate 2001 data to 2006 and the assumptions made about the take-up of social security payments by those eligible for them.

An indication of the conservative nature of the base estimates employed in this study can be seen by comparing the STINMOD estimates with ABS data on households with housing costs in excess of 30 per cent of income derived from the SIHC from 1994/95 through to 2003/04, the same data sources used for the 2006 version of STINMOD. These are presented in a number of NRV3 reports (for example, Yates and Gabriel, 2006 and Yates, 2007a). The ABS data suggest that the proportion of households with housing costs in excess of 30 per cent has been relatively stable over the decade, varying by just one percentage point from a low of 14.6 per cent to a high of 15.7 per cent (in 2003/04). The ABS data show that the number of households with high housing cost ratios has increased steadily over the decade, reaching a total of just under 1.2 million in 2002/03 and just over 1.2 million in 2003/04. This is markedly higher than the 962,000 estimated for 2006 in STINMOD, a total that was derived from simulating outcomes to 2006 from 2000/01 and 2002/03 data rather than using ABS enumerations⁹.

The key explanation of why STINMOD generates conservative estimates is likely to be found in its treatment of housing costs and incomes for lower-income households. For example, rents paid were increased to 2006 in line with CPI data but household incomes were assumed to increase in real terms (by about 1.5 per cent per annum faster than CPI). One implication of this is that, compared with the 2000/01 and 2002/03 survey results, the estimated housing cost ratios for renters were lower in the 2006 base model, with a natural consequence being a decline in the proportion of lower-income households in housing stress.

This outcome of the assumptions made in up-rating the 2000/01 and 2002/03 SIHCs to 2006 is exacerbated by assumptions made about take-up of social security entitlements. One of the significant strengths of STINMOD is its ability to model social security payments. Because STINMOD applies the social security rules to each individual on the ABS surveys, it assumes there is full take-up of social security benefits. This may not be the case, as many people may not be aware that they are eligible for some benefits. So for people on low incomes, the income estimated by STINMOD may be higher than the income they actually receive; which means that STINMOD will show fewer people with housing costs in excess of 30 per cent of income.

⁸ STINMOD06A, on which this study is based, is a household level file with data up-rated to 2006 using the same methodology as described in Bremner et al. (2002).

⁹ The 2006 Census data has 1.2 million households in housing stress, consistent with the ABS enumerations for 2002/03 and 2003/04 and well above NATSEM base estimates used in this study.

An indication of the impact of these assumptions can be seen in a comparison of the estimated incidence of housing stress or proportion of households with high housing cost ratios. As indicated above, ABS data suggests the proportion of such households is relatively stable at around 15 per cent. The STINMOD estimates for 2006 that underpin the projections reported on in the following chapters generate a figure of 11.9 per cent for all households and 20.4 per cent for lower income households. The published ABS data do not give a figure for the incidence of stress among lower-income households but the 2002/03 results prepared by Yates and Gabriel (2006) and Yates (2007a) gave a considerably higher estimate of 28 per cent and 24 per cent for 1995/96. Their results for all households for 2002/03 are consistent with the ABS results for all households. The Yates and Gabriel analysis generates an estimate of 862,000 lower-income households in stress in 2002/03. STINMOD produces an estimate of 642,000 for 2006, about 25 per cent lower than the ABS survey estimates.

While the different assumptions made in STINMOD mean that the base estimates are lower than estimates from survey data, the real advantage of using STINMOD is that it allows a number of scenarios to be modelled. This cannot be done from the survey data. It also produces base model and scenario results that are internally consistent with the results from STINMOD06A, the benchmark model. This project focuses on the differences in the results for 2025 and 2045 compared with the 2006 results. Thus, while the results for housing stress presented in Chapter 4 and Chapter 5 may underestimate the total number of households in housing stress, the trends over time for the base model and the scenarios are what are important.

3.1.2 Ageing STINMOD06A

One of the key contributions in developing STINMOD for this research has been in the ageing of STINMOD from the 2006 base file to 2025/26 and 2045/46. As indicated, STINMOD06A reflects the demographic structure of the population, the distribution of household income and the age-specific tenure structure as at 2000/01 and 2002/03 (albeit with dollar values up-rated to 2006 by use of appropriate inflators). The main methodological development has been in the 'ageing' of the SIHC data from 2006 to 2025/26 and then 2045/46. This was done by giving each household a 'weight' within the survey and adjusting these weights from the 2000/01 and 2002/03 SIHC data to match household projections available for 2025 and 2045. Subsequently, dollar values were up-rated to 2025/26 and 2045/46 in a manner similar to that employed in generating STINMOD06A. A number of key assumptions have been employed in this process. These are described below as non-discretionary and discretionary assumptions. Non-discretionary assumptions have been derived from official projections through to 2025/26 and 2045/46. They remain unchanged for all the results presented in this report. This terminology is also used to describe the assumptions made about housing policy settings. Discretionary assumptions are drawn from a range of sources and, where available, are consistent with IGR assumptions. Testing the sensitivity of results to these assumptions by allowing them to vary is part of the modelling approach employed in the report.

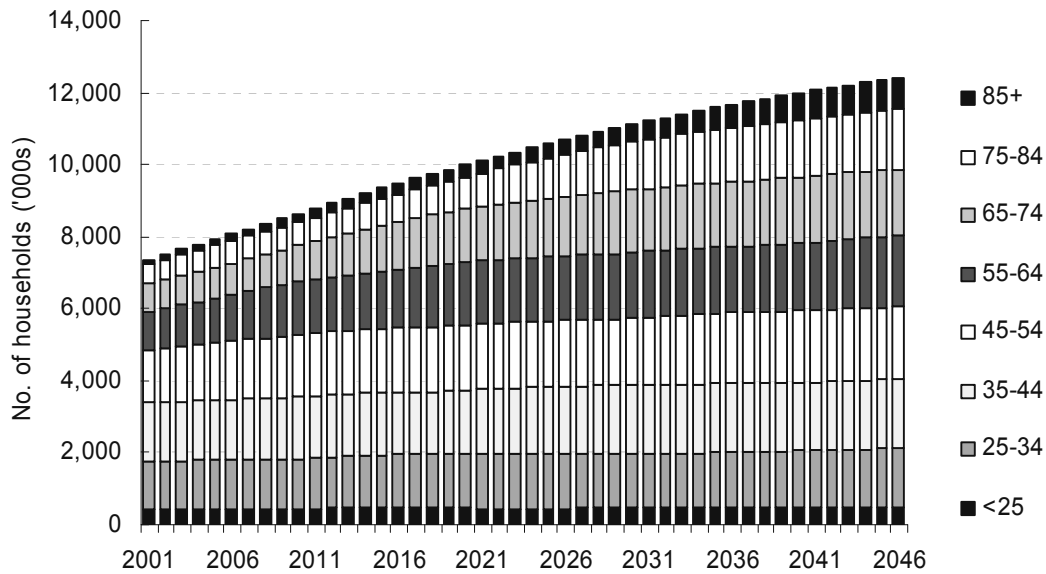
3.2 Non-discretionary assumptions in ageing STINMOD

3.2.1 National household projections

The first step in ageing the SIHC data was to adjust the household weights in the base model to generate a data set with demographic characteristics that matched those projected by the ABS for 2025/26 (ABS, 2004) and by the Productivity Commission (PC) for 2045/46 (PC, 2005) in its report on the economic implications of an ageing Australia.

The Australia-wide age-specific totals employed in the modelling in this report are illustrated in Figure 3.1.

Figure 3.1: Household projections by age



Source: Productivity Commission 2005, projection model 7.

These projections of household numbers by age, household type and state from 2001 to 2046 are based on the ‘propensity method’ developed by McDonald and Kippen (1998), assuming a low rate of change. Trends observed over the past four censuses are assumed to continue at the full rate of change to 2006, half the rate of change to 2011, one-quarter the rate of change to 2016, and to remain constant to 2046 (Productivity Commission, 2005, Technical Paper no.12). They follow the ABS series II household projections to 2025/26, which is as far as ABS have undertaken household projections to date (ABS, 2004). Both ABS and Productivity Commission household projections are based on ABS series B population projections (ABS, 2003).¹⁰

3.2.2 Sub-national household projections

The total numbers for each state are provided in Table 3.1 and illustrated in Figure 3.2. These data were additionally disaggregated by location with a metropolitan/non-metropolitan split employed for each state (but not for the two territories) and by household type.

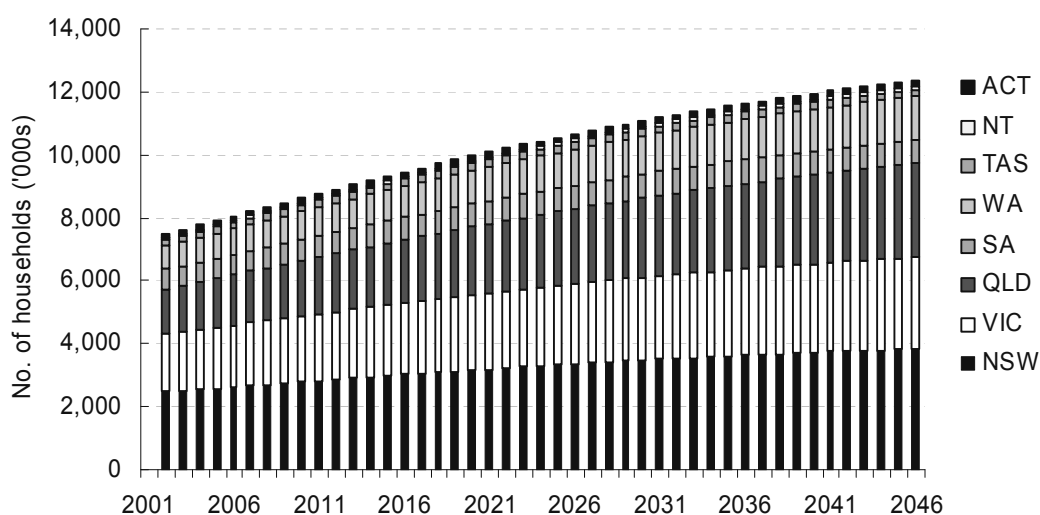
¹⁰ There are no household projections in the Intergenerational Report, only population projections. The population projections employed in IGR1 provide estimates through to 2041, which are slightly more conservative than the ABS series B population projections. This is because of different assumptions regarding the rate of immigration (which is set at 90,000 per annum in the baseline Treasury projection compared with 100,000 per annum in the ABS series B projections). They are even more conservative than the population projections that underpin the PC household projections from 2025 (which exceed ABS projections primarily because they assume a higher rate of immigration – fixed at 115,000 per annum for the whole period). In the second Intergenerational Report (IGR2), the assumed rate of immigration was increased to 110,000 per annum (between the ABS and PC projections of, respectively, 100,000 and 115,000 per annum).

Table 3.1: Household projections by state

	2001/02	2005/06	2015/16	2025/26	2035/36	2045/46
	number of households (thousands)					
NSW	2,481	2,623	3,017	3,360	3,635	3,837
VIC	1,843	1,971	2,279	2,541	2,748	2,896
QLD	1,422	1,596	2,005	2,380	2,708	2,987
SA	620	650	713	751	765	757
WA	740	812	990	1,146	1,275	1,377
TAS	193	207	228	237	237	228
NT	67	69	79	87	94	101
ACT	122	129	148	162	172	179
Australia	7,504	8,076	9,481	10,690	11,665	12,402

Source: Productivity Commission 2005, projection model 7.

Figure 3.2: Household projections by state



Source: Productivity Commission 2005, projection model 7.

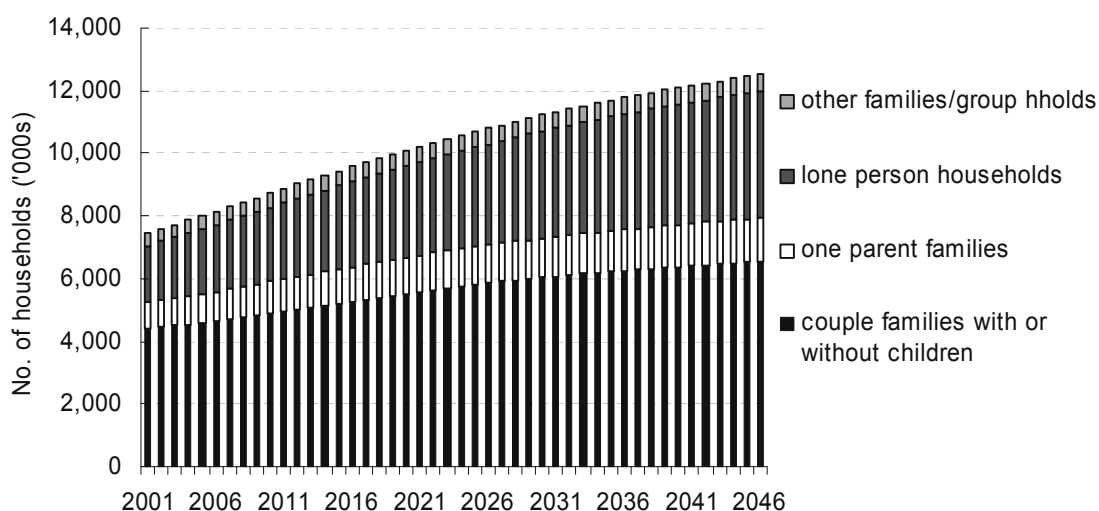
These household projections are available at a state level in the PC projections but are not broken down to a sub-state level. In the modelling employed in this study, intrastate breakdowns in the first instance are assumed to follow the same breakdowns as embodied in the ABS projections until 2025 and to maintain the proportions estimated for 2025/26 through to 2045/6.

3.2.3 Demographic ageing and household type

STIMNOD projections of household type are benchmarked on families and lone-person households. For analytical purposes and reporting or results, the classifications available in the SIHC are employed in this report are couples, couples with children, singles, sole parents, group and multifamily households. An indication

of the projected family and household types in the Productivity Commission data that underpins the weights used in STINMOD is provided in Figure 3.3.¹¹

Figure 3.3: Projections by household and family type



Source: Productivity Commission 2005, projection model 7.

The final set of household projections for 2025 and 2045 by age, household type and region remain unchanged throughout the results presented in this report. They are regarded as non-discretionary assumptions – that is, they are taken as given in the base model (the results of which are reported in Chapter 4) and in the various scenarios modelled (the results of which are reported in Chapter 5).

3.2.4 Housing policy settings

All the modelling is based on the assumption that housing policies remain at their 2006 settings. For example:

- FHOG is assumed to continue to provide an up-front capital grant to eligible first home buyers to the value of \$7,000.
- CRA is assumed to be provided to eligible social security recipients under the same formula at present but with maximum payments and minimum rent contributions held constant at their 2006 values (that is, indexed to CPI).
- CSHA support for public housing is assumed to be inadequate to fund any increase in the public housing stock and state-led initiatives to develop a supply of affordable housing are assumed to be too small-scale currently to make a measurable impact (Milligan et al., 2004).

Any changes in state policies (such as developer charges, land taxes, environmental taxes or policies, and land release or urban consolidation policies) are assumed to have their main impact on the cost of supplying housing and, through this, to have their main impact on the ability of potential first home buyers to enter the owner-occupied housing market. Their effect will be taken into account through the changes in tenure outcomes in the scenarios covered in Chapter 5.

¹¹ The Productivity Commission report provides an adjustment to convert other and multiple families to households. This is ignored in the data charted as it makes little discernible difference to the general trend in household types. STINMOD also adjusts household data on labour force participation so that they reflect benchmarks of Australian projected labour force participation. The participation rates employed are consistent with those reported in IGR1.

3.3 Discretionary assumptions in base model

The assumptions outlined below have been chosen to be consistent with those in IGR1. Prior to undertaking the modelling, the reasonableness of these assumptions was tested with the Project User Group and with representatives from Treasury. The Technical Appendices to this report provide a rationale and support for the assumptions outlined in this section. Section 3.4 following provides a brief discussion of the implications of the IGR assumptions on the key variables that drive the discretionary assumptions employed in the STINMOD base model for 2025/26 and 2045/46. Technical Appendix B provides a brief comment on the implications of the changes in assumptions between IGR1 and IGR2.

3.3.1 Age-specific home ownership rates

The main discretionary assumption imposed on the static STINMOD model is an adjustment that converts it to a pseudo-dynamic model. This adjustment works through the assumptions made about the tenure of each age cohort as they age. The data below, partly illustrated in the previous chapter in Figure 2.4, can be used to explain the trends underlying the assumptions made about age-specific home ownership rates. Those for public or social rental are discussed in the sub-sections immediately following.

In the NATSEM STINMOD model, the age-specific tenure outcomes for 2006 are assumed to be the same as those for 2001.¹² Thus, in 2006, 24 per cent of those aged less than 15–24 years old are assumed to be home owners – the same as in 2001 and so on.

Table 3.2: Current and projected age-specific home ownership rates

<i>Age group(yrs)</i>	<i>Census data</i>		<i>Assumed</i>	<i>Projected</i>	
	<i>1981</i>	<i>2001</i>	<i>2006</i>	<i>2026</i>	<i>2046</i>
	%	%	%	%	%
15–24	25	24	24	24	24
25–34	61	51	51	51	51
35–44	75	69	69	67	67
45–54	79	78	78	68	68
55–64	81	82	82	76	75
65 and over	78	82	82	82	72
Total	70	70	70	69	66

The census data for 1981 to 2001 show the steady decline in home ownership for households aged younger than 35 (or 40) that was commented upon in Chapter 2. Between 1981 and 2001, home ownership rates for households under 25 years old were low and relatively stable. However, home ownership rates for households in the age group traditionally seen as being that at which most households enter home

¹² Since this work was undertaken, the data from the 2006 Census have been released. Using the same approach to treatment of not-stated data as indicated in footnote 2, the age-specific home ownership rates for the six age groups reported in Table 3.2 in 2006 were, respectively, 26, 51, 68, 77, 82, and 82 (with an Australia-wide total of 70). In other words, the rates assumed in the base model are an underestimate for households in the 15–24 year age group by 2 percentage points, identical for the 24–34 year age group, an overestimate by 1 percentage point for households in the 35–44 and 45–54 year age groups and identical for the two older age groups and for the Australia-wide total. These differences are unlikely to have any substantive impact on the results (greater differences are covered by the scenarios discussed later in this chapter).

ownership – the 25 to 34 year old age group – fell by 10 percentage points from a relatively high 61 per cent in 1981 to 51 per cent in 2001. Likewise, the home ownership rates for those who might be regarded as being in the catch-up age group fell from 75 per cent in 1981 to 69 per cent in 2001.

A key question is whether this decline in home ownership rates will be sustained or whether it reflects only a delay in gaining access to home ownership. The modelling undertaken for this project begins with a base model set of assumptions about what future age-specific home ownership rates will be in 2025 and 2045 and then provides alternative scenarios based on variations of these assumptions. These assumptions are driven by cohort effects over time. These cohort effects can be seen in the change in home ownership rates for a specific cohort as they age. To illustrate: in 1981, 25 per cent of the cohort in the 15–24 year old age group were home owners (either owning outright or purchasing with a mortgage). In 2001, 20 years later, 69 per cent of households in this cohort (who are now in the 35–44 year old age group) were home owners. This represents an increase of 44 percentage points. Likewise, in 1981, 61 per cent of those aged 25–34 were home owners and, 20 years later in 2001, 78 per cent were home owners (an increase of 17 percentage points).

For the 2006 base model, the age-specific tenure rates for those aged under 35 are assumed to remain the same in 2026 and 2046 as they were in 2006 (and 2001). In other words, the decline in home ownership rates for households aged less than 35 is assumed to have stabilised by 2001 with no further declines projected.

The age-specific rates for households aged 35–45 (and for all 10-year age groups thereafter) are assumed to increase from their 2006 (and 2001) rates by the same increment in the next 20 years as they did in the past 20 years. Thus, the home ownership rate (of 24 per cent) for the 15–24 year old cohort in 2006 is presumed to increase to 68 per cent when they are aged 35–44 in 2025 (with an increment of 44 percentage points, as it had been from 1981 to 2001). Likewise, 51 per cent of those aged 25–34 were home owners in 2006. For the projections this is presumed to increase to 68 per cent by 2026 (with a 17 percentage point increase, as it had been from 1981 to 2001). These projections are undertaken at the capital city–rest of state regional level described above. The same methodology is employed in projecting forward from 2025/26 to 2045/46.

The base model projections, therefore, are based on age-specific tenure rates that assume that regional home ownership rates for the young remain at their current levels and that the incremental increase as they age over the next 20 and then the next 20 years again remains the same as it had been over the past 20 years. In other words, they assume no further decline in home ownership rates among the young but no greater incremental change or catch-up as they grow older than has occurred in the past.

The factors that have informed these projections are discussed in Chapter 5 when alternative scenarios are modelled.

3.3.2 Other age-specific rental tenure rates

There were five tenure categories identified in the version of STINMOD used for this project. As above, home owners were split into outright owners (for whom housing costs were generally non-problematic) and home purchases (who experienced high levels of housing stress if they had relatively low incomes). The breakdown of the aggregate home ownership rate into these two sub-categories followed the same methodology as outlined above.

The remaining three categories covered the two key rental tenures (described as public and private rental) and the undefined 'other' category.

For the three remaining, the following assumptions were made.

- For 2025/26 and 2045/46, the absolute numbers of public renters in each age-specific category were kept constant at their 2006 levels. The decision not to allow the number of public rental dwellings to increase in line with the population is consistent with the decision to undertake all the modelling on the basis of current housing policy settings. It was based on the observation reported in Chapter 2 that levels of funding for public housing are inadequate to fund operating costs and that the only way the existing public sector can remain financially viable is to sell off assets.
- For 2025/26 and 2045/46, the proportions for "other tenures" were kept constant in each age-specific category
- For 2025/26 and 2045/46, private rent was treated as the residual after the above was carried out.

Tenure outcomes are important as they have a significant impact on affordability outcomes. Any increases in the numbers and proportions of lower-income households who are private renters or purchasers rather than public renters or outright home owners will increase the incidence of housing stress in the economy and, thereby, reduce the intergenerational sustainability of the Australian housing system.

3.3.3 *Base model assumptions for rent, housing costs*

Housing affordability outcomes, however, also depend on the relationship between housing costs and incomes. The final set of assumptions that are to be made in ageing the STINMOD data, therefore, relate to the up-rating of the dollar values in the SIHC to 2025 and 2045 figures.

The relevant dollar values relate to income and housing cost data. If all dollar values are maintained at constant real values, the changes in affordability outcomes will depend solely on the demographic projections and assumed tenure outcomes, as the relationship between housing costs and incomes for each socio-demographic group in each tenure will be unchanged. If dollar values in STINMOD are up-rated at different rates, reflecting the assumptions made about economic changes over the next 40 years, the model will reflect the additional impact of these economic changes on different households.

The key drivers of the assumptions for the base model assume that:

- real household incomes increase (at 1 per cent per annum) but at a lower rate than IGR projected productivity growth; and that
- all housing costs increase in line with incomes.

For home purchasers, these assumptions imply that mortgage costs increase in line with income, because interest rates are assumed to stay constant over the period. This implies that any widening of the deposit gap for first home buyers will be met by an increased deposit rather than an increased loan. For renters, the base model assumes that rents increase faster than the past trend (which has been 0 per cent in real terms over the past decade or so).

The specific assumptions for the trend values of the key economic variables are given in Table 3.3.

Table 3.3: Key economic assumptions in base model

<i>Variable</i>	<i>Assumed growth rate</i>	
	<i>Nominal (% pa)</i>	<i>Real (% pa)</i>
Inflation	2.5	n.a.
Income	3.5	1.0
Housing costs	3.5	1.0

The STINMOD model has been developed in nominal rather than real values but the relationship between these is kept constant in this project by the assumption of a fixed rate of inflation of 2.5 per cent over the simulation period (in line with the IGRs).

The reasons for these assumptions in the base model are presented in the Technical Appendices along with an overview of the relevant assumptions made in the IGRs.

3.4 Implications of IGR assumptions

This section examines the implications of the IGR assumptions on those made for the key variables in the base model. Scenarios examining the impact of varying these assumptions are outlined in section 3.5.

3.4.1 Implications of IGR assumptions for house prices

The IGRs are based on projections that assume growth in the total number of households in Australia to 2045 and growth in real household incomes (with an implied growth in real per household incomes). Past evidence on determinants of house prices suggests that together these trends will continue to generate a long-run increase in real house prices (of approximately the same order of magnitude as the combined effect of these two pressures). This is likely to be of the order of around 2 per cent per annum based on IGR1 assumptions for real GDP growth. This can be broken down into just over 1 per cent per annum growth in real incomes and just under 1 per cent per annum growth in the total number of households.

This is lower than the past rate of growth of real house prices of approximately 2.5 per cent per annum. One implication of this is there is likely to be a readjustment of the relationship between rents and dwelling prices that currently holds (or that held in 2001). This will be exacerbated if, as a result of the recent initiatives to encourage saving via superannuation contributions, there is a move towards institutional (e.g. superannuation funds) investment in rental housing and away from individual landlords who can increase their effective returns through negative gearing.

3.4.2 Implications of house price assumptions for rents and tenure

The base model used in this project is benchmarked on 2001 rent and house price data (the latter affect mortgage repayment data).¹³ In 2001, the rental yield was just below 4 per cent. Any fall in the rate of growth of real house prices from the trend growth rate will require an upward adjustment in the level of rents from trend values or a decline in real house prices from their current values, which are significantly above the long run trend, to a value below it. Given the unlikely probability that house prices will decline from a 2006 value that in real terms is approx 40 per cent above the trend line, to a value that in real terms would be significantly below the trend line, at a time when both demographic and economic pressures on house prices are still present, the more likely scenario is that rents will rise.

¹³ This was chosen because 2001 pre-dates the current house price boom. As shown in Technical Appendix B, house prices in 2001 were approximately equal to their long run trend values, with the implication that rental yields are also more likely to be close to their long run trend values and less likely to be depressed by the impact of post 2001 capital gains.

The projected increases in real house prices and rents have potentially offsetting effects on tenure outcomes for households who are not yet home owners. A continued increase in real house prices greater than the growth in per household real incomes will add to access constraints for first home buyers and make it even more difficult for marginal home purchasers to bridge the deposit gap than in the base year. This provides an economic pressure for home ownership rates among the young to continue to decline (contrary to what has been assumed in the base model). On the other hand, the increase in rents could mean that there is a relative price effect, which makes renting less favourable than previously (although this would be offset by the increase in owner-occupier user costs that results from lower house price inflation). This might encourage those who have chosen, rather than being constrained, to be renters to switch to home ownership as their tenure of choice. The empirical evidence on the relationship between rents and user costs is inconclusive (as reported in Appendix A), which provides some argument for a stronger focus on the role of liquidity constraints.

The base model assumes the same future rate of transition from renting to owning as cohorts age as has occurred in the past. An increase in the relative price of renting compared with owning might result in an increase in the transition rate (at least for those households who are not constrained). One factor that could reduce the constraints and reverse the trend to declining home ownership among younger households and increase the incidence of age-specific home ownership rates is the impact of inheritance or gifts from wealthy parents or grandparents.

A number of possible scenarios, which are consistent with the conceptual model that underpins the assumptions outlined above, are given below.

3.5 Scenarios

The seven scenarios modelled examined the possible outcomes under different assumptions. The first scenario generates what are described as the core results for this paper. Those results involve the assumptions used in the base model described above. Other scenarios relate to: tenure changes (proportion of all households in homeownership); the rate of growth of rents or all housing costs in relation to incomes; and changes in the distribution of income.

Scenario 1: base model

Decline in home ownership rates stabilises; real income and housing costs increase together at 1 per cent higher than inflation.

3.5.1 Tenure changes

Scenario 2: age-specific home ownership rates are higher than in the base model.

The specific scenario modelled is that age-specific home ownership rates are retained at their 2001 (assumed to equal 2006) rates. This implies a faster rate of catch-up than assumed in the base model. This could occur because of mid- or late-life inheritance or because of more generous home purchase policies.

Scenario 3: age-specific home ownership rates are lower than in the base model.

The specific scenario modelled is that the downward trend in age-specific home ownership rates from 1981 to 2001 continues (but at a slower rate, with the decline in each of the next 20 years only half that from 1981 to 2001) and that the catch-up for each cohort as they age is

only 90 per cent of that achieved from 1981 to 2001. This might occur because continued growth in house prices imposes increasingly problematic deposit gaps or because existing renters prefer the lifestyle choices available (such as more central locations or better-quality housing available for the same outlays) when rental returns are lower than mortgage interest rates.

Scenarios based on changes in the assumption about public housing were considered but dismissed because the numbers involved are so small, compared with those involved in home ownership changes, that any outcomes are dwarfed by the assumptions made about home ownership.

3.5.2 Real income and real rent changes

Because of the assumption in the base model that housing costs increase in line with income, the rate of increase for household income assumed in the base model has no effect on the housing cost ratios experienced by different households and, therefore, no effect on the proportion of households paying in excess of 30 per cent of their income. Changes only arise when incomes and rents are assumed to increase at different rates. This is the implication of the scenarios outlined in this sub-section. This second set of scenarios modelled used the capacity of STINMOD to break income into its various components to vary the base model assumption about household income growth.

Scenario 4: wage incomes increase faster than in the base model.

The base model assumes all household incomes increase at a real rate of 1 per cent per annum. This was lower than the 1.5 per cent per annum growth in real GDP per capita assumed in IGR1¹⁴ to allow for decreasing household size over the period as a result of ageing and changing patterns of household formation. Under this scenario, the wage component of household income increased at 4.25 per cent per annum (1.75 per cent real) in line with productivity growth assumed in IGR1. All housing costs and all other household incomes were assumed to increase at the same rate as in the base model.

Scenario 5: wage incomes and rents increase faster than in the base model.

Increases in income without allowing for the impact of these increases on housing markets, however, is likely to lead to counterfactual results. Thus, a follow on scenario assumed both wages and rents in the private rental market increased at 4.25 per cent per annum (or 1.75 per cent real). This has the effect of retaining constant housing cost ratios for private renters who rely solely on wage income, but worsening them for private renters who rely on a significant component of non-wage income as part of their total household income.

3.5.3 Real housing cost changes

The base model assumes that housing costs, including private rents, increase with incomes (CPI +1%). This assumption is potentially unrealistically low for private rents. It implies that the rental rate of return on dwellings will decline over time if trend real house prices continue to increase faster than real incomes (likely because of the additional pressure created by continuing growth in the number of households). Under these circumstances, there will be an increased pressure on private rents (or a

¹⁴ The assumed rate of growth of real GDP per capita was increased from 1.5 per cent p.a. to 1.6 per cent p.a. in IGR2. Productivity was assumed to increase at 1.8 per cent p.a. over the next 40 years in IGR2, compared with 1.75 per cent in IGR1.

reduction in the supply of rental housing as investors leave the rental market in response to lower returns). The third set of scenarios examines the implications of housing costs rising faster than incomes.

Scenario 6: private rents increase faster than in the base model.

In the first of this third set of scenarios, private rents are assumed to increase in line with anticipated trends in house prices (CPI + 2%)¹⁵ but trends in other housing costs and incomes remain as in the base model (CPI + 1%).

Any trend towards increased rents could slow down the decline in home ownership (amongst those for whom it is an economic choice not to own) as examined in scenario 2. Households are able to choose home ownership over rental, however, only if they are not constrained in their access to home ownership. No attempt is made to model the interaction of these outcomes.

Scenario 7: both private rents and mortgage costs increase faster than in the base model.

In the second of this third set of scenarios, all housing costs are assumed to increase in line with anticipated trend in house prices (CPI + 2%) while incomes increase as in the base model (CPI + 1%).

If trend real house prices continue to increase more rapidly than real incomes, and if interest rates remain at their current levels, home purchasers will either need to take out correspondingly higher mortgages or will need increasingly large deposits to meet the growing deposit gap. If interest rates increase (possibly a more likely scenario), there will be even further pressure on households to take out mortgages that impose an even greater burden on household incomes. An alternative outcome is that the increased pressure from mortgage finance could exacerbate the current decline in home ownership among younger households and add to pressures in the private rental market. Again, no attempt is made to model these additional feedback effects.

3.6 Summary of outputs

The following two chapters cover the results of the modelling described above. Chapter 4 presents results for the base model described in sections 3.1 and 3.2. Chapter 5 presents results for the scenarios described in section 3.4.

Results are disaggregated by household income and by a range of socio-economic characteristics, described below. In each chapter, two sets of outputs can be identified for the three time periods for which data are reported: those that provide insights into the sustainability of the housing system and those that provide insights into of the sustainability of the current housing assistance framework, or its fiscal sustainability.

3.6.1 Summary of variables employed

The level of disaggregation employed in generating these outputs and the outputs themselves are summarised below:

- Time period: 2006 (baseline), 2025 and 2045. This provides outputs for the baseline at present plus one and two generations ahead.

¹⁵ Background material on factors affecting house price trends is provided in Technical Appendix B of this report.

- Housing markets: capital city versus rest of state for each state (with ACT and NT aggregated because of data restrictions). This is essential given the great variability of costs (and less so incomes) across housing markets.
- Household age (years old for reference person): 15 to 24, 25 to 34, 35 to 44, 45 to 54, 65+. This provides indicators of lifespan progression and cohort differences.
- Household type: couple only, couple with children, single person, sole parents, others. These are key factors in the needs for housing and relate closely to capacity to pay.
- Household income: by income quintile.¹⁶ Information was also available on: whether the reference person was employed; the primary sources of income; and the pension/beneficiary status of the household reference person. This level of detail has allowed different assumptions regarding the change in sources of income over time.
- Housing tenure: home ownership (outright and purchaser), public tenant and private tenant (including other).

3.6.2 *Housing system sustainability*

One measure of sustainability is used:

- Ratio of housing costs to gross household income.

The single measure of intergenerational sustainability of the Australian housing system is taken to be the proportion of households paying 30 per cent or more of their income towards housing and, in particular, the proportion of households in the lower two quintiles of the income distribution with such high housing cost ratios. These households are described as being in housing stress.¹⁷

This aggregate estimate provides the key indicator of whether housing outcomes are likely to improve or worsen over time and, hence, whether the housing system as currently constituted is sustainable. Disaggregation by the key classification variables will highlight which groups are likely to contribute most to the observed increase or decrease in affordability problems under the base model and the different scenarios considered.

3.6.3 *Fiscal sustainability of current housing assistance system*

Fiscal sustainability is measured by the impact on overall fiscal expenditures by Government of the housing outcomes generated in the simulations from 2006 to 2025 and then 2045. The fiscal impacts assume that housing assistance remains in the form in was in 2006. Only two major (Commonwealth) expenditure areas are included. These are Commonwealth Rent Assistance and the First Home Owner Grant Scheme:

¹⁶ The distribution employed is based on equivalised disposable income, where equivalised disposable income is derived by dividing disposable income by an equivalence factor using the 'modified OECD' equivalence scale in which the first adult in the household has a weight of 1 point, each additional person aged 15 year or more has a weight of 0.5 points and each child under the age of 15 a weight of 0.3 points. The purpose of this adjustment is to allow for the economies of scale that arise from the sharing of income.

¹⁷ Conventionally the term 'housing stress' applies only to lower-income households (in the lowest 40 per cent of the income distribution) paying at least 30 per cent of their income on housing (Yates and Gabriel, 2006). However, for ease of exposition, here it is applied to any household paying at least 30 per cent of their income on housing. Unless qualified, results apply to all households. When appropriate, results are reported separately for lower income households. Most households with 30 per cent+ housing cost ratios are lower income households.

- Commonwealth Rent Assistance (CRA). The impact on CRA of the outcomes of the housing system under the demographic projections outlined in section 3.1 and the modelling assumptions described above have been generated from STINMOD by up-rating current allowances by the CPI and applying current eligibility conditions to the projected population satisfying each of the conditions. The key driver of future CRA outlays will be the number of households in receipt of social security payments living in private rental accommodation.
- First Home Owner Grant (FHOG) Scheme. The impact of the projected housing outcomes is based on estimates of the number of first home buyers given the assumptions about demographic trends and future home ownership rates. First home buyers were identified as those who had purchased their first home in the past three years divided by three to get an annual estimate. This information was available on the two surveys used to derive STINMOD.

The demand on CSHA expenditures under different assumptions about public housing was not modelled because it was seen as an output driven by explicit policy decisions rather than by the rate of household growth or other variables included in the model. It is not amenable to simple projections and is unlikely to provide useful insights.

Because the model employed for this analysis has no underlying behavioural assumptions, it builds in no formal analysis of the determinants of house prices and the response of aspiring home buyers to such factors.

As such, it can provide only a limited indication of the impact of state expenditures that affect, or are affected by, the housing system. The impact of changes in state policies – such as the introduction of environmental taxes or regulations to improve the environmental sustainability of the housing system or the changing of land taxes to encourage private rental investment in housing – can be modelled only by making assumptions about the impact they have on core endogenous variables in the model (such as tenure or rents), and then projecting the effect of these changes through to 2025 and 2045. The results of the scenarios reported in Chapter 5 can be used to obtain some insights into the outcomes under different assumptions about each of these variables in STINMOD. Illustrative implications are discussed briefly in Chapter 6.

4 CORE FINDINGS

This chapter provides an overview of the key results from the base model. These represent the core findings from this study. It is these results that provide an indication of the extent of the intergenerational sustainability of the Australian housing system. The results in the following chapter provide an indication of the robustness of the results to alternative assumptions about some of the key drivers that affect the model.

The key results are presented below. Over the 40 years from 2006 to 2045:

- The total number of households in Australia is projected to increase by 50 per cent (from 8.1 million in 2006 to just over 12.1 million in 2045).
- The number of households in housing stress – defined as housing cost to income ratio of at least 30 per cent – is projected to increase by 77 per cent (or 18,500 households per year).
- The number of lower-income households in housing stress is projected to increase by 84 per cent (or 13,500 households per year).
- The total number of households in the private rental market in Australia is expected to increase by 80 per cent (from 1.8 million in 2006 to 3.3 million in 2045).¹⁸
- The number of lower-income households in housing stress in the private rental market is expected to increase by 120 per cent (or 12,000 households per year).
- The incidence of housing stress among lower-income households is projected to increase from 20 per cent to 24 per cent.
- The incidence of housing stress among lower-income households in the private rental market is expected to increase from 53 per cent to 65 per cent.
- Real expenditures on CRA are projected to increase by 170 per cent from less than \$2 billion in 2006 to over \$5 billion in 2045 (measured in 2006 dollars).
- Combined housing expenditures on the two key direct housing assistance programs covered in this report (CRA and FHOG) are expected to increase in real terms by 50 per cent.

In other words, over the next 40 years the Australian housing system is projected to generate increasingly unsustainable housing outcomes, primarily as a result of an increasing reliance on the private rental market to meet the housing needs of a growing and ageing population. It is also projected to be fiscally unsustainable.

4.1 Housing sustainability: headline results

The base model results suggest that the number of households with high housing cost ratios will rise by from an estimated 962,000 in 2006 to 1,702,000 in 2045. These results are illustrated in Figure 4.1. Of the 1.7 million such households in 2045, 1.2 million are lower-income households and just under 0.3 million are moderate-income households in the middle quintile of the income distribution. The remaining are higher-income households in the top two quintiles whose housing costs are generally of little concern.

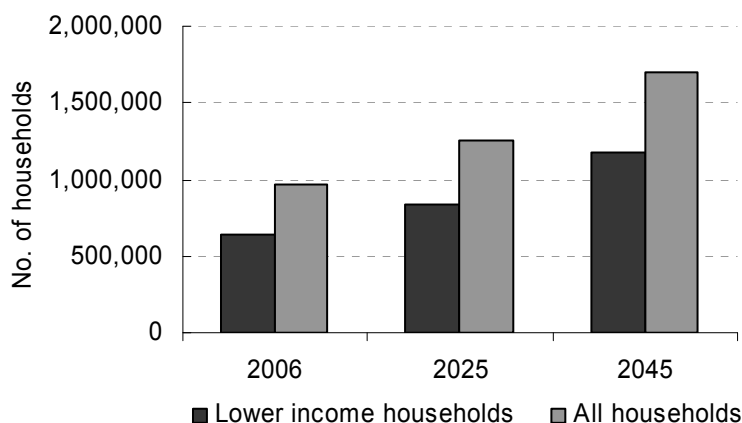
Over the 40 years to 2045, the total number of households in Australia is projected to increase by 50 per cent (from 8.1 million in 2006 to just over 12.1 million in 2045).

¹⁸ This projection holds for the base model. It differs in two of the six scenarios described in the next chapter.

Over the same period, however, the total number of households in housing stress is projected to increase by 77 per cent and the total number of lower-income households in housing stress is projected to increase by 84 per cent.

It is important to reiterate the Chapter 3 caution: the number estimated to be in stress is generated from a 2006 base estimate, which is extremely conservative, with the result that the number of households in stress potentially is underestimated.

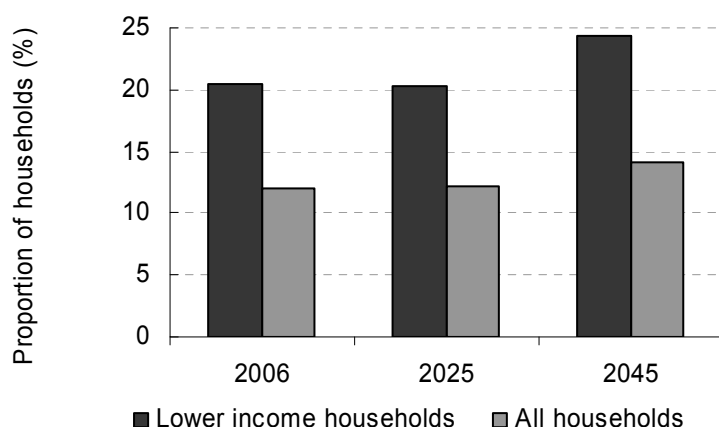
Figure 4.1: Number of households in housing stress



Source: generated from STINMOD06A, NATSEM

Increases in the total number of households in housing stress are driven by increases in the incidence of housing stress as well as by increases in the total number of households in Australia to 2045. Figure 4.2 shows that this increase in the proportions in housing stress will emerge slowly: in 2025 the proportion of households with high housing costs in relation to income is almost the same as in 2006. The increase occurs primarily between 2025 and 2045, and the increase is most notable among lower-income households.

Figure 4.2: Proportion of households in housing stress



Source: generated from STINMOD06A, NATSEM

The key drivers of these results lie in the assumptions regarding the projections. These were the non-discretionary assumptions about demographic projections (household growth, smaller households and an ageing population) as well as the discretionary assumptions made about tenure trends (declining home ownership and

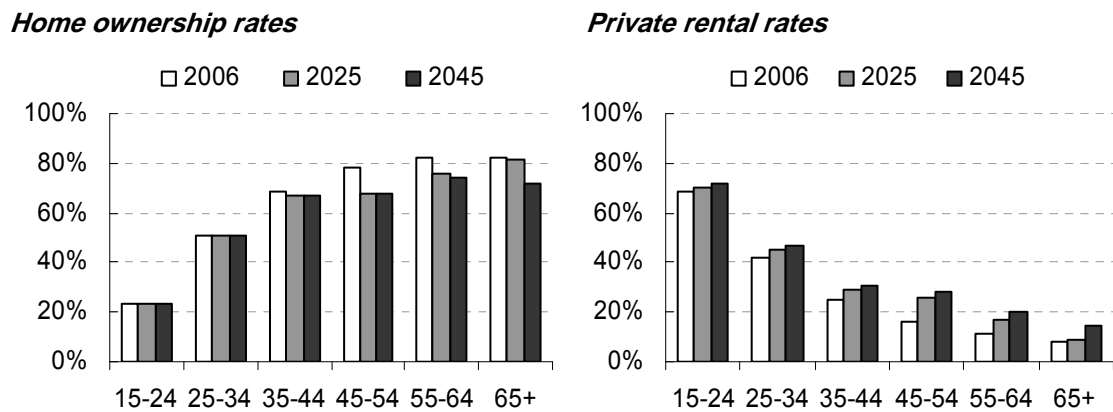
social housing) and about continuing economic growth (reflected in increases of both incomes and housing costs). Overall, the results arise primarily from the combination of population ageing together with declining rates of home ownership and social housing, as shown in more detail below.

4.2 Housing sustainability: specific results

4.2.1 Tenure outcomes

The base model generates Australia-wide home ownership rates for 2025 and 2045 given the household projections and tenure assumptions outlined in Chapter 3. The projections based on these assumptions are illustrated in Figure 4.3.

Figure 4.3: Assumed age-specific tenure outcomes, 2006–2045

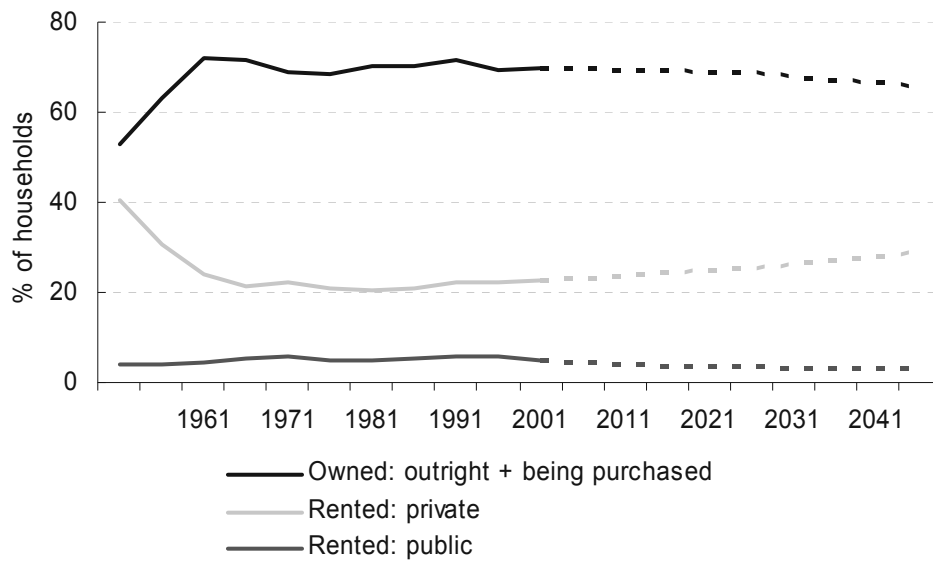


The home ownership results reflect the assumed stability of home ownership rates for younger households to 2025 and 2045 along with the ongoing effects of the observed declines in home ownership rates among households who will be moving into middle age and retirement during this time. The rising rate of private rental results emerges as a mirror image of these outcomes together with assumed declines in social housing and other tenures.¹⁹ The most important single change is the increasing proportion of older people in private rental by 2045.

Figure 4.4 shows that these tenure assumptions along with the demographic projections would reduce home ownership rates from the 70 per cent rate maintained over the past 45 years to 69 per cent in 2025 and 66 per cent in 2045. The proportion of home owners among those aged 65 years and over would fall from the current 82 per cent to 72 per cent.

¹⁹ The projections assumed no growth of households in social housing and other tenures remain a fixed proportion of the total. The proportion of households in private rental was derived as a residual.

Figure 4.4: Nature of occupancy: past and projected



Note: Other tenure not charted: assumed to remain constant at 2.7 per cent.

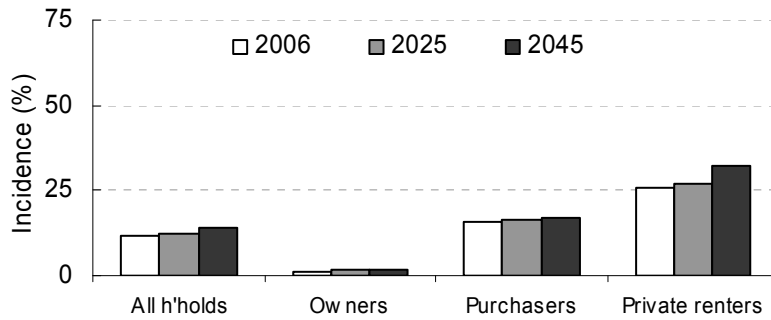
Source: projected results from STINMOD06A, NATSEM

4.2.2 Housing stress by tenure

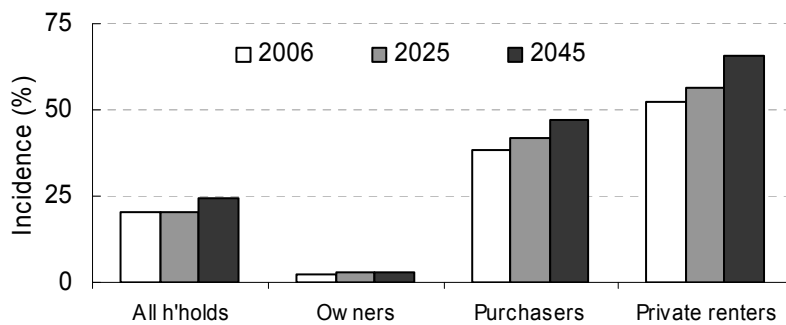
The increased proportion of households in private rental housing has important implications for the numbers of households in housing stress. Figure 4.5 clearly shows the higher incidence of stress among households in private rental and, particularly, among lower-income households in private rental. By 2045, the incidence of stress for lower-income renters (at 65 per cent) is projected to be nearly three times the average incidence of stress among all lower-income households. In sharp contrast, very few outright owners, irrespective of income, are projected to be in housing stress in the decades ahead.

Figure 4.5: Housing stress by tenure

All households



Lower income households

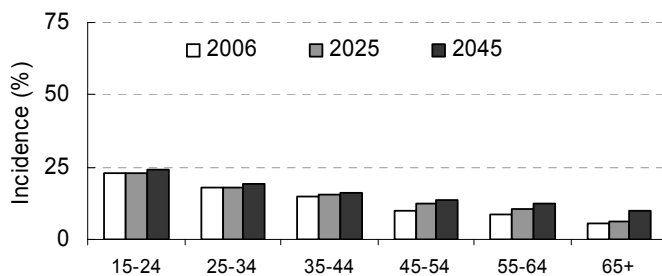


Source: generated from STINMOD06A, NATSEM

4.2.3 Housing stress by age

Over the next 40 years, younger households are likely to be more exposed to housing stress than are older households (Figure 4.6). The primary explanation is that fewer of them are expected to be able to afford to leave private rental housing where the risks of housing stress are greatest. This pattern changes relatively little over time. The primary impact of high house prices on potential first home buyers is that their borrowing capacity, combined with their deposit (made up from savings and any assistance provided through FHOG) is insufficient to enable them to afford to purchase. Thus, home ownership rates fall and an increasing proportion of younger households rely on private rental, where housing stress levels are higher.

Figure 4.6: Housing stress, all households by age



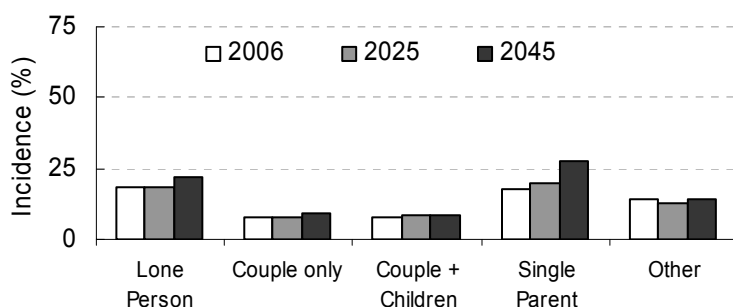
Source: generated from STINMOD06A, NATSEM

While the largest propensity to be in housing stress to 2045 will continue to occur among younger households, the most notable change ahead is the increased propensity of older households to be in housing stress. This is attributable primarily to the increasing proportions of households who would be unable to gain access to home ownership by mid-life. When combined with the increasing numbers of older households, as the population ages, this increased propensity provides a clear signal of future affordability problems in later life.

4.2.4 Housing stress by household type

The impact of increasing housing stress is likely to fall especially heavily on single parents (Figure 4.7). Their incomes are not expected to rise as fast as other groups (many rely on benefits at present) and their incidence of stress is projected to increase (from 17.4 per cent in 2006 to 27.3 per cent by 2045). There is a modest rise of housing stress among lone-person households, which include both younger and older individuals, and the numbers of these households also are projected to increase significantly.

Figure 4.7: Housing stress, all households by household type



Source: generated from STINMOD06A, NATSEM

4.2.5 Housing stress by region

The final outcome to be examined is the extent to which the combined effect of projected shifts in population and regional differences in housing costs would affect the projected housing stress outcomes. The relevant details are provided in Table 4.1.

The first column for each year in Table 4.1 indicates the results of the ABS and PC projections for household numbers in each state at a capital city and rest of state regional level. The second column for each year indicates the proportion of those households who are estimated to be in housing stress in 2006 and who are projected to be so in 2025 and 2045. These estimates are generated from demographic projections that are fixed and do not respond to emerging housing problems. For example, there is no way to anticipate how the pressures of housing costs might lead to different settlement patterns.

The final three rows suggest that Australia's housing system is likely to be increasingly unsustainable in the capital cities for the next two generations of households, with the number of capital city households facing unsustainably high housing costs increasing from 621,000 in 2006 to more than one million by 2045. This represents an increase from 12.7 per cent to 14.6 per cent of all capital city households. The increase in the incidence of households in housing stress, however, is greater for non-metropolitan households, with the proportion increasing from 10.9 per cent to 13.5 per cent of all non-metropolitan households, and the total numbers

increasing from 324,000 in 2006 to 602,000 by 2045.²⁰ This can be attributed to the shift of lower-income households (including retirees) out of the metropolitan regions.

In 2006, the affordability crisis was worst in metropolitan Sydney, with 230,000 households (14.3 per cent of all households) in housing stress. By 2045 the projected magnitude of the problem is still greatest in Sydney, with the number of households in stress projected to increase to 360,000 households (15.3 per cent of all households). By 2045, however, the incidence of housing stress is far greater in Queensland, with almost 17 per cent of households projected to be in stress by 2045, regardless of whether they are living in Brisbane or outside the metropolitan region.

Table 4.1: Housing stress, all households by region

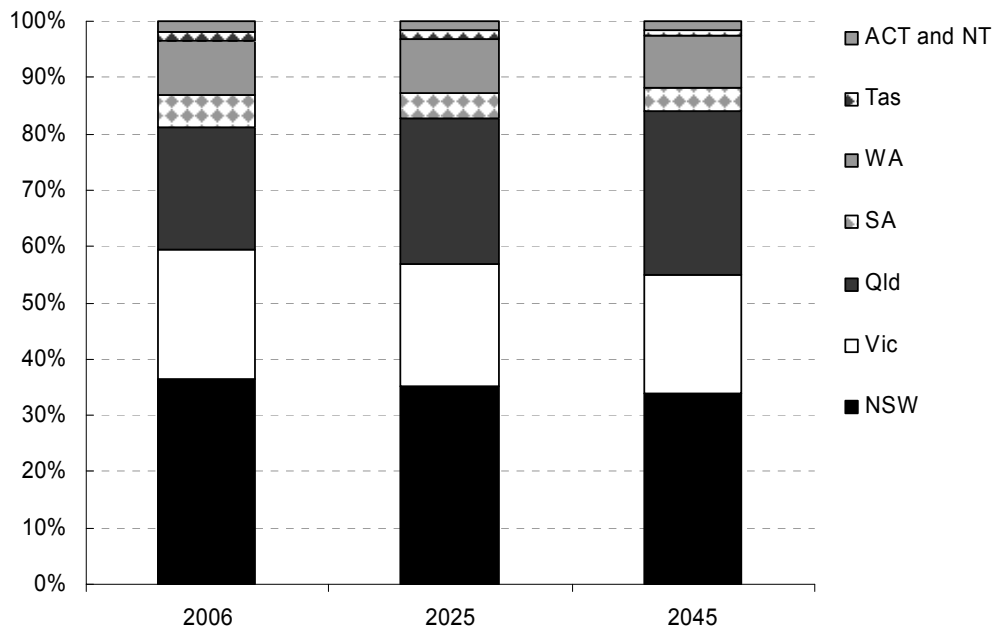
Region	2006		2025		2045	
	No. ('000s)	%	No. ('000s)	%	No. ('000s)	%
Sydney	230	14.3	292	14.3	360	15.3
RoNSW	121	11.7	149	12.0	214	14.9
NSW	351	13.3	442	13.5	574	15.2
Melbourne	178	12.6	214	11.9	290	14.0
RoVic	44	7.9	55	8.3	73	9.5
Vic	222	11.2	269	10.9	364	12.8
Brisbane	89	12.5	142	13.8	222	16.9
RoQld	121	13.9	182	14.5	269	16.8
Qld	210	13.3	324	14.2	492	16.9
Adelaide	43	9.0	49	9.0	62	11.2
RoSA	9	5.3	8	4.2	9	4.7
SA	53	8.2	57	7.8	71	9.5
Perth	74	12.5	98	12.0	133	13.3
RoWA	19	8.9	24	8.7	26	7.7
WA	93	11.5	122	11.1	158	11.9
Hobart	7	8.2	8	8.4	8	8.8
RoTas	11	9.2	9	7.0	10	8.1
Tas	17	8.4	17	7.6	18	8.4
ACT and NT	17	8.6	21	8.4	25	8.9
All capital cities	621	12.7	804	12.7	1,075	14.6
Rest of Australia	324	10.9	427	11.4	602	13.5
Australia	962	11.9	1,252	12.1	1,702	14.1

Note: Ro: Rest of

Source: generated from STINMOD06A, NATSEM

²⁰ As indicated at the start of this chapter, the estimates of the proportion of households with high housing costs are derived from a simulation model which, for 2006, yields results considerably lower than those generated directly from survey data.

Figure 4.8: Housing stress, all households by region



Source: generated from STINMOD06, NATSEM

4.3 Drivers of results

As explained above, the key drivers of the results reported in this chapter lie in the assumptions regarding the projections and, in particular, assumptions made about demographic projections (household growth, smaller households, an ageing population) and those made about tenure trends (declining home ownership and social housing). This section examines the contributions of those assumptions to the results in more detail. The potential impacts of continuing economic growth and increasing incomes and housing costs are examined in the following chapter.

Table 4.2 provides an overview of the impact of the projected demographic changes and the incidence of stress among different households on the characteristics of households in stress in 2006 and 2045. The first set of columns shows the relative importance of each household type in 2006 and 2045 and the change over this period. The second set of columns shows the incidence of stress illustrated in Figure 4.5 to Figure 4.7. The final set of columns shows how the combined effects of these shape the characteristics of households in stress.

In 2006, for example, 23 per cent of all households were private renters and 50 per cent of all stressed households were private renters. By 2045, the proportion of private renters had increased to 27 per cent of all households. This increase in the importance of private rental combines with a high and increasing incidence of stress among private renters to result in private renters accounting for 63 per cent of all households in stress by 2045, an increase from 50 per cent in 2006. For lower-income households, private renters account for 74 per cent of all lower-income households in housing stress in 2045, up from 62 per cent in 2006, again as a result of an increase in the proportion of lower-income households who were private renters (from 24 per cent to 28 per cent of all lower-income households) and an increase in stress among lower-income private renters (from 53 per cent to 65 per cent).

Other significant results occur for older households and for households without children. In 2006, households aged 65+ years old accounted for 21 per cent of all

households. By 2045, they are projected to account for 34 per cent of all households. The proportion of older households in stress in 2006 is relatively low (at 5 per cent). However, by 2045, this increases to 10 per cent, primarily because more older households are projected to be private renters rather than home owners. The combined effect of these changes is that older households are projected to account for 25 per cent of households in stress by 2045, up from just 9 per cent in 2006.

Table 4.2: Contributions to housing stress by demographic characteristics, 2006–2045

	Share of all h'holds			Incidence of stress			Share of stressed h'holds		
	2006	2045	change	2006	2045	change	2006	2045	change
<i>All households by tenure</i>	%	%	% points	%	%	% points	%	%	% points
Owners	37	40	2	1	1	0	4	4	0
Purchasers	33	26	-7	16	17	1	44	31	-13
Rent Private	23	27	4	26	32	6	50	63	13
Rent Public	5	3	-2	*	*	*	3	2	0
<i>Lower income households by tenure</i>									
Owners	55	50	-5	2	3	0	7	6	-1
Purchasers	15	9	-7	39	47	8	29	16	-13
Rent Private	24	28	4	53	65	13	62	74	12
Rent Public	11	7	-3	*	*	*	4	3	-1
<i>Age</i>									
15-24	5	4	-1	23	24	2	10	7	-3
25-34	18	14	-3	18	19	1	26	20	-7
35-44	22	17	-5	15	16	2	27	20	-7
45-54	20	16	-4	10	14	4	17	16	-1
55-64	14	14	0	9	13	4	10	12	2
65+	21	34	13	5	10	5	9	25	15
<i>Household type</i>									
Lone Person	22	25	4	19	22	3	34	39	5
Couple only	22	29	6	8	9	1	14	18	4
Couple + Kids	32	28	-4	8	9	1	21	17	-4
Single Parent	10	8	-2	17	27	10	14	15	0
Other	14	10	-4	14	14	0	16	10	-6

Note: Cell sizes too small for reliable results

Source: generated from STINMOD06A, NATSEM

The results presented in this chapter suggest that the proportion of households in housing stress is expected to increase from 11.9 per cent in 2006 to 12.1 per cent in 2025 and to 14.1 per cent in 2045. This trend occurs for the base model, where changes in affordability outcomes can be attributed solely to the interaction of demographic change and tenure change.²¹

The results in Table 4.2 and the regional outcomes shown in Table 4.1 and in Figure 4.8 show that the key drivers of these outcomes include the move away from home ownership and into private rental (where housing stress is greatest), the demographic change to lone person and couple only households (where housing stress levels are greater), the ageing population and a projected increase in the number of households living in Queensland. They also show that the groups with the greatest increases in the incidence of stress are private renters, the aged, lone person and single parent households and households projected to be living in Queensland. Most of these groups already experience high levels of housing stress.

In other words, groups that are in housing stress and/or have an increased propensity to be in stress also tend to be the groups that are experiencing strong growth as a

²¹ Incomes and housing costs have been projected to increase at the same rate in the base model so that the ratio of housing costs to income remains unchanged.

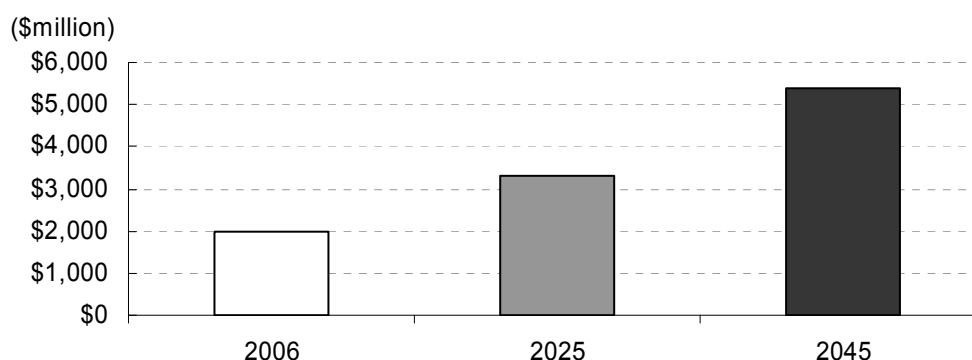
result of demographic change. This results in a “double whammy” in terms of housing sustainability.

4.4 Fiscal sustainability

4.4.1 Impact on CRA

Figure 4.9 shows projected increases in real expenditure on CRA (measured in 2006 dollars). These increases arise primarily as result of growth in the number of CRA-eligible households in private rental. The increase in the number of households in private rental can be attributed to the impact of the current decline in home ownership working its way through the housing system and to the impact of the assumed lack of growth in social housing dwellings. By 2045, if current policy settings are retained, CRA is projected to increase by 2.5 times from a current value of less than \$2,000 million to over \$5,000 million measured in 2006 dollars.

Figure 4.9: Projected real expenditure on CRA



Source: generated from STINMOD06A, NATSEM

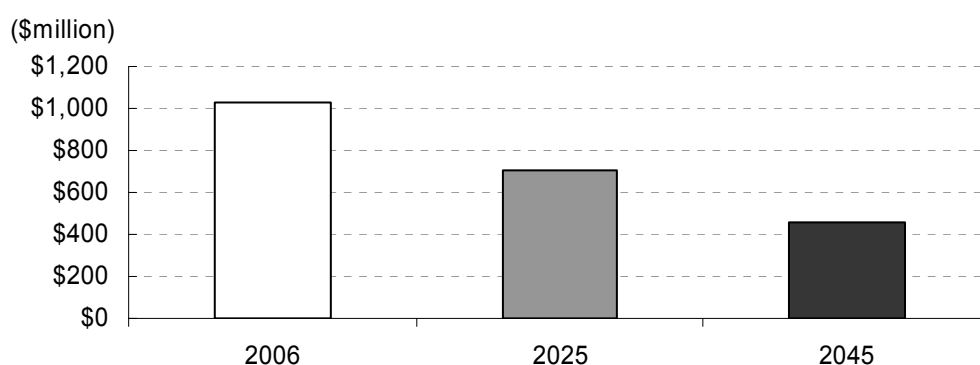
Over this period, IGR1 predicts that real GDP will increase by 121 per cent. As a percentage of GDP, CRA expenditure as a proportion of GDP is projected to increase by 23 per cent from a relatively insignificant 0.20 per cent of GDP in 2006 to an equally insignificant 0.25 per cent in 2045.

4.4.2 Impact on FHOG

Expenditure on FHOG, on the other hand, is projected to decline from its current value of just over \$1,000 million to a less than \$500 million in real terms because of declining proportions of first home buyers but primarily because of the assumption that FHOG is retained at \$7000.²²

²² If FHOG had been assumed to remain constant in real terms (contrary to current policy), total outlays on FHOG would have remained relatively stable at their 2006 value when measured in \$2006.

Figure 4.10: Projected real expenditure on FHOG



Source: generated from STINMOD06A, NATSEM

4.4.3 Net effect on fiscal sustainability

The net effect of the projected changes in housing tenure and the demand for housing assistance is a significant increase in the demands made upon the Commonwealth budget. In 2006 the combined expenditure on these two key forms of direct housing assistance was \$3,000 million, or \$4,300 million if the current minimum level of Commonwealth and state expenditure on the CSHA, not included in the modelling, is counted²³. By 2045, this (ex-CSHA) level of expenditure is projected to increase to \$4,500 million, a 50 per cent increase in real terms. Even if CSHA expenditure was reduced to zero, there would still be a projected increase in total Commonwealth outlays.

As a percentage of GDP, however, the combined housing expenditures on CRA and FHOG decrease from 0.31 per cent of GDP in 2006 to 0.27 per cent in 2045. Thus, under the criterion set in the IGR, the current system of housing assistance based on the two key direct housing assistance programs is fiscally sustainable. This result arises only because the support for first home owners is assumed to continue to decline in real terms.

On the same criterion, the system of rental assistance is unsustainable, increasing as it does from 0.20 to 0.25 per cent of GDP. Regardless of whether CRA or both direct housing assistance programs are considered, their impact on GDP is minimal both now and in the future. This suggests that the question of the sustainability of the housing system is far more important than the question of the sustainability of the housing assistance system.

These findings show that, while the projected levels of expenditure on housing assistance are fiscally sustainable, they will be insufficient to prevent increasing housing stress in Australia.

4.5 Summary of core results

The core results presented here suggest that, under the base model assumptions, Australia's current housing system is not sustainable. The criterion set for housing sustainability – that there be no increase in the proportion of households in housing stress – is not met. Housing assistance is on the borderline of being fiscally unsustainable. The criterion set for fiscal sustainability – that there be no increase in demands made upon government budgets by the housing assistance system – is not met. The criterion that housing assistance as a percentage of GDP does not increase

²³ Some states and territories make additional allocations to their housing programs to the minimum required under the intergovernmental agreement.

is not met for rental housing assistance. However, it is met for the combined expenditure on CRA and FHOG because of the assumption that the dollar value of FHOG does not increase in the next 40 years.

For both the housing and fiscal sustainability results, the biggest contribution to this lack of sustainability occurs in the second, not the first, 20 years – in other words, between 2025 and 2045 rather than between 2006 and 2025. This arises primarily because of the long-lived nature of housing outcomes. It takes 40 years for the impact of a decline in home ownership for households in their twenties and thirties in 2006 to have a significant impact on housing stress outcomes. Many of these households will have had moderate or even higher incomes throughout their working lives. However, they may have chosen to rent because it imposed less of a burden on their current incomes at a time when there were many other demands on those incomes. Others will have had no choice because they were simply unable to afford to purchase housing that was appropriate to their needs.

By the time these households reach retirement age, many will still be in private rental. As their incomes fall in retirement, but their housing costs do not, they will join the ranks of the increasing number of private renter households in housing stress.

5 SENSITIVITY ANALYSES

5.1 Housing sustainability

5.1.1 Summary of scenarios

The scenarios modelled for this study examined the possible outcomes under different assumptions about tenure outcomes: about the rate of growth of rents of housing costs in relation to incomes; and about changes in the distribution of income. A summary of these scenarios reported in this chapter is provided in Table 5.1. A more detailed explanation of them was provided in section 3.5.

Table 5.1: Scenarios

<i>Brief description</i>	<i>Assumptions</i>
1 Base	<ul style="list-style-type: none"> → Tenure: decline in home ownership rate stabilises; rates for <35s remain at 2001 level; rates for 35+ increase by same increment in each of next 20 year periods as in the past 20 years. Numbers of dwellings in public (social) rental remain as at 2006. Proportion of 'other' dwellings (including rent free) held constant at 2001 level. Private rent is residual tenure.
2 Home ownership higher than base	<ul style="list-style-type: none"> → Income and housing costs: all increase at CPI + 1% → Tenure: age specific home ownership rates remain at 2001 level; all other tenure assumptions as in base model
3 Home ownership lower than base	<ul style="list-style-type: none"> → Income and housing costs: as in base model – CPI + 1% → Tenure: decline in home ownership continues: downward trend in home ownership rates for <35s slows down; rates for 35+ increase in each of next 20 year periods by 90 per cent of increase in past 20 years; all other tenure assumptions as in base model
4 Wage incomes increase faster than base	<ul style="list-style-type: none"> → Income and housing costs: as in base model – CPI + 1% → Tenure: as in base model – decline in home ownership rate stabilises → Wages increase at CPI + 1.75% → Other income and housing costs: as in base model – CPI + 1%
5 Wage incomes and rents increase faster than base	<ul style="list-style-type: none"> → Tenure: as in base model – decline in home ownership rate stabilises → Rents and wages increase at CPI + 1.75% → Other income and other housing costs: as in base model – CPI + 1%
6 Private rents increase faster than base	<ul style="list-style-type: none"> → Tenure: as in base model – decline in home ownership rate stabilises → Rents increase at CPI + 2% → Income and other housing costs: as in base model – CPI + 1%
7 All housing costs increase faster than base	<ul style="list-style-type: none"> → Tenure: as in base model – decline in home ownership rate stabilises → All housing costs increase at CPI + 2% → Income: as in base model – CPI + 1%

5.1.2 Scenario results for all households and all lower income households

The key results from the base model (scenario 1) and the sensitivity analyses (scenarios 2–7) are reported in Table 5.2. All the results in this chapter are compared with those derived from the base model presented in Chapter 4. The base model results are highlighted in the table.

Table 5.2: Scenario results – proportion of households in housing stress

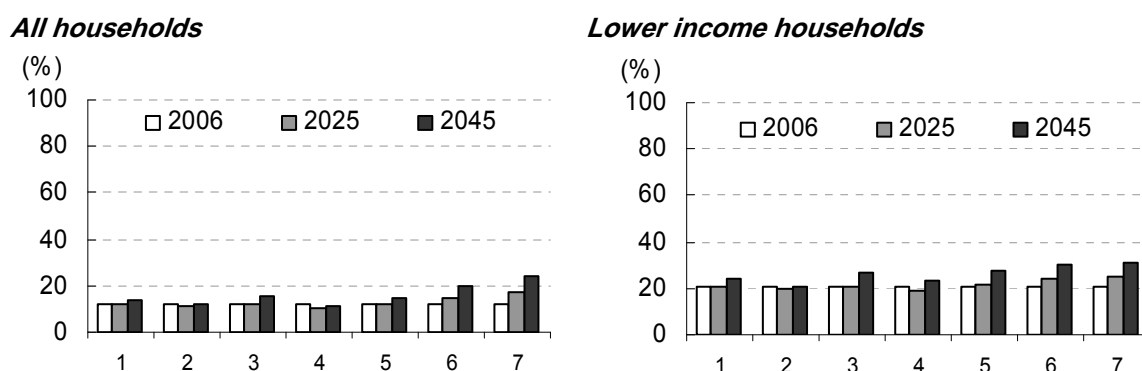
Sc.	All households			Lower income households		
	2006	2025	2045	2006	2025	2045
All tenures						
1	11.9	12.1	14.1	20.4	20.3	24.4
2	11.9	11.4	12.2	20.4	19.5	20.6
3	11.9	12.2	15.1	20.4	20.6	26.7
4	11.9	10.4	11.3	20.4	19.1	22.9
5	11.9	12.1	14.3	20.4	21.8	27.4
6	11.9	14.8	19.6	20.4	23.9	29.7
7	11.9	16.9	24.3	20.4	24.9	31.0
Owners/purchasers						
1	8.2	7.5	7.5	11.2	9.4	9.3
2	8.2	7.3	6.9	11.2	10.1	9.3
3	8.2	7.2	6.9	11.2	8.9	9.3
4	8.2	5.9	4.9	11.2	8.5	8.1
5	8.2	5.9	4.9	11.2	8.5	8.1
6	8.2	7.5	7.5	11.2	9.4	9.3
7	8.2	10.6	14.5	11.2	11.0	11.5
Private renters						
1	25.8	27.0	32.3	52.6	56.5	65.5
2	25.8	27.0	32.1	52.6	55.7	64.9
3	25.8	26.9	33.9	52.6	56.5	67.0
4	25.8	24.6	28.4	52.6	54.7	63.1
5	25.8	31.1	39.5	52.6	66.0	79.5
6	25.8	37.7	52.5	52.6	71.2	84.6
7	25.8	37.7	52.5	52.6	71.2	84.6

Source: generated from STINMOD06A, NATSEM

The scenario results are illustrated in Figure 5.1. This shows the estimates under the different scenarios of the proportion of all households in housing stress (the chart on the left) and the proportion of all lower -income households in housing stress (the chart on the right). The results for 2006 remain unchanged for each scenario and all scenarios are based on the same demographic projections that were built into the base model. Outcomes vary between the scenarios only because of the different assumptions made about the values of key economic variables in the future: viz., tenure, income and housing costs.

The most striking results from the simulations for all households (the left chart) is that they are relatively stable for the first five scenarios illustrated. They are significantly different from the base case only for the last two scenarios.

Figure 5.1: Scenario results – proportion of households in housing stress



Source: generated from STINMOD06A, NATSEM

The first five scenarios illustrated cover the base model (scenario 1), scenarios 2 and 3 (home ownership rates either stabilise from their current downward trend or continue to decline) and scenarios 4 and 5 (wage incomes to increase faster than in the base model, with or without matching increases in rents). Under this range of scenarios, the projected proportion of households in housing stress in 2045 varies from a low of 11.3 per cent (under scenario 4, when wage growth without a consequential impact on housing costs is assumed) to a high of 15.1 per cent (under scenario 3, when home ownership rates are assumed to continue on a downward trend for younger households and only a partial catch-up of the gap between the home ownership rates of current cohorts and past cohorts is assumed). These results span the 14.1 per cent estimate for 2045 for the base model scenario.

At best, they suggest that there will only be a marginal improvement in affordability outcomes by 2045 under the most optimistic of the scenarios modelled: namely, that real wages rise in line with the 1.75 per cent productivity growth assumed in both IGR1 and IGR2 and that this has no impact on housing costs (scenario 4). Even under this scenario, the number of households projected to be in housing stress with unsustainably high housing cost ratios increases from the 2006 estimate of 962,000 households to a 2045 estimate of 1,369,000 households. This scenario has incomes rising faster than housing costs.

A considerably less sanguine outcome arises for the scenarios that assume housing costs (either rents or rents and mortgage costs) increase faster than incomes, as was assumed for scenarios 6 and 7, where rents or housing costs generally were allowed to increase at 1 percentage point higher than real incomes (in line with the projected increase in house prices).

Under the scenario 6, 19.6 per cent of all households are projected to be in housing stress by 2045. This represents 2,376,000 households. Under scenario 7, the proportion is as high as 24.3 per cent, representing 2,939,000 households: more than a threefold increase from those in housing stress in 2006, at a time when the total number of households in Australia is projected to increase by only a little more than 50 per cent.

The results for lower-income households follow a similar pattern but are even more problematic. These are illustrated in the chart on the right in Figure 5.1. Under the assumptions employed in the base model (scenario 1), 20.4 per cent of lower-income households (642,000 households in total) were estimated to be in housing stress. This was projected to increase to 24.4 per cent by 2045 (1,182,000 households). In only two of the scenarios modelled (scenario 2, where home ownership rates are

higher than in the base model and scenario 4, where wage incomes increase faster than housing costs) is the incidence of stress projected to be lower by 2045, with a value of 20.6 per cent for scenario 2 and 22.9 per cent for scenario 4. Even the lower of these represents a marginal increase in the projected incidence of housing stress by 2045 over that estimated for 2006. This most optimistic of the scenarios yields an estimate of 996,000 lower-income households in housing stress by 2045.

All of the remaining scenarios modelled yield even higher estimates of the increase in the incidence of housing stress among lower-income households by 2045. As for all households, the worst results occur in scenarios 6 and 7, where housing costs (either rents or rents and mortgage costs) increase faster than incomes. Under these scenarios, the incidence of housing stress among lower-income households is projected to increase by 50 per cent from an estimated 20.4 per cent in 2006 to 29.7 per cent (scenario 6) or 31.0 per cent (scenario 7) by 2045. Under the worst case scenario, this means 1,504,000 lower-income households are projected to be in housing stress. More than 75 per cent of these households will live in the private rental market.

5.1.3 Scenario results by household characteristics

The results for the proportions of households in housing stress are illustrated in the charts below for various household characteristics. Figure 5.2 shows these by tenure, Figure 5.3 by age, and Figure 5.4 by household type. The presentation of these mirrors the results illustrated in Figure 5.1, with the charts on the left showing the results for all households and the charts on the right showing the results for lower-income households.

The results in Figure 5.2 highlight the significant problems that private renters are projected to face in the future, regardless of which scenario is used to project their outcomes. Their affordability prognosis is extremely poor under the base scenario (which yields one of the more optimistic of the projections). It is even worse under the scenarios where rents increase relative to incomes.

In the base model, 477,000 of all private renter households and 400,000 of lower-income private renter households (equivalent to 25.8 per cent of all and 52.6 per cent of lower-income private renter households) were estimated to be in housing stress in 2006. By 2045, these numbers were projected to increase to 1,069,000 households (equivalent to 32.3 per cent of all private renter households) and to 879,000 households (equivalent to 65.5 per cent of all lower-income private renter households), respectively.

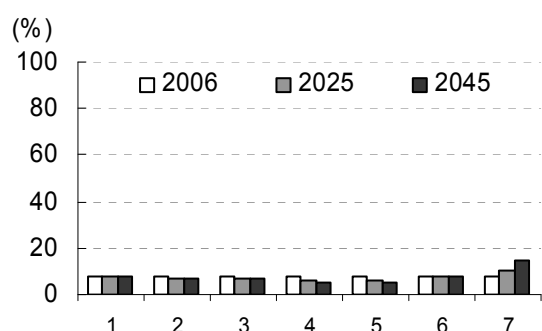
In the best case scenario (assuming age-specific home ownership rates can be maintained at their 2001 levels), this increase in the number of private renter households in housing stress is held to 834,000 in total and to 659,000 lower-income private renter households. Even this most conservative outcome still represents a disproportionately faster growth in the number of private renter households in stress compared with the growth in the number of households in Australia over the same period.

For both the base model (scenario 1) and this best case alternative (scenario 2), the growth in private renter households with high housing cost ratios is greater for renters who are not low-income households than it is for renters who are low-income households. Underpinning this result is an increasing number of households unable to gain access to owner-occupied housing throughout their working life and, therefore, reliant on the private rental market.

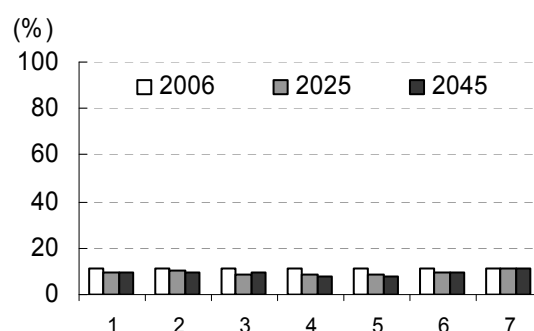
Figure 5.2: Scenario results – proportion of households in housing stress by tenure

Owners/purchasers

All households

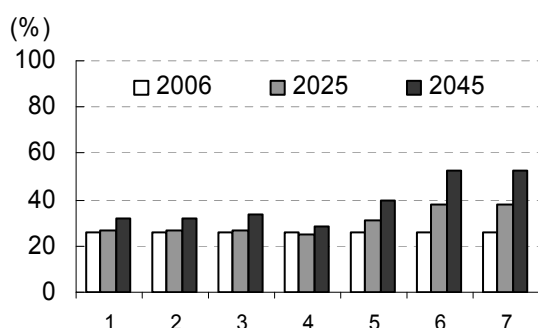


Lower-income households

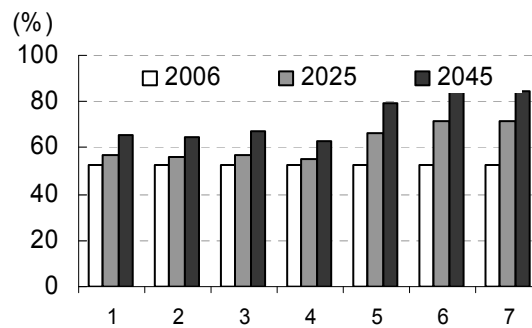


Private renters

All households



Lower-income households



Source: generated from STINMOD06A, NATSEM

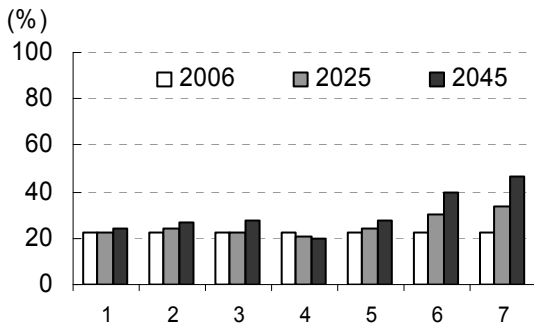
Under the worst case scenarios (scenarios 6 and 7, where rents rise faster than incomes), the number of private renter households with high housing cost ratios increases by more than 250 per cent from 477,000 to 1,740,000 households, with 52.5 per cent of all private renter households paying 30 per cent or more of their income on rent. Of these, 1,136,000 are lower-income households: 84.6 per cent of lower income households in the private rental market are in housing stress by 2045 under these scenarios.

Of the scenarios modelled, only two have the potential to generate worse outcomes for the projected numbers of owner/purchasers with high housing cost ratios: scenario 2, which allows for a higher home ownership rate than in the base model and scenario 7, which assumes that all housing costs increase faster than incomes. As can be seen from the results presented in Figure 5.2, only the latter has any impact that is discernibly different from the base case. Under this assumption, the number of owner/purchaser households with high housing cost ratios increases from 460,000 in 2006 (8.2 per cent of all owner/purchaser households) to 1,155,000 in 2045 (11.1 per cent of all owner/purchaser households). This is almost double the number under the base model assumption (593,000) both as a result of the increase in the number of households over the period and as a result of the increased propensity for them to have high housing cost ratios. For lower-income purchasers, the numbers increase from 265,000 in stress to 330,000 under this worst case scenario.

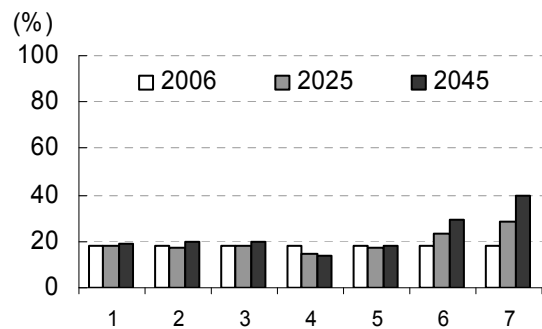
The results by age and household type, summarised in Figure 5.3 and Figure 5.4, give similar conclusions.

Figure 5.3: Scenario results – proportion of all households in housing stress by age

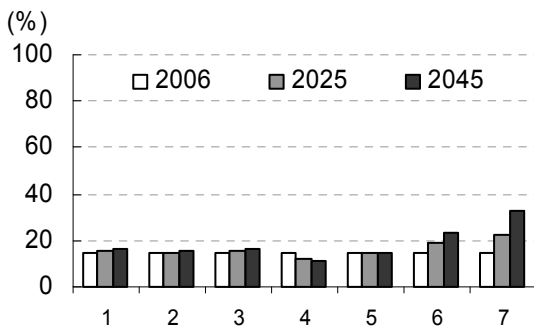
<25 year old households



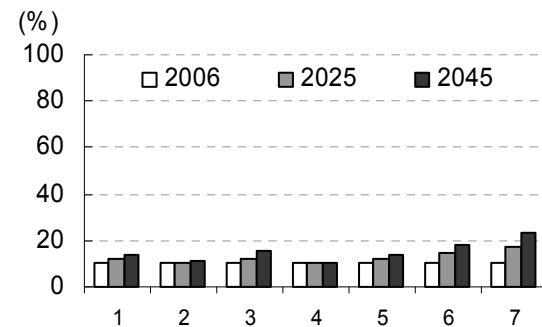
25-34 year old households



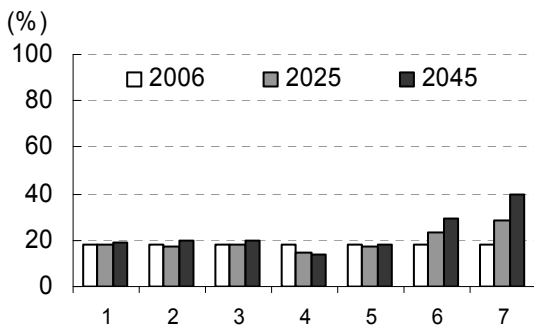
35-44 year old households



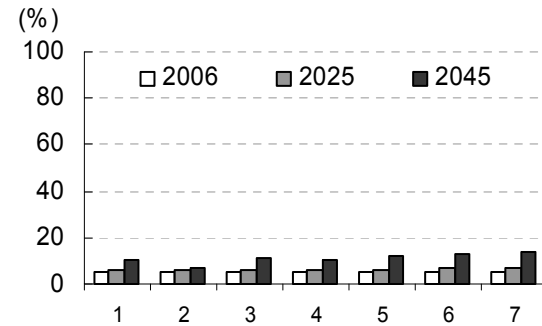
45-54 year old households



55-64 year old households



65+ year old households



Source: generated from STINMOD06A, NATSEM

The incidence of stress varies more across the age groups and household types than it does for the different scenarios. Not surprisingly, given the robustness of this result over numerous current and past studies, the highest propensity to be in housing stress occurs for young, single adult households.

While the incidence of stress increases for all household types under the two worst case scenarios (the high housing cost scenarios 6 and 7), it generally does so more for these already vulnerable groups.

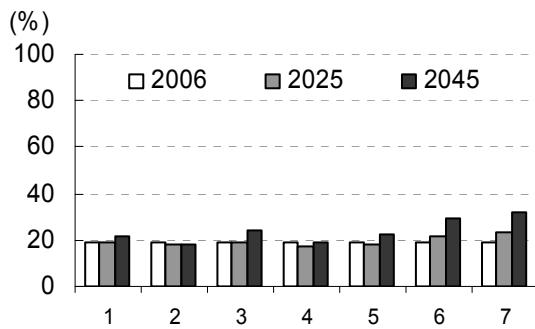
One disturbing exception to this generalisation is that the proportion of households at or nearing retirement age (those aged 55+) also increases dramatically under these high-cost scenarios. This is disturbing because it is these age groups where projections suggest there will be the greatest growth in the number of households. The base model estimated that 189,000 households aged 55+ were in housing stress in 2006 and projected that this would increase by 333 per cent to 630,000 in 2045. The most optimistic of the scenarios in terms of outcomes for this age group reduces

this projection to 484,000, which is still a 130 per cent increase over the 2006 numbers in this age group who are experiencing housing stress. This ‘optimistic’ outcome occurs under scenario 2, where the current decline in home ownership is fully reversed by the time the current cohort aged under 35 reaches age 55+.

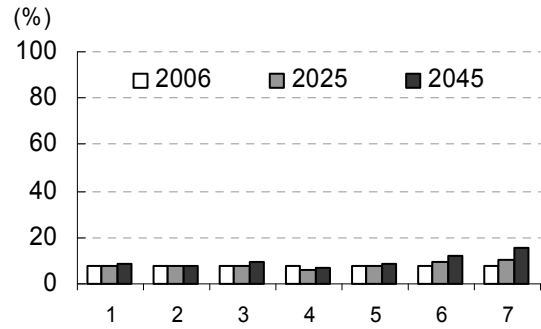
In the worst case scenario (scenario 7, where the decline in home ownership stabilises and where housing costs increase faster than incomes), 860,000 households aged 55+ will have unsustainably high housing costs. This represents an increase of 350 per cent over the current number.

Figure 5.4: Scenario results: proportion of all households in housing stress by household type

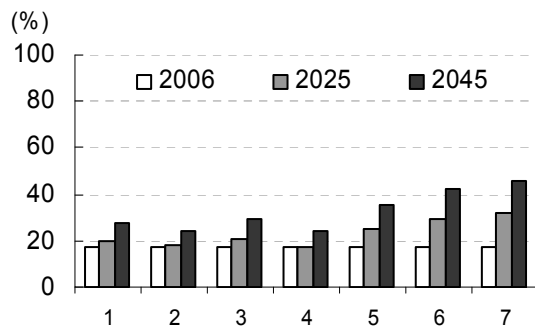
Lone person households



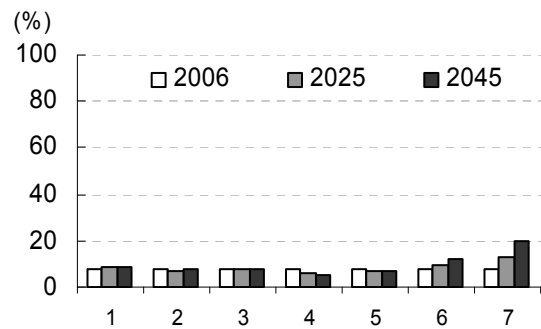
Couple only households



Single parent households



Couple with children households



Source: generated from STINMOD06A, NATSEM

5.1.4 Summary

As can be anticipated from their underlying assumptions, in broad terms, increases in housing costs relative to incomes increases the proportion of households in housing stress. Increases in income relative to housing costs have the opposite effect.

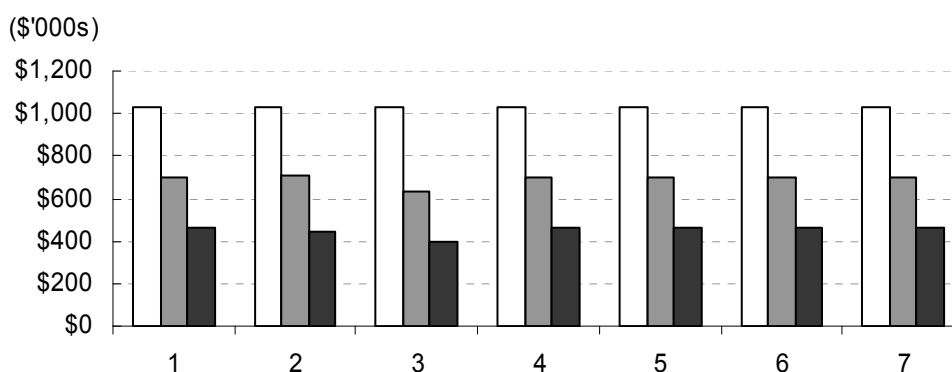
The scenario under which housing costs increase yields the most pessimistic outcomes. This has a particularly severe impact on the incidence of housing stress among private renters. Given that the number of private renters is more likely to increase than decrease in the future (as a result of the existing decline in home ownership working through the housing system and a policy of funding social housing that does not allow it to keep pace with household growth), any increase in the incidence of renters in housing stress means that, again, there will be a “double whammy” effect. Growth in household numbers and increases in the proportion of these in housing stress both feed through into higher number and proportions of

households with affordability problems. This effect can be seen for renters, single adult households and older households.

5.2 Fiscal sustainability

The implications of the sensitivity results arising from the seven scenarios modelled for the fiscal sustainability of the housing system are reflected primarily in the CRA results, covered immediately below. This is because FHOG depends on the number of first home buyers in each of the scenarios, which changes only for the two tenure change scenarios (scenario 2 and scenario 3). Expenditure on FHOG increases marginally under scenario 2 (where a higher home ownership rate than in the base model is assumed) and decreases by a slightly larger amount under scenario 3 (when a lower home ownership rate is assumed). These differences are immaterial in relation to the general downward trend in FHOG expenditure under each and every one of the scenarios modelled, as can be seen in Figure 5.5.

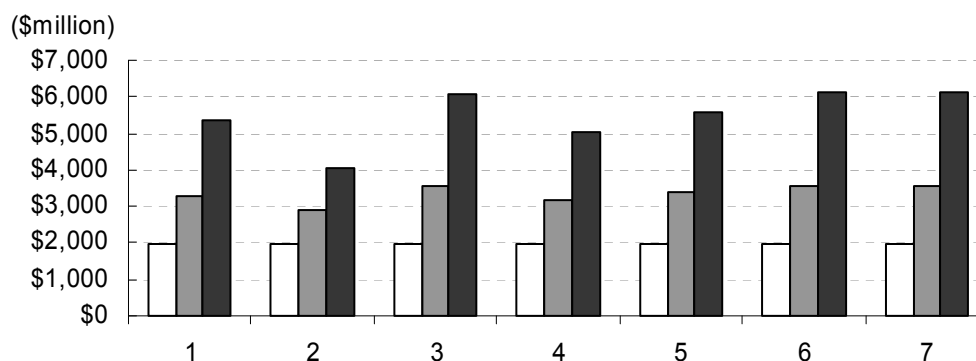
Figure 5.5: Scenario results for FHOG expenditure (\$ 2006)



Source: generated from STINMOD06A, NATSEM

The results for CRA expenditures under the different scenarios are shown in Figure 5.6. Expenditures are lower than the base model results only when home ownership rates are higher (scenario 2) or when wages increase relative to rents (scenario 4). Expenditure on CRA is higher in all other cases and highest when home ownership rates are lower than in the base model (scenario 3) or when rents increase faster than incomes (scenarios 6 and 7).

Figure 5.6: Scenario results for CRA expenditure



Source: generated from STINMOD06A, NATSEM

In every scenario, the combined effect of CRA and FHOG is, in real terms, always higher in 2045 than it was in 2006. The least impact (with only a 50 per cent increase

in total real expenditure) occurs when age-specific home ownership rates in 2045 are assumed to remain at their 2001 levels (despite the current decline for younger cohorts). The greatest impact (with a 120 per cent increase in total real expenditure) occurs when rents increase relative to incomes. Because expenditure on CRA dominates that on FHOG over time (as the number of households in private rental increases relative to the number of potential first home buyers and because CRA is indexed and FHOG is not), the combined fiscal effect of these trends is driven primarily by what happens to CRA expenditure.

5.3 Summary

As in the core results, under each of the scenarios, the change in housing sustainability from 2006 to 2025 is relatively modest. The significant impact occurs between 2025 and 2045.

As seen in Table 5.2, by 2025, the incidence of housing stress (both for all households and for lower-income households) is generally similar in 2025 to the incidence in 2006. This is attributable partly to the tempering effect of the existing cohort of home owners, who retain low levels of housing stress past retirement age. The results show that the increase in the incidence of housing stress among private renters, while still significantly greater between 2025 and 2045, is already observable by 2025, and more so for lower-income households than for all private renters.

By contrast, fiscal sustainability becomes steadily more problematic over the period, as a result of the steady increase in the number of households eligible for CRA.

6 CONCLUSIONS AND IMPLICATIONS

6.1 Introduction

This report has examined the intergenerational sustainability of Australian housing with the aim of informing the development of policy for the future. Intergenerational sustainability requires that the actions taken by current generations do not compromise the interests of future generations. The housing issues reported here comprise one aspect of broader concerns for intergenerational sustainability defined by economic, environmental and social equity criteria. The primary indicator of housing sustainability used is the proportion of households that are in housing stress, with a particular focus on lower-income households. A key question is: what can be done over the coming decades to ensure that future generations have the opportunities that have been available to current generations?

Housing is crucial to intergenerational sustainability on a number of counts. It is central to the financial security and quality of life of Australian households over the life course, particularly when raising families and in retirement living. An intergenerational perspective recognises that housing is a long-lasting asset in which earlier generations can invest (or disinvest) in ways that have consequences for later generations. Further, owner-occupied housing is the primary means by which most Australians accumulate wealth through life and then pass it on to their children (although maintenance of the current high rates of home ownership is not incorporated in the definition of housing sustainability employed in this report). Concerns for the sustainability of the Australian housing system have been heightened over recent decades by rising housing costs and declining access to home ownership and public housing. The intergenerational equity dimensions of housing and urban development in Australia are closely related to the rapid ageing of Australia's population (Kendig, 2000).

This final chapter interprets the implications of the study findings for housing sustainability and possible policy responses. It begins by highlighting the characteristics of the modelling undertaken that need to be taken into account when interpreting the findings. It then turns to major findings in terms of projected futures for housing tenure, housing costs and outcomes for vulnerable groups. It concludes by reviewing approaches that could be taken to improve the intergenerational sustainability of Australian housing.

6.2 Assessing the projections

The origins of this study, its aims and the assumptions that drive the projections are important to an understanding of the context and relevance of its findings. These origins, aims and assumptions will now be reiterated briefly.

6.2.1 Housing sustainability and the Intergenerational Reports

The Australian Government's Intergenerational Reports (IGR1, 2002 and IGR2, 2007) analysed 'fiscal sustainability' for the Commonwealth Government during the period of unprecedented population ageing anticipated to 2041. The IGR reports emphasised the importance of economic productivity and fiscal restraint for ensuring the affordability of government for future generations of Australians. The reports addressed the costs of a number of policy areas – notably health, income support, and education – but they excluded any consideration of housing.

This AHURI report brings a housing focus to supplement the Intergenerational Reports in several ways. Its findings on key federal housing expenditure programs –

Commonwealth Rent Assistance (CRA) and the First Home Owner Grant (FHOG) Scheme – parallel the IGR findings in other areas of Commonwealth expenditure. These findings provide the ‘missing’ housing chapter in the IGR reports.

The report goes beyond the IGR focus on fiscal sustainability by covering the broader issue of housing sustainability. Its findings focus on crucial outcomes for Australians in terms of households’ housing tenure and costs (as well as on costs to government). The social equity dimension is taken into account by highlighting future housing outcomes for lower-income households.

However, the report does not examine explicitly the interaction of housing and environmental sustainability. The second IGR included an expanded section on the environment, which suggests that increasing real wealth and incomes tends to lead to increased demand for environmental action. It claimed that sustainable policy “would address the underlying incentives causing environmental degradation. Most often, this will involve making protection of the environment a cost of production and consumption, through instruments such as market-based measures to price externalities, reducing subsidies to environmentally damaging practices and regulation” (IGR2, 2007, pp. 70–71).

The results of such measures to ensure environmental sustainability are likely to increase the capital cost of providing housing and, consequently, the housing costs that underpin the model on which the projections reported are based. A broad indication of the impact of environmental policies, therefore, can be obtained from the modelled scenarios in this report that incorporated an increase in housing costs relative to household incomes. These led to an increased proportion of households in housing stress.

6.2.2 Interpreting the projections

Modelling the future is best understood as a decision-making tool for considering policy directions and their possible consequences, rather than as a reliable predictor of outcomes decades ahead.

The projections in this AHURI report on housing sustainability employ data and assumptions that closely parallel those in the IGR reports. The IGR fiscal projections are based on reasonable assumptions about the Australian economy, society and policies. They build on ABS projections of the population and they assume that future generations of Australians will have rising real incomes. However, as shown by key differences between IGR1 and IGR2, many unanticipated factors can emerge quickly to change outcomes projected far into the future. For example, in just five years from 2002 to 2007, the first IGR’s projected ‘fiscal gap’ was reduced substantially and projected to emerge later as a result of emerging changes such as rising labour force participation at older ages.

NATSEM’s STINMOD micro-simulation model has provided the analytical capacity for this project’s modelling of housing sustainability. A key feature of the baseline model employed for this study is that it makes conservative assumptions built on longer-term housing trends rather than recent rapid rises in housing costs. The baseline figures assume the ongoing effects of current tenure patterns and allow incomes and housing costs to increase in parallel. At each time period, the findings are likely to be more reliable for people at older ages, because the directions for their housing careers are already known. People at younger ages generally are much more exposed to the housing market and their access to housing will be heavily affected by whatever the prevailing market conditions may be at the time.

The report considers how projected housing sustainability varies under six scenarios that incorporate changes in the assumptions about housing costs, tenure change and wages growth. Overall, the findings on housing stress – the primary indicator of housing sustainability employed in the report – are demonstrated to be robust to different assumptions about housing costs, tenure change and wages growth. This increases confidence in the findings. Nevertheless, under the two scenarios in which housing costs rise faster than wages – either due to relative increases of housing costs or relative declines in wage income – there would be sharply increased problems of housing sustainability.

The discussion in this final chapter of the outcomes of the modelling focus on the findings from the conservative baseline results together with further illustration of outcomes under the ‘high housing cost’ scenario 7. These cover the range of outcomes from the scenarios modelled. The high housing costs scenario assumes an increase of housing costs for owners and renters at CPI plus 2 per cent, which is 1 per cent higher than the assumption made in the same scenario about growth in incomes. In broad terms this equates to continued real increases in house prices that also flow through to rents: a distinct possibility unless strong mitigating action is taken.

Finally, it is important to appreciate the scope and limitations of the STINMOD model. It is based on the assumption that households within each tenure with given characteristics in the base period will have a consistent pattern of housing costs into the future. Therefore, the model does not take into account any behavioural change, nor does it show any dynamic changes in the forces that drive the model. Household projections and tenure change over time are imposed on the model.

6.2.3 Projections, not predictions

It is also important to point out again that this report presents projections and not predictions. Over the four decades from 2006 to 2045 there will be major unanticipated changes in Australia that inevitably will affect housing sustainability. The scope for change in the housing system over the next 40 years is indicated by the extent of housing change in Australia in the past 40 years: that is, since the mid-1960s. The most important reason for conducting the projections and modelling is to show the kind of housing outcomes that could be expected under realistic scenarios for the future.

The study aims to highlight the problems that could arise given a continuation of current trends under feasible scenarios. This knowledge can motivate and inform action that, if taken in time, can ensure that adverse outcomes do not eventuate or, at least, are ameliorated. Advance knowledge is essential, given the time required to implement significant policies that could help to improve housing outcomes for future generations.

6.3 Implications for intergenerational sustainability of housing

In this section the main findings and their implications for the intergenerational sustainability of the Australian housing system are outlined. Chapters 4 and 5 presented more detailed findings and explained them in terms of the drivers of change.

6.3.1 Housing stress

Housing stress in this report is defined as being experienced when a household is paying 30 per cent or more of its income on housing costs (see also Yates and Milligan, 2007). The report pays particular attention to the housing stress among

lower-income households, that is, those in the lower 40 per cent of the income distribution. The definition that is used does not cover forms of housing stress that are experienced in other ways, for example, by living in inadequate housing in terms of poor quality or inappropriate location. It also ignores the possibility that some people may be unable to form households as a result of high housing costs, or that they may have to move to housing markets that are distant from jobs or families. The baseline model projects that the proportions of all households in housing stress would rise modestly from 12 per cent in 2006 to 14 per cent in 2045 but the proportions for lower-income households would increase from 20 to 24 per cent (chapter 4). Housing stress for purchasers would rise marginally, from 16 to 17 per cent over this time frame, but would rise from 26 per cent to 32 per cent for private tenants. The overall findings suggest there will be declining intergenerational sustainability of the Australian housing system using conservative assumptions in the baseline model in relation to trends in tenure.

The challenges of maintaining intergenerational equity are underscored by projections showing more extreme results for low-income tenants. The baseline projections for the proportions of lower-income private renters in housing stress show increases from an already high level of 53 per cent to 57 per cent in 2025 and 66 per cent in 2045. In scenario 7, in which housing costs rise faster than incomes, the proportions of lower-income households in housing stress in the private rental market would rise to 85 per cent. Amelioration of the situation of private renters requires significant action to address the cost of private rental or to improve the access of lower-income households to home ownership and social housing.

The material in the Technical Appendices suggests that there are clear reasons why housing costs could rise faster than incomes over the longer term. If house prices do continue to rise faster than household incomes in the future (as they have in the past), then new home purchasers will face rising costs on entry. Also, if capital gains on housing slow from their very high levels over recent decades, then (as suggested in the Technical Appendices) landlords will expect correspondingly higher returns through rents. Pressures on rents are likely to be reinforced by the legislative changes to superannuation that were implemented in 2007, which may encourage individual investors to switch from residential rental property as a means of supplementing retirement incomes to the newly tax advantaged investment in superannuation. Pressures on real house prices will also be reinforced if the cost of new housing (and its flow-on to all housing) rises, as a result of rising environmental standards.

The intergenerational consequences of rising dwelling values and rising housing costs are considerable. They increase the value of property for those who are already owners, while decreasing access to housing and increasing the cost of renting for those who are not. The generational inequalities between older established owners and younger entrants to the housing market will have a disproportionate effect on lower-income households. These housing tenure factors are likely to accentuate future disparities between income groups over the life course.

6.3.2 Access to home ownership

The housing tenure projections appear to signal ongoing stability in the high proportions of households that are home owners. The proportion of owners or purchasers has been stable at 70 per cent over the period 1981 to 2006, while the projections are for modest declines to 69 per cent in 2025 and 66 per cent in 2045 (Chapter 4).

However, as a result of substantial demographic change, these projections for overall

home ownership rates for the future obscure the very sizeable changes that are emerging across generations. The very high rates of home ownership among the increasing proportions of older households are offsetting increasingly low rates of home ownership among declining proportions of younger households. As a result of the latter trend, the projections show that the proportion of households who are owner-occupiers would decline significantly for those reaching mid-life in 2025, and continue at relatively lower levels for them at age 65 years and over in 2045. At present, 79 per cent of households aged 65 years and older are outright owners and another 3 per cent are paying off mortgages. By 2045 the proportion of older households projected to be owner-occupiers (with or without a mortgage) falls to 72 per cent.

These findings suggest that there is time to take action to reverse these downward trends – to support people in ‘catching up’ and buying for the first time before they are beyond the usual ages for first home buyers. However, if the trend towards lower rates of ownership is not reversed in the next decade, there will be increasing proportions of Australians who will not be owners before reaching their middle and older years. These changes could substantially increase housing stress among older people who could not count on the low costs of outright home ownership to cushion the financial consequences of relying on an old age pension or other modest retirement income. The projected decline in home ownership is most pronounced among those on low incomes, who are unlikely to have much in the way of alternative savings through superannuation.

It is also possible that some younger households that could afford to buy would choose instead to invest their savings and discretionary income in superannuation rather than buy homes of their own. This approach to lifetime savings would lower overall home ownership rates and perhaps buyers’ equity in their homes, but it would not necessarily decrease economic security in later life. ‘Voluntary’ renting among those who save in other ways is not likely to have adverse consequences for intergenerational sustainability.

6.3.3 Housing wealth

Any intergenerational analysis of housing requires an appreciation of the wealth dimensions of housing. If house prices rise faster than household incomes, those who are already owners would have significant wealth increases in the decades ahead. These wealth increases for established owners would be paid for by the higher prices that younger cohorts would have to pay to gain access to home ownership. Rising real house prices reduce intergenerational sustainability through regressive wealth effects, as well as housing cost effects, for the next generations. They also advantage older owners relative to younger owners, and especially disadvantage younger tenants, who cannot buy relative to older owners who already have. Wealth inequalities are accentuated further once income differences between these groups are taken into account.

In 2003/04, equity in the home was the major source of wealth for all age groups (Yates, 2007b). However, while housing assets appreciated in the boom to 2003, people have been taking longer to pay off their mortgages because of delayed home buying and re-drawing funds from mortgages to pay for consumer goods, to improve homes and/or to fund the accumulation of housing and non-housing assets. The recently released data from the 2006 Census points to increases in the proportions of home owners with a mortgage for each age group, with the most significant of these being for established baby-boomer households with high rates of home ownership. This has contributed to their increase in indebtedness but has been offset by even higher increases in asset values (RBA, 2007, Box B).

There appears to be an increasing pattern of well-off parents providing support for their adult children at earlier stages of adulthood, such as help with education expenses as well as with first-time home buying (Kendig and Bridge, 2007). Such patterns of intergenerational support within families accentuate inequalities between privileged and disadvantaged lineages. On the other hand, action by baby boomers to spend their housing assets (rather than leave them as an inheritance) could have immediate inter-generational implications (Olsberg and Winters, 2005). Fewer adult children would have an inheritance that could pay for their delayed entry to home ownership or for the grandchildren's timely home buying.

6.3.4 Public rental housing

This report on the intergenerational sustainability of housing has not concentrated on public rental housing, for several reasons. First, the supply of public housing is a matter for direct political decision-making rather than projection of what are primarily market trends. Second, there is little indication that ongoing decline in the supply of public housing – to less than 5 per cent of the dwelling stock at present – is likely to be reversed in the near future. Public housing had served as a beneficial alternative to home ownership for households on lower incomes for earlier generations going back through the 1980s to the 1950s. Further, the appreciating value of this housing and land remains in public ownership, thus being available for future generations. However, as discussed below in the section on policy, there are substantial challenges ahead even in maintaining existing levels of public housing let alone increasing its availability for future generations.

6.3.5 Private rental housing

In the projection methodology used for this research, the proportion of households in private tenancies increases as a result of declining rates of home ownership and a non-growing stock of public housing. The proportions of private tenants would rise for all age groups but particularly for those who will reach mid-life by 2025.

Major difficulties lie ahead for the increasing proportions of people who are projected to be renting privately throughout their adult lives to mid-century and beyond. For these future generations of private renters, key questions are whether there are ways to improve the longer-term security of occupancy and stability of housing costs and whether new forms of affordable rental housing can fill the widening gap in housing options caused by declining investment in public housing. The report returns to these questions in the policy discussion below.

6.3.6 Vulnerable groups

As shown above, the effects of decreasing sustainability of Australian housing are likely to fall heavily on those who are now in early adulthood and who will move into mid-life by 2025 and approach old age by 2045. The adverse consequences — in terms of financial stress from housing costs — are likely to fall primarily on those having lower incomes living in private tenancies.

Among household groups, lone person and single parent households are projected to have high and increasing proportions in housing stress. Single parents are rendered vulnerable in the housing market by relatively low incomes and requirements for housing suitable for children. Currently the proportions in housing stress are in the order of 20 per cent for both groups but the proportions in housing stress are projected to increase particularly fast among single parent households to approximately 30 per cent in 2045.

Housing stress is also projected to vary between housing markets in different states and capital cities. It is already slightly higher in the capital cities (13 per cent) than in

the rest of Australia (11 per cent) and this modest difference is projected to persist until 2046. At that time the highest percentage in housing stress is projected to occur in rapidly developing Brisbane (17 per cent). The lowest percentage (5 per cent) would occur in South Australia, outside Adelaide.

The intergenerational sustainability of housing for Indigenous Australians is a critical issue given their high levels of deprivation and the imperative for generational social and economic advancement. It was not possible to project Indigenous people's housing futures in this project because being Indigenous is not identified in the core data. However, there is no doubting the substantial housing disadvantage experienced by Indigenous people in terms of housing tenure and costs. The Australian Institute of Health and Welfare (AIHW) reported that in 2002 only 30 per cent of Indigenous households were owners or purchasers (compared with 70 per cent of all households). They also reported that the proportion of lower-income Indigenous households with affordability problems was almost 25 per cent higher than the proportion of other lower-income households (AIHW, 2005). The housing disadvantage of Indigenous people extends to overcrowding and poor-quality housing. These summary figures underscore the difficult housing base from which to build more opportunity for future generations of Indigenous people.

6.3.7 Fiscal sustainability

In assessing the fiscal sustainability of Australian housing it is important to appreciate that, unlike many other policy areas, fiscal support for housing can only partly be understood through Commonwealth expenditure in specific funding programs. Government influences on housing are not easy to quantify because they operate indirectly but very significantly through taxation, regulation and macroeconomic policy actions that are not expressly concerned with housing. Further, housing is deeply influenced by the actions of state and local governments, which have not been covered in the IGRs so far. These issues will be discussed further in the policy section below.

The projections for the fiscal sustainability of housing policy were limited to Commonwealth expenditure patterns under the First Home Owner Grant (FHOG) program and Commonwealth Rent Assistance (CRA) as reported in Chapter 4.

The results show that the fiscal outlook for Commonwealth Rent Assistance is not sustainable on the basis of IGR definitions; that is, increased expenditure (in real terms and as a proportion of GDP) would be needed to maintain current policy settings. With more lower-income private tenants, the projected real expenditure on CRA is expected to rise from approximately \$2 billion in 2006 to more than \$3 billion in 2025 and to over \$5 billion by 2045. As a proportion of GDP, expenditure on CRA would increase from 0.20 per cent at present to 0.25 per cent in 2045.

The projections, however, point to the decreasing significance of the First Home Owner Grant program in the future, which more than offsets the impact of the rising burden of CRA expenditure when expressed as a percentage of projected GDP. Expenditure on FHOG results when first time buyers have enough of their own resources to overcome financial thresholds to buying. The changing demographic profile together with the projected decline in home ownership and the assumption that FHOG remains unchanged at its current value would result in real expenditure on FHOG declining from more than \$1 billion in 2006 to less than half that level in 2045.

In aggregate, Commonwealth expenditure on these two programs is projected to increase in real terms from a total \$3 billion in 2006 to \$4 billion in 2025 to nearly \$6 billion in 2045. The Commonwealth-State Housing Agreement (CSHA) is the remaining key housing program. Current arrangements for this program expire in

2007/08 and future expenditure has not been projected. Any reduction in expenditure on this program would be likely to result in an accelerated loss of public housing stock, which the modelling assumed to be unchanged.

6.4 Policy directions for intergenerational sustainability

The summary of the key findings on the intergenerational sustainability of the Australian housing system provided above suggests that, in the absence of any change in policy, the proportion of households in housing stress will increase slowly at first and then more rapidly towards mid-century. This section highlights key policy challenges and points to changes in housing policies that might generate a more sustainable housing system. A more detailed discussion of the principles that might underpin development of housing policies in the future is provided in the Final Report of NRV3 (Yates and Milligan, 2007).

6.4.1 The challenge ahead

The Australian housing system has become unsustainable on a number of counts. Younger and future generations – most notably those on lower incomes – are unlikely to attain the housing outcomes that have been enjoyed by older and previous generations. The proportion of households likely to gain access to home ownership is projected to decline. The proportion in public housing will also decline under current policy settings. Therefore the proportion of households in private rental housing is projected to increase. Under the current system of housing provision, as they age, lower-income households in private rental do not have the protection against rising house prices and rising rents that is provided to households in outright ownership or public housing.

The results reported in previous chapters indicate that the proportion of lower-income households in housing stress would increase by 120 per cent (an average of 12,000 households per year) from 2006 to 2045. Commonwealth expenditure on housing programs is projected to increase substantially in real terms. These projections arise under conservative economic and demographic scenarios comparable to the Intergenerational reports. More extreme results emerge when scenarios in which housing costs increase faster than incomes are considered.

To put these results into perspective, the majority of each new generation is projected to continue to be able to access appropriate and affordable housing notwithstanding rising real costs. Nevertheless, this report's findings indicate that the intergenerational sustainability and social equity of the Australian housing system will be seriously challenged in the future. A body of recent AHURI research has raised similar concerns. For example, Jones et al. (2007) raised concerns about the future affordability outcomes of the increasing number of low-income people aged 65 years and older and living in private rental housing. Beer et al. (2006) pointed to the likelihood of an increase in the demands for housing assistance as a result of social changes over recent decades, notably delayed entry to home ownership and increased divorce in mid-life. Olsberg and Winters (2005) raised concerns that the ongoing transformation of family values in Australian society would lead to baby boomer home owners using more of their home equity for themselves (rather than leaving it for the next generation).

The key challenge is to identify policies that will ameliorate these concerns.

6.4.2 Home ownership policies

Concern for access to home ownership raises policy tensions in social equity. Subsidies such as the FHOG do ease the entry costs of new buyers, thus providing a

measure of intergenerational equity. However, FHOG also enables those who would buy anyway to either buy earlier or buy more expensive housing. Conversely, few of those who lack the means to buy on their own are likely to be enabled to do so by the modest levels of funding available through FHOG. The modest intergenerational equity provided by FHOG comes at the cost of increasing inequalities over the life course between those who can buy and those who cannot. A further concern is that FHOG is a demand-side subsidy and such subsidies can increase house prices, to the advantage of those who already own and to the detriment of those on the margin of buying. Having housing policies that provide more equitably for both buyers and renters facing housing stress (see below) is one way of ameliorating these issues.

Alternative approaches to enable home buying using the tax system have been proposed. For example, aspiring buyers could be provided with tax advantages for saving for a deposit for home purchase comparable to those provided for saving for superannuation. In principle, this could ease the entry cost for the next generation of buyers by giving them long-term financial security broadly comparable to superannuation but with benefits being available much earlier in the life span. However, as with FHOG, there are inequalities between the social groups who have sufficient resources to finance access to home ownership and those who do not. Further, such tax subsidies disproportionately benefit those on higher incomes who pay higher marginal tax rates and, unless carefully targeted, also serve to add to house price pressures.

To increase access to home ownership for modest earners would require carefully targeted deep subsidies. These are likely to be most effective in limiting the impact on prices when tied to increases in the supply of below median priced housing. Shared equity schemes between buyers and either the public sector or private investors potentially are one way of delivering such subsidies. While such approaches can have considerable value, it seems unlikely that adequate resources are attainable to achieve substantial gains of owner occupancy for lower-income households on a national scale.

6.4.3 Public rental policies

Policies, therefore, need to be responsive to the fact that more households are likely to be renting privately for longer periods. In particular a larger permanent supply of affordable and secure rental housing will be required.

One obvious alternative is to return to the policies of the immediate post-war period and increase the supply of public rental housing. Stock retained in public ownership potentially is available at modest cost to successive generations of lower- and moderate-income households. A significant supply of desirable public housing could provide a competitive alternative to private rental housing. Dwellings built for subsequent sale to tenants (with measures to prevent windfall gains) could assist in ensuring that appropriate and affordable starter homes are available for those seeking to purchase at the lower end of the home ownership market.

The immediate challenge ahead, however, is to preserve the existing, ageing stock of public housing dwellings and to adapt it for new uses, and to halt the decline in the total supply of public housing. These actions will be essential just to maintain the existing provision of affordable, appropriate and secure housing for highly vulnerable people on a tightly rationed basis.

6.4.4 Affordable rental policies

An alternative, more market-oriented approach is to develop a social housing sector that provides affordable rents and security of occupancy as a supplement or

alternative to home ownership or public housing. Better financial mechanisms could attract superannuation funds to invest in affordable rental housing. Suitable mechanisms have been identified by the Affordable Housing National Research Consortium (AHNRC, 2001), Allen Consulting (2004) and the National Affordable Housing Summit (NAHS, 2007). Application of such mechanisms will also require institutional support in the form of appropriately skilled and regulated rental managers, in either the private or the not-for-profit sector (Milligan, 2005; Yates and Milligan, 2007).

An added approach might be to ensure that any tax-based assistance that currently supports ownership of private rental housing by individual landlords is targeted to those who supply rental housing that is affordable for, and allocated to, lower-income households (who are unable to compete with landlords in the housing market), at least for a designated number of years. Such assistance is likely to be more effective in keeping the pressure off house prices if it is tied to the provision of new rental supply.

A specific response to the anticipated massive growth in private tenants entering old age on low incomes in the decades ahead would also be appropriate. A recent AHURI report on this group (Jones et al., 2007) recommended an integrated program of public, community and private housing initiatives, including a new program focused on independent living units. Such an initiative would align well with policy directions towards ageing well. It would provide a secure home base for the community care programs for frail older people who otherwise would be at risk of inappropriate entry to expensive Commonwealth-funded residential aged care programs (Bridge et al., 2007; Kendig and Bridge, 2007). In this context it is relevant to note that IGR2 projects a rapid rise in the costs of residential care on the basis of current policy settings and demographic ageing.

The policy approaches suggested above could complement Commonwealth Rent Assistance, which is the cornerstone of Commonwealth policy assisting lower-income private renters. CRA is highly targeted to households for whom it makes a crucial difference to keeping them out of austere poverty, as a result of high housing costs and low primary incomes. Notwithstanding its projected increasing cost to the Commonwealth government, maintaining this program will be essential to ensure that housing affordability for lower-income households does not deteriorate further. Adopting supplementary policies to increase the supply of more affordable rental housing (discussed above) will help to ensure that CRA is more effective in containing housing stress.

6.4.5 Broader-based policies

Taxation and housing

The most far-reaching and fundamental changes that could go a long way to ensuring the intergenerational sustainability of the Australian housing system centre on how housing is treated in the Australian tax system. Reform of the treatment of housing in the tax system could very substantially improve social equity for future generations. At present, owner-occupants do not pay tax on capital gains realised on the sale of their homes. They also do not pay income tax on their often substantial 'imputed rent', that is, the rental value of the home received tax-free. In total, the indirect housing assistance provided through the tax system is of the order of ten times greater than direct Commonwealth housing expenditure (Productivity Commission, 2004; Yates, 2003). If this indirect assistance was reduced, the revenue raised could support additional expenditure on housing for lower-income households.

In the same vein, some taxation of the value of housing in estates could return to the public sector some of the costs of government assistance to buy and own homes as

well as some of the untaxed capital gains over the years of ownership. Likewise, state-based land taxes might also be used to spread the burden (and benefits) more equitably across all owners of residential property.

Housing policy and environmental sustainability

As issues of housing sustainability interact with those of environmental sustainability, additional challenges will arise. For example, if environmental charges are imposed through infrastructure charges or planning controls on residential land development, land costs are likely to increase. While price signals may be used to provide developers with incentives to more efficiently use land and roads, water and utilities infrastructure, they can increase the costs of development. Planning controls, likewise, restrain the urban sprawl that could impose high private and public transport costs on future generations but they can increase land costs. Other tensions and trade-offs emerge when owners in established areas resist infill and redevelopment that could bring affordable housing within reach of lower-income groups.

Governments have responsibility to take environmentally protective action in order to not impose environmental costs on future generations. However, in meeting the costs of such actions, they also need to ensure that the consequences do not fall particularly heavily on those who have the least capacity to pay. Thus environmental measures that increase costs of new housing require that close attention be given to social equity as well as generational concerns. For example, such measures can add to the entry costs of new buyers and tenants (typically younger generations) while indirectly adding to the capital value of owner-occupiers and landlords (typically older and wealthier households). To the extent that the costs of higher environmental standards can be spread across the entire community – for example, if they are met by local or state governments rather than by developer charges – they can be met more equitably between the generations and income groups. Alternatively, if the costs of more environmentally sustainable development are recouped over the same time frame as the benefits – such as through longer-term borrowings – costs can be spread more fairly across the generations that make use of them. These approaches to funding urban infrastructure were effective and equitable when applied to earlier generations in the post-World War II era of urban development (Neutze, 1978).

Regional development

Over the 40-year outlook of the IGRs, regional development policies could also be used to help address the intergenerational sustainability of the Australian housing system. Having a larger number of medium-sized economically and socially vibrant cities in well-endowed non-metropolitan areas would help to reduce the pressure on capital city house and land prices and offer more choice of affordable housing linked to local services and jobs.

6.5 Improving future Intergenerational Reports

The Australian Government's first and second IGRs have made a valuable contribution to capacity for policy development and decision-making by highlighting the longer-term consequences of Commonwealth expenditure patterns in the light of demographic ageing and anticipated economic and social change. Further development of this policy tool will improve the ability of current generations to make decisions responsibly in terms of the interests of coming generations. In the field of housing in particular, this will require:

- inclusion of a housing chapter in future IGRs that recognises the centrality of housing costs and access to secure, affordable housing to intergenerational

- identifying the distributional effects of housing assistance policies, most notably in terms of the income, age and family groups that do (or do not) benefit from such assistance
- inclusion of expenditure by state and local governments as well as Commonwealth expenditure in order to provide a comprehensive national report on intergenerational sustainability of the Australian housing system and make transparent the whole-of-government implications of policy
- inclusion of tax expenditures, which, for housing, are significant
- taking account of the capacity of Australians to pay for housing both now and in the future. Research now needs to focus on having robust projections of real levels of income and real housing costs facing current and future generations over time, in the light of projected economic and demographic developments.
- finally, and arguably most importantly, examining intergenerational equity in terms of the housing outcomes (such as tenure, affordability and housing wealth) achieved by and within each generation.

6.6 Conclusion

The overall aim of this report has been to identify the ways in which anticipated demographic, social and economic changes are likely to affect intergenerational sustainability in the Australian housing system under current policy settings. The core results presented suggest that, under the base model assumptions, Australia's current housing system is not sustainable. The criterion set for housing sustainability – that there be no increase in the proportion of households in housing stress – is not met. The results point to serious and increasing housing affordability problems over the next 40 years for significant and growing sections of Australian society, especially younger adult households, single parents, renters reaching older age and other low-income renters. While the Intergenerational Reports project continuing increases of real incomes for most Australians, a continuing trend to more inequitable housing outcomes would have adverse consequences for economic prosperity, social stability and household wellbeing.

The results will be familiar to long-term observers of Australian housing policy. For example, in the 1988 International Year for Shelter for the Homeless – a full generation ago – the report 'Towards Fair Shares in Australian Housing' (Kendig and Paris, 1987) argued that inequalities in Australian housing had been increasing during the 1980s. That report went on to note that Australia had the economic means then to improve housing for the small disadvantaged minority. Over two subsequent decades, there have been significant improvements in the standards of living of most Australian households, and unparalleled increases in household wealth (most of that generated by housing investment), but increased affordability problems for lower-income households.

This analysis of the Australian housing system over the next 40 years has reinforced concerns for achieving fair shares in housing in Australia that have been expressed over the past generation and earlier. The findings of the research demonstrate that, in order to be attentive to intergenerational sustainability and fairness in Australia, analyses and actions must give housing a central place.

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TECHNICAL APPENDIX A: MODEL INTERACTIONS

A.1 Overview

The base model employed in this study is driven by assumptions made about the impact of demographic change and assumptions made about the housing costs and economic circumstances faced by future generations and their housing outcomes. The demographic and economic projections employed are consistent with those that underpin IGR1. This Appendix provides an overview of the interactions between these variables and a rationale for the assumptions made about housing costs and housing outcomes employed in the base model.

Not all the drivers that affect affordability and access to ownership are included in STINMOD, the NATSEM simulation model that underpins the affordability projections. STINMOD, for example, has no data on house prices. In conjunction with broad economic changes, however, future trends in house prices in relation to trends in household income are likely to be a primary determinant of future home ownership rates. The way in which house price trends and the significant variation in house prices by dwelling type and location can be taken into account is discussed below, as is the way in which environmental factors can be accounted for.

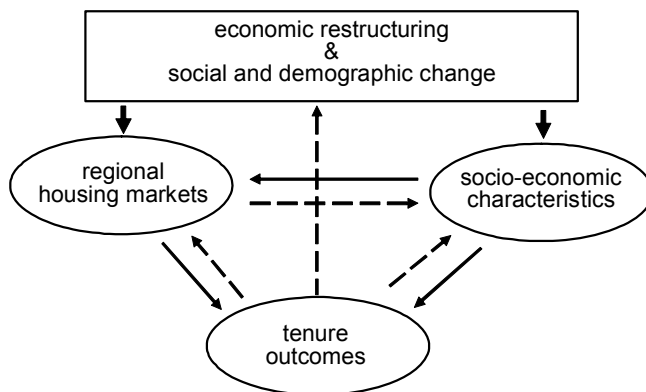
A.2 Interactions affecting model assumptions

Demography plays an important role in influencing housing markets, and demographic change is likely to affect real household incomes, dwelling prices, rents and interest rates that, in turn, affect housing outcomes.

A.2.1 Intra-generational interactions

Yates (2002) provided an overview of the literature on the interactions and interdependencies between these variables within any generation. These are illustrated in Figure A.1, which focuses on the role played by regional housing markets as well as the economic and socio-demographic factors highlighted in the text of this report.

Figure A.1: Potential interactions between spatial, socio-economic and housing change



Note: Heavy lines represent factors identified in the literature; dotted lines represent potential effects.

Source: Yates (2002)

A.2.2 Intergenerational interactions

Over time, the complexity of these intra-generational interactions is compounded by a number of additional factors. Some illustrative examples are as follows:

- Housing outcomes of future generations, while affected by outcomes of current generations, do not necessarily follow the same trajectory. The outcomes for future generations will be affected by their preferences, their capacity to pay, the relative costs of renting and owning and the returns to investment in housing vis-à-vis alternative investments, any of which can change over time.
- Affordability outcomes may differ in the future if housing costs follow a different trend from household incomes. Future households, for example, may face higher housing costs if real house prices or real rents increase faster than real incomes or if interest rates are higher than at present. They may face lower costs if the converse holds. Which of these possibilities eventuates will affect housing sustainability and intergenerational equity. Likewise, future households will face a different pattern of housing costs from current households if their tenure outcomes differ.
- Future households may live in different locations or in different dwelling types from current households. Housing markets are affected by economic and demographic change and demographic change affects both the economy and housing markets. Projections based on the spatial structure and form of existing housing markets will not reflect such changes.
- Supply constraints may limit access to housing. Such constraints can manifest in a number of ways. The housing industry may not be willing to provide an adequate supply of housing for sale or for rent if it is not profitable to do so; governments may not be able to maintain the stock of affordable housing at the share presumed by the projections if resources are inadequate. Relative shortages can arise if certain locations become more desirable than others, as might occur, for example, as a result of the sea change/tree change movement or as a result of environmental factors such as fuel price increases. Any of these changes can change the relativities between dwelling prices and/or rents from those in 2001 or 2006.
- The change in the proportions of young and old households in the population as a result of population ageing is likely to affect both labour market and financial markets and, consequently, future wages and interest rates. These changes, in turn, will impinge upon housing markets.
- Future households may have better access to owner-occupation as a result of increased wealth passed down from their parents or grandparents. Alternatively, this increased wealth may serve to put upward pressure on house prices and make access more difficult for those who are not likely to inherit.

The first five of these examples suggest that the factors identified in the framework illustrated in Figure A.1 do not remain static over time. This provides one rationale for why no attempt was made to develop a specific formal behavioural model for this particular project. Such a model can be calibrated only against observed behaviour: that is, past behaviour. Existing behavioural models based on past experience, however, do provide insights into the role played by these key factors.

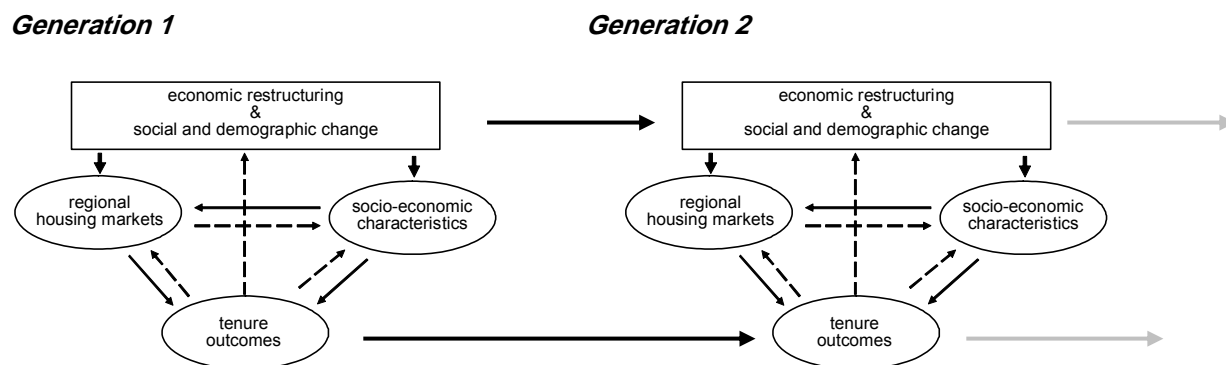
The list of factors above identified as influencing housing outcomes have emerged from numerous empirical and theoretical studies of housing markets and housing choices. An accessible overview of much of this literature can be found in Green and Malpezzi (2003). A more formal overview, with a greater focus on empirical analyses, can be found in Meen (2001).

As indicated in the text, one key assumption that drives the projections reported in this paper is that made about home ownership rates in the future. The age-specific home ownership rates that embody this assumption, in turn, essentially are based on the assumption that access to home ownership in the future will be no better than it has been in the past. This assumption follows from the assumptions made about key economic variables (outlined below) and from the results of numerous tenure choice studies.

Green and Malpezzi (2003, p. 14) suggest that the key findings of the wide variety of tenure choice models are ‘remarkably robust’. All other things being equal, home ownership increases with income and with age. These findings also show that the higher probability of home ownership for higher-income households can be attributed to the greater tax advantages (and hence lower user costs) they derive from home ownership and to the lower liquidity constraints they face. The base model that underpins the results reported in the text is based on economic assumptions that leave user costs unchanged (see section A.4.2). This means that the liquidity (or deposit) constraint becomes the key factor likely to affect home ownership rates. The data presented in Appendix B suggests that, over the next 40 years, this constraint will be increasingly binding for households who are not yet home owners. This means access to home ownership is unlikely to improve over this period (which is the assumption that underpins projections of future home ownership rates).

The last of the examples above (the impact of wealth) suggests that, not only do the factors identified in the framework illustrated in Figure A.1 change over time, they are also linked across time through the capacity of parents and grandparents to influence the tenure outcomes of their children and grandchildren. This linking across generations is reinforced by the changes over time in the key drivers. Economic and social change evolves over time, thus linking drivers across generations. Figure A.2 illustrates this.

Figure A.2: Potential interactions between spatial, socio-economic and housing change across generations



These examples highlight the fact that the factors affecting housing sustainability and intergenerational equity are complex and interacting. As indicated, this paper has made no attempt to formally model these potential changes. Instead, it has outlined a conceptual model that provides a framework which takes them into account in an internally consistent way. It has relied upon existing evidence to calibrate the base STINMOD model. Changes in any of the factors highlighted by the illustrative examples above are likely to affect the assumptions made about tenure outcomes. Some of the possible impacts of such changes are taken into account by the simulations reported in the text.

A key point about the conceptual model outlined in the text is that it focuses on long run trends and the underlying or fundamental relationships between economic and

demographic change and housing outcomes. As such, it abstracts from cyclical or short term influences on affordability.

A.2.3 Interdependencies between key variables

Demographic factors are taken as given in this study, with projections of households by number, age and household type based on those provided in official sources (discussed below). This means that the possibility that the number of households is endogenous and affected by housing affordability is not taken into account.

However, the impact of demographic factors (reflected both in the change in the number of households and the change in the age structure of the population) on the demand for housing, both directly and indirectly through the impact of demographic change on both housing market and financial markets must be considered.

A.3 Impact of demographic change on key economic variables

A.3.1 Demographic change and house prices

A notable example of the difficulties of examining the impact of demographic change on housing the demand for housing is a study by Mankiw and Weil (1989). Mankiw and Weil linked real house prices directly to the age structure of the population through age specific estimates of housing demand based on a time series of cross section data. On the basis of applying age specific demand coefficients to the projected number of households in each age group and assuming the age structure of demand stayed constant, their results predicted that America's ageing population would cause real house prices to fall by 47 per cent between 1987 and 2007. This conclusion spawned a number of studies that criticised the Mankiw and Weil study on grounds of both methodology and interpretation.²⁴

A number of key points arose from these critiques. These are relevant to the approach taken in this paper. The first was that past demographic outcomes cannot necessarily be used to predict the future because of the difficulty of separating out age specific effects from cohort effects and time effects. Younger cohorts, for example, are better educated and have higher real incomes than their forbears. A second, related point is that demographic demand is not the only source of demand for housing. Housing demand, for example, is affected by household wealth, real household incomes and by real after tax interest rates. A third point is that, if the supply of housing is completely responsive to changes in housing demand, then housing demand is irrelevant for determining constant quality house prices. In this case, house prices will be determined by supply conditions.²⁵ The relevance of this critique and the role of supply conditions will be considered below following a discussion of the impact of demographic change and incomes and interest rates.

In order to realise housing assets, older cohorts would need either to downsize, move to a cheaper location or shift to rental housing. Any one of these options would result in structural changes within the housing market. This highlights the difficulties of

²⁴ A number of these can be found subsequent issues of the *Regional Science and Urban Economics* journal in which the original article was published. In particular, see Englehardt and Poterba (1991), Green and Hendershott (1996), Hamilton (1991) and Hendershott (1991). The prediction of a 47 per cent decline in house prices was derived from the Mankiw and Weil estimates but was not actually made by them. They were more circumspect and warned against the perils of forecasting beyond the experience of the data (Mankiw and Weil, 1991).

²⁵ Observed dwelling prices, however, reflect both price effects (based on a constant quality dwelling) and changes in quality reflected by size and dwelling location, neither of which stay constant as demand increases.

predicting the impact of change on the basis on unchanged assumptions about behaviour. Widespread downsizing or location change would affect the distribution of dwelling prices by reducing pressure on higher price dwellings and increasing it on lower price dwelling; a shift to rental housing would be likely to put an upward pressure on rents. The ways in which these possible changes might be addressed is considered below. In the same way, a decision not to realise housing assets also has implications for the impact of demographic change on dwelling prices in the future. It suggests that housing demand will be sustained over time.

A.3.2 Demographic change and interest rates

In the last decade or so, much has been written on the impact of demographic change on financial assets.²⁶ Much of this is concerned with the adequacy of savings and the question of the adequacy of retirement income provision for an aging society. It has raised the spectre of what has been called the ‘asset market meltdown hypothesis’ arising from a concern that as the baby boomer generation reached retirement age they would cash in their accumulated assets and precipitate a dramatic fall in asset prices. The Mankiw and Weil analysis was a forerunner of this literature.

Poterba (2001, 2004) provides an overview of the theoretical and empirical literature on the implications of population aging on financial markets. He claims theoretical models tend to suggest there is an effect but provide no guidance on the magnitude and results from empirical results are mixed. Brooks (2006), in a paper to a recent RBA conference, concurs, claiming that in countries where stock market participation is greatest (including Australia), real financial assets may rise as households continue to accumulate financial wealth into old age.²⁷ While the asset meltdown hypothesis has received attention in the popular press, there is no consensus about it in the academic literature (Borsch-Supan, 2006).

Much of the difficulty in determining what the effect of demographic change is likely to be on financial markets arises because outcomes are sensitive to the assumptions made about participation rates amongst older workers, to assumptions made about their behaviour with regard to bequests, to assumptions about the asset portfolios that older households will prefer to hold and to assumptions about the extent to which capital is globally mobile.

In addition to these factors, Poterba (2004) concludes ‘patterns of wealth decumulation in old age, which feature prominently in any discussion of how changing population structure will affect financial markets, are likely to be very sensitive to the evolution of government transfer policy with regard to retired households.’ Others point to other potentially confounding effects. Many of the theoretical models from which these conclusions are derived are based on a life-cycle model of saving in which households accumulate wealth during their working lives and dis-save when they reach retirement. In such a world, an aging society saves less with an implication that asset prices will fall and interest rates rise. However, as Börsch-Supan (2006) argue, while this should result in an increase in interest rates because the supply of funds is tight, the smaller younger generation might also mean that there is less demand for new investment, with the result that the net effect is uncertain.

²⁶ A comprehensive coverage of the most recent contributions to this literature can be found in the paper presented at the recent G-20 workshop on demography and financial markets held in Sydney. This was jointly hosted by the Reserve Bank and the Australian Treasury. The workshop examined the impact of demographic trends on macroeconomic factors relevant to financial markets, particularly saving and investment, capital flows and asset prices. Papers can be found on the RBA website at <http://www.rba.gov.au>.

²⁷ While the asset meltdown hypothesis has received a lot of attention in the popular press, there is no consensus about it in the academic literature (Borsch-Supan, 2006).

Johnston (2004) points out that the shift to defined contribution pension schemes has shifted the risks associated with retirement income to consumers with the results that they may become more risk averse in their asset holdings and switch from equity holdings to fixed interest instruments with an ambiguous impact on the functioning of financial markets. In addition, Bohn (2006) suggests that a substantial amount of the world's capital is due to bequests, not savings, and that this raises questions about the suitability of the life-cycle framework for an analysis of wealth accumulation or decumulation.

To date, there are no clear indications of the impact of these changes on interest rates in the future. This lack of certainty about the impact of demographic change on financial markets is problematic for a study of housing because of the interrelationship between interest rates, rents and house prices as discussed below.

A.3.3 Demographic change and incomes

One of the impacts of demographic change over which there is somewhat more agreement is the impact of an aging population on wages arising from a relative scarcity of labour. On the basis of a formalised model, Kulish et al. (2006), for example, show that by 2025 and 2045 the capital labour ratio in Australia would increase as a consequence of the ageing of the population regardless of whether this arose from declining fertility, increased longevity or a combination of both effects (although the transitional phases are likely to differ under each of these alternatives) leading to increased wages in both 2025 and 2045.²⁸ They also suggest that retirement will be postponed, which reduces the upward pressure on wages arising from a relative scarcity of labour. These results are consistent with the IGR assumptions of continued productivity growth at least through the period to 2045.

Continued growth of household income for younger cohorts (with a flow on effect for older households with pensions linked to average earnings) highlights the point raised as a critique of the Mankiw and Weil analysis. It suggests that, as a result of an income effect, demand for housing is more likely to be higher rather than lower as cohorts age. Green and Malpezzi (2003) summarise US evidence that shows demand for housing increases with age.

A.4 Interactions between key economic variables

A.4.1 Housing demand and supply

Much of the above analysis has focussed on the implications of demographic change reflected in a change in the age structure of the population as a result of ageing. If economic and social change is abstracted from, with no growth in the number of households, the impact of ageing is likely to be dominated by the intergenerational cohort effects indicated above. However, while changes in the age structure of the population are the dominant change taking place, population growth and growth in the number of households are also critical to changes in the housing market. If the impact of increased household income is ignored, the former is likely to be reflected in changes in the type and location of dwelling demand and hence in changing relativities in dwelling prices between different dwellings in different locations. The impact of the population growth, however, depends on the extent to which this is translated into household growth and on the supply response to this growth.

²⁸ Their model suggests approximately a 2 per cent increase in real wages by 2025 and an 8 per cent increase by 2045. Their model also predicts decreased rates of return on capital with a commensurate decline in real interest rates from a current (2005) value of 7 per cent to just over 6.5 per cent in 2025 and just under 6 per cent in 2045 (outcomes derived from their Figure 3).

If there are no constraints on supply, then increases in demand arising from increased numbers of households could be met by increases in the housing stock with no increase in constant quality dwelling prices.²⁹ While this sanguine view of supply might hold for construction costs, it is unlikely to do for land, which is inherently fixed in supply, particularly in a highly urbanised country such as Australia where growth at the urban fringe introduces strong land price gradients within urban areas. The Productivity Commission report on First Home Ownership provides clear evidence of land price gradients in the major capital cities of Sydney and Melbourne, which are both significant and have increased over time (PC, 2004, p126).

DiPasquale and Wheaton (1994) provide a formal analysis of housing market dynamics and the future of housing prices which explicitly takes into account the fixity of land. In such a model the long run cost of supplying housing increases as demand increases and high price levels generate increased supply only when short run prices exceed the long run equilibrium price. Tsatsaronis and Zhu (2004) point to the role of the availability and cost of land, the cost of construction and investments in improving the quality of the housing stock as key long run determinants. Meen (2002) provides estimates of house prices in the US and UK which explains differences in the rate of house price growth in each country by differences in their respective supply elasticities and, in particular, shows that supply restrictions add to pressures on dwelling prices. This is supported by evidence from Green et al (2005) who show that estimates of supply elasticities vary substantially from place to place but are relatively inelastic in metropolitan areas (which means that house prices will rise with increased demand). The PC, a recent OECD report (OECD, 2005) and Meen (2005) all highlight the contributing role of regulatory constraints and the impact of various property taxes in adding to the cost of supply.

This brief overview suggests that the long run impact on dwelling prices of changes in demand arising from changes in any of the fundamentals will depend on the responsiveness of demand to the relevant factors and the responsiveness of supply to changes in demand.³⁰ Changes in any of the factors that affect the cost of providing housing will result in an upward shift in the overall trend.

A.4.2 Dwelling prices, interest rates and rents

While dwelling prices and rents have been combined in the conceptual framework illustrated in Figure 2.8 in the main body of this paper, the link between these needs to be made explicit as it is affected by key variables included in this framework. This means that if any of these variables change, the relationship between dwelling prices and rents may also change.

In general, the after tax return on investment in housing will reflect the return on alternative investments with the same risk characteristics. Gross rents will be defined by the risk free real interest rate plus a risk premium for equity investment plus on-going housing costs less expected real house price growth. In other words,

$$R = [i + c - (\pi + g) / (1-t)] P$$

(where i is the risk free interest rate, c covers the risk premium plus operating costs including maintenance, insurance, property rates and taxes; π is inflation, g is

²⁹ Maintaining constant quality assumes per household demand is unchanged by increases in income. Increases in the demand for housing services will result in larger or better located dwellings with resultant increases in the value of the housing stock because of an increase in the quantity or quality of housing.

³⁰ Technically, this responsiveness is measured by elasticities showing the percentage change in one variable with respect to a percentage change in another. A recent ODPM report (ODPM, 2005b) provides an overview of how these relationships can be formally modelled. This project was prepared by a team of UK academics and directed from the University of Reading (by Geoff Meen).

expected real house price growth after depreciation is taken into account, t is the marginal tax rate on capital gains and P is dwelling value). More detail on this can be found in Wood et al. (2006, 2003).³¹

This expression indicates that, if interest rates, operating costs, inflation and taxes are constant, rents will increase in line with house prices when there are no expected real capital gains but will be lower when real capital gains in house prices are expected and higher when real capital losses are expected. In part it explains why rents remain relatively stable when dwelling prices increase: expectations of increasing capital gains drive them down. Himmelberg et al. (2005) point out that this relationship between rents and dwelling prices also means that prices are likely to be more sensitive to changes in real interest rates in regions where expected capital gains are higher. Data on house prices and rents in Australia are provided in the following section.

These same variables affect the user cost of owner-occupied housing which both affects the demand for housing by owner occupiers and, relative to rents, affects tenure choice. Using the same terminology as employed in the expression above, a simplified version of the user cost of owner-occupied housing (for households with no mortgage) can be expressed as

$$UC = [(i (1-t) + c - (\pi + g))] P$$

Along with the relative returns to investment in home ownership compared with investment in competing assets, the relative cost of owning compared with renting is one of the factors likely to affect the willingness of a household to become a home owner. As such, this relationship will affect housing costs faced by the household and have an impact on the long-run sustainability of the housing system. As discussed in Appendix B, in the base model employed in this study, the key parameters in each of these expressions are assumed to be constant. This means there is no change in the relative price of owning compared with renting and hence no change in the economic incentives for households to become home owners or renters in the period covered by the projections.

Despite the usefulness of the user cost concept, Blackley and Follain (1996) suggest there is only a weak relationship between user costs and rents. Green and Malpezzi (2003, p55-60) provide an accessible discussion of the user cost concept and an explanation of why it has been difficult to determine the empirical relationship between user costs and rents.

A.5 Summary

The framework illustrated above highlights, and points to the interdependencies between, the key variables that form the focus of the simulation modelling to be undertaken in this project. This modelling allows for the impact of demographic change on factors likely to affect housing sustainability.

³¹ The expression used here is consistent with that used by Wood et al. It assumes pre-tax returns are equalized (so that the real rate of interest $r = i - \pi$) and is simplified by ignoring transaction costs and the effect of depreciation allowances on new buildings by assuming these are built into the term for house price growth. Debates arise in the finance literature over the extent to which the differential tax treatment of financial investments (such as bonds) compared with real investments (such as housing or shares) is capitalized into the nominal interest rate. For simplicity, taxes are ignored in what follows. In terms of long run trends, this can be assumed to be equivalent to assuming that equities and housing are treated equivalently by the tax system, that the tax effects are built into the long run return on equities and that the tax structure remains unchanged over the projected period.

The key variables identified are dwelling prices and rents, interest rates and household incomes. These affect the demand for housing. Dwelling prices and rents are interdependent and affected by economy wide interest rates. They also are affected by the supply of and demand for housing which, in turn, is affected by demographic factors. A number of the other drivers of supply and demand excluded from the framework illustrated can be taken into account through their effect on these key variables.

As indicated in Chapter 2, the number of variables considered in the modelling undertaken is limited for two main reasons. Firstly, a simple framework is adequate to capture the critical drivers affecting sustainability. Given all the uncertainties that exist in projecting housing outcomes 20 to 40 years ahead, and given the heroic assumptions that need to be made even for this limited number of variables, the refinement associated with more detail is seen as unwarranted. Secondly, the cost of modelling a more complex model would be prohibitive.

TECHNICAL APPENDIX B: MODEL ASSUMPTIONS

B.1 Overview

This appendix provides a historical overview of past trends in key variables that affect the assumptions in the base model used in this study and highlights their impact on assumptions made about future trends affecting housing market outcomes.

The key indicator for determining the sustainability of the housing system over time is the number (and proportion) of households in housing stress. This, in turn, depends primarily on assumptions made about household incomes and housing costs and on assumptions made about tenure. Thus, a key driver for the results of this study is the assumption made about future tenure outcomes. This is affected by the assumptions made about incomes and house prices.

B.2 Key assumptions in IGR

The assumptions employed in this modelling exercise are classified into non-discretionary assumptions (which remain unchanged throughout the report) and discretionary assumptions (which are varied in the sensitivity analysis). Where there is overlap with the IGR, the discretionary assumptions in the base model are informed by those in IGR1.³² Where assumptions needed for this exercise are not covered by the IGR, the assumptions made are internally consistent with those in the IGR report.

B.2.1 Demographic assumptions

The demographic assumptions in the model are outlined in Chapter 3 of the main report. In brief, these are based on ABS projections to 2025 and Productivity Commission projections to 2045. Each of these, in turn, is based on ABS series B population projections although the PC has slightly higher numbers than the ABS for the second 20 years. IGR1 projections were based on more conservative population projections than ABS series B; IGR2 projections are based on very similar data to the ABS and PC projections.

These projections are based solely on demographic factors. They do not take into account the possibility that household numbers in a specific location and household formation might be endogenous - that is, influenced by the economic and social factors that drive housing outcomes. While this is a simplification, there is some support for the argument that economic and social factors affect the demand for housing but have less impact on the propensity to form households. Regional projections of household numbers, however, do have the capacity to affect the assumptions made about trends in house prices and rents. In the work undertaken in the UK to examine the implications of the Barker Report for housing supply, Meen and his colleagues explicitly model internal migration by relating this to underlying regional economic conditions (ODPM, 2005b). Such an approach is beyond the capacity of STINMOD, the simulation model used in this study.

B.2.2 Economic assumptions

The key economic assumptions made in IGR1 (2002, p30) are as follows:

→ Low and steady inflation of past decade continues (at 2.5 per cent per year)

³² The modelling for this report was undertaken before IGR2 was released. Differences in IGR2 assumptions are noted below. A key difference is the higher projected growth in GDP. Because the base model employed in this study is based on changes relative to changes in income, for the purpose of the assumptions that drive the outcomes derived in this study, any differences in projected GDP growth are unlikely to have any substantive impact on the results.

- Real wage growth equals productivity growth (at 30 year average of 1.75 per cent per year)
- Nominal wages grow at 4.25 per cent per year (reflecting an inflation rate of 2.5 per cent and productivity growth of 1.75 per cent per year)
- Employment growth slows from 0.6 per cent per annum to 0.1 per annum as a result of the slower growth in the labour force with the result that real GDP growth slows from 3.1 per cent to 1.9 per cent.
- Real GDP grows at 2 per cent per annum.

These are summarised in Table B.1. Not all are relevant for the specific analysis to be undertaken for this study, but all will affect the variables employed and the assumptions made about them.

Table B.1: IGR1 economic assumptions

	<i>Labour productivity</i>	<i>Employment</i>	<i>Real GDP</i>	<i>Real GDP per capita</i>	<i>Inflation</i>
	% pa	% pa	% pa	% pa	% pa
1980s	1.20	2.4	3.4	1.8	
1990s	2.00	1.3	3.4	2.2	
2000s	1.70	1.5	3.1	2.1	2.5
2010s	1.75	0.6	2.3	1.5	2.5
2020s	1.75	0.2	2.0	1.4	2.5
2030s	1.75	0.1	1.9	1.5	2.5

Note: average annual growth rates (per cent)

Source: IGR1 (2002), Table 4

The second IGR (2007), generally without explanation, reported marginally different values for the 1980s and 1990s values of some of these variables. It also reported marginally higher values for real GDP in the 2030s (attributed to greater participation rates for older workers and higher migration), with a value of 2.2 (instead of 1.9). For the 2040s, real GDP growth was assumed to be 2 per cent p.a. and real GDP per capita 1.6 per cent p.a. These changes are not seen as making a substantial difference to the assumptions made in this report. Over the next 40 years, real GDP was assumed to grow at an average rate of 2.4 per cent p.a. and real GDP per capita at 1.6 per cent p.a.

The sensitivity analysis employed by IGR1 allowed for a variation in productivity and in participation rates (or employment). Productivity was varied from a low of 1.2 per cent (1980s average) to a high of 2.0 per cent (1990s average). In conjunction with their assumptions about variations in participation (based primarily on assuming that male participation rates stabilised from a downward trend; and female rates stabilised from upward trend), the resultant implications of their assumptions resulted in the low and high growth scenarios presented in Table B.2 below.

Table B.2: Low/high growth scenarios for real GDP

	<i>Low growth</i>	<i>Base</i>	<i>High growth</i>
	% pa	% pa	% pa
2000s	2.9	3.1	3.2
2010s	1.8	2.3	2.6
2020s	1.4	2.0	2.2
2030s	1.3	1.9	2.1

Source: IGR1, Table 5

A number of critiques of the assumptions made in IGR1 can be used to influence decisions made about what sensitivity analyses might be undertaken in response to these assumptions. Only those that raise issues relevant to this study are considered here.

Dowrick and McDonald (2002), for example, point to what they see as unduly pessimistic assumptions about future government revenue because of a failure to take into account the impact of increased productivity and related increase in household incomes on household consumption and, therefore, GST revenues. They also suggest that productivity growth projections suggest that costs in service based industries will rise with the result that living standards for households dependent on such services (such as child care) may decline relative to households with incomes linked to average weekly earnings. Their concern highlights the potential importance of distributional issues when considering housing sustainability. Gruen and Garbutt (2003, 2004) suggest that labour force participation might increase with the result that real household incomes are higher than assumed in IGR1.

In this study, real GDP growth is assumed to be 2 per cent pa, at the top end of the IGR scenarios given the critiques above. Distributional considerations are taken into account by allowing wage incomes to grow at a different rate from other incomes.

B.3 Key model assumptions not covered by the IGR

A key assumption made in this study not covered by the IGR is that made about trends in tenure into the future. Underpinning this are assumptions about trends in interest rates, house prices and, associated with these and trends in rents, none of which are covered by the IGR. These affect the assumptions made about the ability of aspiring home purchasers to access home ownership. They also affect the assumptions made about the costs they face as purchasers if they become home owners or as renters if they do not.

Aggregate trends in dwelling prices are assumed to be affected by trends in supply and demand factors. Supply factors are driven by land and construction costs with the premiums associated with high demand locations assumed to be the more important in terms of overall trends. Demand factors are driven by economic (primarily incomes and interest rates) and demographic factors (primarily household growth and the age structure of the population).

As indicated in Appendix A, the long run relationship between dwelling prices and rents is assumed to be affected primarily by real interest rates, the on-going costs associated with home ownership and by expectations of dwelling price increases. It is also affected by institutional factors such as changes in tax rates and credit market constraints.

The key factors affecting these trends and the interdependencies between them are covered here.

B.3.1 Interest rates

Interest rates are important for two reasons: real interest rates are critical for determining the user cost of owning a home (and, coincidentally, the equilibrium rental value of housing) and nominal interest rates are critical for determining the constraints on access to home ownership defined by borrowing capacity.

For the long term analysis undertaken in this study, real interest rates are assumed to be determined by global economic factors and to be largely outside of factors driving the national economy. Risk adjusted real rates of return are assumed to be equal over all assets in the long run. Nominal interest rates are assumed to equal the long run real interest rate plus expected inflation. The base risk free real rate is taken to be 3.5 per cent, based on the assumed value for the inflation indexed government bond rate, in turn based on the average indexed bond rate over the last 10 years.³³

In his overview of the theoretical and empirical literature on the impact of population ageing on financial markets, Poterba (2004) suggests that the mean equity return over the past 100 years (in the US and UK) has been around 5-6 per cent real. This places an upper bound on the risk free real interest rate. With a risk premium of 2 per cent (Himmelberg et al., 2005 taken from Flavin and Yamashita, AER 2002), a realistic upper bound for the risk free real interest rate over the next 40 years would be 3.5 per cent.³⁴

On the assumption above of a 2.5 per cent inflation rate, this gives a risk free nominal interest rate of 6 per cent and, with a 1.0 per cent margin for mortgage lending, a nominal mortgage rate of 7 per cent. These assumptions can be supported by trends in the key variables over the past 45 years, illustrated in Figure B.1 below and summarised in Table B.3.

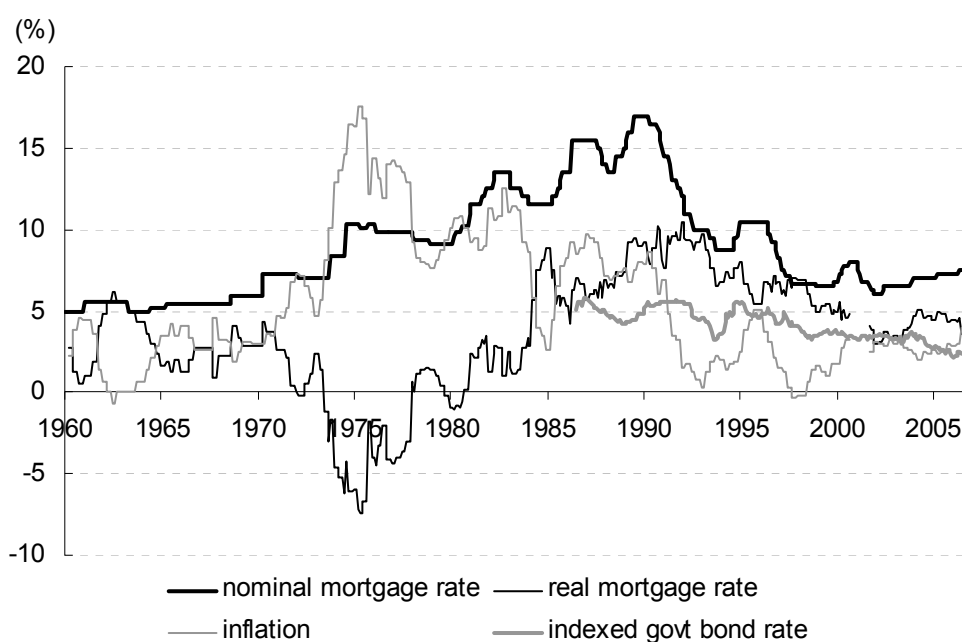
In Figure B.1 the data reported, nominal interest rates are based on the standard bank lending rate for housing finance, inflation is measured by annual changes in the CPI and real interest rates are derived by subtracting the current annual inflation rate from the nominal interest rate.³⁵ The 10 year government bond rate is taken as a proxy for the risk free nominal interest rate and the indexed government bond rate as a proxy for the risk free real interest rate.

³³ These assumptions apply to long run trends in interest rates; they ignore the cyclical variations that will occur.

³⁴ Dimson et al. (2003) report marginally higher 100 year estimates with a risk free bill rate of 3.8 per cent (for the US) and 5.5 per cent (for the UK). They suggest plausible forward looking equity premiums of 3 per cent per annum. The assumption of a 2 per cent risk premium is conservative compared with the 6 per cent equity risk premium reported by the Commonwealth Department of Finance and Administration (2006) derived from the same Dimson et al. source and used as an illustration in its discussion of discount rates for equity investment in Australia.

³⁵ CPI data are available only quarterly; monthly nominal interest rates have been converted to real interest rates by assuming that the inflation rate is constant until new quarterly information is available.

Figure B.1: Real and nominal interest rates and inflation: 1960-2005



Source: ABS, RBA

The data illustrated in Figure B. 1 clearly show that current nominal interest rates have returned closer to their historical levels of the early post war years after reaching all time high during the inflationary period of the 1970s. Inflation, likewise, has stabilised and returned to low and stable rates not common since the 1960s. Current approaches to monetary policy (based on maintaining inflation within a band of 2-3 per cent p.a. over the economic cycle) suggest that they will remain at these lower levels.

Table B.3: Real and nominal interest rates and inflation: 1960-2005

	nominal mortgage rate*	10 year bond rate	indexed govt bond rate	inflation	real mortgage rate**
	%	%	%	%	%
average 60s	5.4			2.5	2.9
average 70s	8.6			9.7	-1.1
average 80s	13.2	8.4	4.9	8.5	4.7
average 90s	10.0	13.4	4.6	2.6	7.3
average 00s [#]	7.0	8.5	3.2	3.2	3.8
average 1960-2005 [#]	9.0	5.7	4.2	5.5	3.5
<u>assumed rate to 2045</u>	<u>7</u>	<u>6</u>	<u>3.5</u>	<u>2.5</u>	<u>4.5</u>

* standard bank mortgage rate; ** nominal rate less annual inflation rate

excluding 12 months following introduction of GST

Source: RBA, ABS

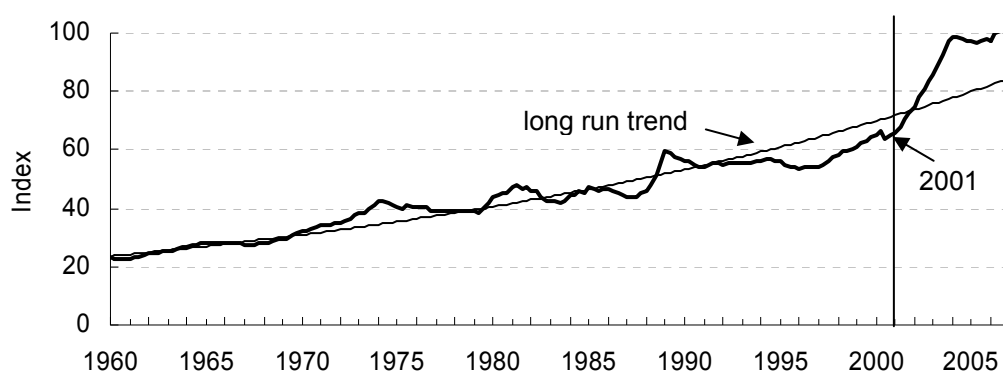
In conjunction with rising real household incomes, the relatively steady decline in interest rates since 1990 has resulted in a significantly increased borrowing capacity in the last decade. This increase in borrowing capacity has been enhanced by

innovations in the financial system.³⁶ However, as indicated below, much of the benefit this increase might bring in providing access to home ownership has been eroded by higher house prices. If growth in household incomes is abstracted from, borrowing capacity in 2005 falls short of borrowing capacity in the 1950s and 1960s when home ownership expanded rapidly. This was shown in Figure 2.3 in Chapter 2.

B.3.2 Past house price trends

With trend interest rates assumed constant, future access to home ownership is affected by the relationship between trend incomes and the underlying long run trend in house prices. These trends also affect housing costs in the future. Real house price index data for a 45 year period from 1960 were illustrated in Figure 2.2 in Chapter 2. The relevant aspects of that chart are repeated here for convenience. These data, based on unpublished data from Treasury, have been deflated by the CPI and were used by the Productivity Commission in their Report on First Home Ownership (PC, 2004). They are closely aligned to the preferred series generated by Abelson and Chung (2005).³⁷ The chart shown is a spliced series based on the ABS house price index (ABS Cat. 6416.0) from 1986. This is extrapolated back using REIA data on dwelling price growth from 1978 to 1986 and to 1959 to 1979 using BIS Shrapnel price data. These PC data have been supplemented by ABS house price data for 2003 to 2005.³⁸

Figure B.2: Real house price trend, Australia: 1960-2005



Source: Productivity Commission (2004), ABS Cat.No. 6416.0, Table 10

For the period from 1960 to 2005, the average annual rate of growth in real house prices was 2.6 per cent. This estimated trend growth rate is slightly higher than the 2.3 per cent reported by the PC for the period from 1970 to 2003 and slightly lower than the 3.3 per cent reported by Abelson et al. (2005) for the period from 1970 to

³⁶ The PC (2004) and RBA (2003) provide examples of some of such innovations. As pointed out by the RBA, however, many of the loans that allow loan to valuation ratios in excess of 97 per cent tend to be associated with higher effective interest rates and, in any case, are still a low proportion of outstanding loans. By 2003, for example, only 2 per cent of outstanding loans had an initial LVR greater than 95 per cent.

³⁷ Peter Abelson has been most generous in providing both the Treasury data and their own preferred series. The Abelson and Chung data represent the authors' best efforts at generating a consistent house price series for Australia from 1970. They are derived primarily from Valuer General data over the period and are supplemented by ABS, REIA, and HIA/CBA data as needed. An overview of the different data sources used to generate data by the ABS, REIA, CBA and APM can be found in RBA (2004) and in Abelson and Chung (2005).

³⁸ These are based on the old methodology for consistency with the PC data although the difference between the old and new series is immaterial for the current purpose. See ABS (2005).

2001. The first of these differences can be explained by the effect of extending the data to include the significant increase in house prices from 2003 to 2005. The second arises because Abelson et al. estimated a compound growth rate from the start and end points of their series rather than fitting an underlying trend.³⁹

The post 2001 growth in house prices is relevant for the assumptions made in the base model for this report. While dollar values in STINMOD were up-rated from the 2000/01 and 2002/03 SIHC data used in benchmarking STINMOD06, age specific tenure rates were kept at their 2001 values for the 2006 version of STINMOD. This is equivalent to assuming that access to housing for first home buyers was the same in 2006 as it was in 2001. The data presented in Table 2.1 and illustrated in Figure 2.3 in Chapter 2 clearly show this was not the case (even allowing for the introduction of the \$7,000 to \$14,000 FHOG over the period).

However, one benefit of having 2001 as the base year for determining future access to home ownership for first home buyers is obvious from Figure B. 2: because it predates the rapid rise in house prices that occurred from 2001 to 2004 it provides a benchmark more consistent with the long run trend for dwelling prices. Importantly, it also represents the end of a relatively long period during which interest rates were falling and house prices were marginally below their long run trend: in other words, a period at which affordability (in terms of access to housing) was the most favourable it has been over a 20 year period (as can be seen by Figure 2.3 in the text). Thus, it was a period where home ownership for first home buyers was more accessible than it had been for the past 10 years (and would be for the next 5-10 years as a result of the subsequent house price boom).⁴⁰

This suggests that home ownership outcomes reflected in 2001 data are optimistic and are unlikely to be exceeded until housing affordability for first home buyers returns to the levels observed in 2001.

As an indication of the actual dwelling prices that are embodied in the index charted in Figure B.2, regional data that underpin the trend are presented in Table B 4.

³⁹ Personal communication.

⁴⁰ Much has been written about the question of whether increases in house prices in the early years of the 2000s represented a house price bubble (OECD, 2005 provides a good overview). One of the advantages of this literature is that much of it revisits the issue of what are the long run fundamentals that determine house price growth. These are returned to below. In Australia, the question of whether the 2001-2003 house price boom represented a bubble was associated with a concern about the quality of house price data. This concern focused primarily around three issues: the timeliness of the data, the problem of compositional changes in sales based data and the confounding of quality changes with pure price changes (RBA 2004, 2006). The first two of these concerns, however, related primarily to questions about timing of cyclical turning points and the amplitude the movements above or below the long run trend. For this study which is concerned with long run trends, these issues are largely irrelevant. Data reported by the RBA (2004) indicates that while the different measures do vary in terms of their indication of the extent and timing of the various house prices cycles, there is little difference between them in terms of their assessment of the general trend in house prices. Prasad and Richards (2006) point to the issues arising with quarterly data and discuss ways of addressing these problems. For the purpose of determining access to home ownership, the third concern is irrelevant. First home buyers, as all buyers, are constrained to choose from the stock of dwellings that is available: they must pay for whatever quality improvements have been built into the stock.

Table B.4: Median house prices, various regions: June 2001

Median house price (\$)								
Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin	Canberra	Australia
323,000	218,500	150,500	149,600	171,500	108,200	174,400	221,000	216,400
RoNSW	RoVic	RoQ	RoSA	RoWA	RoTas			
175,000	143,500	147,000	120,000	153,000	105,000			

Sources:

Capital cities: ABS cat. no. 6416.0, tables 1,7,8,10. June 2001 data derived from June 2002 median price of established house transfers (unstratified) using regional price indexes based on old methodology

Rest of state: HIA Housing Report.

Median house prices, however, tend to be dominated by transactions undertaken by repeat buyers and do not necessarily reflect the costs of dwellings purchased by first home buyers.

First home buyers, in general, are more constrained than repeat buyers as a result of less accumulated wealth and as a result of being at an earlier stage in their earnings life-cycle. This means they are likely to purchase dwellings of lower quality and with values below the value of those purchased by repeat buyers. They may also be more likely to purchase a unit rather than a separate house as their starter home (although deferral of home purchase until after children arrive lessens this probability). Both of these factors suggest that median house prices may not be a good measure of dwelling prices purchased by first home buyers.

One way of testing this is to compare the price of dwellings purchased by first home buyers with the more readily available median house price data. The HIA/CBA Housing Reports provide data on median first home prices at an Australia wide level. These are based on 90 per cent of the median price but are routinely checked against valuations derived from Commonwealth Bank lending to first home buyers in relation to median established house prices.⁴¹ Thus, indicative prices for first home buyers can be taken as 90 per cent of those presented in Table B. 4.

B.3.3 Future house price trends

The critical question of how many households will have the choice to enter home ownership over the next 40 years depends on the assumptions made about how house prices evolve in relation to incomes over the next 40 years. The flow on effect this has on rents will be a primary factor determining affordability outcomes.

While the trend levels of house prices were determined by fitting a trend line to historical prices, the question of whether extrapolation of this trend is an appropriate approach for predicting the general trend in house prices over the next 454 years depends on whether the factors that have led to the observed house price growth will continue into the future.

Much of the econometric analysis of determination of long run house prices identifies the key factors as being the underlying growth in the number of households and the growth in real income per household. The underlying rate of household growth

⁴¹ Personal communication. Information provided by Harley Dale, HIA.

implied by the PC projections is 1.5 per cent p.a. to 2025 declining to 0.7 per cent p.a. to 2045 with an average of 1.1 per cent p.a. over the whole period from 2001 to 2045. The underlying trend in real per capita incomes, driven by productivity increases, is assumed to be 1.5 per cent per annum from 2010 and marginally higher prior to 2010. Growth in income per household is likely to be marginally lower as a result of the continuing increase in the number of smaller households.

The net effect of these two trends is reflected in aggregate, real income growth. As reported in Table B. 1, in the IGR, this is assumed to average 3.1 per cent from 2001 to 2009, 2.3 per cent per annum for 2010 to 2019; 2.0 per cent per annum for 2020 to 2029 and 1.9 per cent per annum from 2029 to 2030. Following the IGR, the base model employed in this studied incorporated an assumption that there is an average increase of 2.0 per cent per annum in real GDP for the period until 2045.

The base model assumption that tenure outcomes would follow the same pattern as the past without any additional catch up was based on an assumption that the underlying growth in real GDP would lead to a flow on effect on real house prices of the same amount - that is, of 2 per cent per annum. This is consistent with an annual growth in the number of households of just over 1.0 per cent and an annual increase in real household income per household of just under 1.0 per cent (which is more conservative than the IGR projection of a 1.5 per cent per year growth in per capita incomes).

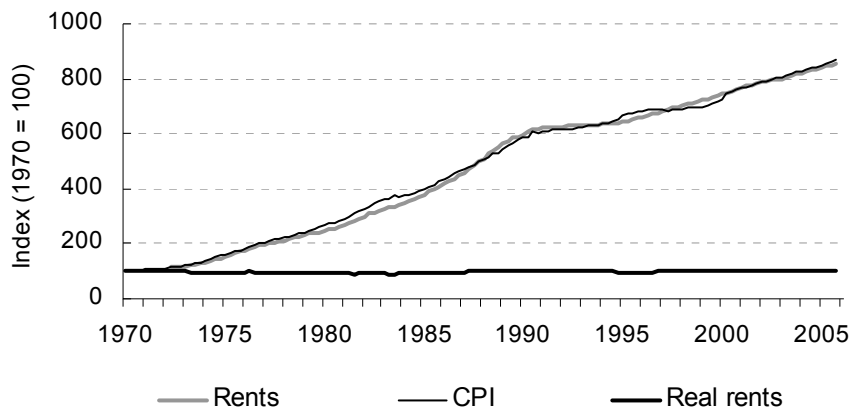
In other words, the assumptions about tenure outcomes not reversing in the future was predicated on an assumption that real house prices would continue to rise over the next 40 years as a result of ongoing upward pressure from growth in GDP, underpinned, in turn, by growth in the number of households and growth in real household incomes.

This assumed trend in real house prices over the next 40 years (of 2 per cent per annum), however, is lower than has occurred in the past 40 years (of 2.6 per cent per annum). This is likely to have a flow on effect on rents.

B.3.4 Past trends in rents

Figure B. 3 below indicates trends in real and nominal rents in Australia since 1970, as reflected in the rent component of the CPI. It clearly shows that, overall, rents as measured in the CPI have increased in line with, but no faster than general prices with the result that real rents have remained constant over time.

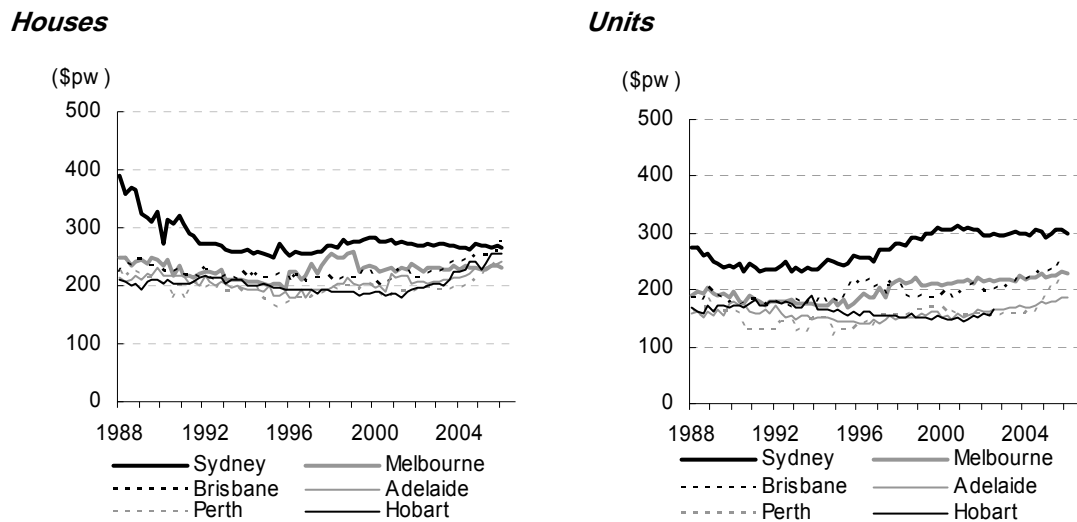
Figure B.3: Rents and CPI, 1970-2006



Source: ABS cat no 6401.0, Tables 1,7

In principle, the rental component of the CPI is a 'pure' price index adjusted for quality and quantity. However, the actual rents paid by households reflect both quality and quantity changes. Figure B.4 below, which charts median real rents for houses and units in each of the capital cities, shows that while rents paid have been relatively stable in real terms for houses, at least for the time period for which data are available, they have tended to increase in real terms for units (which form the bulk of rental accommodation available in Australia). Between 1990 and 2006, for example, real rents for units increased by more than 2 per cent per annum in Brisbane and Perth and by more than 1 per cent in Sydney, Melbourne and Hobart. They were stable only in Adelaide. On the other hand, over the same period, real rents for houses, were stable in Sydney, Melbourne and Adelaide but grew by 1 per cent per annum in Brisbane, Perth and Hobart.

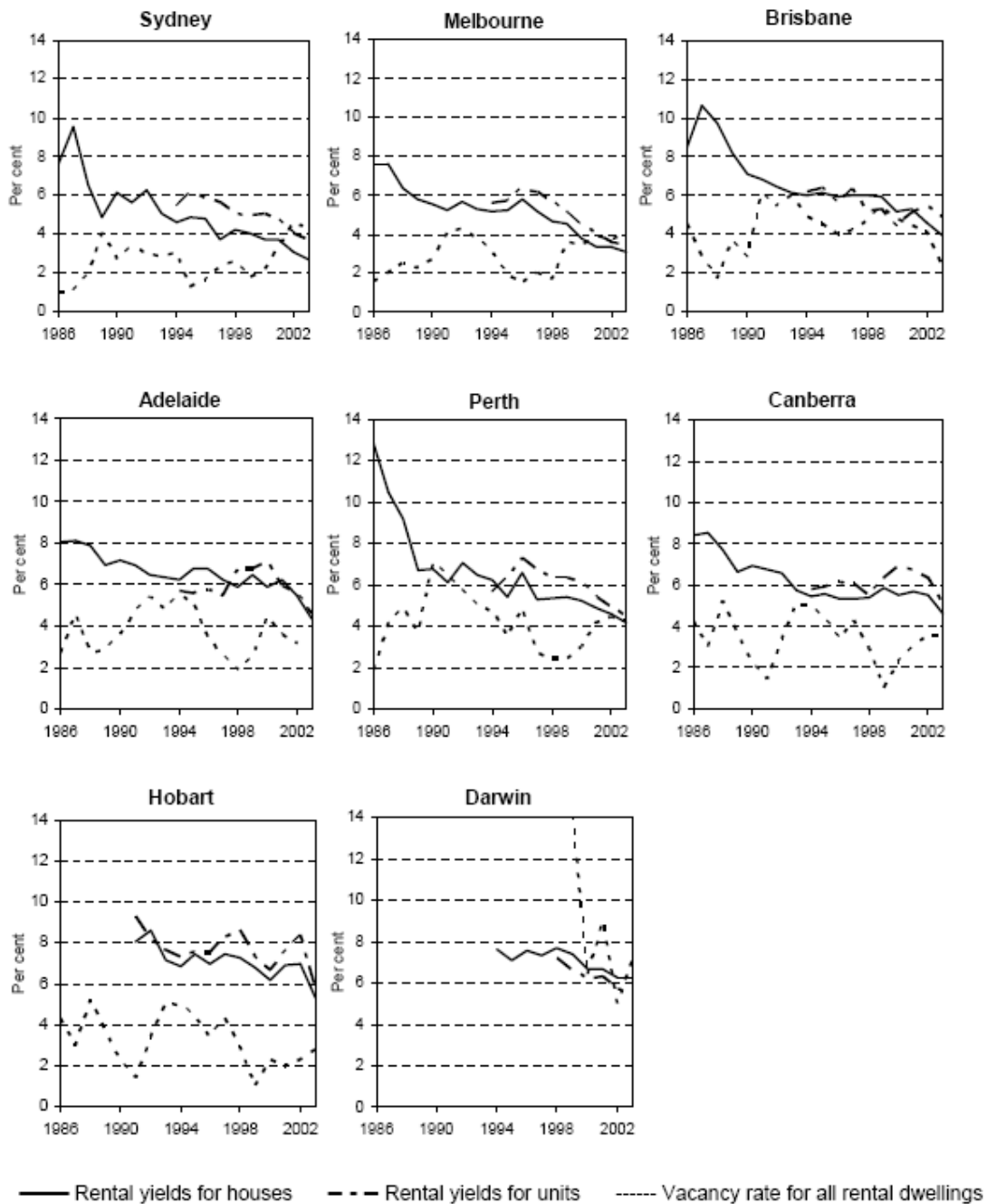
Figure B.4: Dwelling rents (\$2006)



Source: REIA (rent data for houses are available from 1982 but have not been charted because of the distorting influence of a significant rent boom-bust between 1986 and 1989).

Figure B.5 illustrates gross rental yields over the past decade. In addition to highlighting the general downward trend in yields in those cities where short run capital appreciation has been highest, the data illustrated also suggests that the long run average for gross rental yields over the period is around 5-6 per cent (with a net rental yield of 3-4 per cent). Use of this as a long-run benchmark is relatively conservative given the above estimates by Poterba (2001) and Dimson et al. (2003) for the long run return on equities.

Figure B.5: Selected gross rental yields for selected Australian capital cities



Source: PC (2004, Figure 2.5), based on unpublished data from the REIA and RBA

The data in both Figure B. 4 and Figure B. 5 highlight the relationship between rents and house prices identified in section A.4.2 above. In general, while house prices increase in real terms rents will increase more slowly than house prices and rental yields will be below yields available on alternative investments (and vice versa if house prices decrease in real terms). When real house prices remain constant, however, real rents are likely also to remain constant once they return to a long run equilibrium level.

B.3.5 Future rent trends

The assumptions made about future trends in rents in the modelling undertaken for this study are based on two key assumptions. The first is that the downward trend in rental yields is not consistent with an assumed slowdown in the rate of house price appreciation and is not sustainable in the long run. The second is that, in the long run, rental yields will be determined by the equilibrium condition indicated in Technical Appendix A: viz. $R = [i + c - (\pi + g) / (1-t)] P$ (where i is the risk free interest rate, c covers the risk premium plus operating costs including maintenance, insurance, property rates and taxes; π is inflation, g is expected real house price growth after depreciation is taken into account, t is the marginal tax rate on capital gains and P is dwelling value).

With a nominal risk free interest rate of 6 per cent, a risk premium of 1 per cent, operating costs of 1.5 per cent, inflation of 2.5 per cent, real house price growth of 2 per cent, and a marginal tax rate on capital gains of half of 40 per cent, this generates a long run rental yield of just under 4 per cent. If the marginal investor in rental housing is assumed to have a tax rate of only 30 per cent (from 2006, for investors with incomes from \$25,000 to \$75,000 p.a.), the long run rental yield would increase to 4.5 per cent. With no capital gains tax, it would increase to 5 per cent.

Once this rate is achieved, with no change in the underlying parameters, rents would increase in line with house prices: that is, at 2 per cent per annum.

The assumption made in the base scenario for this study represents a compromise between the more conservative estimates of past trends and this hypothetical long run assumption. It is assumed that rents will increase (from their current low levels) in line with real household incomes per household (that is, at 1 per cent real p.a.). This allows for no catch up for rents that currently undoubtedly are below their long run equilibrium levels.

The above discussion suggests this is an extremely conservative assumption about future trends in rents. The sensitivity analyses undertaken in the alternative scenarios 6 and 7, which assume real rents increase at 2 per cent p.a. (but which still allow for no catch up) are possibly more realistic.

B.3.6 Future housing cost trends

The final assumption made in the study relates to other housing costs – those paid by purchasers. These have an impact on the key housing stress indicator employed in the study primarily only for home purchasers. Only a few outright owner households have operating costs that exceed 30 per cent of income. In the base model, home purchase costs are assumed to increase with household incomes, on the assumption that mortgage interest rates and lending conditions in the future remain as they were at 2001. In 2001, mortgage interest rates were around 7 per cent (the rate assumed to be the long run trend level for the next 40 years). With unchanged lending conditions, therefore, borrowing capacity and repayments will increase in line with incomes. However, because lenders are permitting repayment ratios to exceed 30 per cent of income (Yates, 2007a), repayment ratios for some new entrants into home ownership may result in higher numbers being in housing stress than projected in this study. The assumption that housing costs increase in line with household income is therefore conservative.

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