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Australian demographic trends and their implications for housing subsidies

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ACRONYMS

ABS	Australian Bureau of Statistics
AHURI	Australian Housing and Urban Research Institute Limited
AP	Age Pension
CGT	Capital Gains Tax
CHSA	Commonwealth State Housing Authority
CRA	Commonwealth Rent Assistance
DSP	Disability Support Pension
FHOG	First Home Owner Grant
GDP	Gross Domestic Product
GST	Goods and Services Tax
HILDA	Household, Income, Labour Dynamics in Australia
IGR	Australian Treasury's Intergenerational Report
ISP	Income Support Payment
NAHA	National Affordable Housing Agreement
NHSC	National Housing Supply Council
NOM	Net Overseas Migration
NRAS	National Rental Affordability Scheme
PC	Productivity Commission
SIHC	Survey of Income and Housing Costs

EXECUTIVE SUMMARY

This Positioning Paper is the first output of a project that aims to forecast future housing subsidies that will accompany projected demographic changes and the challenges these trends may pose for the fiscal sustainability of housing policy. Population ageing is a key demographic trend that features strongly in Australia's future demographic projections and has important implications for the future of Australia's welfare system, including the role of housing policy in that system. In particular, there are fears that the budgetary cost of housing subsidy arrangements will blow out as the Australian population ages. But there are also wider concerns in this context. Increasing numbers of home owners are approaching retirement with mortgages, and a sizeable number of older mortgagors are dropping out of home ownership, particularly those affected by separation and divorce. So there is now a growing interest in whether the type of housing subsidy required by seniors will change, and the risks this might present for retirement incomes policy. Our forecasts will shed light on these issues by modelling the consequences of demographic trends under different home ownership projections.

The first stage of this project has four main components. First, it sets out the policy concerns raised in the Australian literature with respect to demographic change and housing policy, and the key methodological approaches to forecasting demographic change and housing subsidies. Second, we describe the main data sources that will be exploited in this project and the methodological approach underpinning the empirical analysis. Third, some preliminary insights into the current distribution of housing subsidies (both direct and indirect) by demographic composition using 2011 data sourced from the Household Income and Labour Dynamics Survey together with our microsimulation tool, AHURI-3M. Finally, we follow with a description of the data sources that will be exploited for Australia's population forecasts. Based on these projections and the demographic patterns exhibited by housing subsidy recipients in our descriptive analysis, we will conclude the report by making inferences on the expected impact of demographic change on government expenditure on housing subsidies.

Data and method

We will employ a comprehensive Australian housing market microsimulation model, AHURI-3M, which is benchmarked on the nationally representative Household, Income and Labour Dynamics in Australia (HILDA) Survey. It contains detailed tax, benefit and housing assistance parameters for every year over the period 2001–11. We will apply the 2011 AHURI-3M module to estimate the housing subsidy profiles of the 2011 sample of HILDA Survey respondents. Next, we will use the demographic information contained within wave 11 (year 2011) of HILDA as the baseline dataset and follow Yates et al.'s (2008) method of adjusting population weights to project population profiles in each year to 2031. The adjustment assigns new household population weights to each 2011 HILDA survey respondent to ensure that the population profile by age and household type corresponds to the Australian Bureau of Statistics' population projections for the period through to 2031. Finally, we plan to empirically examine the idea that decline in home ownership rates among seniors will undermine an important pillar supporting Australia's retirement income policy. We will draw on Yates et al.'s (2008) projected declines in ownership rates by age cohort as the basis for forecast changes in the demand for housing subsidies that result as a consequence of projected falls in home ownership rates.

Preliminary findings

Our preliminary findings on the distribution of current housing subsidy programs by demographic groups suggest some underlying demographic differences in the composition of different subsidy recipients. For instance, we find that the demographic composition of CRA recipients are somewhat distinct from that of public housing tenants. While CRA typically caters for young families most likely on the edges of home ownership (Wood et al. 2013), public housing rebates are more likely to assist older individuals approaching or in retirement, and in the final stages of

their housing careers. There also appears to be considerable variation in the amount of housing assistance available to different subsidy recipients. For example, public housing tenants benefit from average subsidies ($4808) that are larger than those received by either CRA clients ($2960), or the beneficiaries of home owner asset test concessions ($2611). Moreover, we find that the 65 years and over public housing tenant benefits from subsidies that are typically larger than those benefiting almost all other age cohorts.

According to the ABS's population projections data, two related demographic changes stand out as far as housing subsidies and their future cost to Commonwealth budgets is concerned. The first is a sharp increase in the size of the 65 years and older age cohort, from just over 3 million in 2011 to 5.7 million 20 years later. Singles living alone is a common living arrangement among the elderly, often due to bereavement, and so a second important demographic development will be a surge in this household type, from 2.3 million individuals in 2011 to 3.9 million in 2031. By 2031, singles become the most important as a share of all households at 32 per cent. On the basis of these demographic projections and the distributional effects of current housing subsidy arrangements, the aggregate value of these subsidies (an estimated $1.7 billion in 2011) is set to soar by 2031; a 'back of the envelope' *ceteris paribus* calculation indicates that the 42 per cent anticipated growth in public housing tenants through to 2031 would increase the aggregate value of subsidies to $2.4 billion at current prices.

By contrast, the changing demographics will help curb growth in the budget cost of Commonwealth Rent Assistance (CRA). Younger CRA recipients typically receive more CRA than their older counterparts; singles also receive less than the other three household types analysed. The changing demographic composition of the Australian population is then likely to restrain future enrolments onto the CRA program. However, this expectation is predicated on the assumption that public housing will expand to accommodate the increasing demand from a growing elderly population.

In the second stage of the project, we will build on the descriptive material presented in this Positioning Paper by first incorporating the demographic and home ownership projections produced by the ABS and Yates et al. (2008) into our microsimulation model using data ageing techniques. We will then apply forecasting techniques to estimate the potential impact of projected demographic changes on housing subsidies, assuming the current housing subsidy arrangements remain unchanged.

1 INTRODUCTION

1.1 Motivation and aims of the project

Population ageing is a key demographic trend that features strongly in Australia's future demographic projections and has important implications for the future of Australia's welfare system, including the role of housing policy in that system. The Census of Population and Housing reveals that in 2011 approximately 14 per cent of the Australian population was aged 65 and over, but this figure is forecast to increase to 25 per cent by 2047 (Australian Treasury 2007, p.ix). The potential consequences posed by an ageing population on the Australian economy have been projected in a series of government-commissioned inquiries (Productivity Commission 2013; Australian Government 2004; Productivity Commission 2005; Australian Treasury 2002, 2007, 2010; Productivity Commission and Melbourne Institute of Applied Economic and Social Research 1999) which anticipate a two-fold effect: First, a decline in the number of people of working age and second an increase in demand for government-funded assistance, especially from those who have reached retirement age.

A natural concomitant of population ageing is a decline in the supply of labour force participants and hence rates of economic participation, which it is feared will bring about a flatter GDP growth profile over the next 40 years. At the same time, spending pressures on areas such as health, age pensions and aged care are expected to escalate with the number of people aged 85 and over expected to increase fourfold within the next 40 years (Australian Treasury 2007, p.xv). The existing housing research evidence base documents a strong age dimension to current housing subsidy arrangements which could undermine the future sustainability of government expenditure in this area. Previous research by Wood et al. (2010) and Yates (2009) has recorded an unequal distribution of housing subsidies that targets assistance on older, higher income home owners, yet offers a disproportionately small amount of assistance on younger, lower income households in both home ownership and rental housing. Wood et al. (2010) estimated the average housing subsidy received by older Australians aged over 65 in 2006 at $3439 (10.5% of income), but because the under-35s paid more taxes than they would under more neutral subsidy arrangements, their average 'subsidy' is actually negative at -$2328 (-2.8% of income). Similarly, Yates (2009) found that current housing tax arrangements favour older, outright home owners at the higher end of the income distribution. In 2006 older, outright owners received housing-related tax exemptions valued at more than four times the amount received by their lower income peers, and three times more than younger home purchasers in the highest income quintiles. These figures vividly illustrate why fears about future federal and state government funding requirements are justified. As Australia's population ages, the number of recipients of relatively large housing subsidies will grow and the budgetary cost of sustaining present subsidy arrangements could blow out, unless future reforms ensure a more horizontally uniform distribution of subsidies across the life cycle.

But there are also wider concerns. Ong et al. (2013) and Wood et al. (2013) document how increasing numbers of home owners are approaching retirement with mortgages, and a sizeable number of older mortgagors are dropping out of home ownership, particularly those affected by marital breakdown. We know from Wood et al. (2013) that over one-third (34%) of ex-home owners become eligible for CRA or public housing. In that project it was estimated (using AHURI-3M) that ex-home owners accounted for $390 million (17.9%) of the $2.2 billion CRA budget in 2009. So there is now a growing interest in whether the type of housing subsidy required by seniors will change. Moreover, these trends pose risks for a retirement incomes policy that has been fashioned around an assumption that the vast majority of seniors will enter retirement as outright owners. The high rate of outright ownership translates into low housing costs because there is no mortgage to pay off, and so low-income outright owners can get by on smaller pensions (Castles 1998). Indeed there is support for this proposition. On comparing six countries, Yates and Bradbury (2010) find that while Australia has the highest before-housing

poverty rate among those aged 65 years or over, this same age group has one of the lowest after-housing poverty rates. The low housing costs of older Australian outright owners is responsible for these findings. This pillar supporting retirement incomes policy is expected to crumble; Yates and Bradbury (2010) project a 10 per cent decline in home ownership rates among over-65s by 2046. Our forecasts will shed light on these issues by modelling the consequences of demographic trends under different home ownership projections.

Population ageing is clearly a key demographic trend. But there are other important demographic changes that could have profound impacts on the demand for housing subsidy. High rates of divorce and lower marriage rates (Beer & Faulkner 2009) mean that lone person and sole parent households, as well as de facto couples, have become an increasingly important demographic group in Australia; and this is expected to continue (ABS Population Projections 2008). Home ownership rates are lower among these groups (Hendershott et al. 2009; Bourassa & Yin 2006). Furthermore, their income levels tend to be low relative to the rest of the adult population (according to HILDA, average gross personal income for singles that have never been married was $27 229 in 2010 compared with $44 561 for the rest of the population). Enrolment rates into ISPs in 2010 were also higher (51%) for singles (widowers, never married, divorcees and separated) compared with marrieds (37%). We also estimate that in 2010 average amounts of income support collected by singles is an annual $12 017, 34 per cent higher than the average amount collected by marrieds ($8958). These differences are mirrored by housing subsidy differentials. Using AHURI-3M, we estimate annual CRA entitlements for married persons averaged $2502 in 2010 compared to $2684 for singles. This growing demographic group could then further contribute to an increasing demand for housing subsidy (particularly CRA and public housing).

1.2 Key research questions

The research cited above sheds light on the inequitable distribution of housing subsidies across the life cycle and between different household types. If the demographic groups receiving relatively large housing subsidies are expected to grow as a share of the Australian population, housing subsidies will place increasing strain on federal (and state) government budget positions. However, there has been little research into the potential impact of current demographic trends on housing subsidy outlays. The purpose of this research project is to fill this evidence gap by simulating the future housing assistance needs of different demographic groups, taking into account future demographic trends. These estimates will then enable us to make inferences about the future sustainability of current housing subsidy arrangements.

The following four key research questions will be addressed during the course of this project:

1. What is the real value of housing subsidies received by Australian home owners and renters in 2011, 2021 and 2031, and how is the budgetary cost of financing these subsidies expected to change over this timeframe?
2. How do these amounts vary by age cohort, household type, income group and geographical location in 2011, 2021 and 2031?
3. What challenges do these trends pose for a sustainable Australian housing policy in the 21st century? In particular, what are the implications if home ownership rates were to decline as forecast by Yates et al. (2008)?
4. How might the Australian Government reform housing subsidy arrangements to better target assistance, as well as curb growth in their budgetary cost, which is expected to increase as a result of population ageing?

This is not the first Australian attempt to offer forecasts into the future direction of current housing assistance programs and its implications on intergenerational sustainability. Yates et al. (2008) used STINMOD, NATSEM's microsimulation model to forecast the number of households in housing stress—defined as housing cost to income ratios of at least 30 per cent—and the

sustainability of government expenditure on direct housing and rent assistance programs in the form of CRA and First Home Owners' Grant at their 2006 rates. Our empirical approach will deviate from that of Yates et al. (2008) in three important ways. First, our demographic forecasts will be benchmarked on more current demographic, labour market and housing data sourced from wave 11 (or year 2011) of the Household, Income and Labour Dynamics Survey (HILDA) and 'aged' to 2021 and 2031 levels. We will also rely on the tax and benefit parameters of the tax-transfer system in year 2011 to forecast future housing subsidy expenditures. The version of STINMOD (STINMOD06A) used by Yates et al. (2008) is operationalised on imputed data drawn from demographic, tenure and labour market information pertaining to years 2001–02 and 2002–03 of the Survey of Income and Housing Costs (SIHC), and uprated to 2006 using appropriate inflators. The authors then age the 2006 base file to 2025 and 2045. By benchmarking on actual and more updated data, and forecasting across a shorter timeframe than Yates et al., we hope to provide more precise forecast estimates.[1] Second, we will offer a more detailed breakdown of future demand for various housing subsidy types by considering both the direct and indirect value of current housing subsidy arrangements. Yates et al. (2008), on the other hand, confine their analysis to direct housing assistance in the form of CRA and First Home Owners Grants. Third, we will focus primarily on the implications of demographic change for government expenditure on housing, while Yates et al. (2008) consider concerns relating to home ownership and housing affordability.

1.3 Scope of the report

The key research questions will be addressed across two stages of the project. The first stage of the project is reported on in this Positioning Paper. It sets the scene by conducting a review of the policy concerns raised in the Australian literature with respect to demographic change and housing policy, and the key methodological approaches to forecasting demographic change and housing subsidies.

The first stage also designs our methodological approach and offers some preliminary insights into the current distribution of housing subsidies (both direct and indirect) by demographic composition using wave 11 data sourced from the Household Income and Labour Dynamics Survey together with our microsimulation tool, AHURI-3M. In the second stage of the project, we will build on the descriptive material presented in this Positioning Paper by first incorporating the demographic and home ownership projections produced by the ABS and Yates et al. (2008) into our microsimulation model using data ageing techniques. Next we will use forecasting methods to estimate the impact of demographic change on government expenditure under the current housing subsidy arrangements.

The structure of the Positioning paper is as follows: Chapter 2 presents the literature review; this is followed in Chapter 3 by a description of our methodological approach. A major component of the methodological approach involves extensions to the micro-simulation model, AHURI-3M to incorporate the demographic and population projections made by the Australian Bureau of Statistics' (ABS) population projections over the next two decades. Finally, in Chapter 4 we present some preliminary descriptive findings on the demographic profile of housing assistance recipients in 2011, and provide financial estimates of the value of direct and indirect housing assistance received by the different demographic groups. We end the chapter with a description of the ABS's household growth forecasts by age group, household type and state/territory, and Yates et al.'s (2008) home ownership projections by age. These projections allow us to make inferences on the expected impacts of current social and demographic trends on housing subsidy arrangements in the concluding chapter.

[1] According to the principles of population forecasting, the forecast error increases as the forecast time range increases. This is because any false assumptions regarding future rates of fertility, mortality and migration are magnified the longer the time frame over which forecasts are made (Armstrong 2001).

2 BACKGROUND LITERATURE

This chapter presents a review of literature which examines the demographic factors that are challenging housing systems and the quantitative approaches employed by researchers to model the links between demographic change and housing policy. Section 2.1 sets out the key demographic challenges that are highlighted in the Australian academic and grey literature. Population ageing is widely acknowledged and emphasised as a key demographic trend that has important implications on housing policy. But there are other emerging demographic trends, such as changes in household composition and growing trends in lone person households, which are gaining the attention of commentators for their potential to threaten the viability of current housing arrangements. We follow this section with an overview of the key methodological approaches adopted in the literature in Section 2.2, drawing on demographic and econometric approaches to projecting demographic change and housing need.

2.1 Australian literature

The Australian literature on demographic trends comprises a combination of grey and academic literature that offer a strong consensus on the expected changes in Australia's population profile in coming decades. Of the grey literature, the Treasurer's Intergenerational Reports (IGR)—released in 2002, 2007 and 2010—have been among the most cited for their comprehensive inquiry into the potential future challenges posed by Australia's changing demographic profile. The IGR reports have also prompted further government inquiries into the implications of population change, with more than eight government-commissioned reports (Productivity Commission 2005, 2013; Australian Government 2004; The Australian Treasury 2007, 2010; Productivity Commission and Melbourne Institute of Applied Economic and Social Research 1999; National Housing Supply Council 2008, 2011) released on this subject since the publication of the first IGR in 2002. In these reports, the long-term fiscal concerns posed by Australia's changing demographic population are typically considered with respect to policies relating to health, labour market, aged care and aged pension. But housing policy has received little coverage in the grey literature; this omission is what prompted Yates et al. (2008) to provide 'the missing housing chapter' (p.1) of the IGR reports. An exception to this is the Productivity Commission's (PC) Research report (2005) which tackles the fiscal implications of population ageing and government expenditure on housing assistance. This gap in the grey literature has been somewhat offset by the academic literature which offers invaluable insight into the broad housing policy issues relating to Australia's changing demographic composition. For this reason, our literature review below focuses principally on the academic literature with reference to the grey literature where relevant.

2.1.1 Key demographic trends

The Australian literature emphasises some key demographic trends that are thought to affect the housing system. These include the growth of lone person and multigenerational households, population ageing, as well as growing complexities in life course trends.

Three components of demographic change are commonly identified in Australian studies as being key drivers of housing demand. First, population growth has accounted for around 75 per cent of household growth over the study's timeframe, though its contribution to household growth has declined over time during the post-war period (Hugo 2005). Hence, studies concur that over time the rate of household growth has exceeded the rate of population growth, indicating that household size has shrunk (see e.g. Hugo 2005; McDonald et al. 2006; Beer 2008). Beer's (2008) study on the degree of (mis)match between changing demographics and the housing stock offers some further insights into this phenomenon—the study finds that the rate of growth of new lone person households is increased rapidly due to more frequent occurrences of events such as divorce, separation, ageing, couples who live apart due to work related reasons, and the rise of sole parenthood.

Second, life course trajectories are becoming increasingly complex in the 21st century. Historically high rates of divorce or separation relative to remarriage is having a bearing on the housing sector, with disproportionately high rates of exits for divorcees and separated as compared to marrieds (Wood et al. 2013). This also raises future challenges for this demographic group—who would otherwise traditionally have enjoyed stable housing circumstances—in later life (Flatau et al. 2004; Beer & Faulkner 2009). The age-specific rates at which different age groups in Australia form family households are also proving to become an important consideration. Increasingly high rates of young adults are residing in the parental home for longer periods and delaying entry into home ownership (Beer et al. 2006; Rowley & Ong 2012). These household formation rates have declined during periods of high interest rates, high unemployment and rising unaffordability in housing markets resulting in young people delaying leaving the parental home to form new households. An accompanying trend is the rise in larger multigenerational households (Beer 2008; Liu & Easthope 2012). Beer (2008) attributes this to families staying together for longer periods due to historically high house prices and accompanying declines in affordability.

The final factor is changes in age structure, driven by population ageing. Unsurprisingly, population ageing is repeatedly highlighted in the literature as a key demographic trend that is likely to influence the demand for housing and housing assistance in coming years (Beer et al. 2006; Colic-Peisker et al. 2014, Productivity Commission 2005, 2013). In fact, Beer et al.'s (2006) comprehensive review of housing careers identifies changes in the housing careers of older people as being the most significant in the 21st century as compared to the previous century due to demographic factors such as growing numbers of the aged, increasing life expectancies, as well as social and policy-related factors such as retirement at younger ages for some, extended working life for others, growing numbers of older people who are wealthy, and higher housing aspirations among baby boomers.

2.1.2 Challenges for the housing system in Australia

While the household growth rate has outstripped population growth rate in the long-run and household sizes have declined, most Australians still live in separate houses with three or more bedrooms (Beer 2008). This poses a significant challenge because changes to housing stock are difficult to enforce due to the immobility of the stock, while societal changes that require smaller dwellings continue to accelerate through the ageing of the population.

Rising housing costs and falls in rates of home ownership among the young adult population also raises important challenges for the future sustainability of housing policy (Yates et al. 2008). To tackle this issue, Yates et al. (2008) suggest that governments should bring to the fore policies to help low-income renters and first home buyers gain access to affordable housing. They suggest that maintenance and improvements to current housing assistance programs such as CRA and public housing is one way that governments can prevent future housing affordability problems. Other ways for governments to deal with the projected housing challenges include investments in low-cost housing suitable for first home buyers, further expansions to the public housing stock and the combined use of public, private and not-for-profit resources to increase the stock of housing for older renters (Yates et al. 2008).

The Productivity Commission (2005) finds that population ageing will likely result in a rise in the demand for public housing among older renters aged 65 and over while future demand for CRA by this same cohort is expected to fall. Their forecasts are based on the age distribution of public housing tenants and CRA recipients in 2004 which shows that households headed by an individual aged 65 and older were the smallest cohort to receive CRA (14% compared to 43% for household heads aged 25 years) while public housing eligibility rules tend to prioritise the elderly and individuals with special needs (p.227).[2]

[2] In a more recent report, the Productivity Commission (2013) urges consideration of the use of alternative financing options such as government equity release schemes to allow older households to co-contribute toward their age-

While the above research highlights the strong cohort effect among housing assistance recipients, age is not the only determinant of demand for housing subsidies. Ong et al. (2014) find that older home owners who lose home ownership due to adverse biographical events such as divorce or unemployment are more likely to transition onto housing assistance four years later than similarly positioned long-term renters. Indeed, various studies emphasise the need for government housing assistance to be more sensitive to the process of complex life processes such as marital breakdown. For instance, Wood and Ong (2012) suggest that there needs to be a shift in focus from assisting young people into home ownership to helping owner-occupier households maintain ownership status when hit by adverse life circumstances such as separation and divorce. In the same vein, Beer and Faulkner (2009) argue that there is an overall need for a wider range of fine-grained housing assistance approaches that accommodate the range of circumstances afflicting low-income people in housing need, noting that some might need relatively short-term assistance (e.g. divorced persons who remarry) while others (e.g. people with a disability) might need longer-term assistance.

The shift in preference towards ageing in place is becoming increasingly evident (see Olsberg & Winters 2005). Beer and Faulkner (2009) further find that few will make seachange or treechange moves and those who do so in their 50s and 60s will likely move back to the city as they grow older and health and other needs increase. Thus, governments will need to implement and strengthen policies that promote growing numbers of aged people to age in their own homes and communities. Related to this is the need to provide a variety of housing options, such as purpose-built and affordable aged housing that supports older Australians to remain in their homes longer.

2.2 Key methodological approaches

There are, broadly speaking, two approaches to the investigation of links between demographic change and the housing system in the literature. One we refer to as the demographic method, and the other the econometric modelling approach.

2.2.1 Demographic method

In this methodology, population growth and its composition (by age, ethnicity and so on) are seen as the fundamental driver of housing demand, tenure shares and other dimensions of the housing system. People and housing units are after all closely linked since a household requires a shared roof. Population projections, and especially those using households as the unit of analysis, have therefore been universally adopted as the basis for estimating housing needs (Myers et al. 2002).[3] The method assumes that housing supply is perfectly elastic; thus household formation results in an increasing housing demand, and housing supply expands to accommodate the increase at prevailing real prices and rents in the housing market. It also sweeps aside some of the complexities and nuances associated with the household concept (Paris 1995).[4]

In practice, the demographic method often proceeds via use of a simple formula. Projected population numbers are divided by a current or extrapolated average household size (persons per household) to arrive at a forecast number of households. In more sophisticated versions, current conversion rates by different age groups are applied to projected population numbers in

related expenses. For further details on the financing options proposed by the Productivity Commission, see http://www.pc.gov.au/research/completed/ageing-australia/ageing-australia.pdf.

[3] Another reason for the widespread use of the demographic method is the widespread availability of population forecasts (typically from government sources) that are relatively reliable by comparison to other socio-economic magnitudes affecting housing demand (e.g. incomes).

[4] It is also widely acknowledged that the supply of housing is not elastic in the short-run. However, this assumption is more plausible in the long-run (see Garner 1992 and pp.17–18 below). Note also that housing supply may impact on rates of household formation, but this demographic approach assumes that demographic trends are independent of the changing supply and stock of housing.

each age group. The analysis then generates the projected number of households expected to be formed in each age group.

The estimation of housing needs is a common focal point for the demographic method,[5] but it is not the only one. Forecasts of owner occupancy rates can be made assuming that current rates in subgroups defined by age and household type remain unchanged or extrapolated forward based on past trends (Meen 1998). The future rate of owner occupation is then forecast by applying subgroup owner occupation rates to projections of population by age group and household type.

Mankiw and Weil (1989) is one of the more famous applications of the demographic method to forecast housing demand (see also Lim & Lee 2013). They draw attention to a dramatic rise in the number of births in the 1950s followed by decline in the 1970s, demographic episodes referred to as the Baby Boom and the Baby Bust. They are widely recognised as critically important changes in the United States over the past 50 years, and their paper examines how such major demographic changes affect the housing market.

Mankiw and Weil's research strategy involved the use of microdata to estimate a demand for a housing regression model which is solely a function of age. Corresponding to each age there is a housing demand parameter, so that the model's specification is a linear regression of demand on a series of dummy variables, one for each age between 0 and 99.[6] The estimated coefficient for the dummy variable corresponding to (say) age 35 is the demand for housing of someone of age 35. Key findings are a steep increase in the demand for housing between the ages of 20 and 30, but after roughly 40 years of age the quantity of housing demanded declines by about 1 per cent per year. Mankiw and Weil (1989) assume that the age structure of housing demand remains fixed over time. Aggregate demand at a particular age is then obtained by multiplying estimated model parameters by the number of people of that age in the population. The analysis allows the researcher to see how the age structure of housing demand interacts with shifts in the age composition of the population. The exercise can be repeated at different dates in the future, and given projected age distributions.

The paper is famous for its prediction that since baby boomers would eventually be over age 60, their transition into retirement would result in plummeting housing demand and hence falling real house prices. This forecast turned out to be wide of the mark and prompted some authors to advocate an econometric approach that included economic variables in housing demand models.

2.2.2 Econometric models

Hendershott and Weicher (2002) argue that the Mankiw and Weil (1989) forecasts proved erroneous because they did not appreciate why the parents and grandparents of baby boomers demand less housing. Their answer is that part if not most of the lower demand is due to inferior levels of human and financial capital accumulated by the parents and grandparents of baby boomers. The demographic approach therefore risks confounding ageing effects on housing demand with economic effects that are correlated with age.

Green and Hendershott (1996) develop an econometric modelling approach that attempts to get the economics, as well as the demographics, right. They estimate housing demand specifications that relate demand to income and education variables as well as age. The coefficient estimates with respect to age are used to forecast the baby boomers' demand for housing as they age, but their superior levels of income and human capital are held constant. Instead of falling real demand for housing, their forecasting model predicts rising real demand.

[5] See Holmans (2001) for an example of methodological approaches to modelling housing need and demand in the UK.

[6] Zero corresponds to the intercept.

These kinds of models are becoming a more common forecasting tool, and are applied to project other important quantifiable measures of housing systems such as the rate of home ownership. An example is Meen (1998) who suggests that because the demographic method assumes a perfectly elastic supply of housing, it fails to anticipate the soaring real house prices that choke off excess demand when supply is unresponsive to surges in housing demand. An even more ambitious example of the method was the UK Department of Communities and Local Government's Housing Affordability model (Meen 2011). It examines the effects of different levels of new housing supply on long-run affordability. The model structure is elaborate and comprehensive, covering sectors that include house prices, household formation, tenure, migration flows, demographics and labour markets, and has been designed on a regional basis for forecasting purposes.

The strength of these econometric models is their inclusion of economic factors that provide a more realistic picture of what drives change in housing markets. But their greater complexity makes design of them a challenging and time-consuming process that is relatively costly because of the research time and specific expertise needed in order to design and estimate these models.[7] Furthermore, their use as a predictive tool requires assumptions about future incomes, interest rates and so on that are potential sources of forecast error. There is also limited evidence in the forecasting literature that lends support to a claim that forecasts produced through regression-based modelling techniques are more accurate (Booth 2006). In an extensive study comparing the accuracy of forecasts produced via extrapolation, cohort-component and structural-causal techniques, Smith and Sincich (1992) conclude that the forecasts produced by sophisticated forecasting techniques such as structural models were not any more accurate than those produced by the relatively more naïve approaches. Defenders of the demographic method argue that since average income is closely correlated with age, race, and ethnicity, demographic changes serve as a good proxy for changes in average income. On the supply-side, Garner (1992) puts forward the conceptual argument that a flat (perfectly elastic) housing supply curve in the long-run ensures that the real price of housing remains more-or-less constant in the long-term. Thus, the short-term variability in house prices—determined by the interaction of a vertical short-run supply curve with demand—is expected to smooth out in the long run as housing supply becomes more price elastic, and can be expected to have little impact on the distribution of housing subsidies in the long-run.[8] The design of sophisticated and complex econometric models may then be an unnecessary use of resources (Myers et al. 2002). However, the paucity of evidence in the area of housing forecasting is a caveat and we will return to this issue in our Final Report.

Next, we turn our focus to the empirical exercise required to conduct projections of housing subsidy arrangements linked to changes in demographic trends. Key data sources and the methodological design are described in detail in the following chapter.

[7] For instance, the UK's Housing Affordability model is a sophisticated and multi-sectoral econometric model whose design and estimation involved a team of 13 researchers across nine different institutions.

[8] For a detailed explanation of the relationship between demand- and supply-side economic factors and house prices, see Garner (1992).

3 DATA AND METHODOLOGY

In this section, we describe the key data sources that will be drawn on to undertake the broad empirical analysis, and follow this with a layout of the methodological framework underpinning the analysis. In Section 3.1, we describe the key data sources that will be used to conduct the analysis. The base population data will be drawn from the nationally representative 2011 HILDA Survey. Population numbers will be projected forward using the Australian Bureau of Statistics' (ABS) population projections by age group, household type and state/territory. We also undertake to project home ownership rates to reflect emerging concerns highlighted in Chapter 1 that a sizeable number of older home owners are dropping out of home ownership, particularly affected by marital breakdown (see also the literature review in Section 2.1). To do this, we will draw on Yates et al.'s (2008) home ownership projections. Our housing subsidy forecasts will therefore account for the consequences of demographic trends under different home ownership projection scenarios.

In Section 3.2, we set out the methodological framework by describing the steps we will take to estimate and then project housing subsidy arrangements over the period 2011–31. Microsimulation techniques will first be exploited to estimate the housing subsidies received by the Australian population in 2011 using a comprehensive Australian housing market microsimulation model AHURI-3M which is operationalised on the HILDA data. Next, we will use the demographic information contained within the 2011 HILDA data as the baseline dataset and follow Yates et al.'s (2008) method of adjusting population weights to project population profiles in 2031. Finally, in this section we will set out the modelling approach we plan to undertake to conduct housing subsidy projections to the year 2031 under different home ownership projection scenarios.

3.1 Data sources

Three main independent data sources are used to create a repeated cross-section database comprising key population characteristics at three different points in time: years 2011, 2021 and 2031. We describe these data sources in turn below.

3.1.1 Base population data from the HILDA Survey

We will draw on the 2011 HILDA Survey—a widely used panel dataset that contains a plethora of individual and household-level information on a nationally representative sample of survey respondents—to form our base population from which we will project forward population and housing subsidy profiles. Population weights will be applied to the 2011 HILDA Survey so that the sample estimates are re-weighted to reflect population-level estimates in the year 2011.

The first wave of HILDA data was collected in 2001 on 13 969 responding adult individuals from 7682 households who have since been followed every year; the latest wave 13 was released in 2014 and data collection and processing of wave 14 is ongoing. For the purposes of this project, we will use data from wave 11 (year 2011), the starting year of our study timeframe, and the base year for measurement of Australia's current housing subsidies because this is the latest year that the microsimulation model required for estimating housing subsidies (AHURI-3M) is available for.

The HILDA Survey contains a rich array of information on respondents' demographic, labour market, income, health, housing and neighbourhood characteristics. Importantly, it contains detailed records of private income by income source (e.g. earnings, interest, dividends etc.), information that is critical to the calculation of imputed tax liabilities, income support program as well as housing subsidy eligibility and entitlements. The computational approach is described in Section 3.2 below.

3.1.2 Demographic projections data from the Australian Bureau of Statistics' population projection series

The project was originally designed to draw its demographic projections from household projections by the National Housing Supply Council (NHSC) as the research team had received in-principle agreement from the NHSC during the grant application stage for this access. However, since the project was funded, the NHSC has been abolished and the research team have been unable to obtain the unpublished NHSC data projections broken down by age group, household type and state/territory. Efforts were made to access the projections from the former NHSC's funding body (Commonwealth Treasury) and researchers from the Australian National University who were previously commissioned to conduct these projections. However, the outcome was that neither party were in a position to release the projections to us. Hence, we shall instead derive our demographic projections from the ABS's population projections.

The most applicable ABS population projections for our purposes are for the period 2008 to 2101 for Australia and 2008 to 2056 for states and territories (ABS 2008), which more than cover our projection timeframe of 2011 to 2031. The ABS projections rely on assumptions about key variables influencing future demographic trends, including future levels of fertility, mortality, internal migration and net overseas migration. It is assumed that non-demographic factors, such as economic variables and policy changes will remain constant over the projection period. The ABS produces three main series of projections (series A, B and C), which offer combinations of various national level assumptions on the above variables. Series B assumes that current trends in fertility, life expectancy at birth and net overseas migration (NOM) is constant. Series A and C are based on high and low assumptions for each of these variables respectively. Hence, series A projects the highest population growth rate over the projection period, while series C projects the lowest growth (ABS 2008).[9]

The population projections are produced using a cohort-component method, whereby assumptions about the key variables are applied to a base population at time t to obtain a projected population for the following year t+1. The assumptions are then re-applied to the projected population in year t+1 to obtain a projected population for the following year t+1, and so on, until the end of the projection timeframe is reached (ABS 2008).

Though the base population for the ABS projections is based on estimated resident population numbers in 2007, we calculate the annual rate of population growth in each year of the projection period from 2011 onwards and apply these growth rates to our base data from the 2011 HILDA Survey. The annual growth rates from series B are reported and discussed in Section 4.2. In the next stage of the empirical exercise, we will apply annual growth rates derived from all three series in order to conduct population and housing subsidy projections under all three scenarios.

3.1.3 Home ownerships projections data by Yates et al. (2008)

In their 2008 report, Yates et al. conduct age-specific home ownership rate projections over 20-year periods from 2006 to 2026, and then from 2026 to 2046. 2006 is treated as the base year for home ownership rate projections. However, at the time the study was conducted, the 2006 Census had not yet been released, so it was assumed that the home ownership rate in 2006 was the same as in 2001. The authors began by examining long-run trends in home ownership between 1981 and 2001. They found that there had been a noticeable decline in home ownership rate among households aged 25 to 34 years, the period of the life course in which entry into first home ownership typically occurred. Furthermore, the authors noticed a decline in home ownership rate among households aged 35 to 44 years as well.

The projection methodology for the study's base model assumes that future age-specific home ownership rates in 2026 and 2046 are driven by cohort effects over time. These effects are best

[9] For more details on the assumptions applied by the ABS, refer to ABS (2008).

described using an example. Consider the cohort aged 15–24 years in 1981, which had a home ownership of 25 per cent. By 2001, this age cohort had aged by 20 years and therefore moved into the 35–44 age group. In 2001, the reported home ownership rate for this cohort (aged 35–44 years) was 69 per cent. Hence, the cohort in question experienced an increase in the rate of home ownership of 44 percentage points as they aged over the 20-year period represented by 1981–2001. The study assumes that the home ownership rates in 2006 are simply equal to the home ownership rates in 2001. It is therefore assumed that over the next 20-year period from 2006 to 2026, the home ownership rate for those aged 15–24 years in 2006 will also increase by 44 percentage points. In 2006, the home ownership rate among those aged 15–24 years was 24 per cent. Hence, by 2026, those aged 15–24 years in 2006 would have moved into the 35–44 years age group and their home ownership rate is projected to rise by 44 percentage points, from 24 per cent to 68 per cent. The same assumptions are also employed for other cohorts over the period 2006–26, and over the period 2026–46. However, the decline in home ownership rates for households aged under 35 is assumed to have stabilised by 2006 so no further declines are projected for those aged under 35 years in 2026 and 2046 (Yates et al. 2008). The range of age-specific home ownership rate projections are displayed in Section 4.2.

A different set of assumptions is made for households in other tenures. The proportion of public renters and 'other' tenures[10] in 2026 and 2046 is projected to remain the same as in 2006. This in turn assumes that the absolute size of the public housing stock will grow in order to maintain its proportionate share over the projection period. The share of private renters is set equal to the residual left after deducting projected home ownership, public renter and 'other' tenure rates. Since there is a projected fall in home ownership rates an increasing share of private rental tenants is anticipated.

The assumption that public housing will grow and therefore maintain a constant share of the housing stock is unrealistic in view of the decline in capital funding allocated to Commonwealth State Housing Authorities (CSHA), since the mid-1990s (Yates 2013).[11] There have also been trend declines in the share of public housing in recent times (falling from 6% in the early 1990s to just over 4% by 2008 (Yates 2013, p.115)). We therefore plan to produce an additional set of forecasts based on a second, more conservative assumption, that the public housing stock remains fixed at base-year levels[12] so that the absolute number of public housing tenants remain fixed at their base-level.

The authors Yates et al. (2008) also experimented with alternative assumptions on future tenure shares of home owners. Under a more optimistic scenario, they assumed that home ownership rates remain constant at their 2001 rates rather than suffering a decline. Such an outcome might transpire as a result of the recycling of housing wealth from baby boomers to generations X and Y through inter vivo transfers and bequests. However, there is some doubt as to whether the bequest motive is strong among baby boomers (Olsberg & Winters 2005). The authors also trialled a more pessimistic tenure distribution in which home ownership rates in each age cohort continue to trend downward, albeit at a slower rate. In this scenario, the rate of decrease between 2006–26 and 2026–46 is projected to be half of that experienced between 1981–2001. A third alternative scenario assumes that only 90 per cent of households attain home ownership as they age. We plan to experiment with the base model and all three home ownership scenarios[13] in our empirical analysis.

[10] This represents tenures that cannot be classified as either home owner or renter, such as rent-free tenure.

[11] According to Arbib (2011), the current public housing stock would exceed its 1980 levels by more than 200 000 had new constructions in public housing stock continued at the same rate as in 1980.

[12] In Yates, the base year is 2006 while in our study the base year will be 2011.

[13] The authors also pose four additional scenarios relating to expected changes in income and housing costs and future housing affordability rates. As tenure outcomes under these alternatives remain the same as the base models, we do not consider them in this project.

3.2 Modelling techniques

3.2.1 AHURI-3M microsimulation modelling

We will employ a microsimulation model of the Australian housing market, AHURI-3M, to estimate housing subsidy entitlements in 2011, taking into consideration the interdependence between households' eligibility for housing subsidies and the tax and benefit system. The version of AHURI-3M which is operationalised using the HILDA Survey was developed by Wood and Ong (2008). It contains detailed tax, benefit and housing assistance parameters (with the exception of public housing rent rebates—but see below) for every year over the period 2001–11.[14] It was recently used to estimate the magnitude and distribution of housing subsidies as part of the Henry Review of the Australian Tax System (Wood et al. 2010). The microsimulation model has also been used to estimate the magnitude and distribution of tax expenditures associated with negative gearing (Wood et al. 2011), First Home Owner Grants (FHOG) (Wood et al. 2006), low-income housing tax credits—a forerunner of the National Rental Affordability Scheme (NRAS) in the USA (Wood et al. 2006), CRA (Wood et al. 2005), as well as the role of tax subsidies in driving tenure choice (Hendershott et al. 2009) and the supply of rental housing (Wood & Ong 2013). It has therefore established itself as an important tool for the analysis of housing subsidies as it is able to determine eligibility for subsidy, and quantify the amount of housing subsidy received by each household broken down by subsidy type. The model allows us to drill down and forecast the demand for individual subsidy types, such as CRA, CGT exemption of the primary home, asset test exemptions for the primary home, and so on, not just the aggregate amount of housing subsidies.

AHURI-3M models the rules governing the setting of concessionary rents in public housing, though these are now somewhat dated (2006). As part of this project we will make further extensions to the model to include detailed specification of contemporary rules governing determination of public housing rents in each state and territory. This will allow estimation of the magnitude and distribution of subsidies in public housing, accounting for jurisdictional differences. The model also includes asset test rules governing eligibility for income support programs, and we are therefore able to estimate the value of asset test concessions to home owners.

3.2.2 Population projections: 'Ageing' of the 2011 HILDA survey data

In order to construct a population profile for the projection years 2021 and 2031, we will apply a technique known as data 'ageing' to our base population in the 2011 HILDA survey. This method was previously applied successfully by Yates et al. (2008) in their projections of housing sustainability over 20 and 40-year periods.

In the present study, the 2011 HILDA data will be aged over the projection period using the cross-sectional population weights assigned to each person within the HILDA data survey. These population weights will be adjusted from 2011 to match household projections for each year up to 2031.

Specifically, we will estimate the projected annual population growth rates for each year from 2011 to 2031, based on population projection numbers from the ABS. These projected annual growth rates are reported in Section 4.2 by age group for illustrative purposes though in the actual projections, we intend to source from the ABS population projections by age group, household type and state/territory. For example, consider individuals in age group g, household type *j*, living in state/territory *k*. Suppose the projected annual growth rate from year *t* to *t*+1 for individuals in this group is 2 per cent. This 2 per cent rate will be applied to the population weight of each individual in this group. Hence, the population estimates for this group will be 2 per cent higher in *t*+1 than in *t*. The same ageing technique is re-applied for years *t*+1 to *t*+2, *t*+2 to *t*+3,

[14] It is currently being updated to 2011 as part of AHURI project PRO/53021.

and so on until we reach the end of the projection period. These adjustments assign new population weights to each 2011 HILDA survey respondent to ensure that the population profile by age, household type and state/territory correspond to ABS population projections for the period through to 2031.

3.2.3 Housing subsidy projections

A three-stage methodology will be conducted that begins by applying the AHURI-3M microsimulation model to the 'aged' data, holding the tax-benefit parameters, as well as real incomes, labour market participation, real house prices, real rents, real interest rates and (initially) housing tenure, constant at their 2011 values. The research is then conducting a hypothetical exercise; we are taking a predicted population distribution and imagine that the housing system, the tax-benefit system as well as macroeconomic and labour market conditions are 'frozen' at their 2011 values. With all background conditions held constant, AHURI-3M can be used to isolate the impact of demographic change by comparing the subsidies generated using the forecast population distribution with those estimated using the current population distribution.

It is worthwhile noting here that while some of these subsidy types are estimated on an individual basis, such as CRA[15] and CGT exemption,[16] others are more commonly estimated on a household basis. For instance, public housing subsidies and land tax exemptions are household (or property) based subsidies. Where housing subsidies are calculated on an individual basis, we will aggregate the subsidies received by all adult members of the household to produce a household subsidy estimate. The data will then be converted into a household-level format by selecting the oldest person within the household as the reference person representing the household.

In the second stage, we will identify the impact of forecast changes in home ownership rates independently of demographic change. This is achieved by applying forecast changes in ownership rates to the 2011 HILDA sample. To construct a distribution of households under the projected home ownership scenario we will estimate a multinomial model of tenure choice that is based on the specification reported in Hendershott et al. (2009). This model will be used to assign home owners with the lowest predicted probabilities of securing home ownership to other rental tenures until the forecast rates of home ownership are successfully simulated. Under *ceteris paribus* conditions we then run AHURI-3M on the synthetic HILDA sample of households which includes the modified distribution of households by tenure. This method holds the demographic characteristics of the population constant, as well as the tax and benefit system (at 2011 parameter values), and then evaluates the impact of forecast changes in home ownership on the level and pattern of housing subsidies.

The implications of demographic change will likely differ under alternative home ownership scenarios. In the third stage of the modelling exercise we bring together the analysis of demographic change and falling rates of home ownership. This is achieved by once again ageing the data in line with forecast changes in demographic composition and population, but this time using the adjusted population weights, with households assigned to tenures in 2011 so as to reflect the predicted declines in home ownership rates.

[15] It is possible for one partner in a couple household to receive CRA, while the other does not. For instance, one partner might be a pension or allowance recipient and can therefore gain access to CRA, while the other partner does not receive CRA because s/he is not a pension or allowance recipient.

[16] The CGT exemption received by each individual will differ depending on his or her highest marginal income tax rate.

4 PRELIMINARY ANALYSIS AND NEXT STEPS

In this section of the report we begin by using microdata obtained from the HILDA Survey together with the microsimulation model AHURI-3M to estimate the typical size of the more well-known and readily measurable housing subsidies received by different demographic subgroups of the Australian population. These estimates are calculated based on existing housing policy arrangements. The demographic subgroup estimates help us to identify which groups in society receive relatively large amounts of these housing subsidies. We then examine ABS population projections with a view to identifying important future demographic trends, and the demographic subgroups that are expected to grow or decline in number and as a share of the Australian population. These two pieces of analyses are then brought together in order to draw inferences about the future composition and level of these housing subsidies. We are especially interested in whether those subgroups that receive above average levels of housing subsidy are growing or shrinking relative to the rest of the Australian population. The section is concluded by a description of the remaining research tasks that will be completed in the second half of the project.

Before presenting our preliminary findings we offer a few thoughts and points of clarification on our use of the term housing subsidies. It is a concept most commonly associated with economic analysis where it is used to describe government interventions that drive a wedge between the prices or rents that housing consumers pay, and the costs incurred by producers or providers of housing. These interventions can take one of two forms; the first is payments made by government to eligible housing consumers. They aim to help tenants or home buyers meet housing costs. The most important of these in the Australian context are Commonwealth Rent Assistance (CRA) and First Home Owner Grants, both being subsidy programs funded by the Federal Government.[17] This first type of intervention is commonly referred to as a direct (or cash) subsidy.

A second form of intervention involves regulation. Here provisions that govern the size of housing-related expenses (including tax liabilities) or income are adjusted in such a way that preferential treatment is granted to favoured groups of housing consumers. No payment is made by government, but privileged households nevertheless benefit from the regulation. The most well-known examples are concessionary rents in public housing (where rents are generally set at 25% of assessable household income), and various tax preferences granted to home buyers and outright owners. There are a large number of tax preferences—non-taxation of net imputed rent, Goods and Services Tax (GST) exemptions, stamp duty concessions, the family home's exemption from Capital Gains Tax (CGT)[18] and land tax, as well as preferential income support payment (ISP) asset tests. This second type of intervention is commonly referred to as an indirect subsidy. In some, if not many, cases the support offered by indirect subsidies is inadvertent; regardless of intent they impact on the Federal Government's budget position.

In Australia the term housing assistance is commonly used. It typically refers to measures that offer support via income support programs and public housing to low-income and disadvantaged households. It is a narrower notion of government intervention to assist tenants and home owners. In this project we embrace the wider housing subsidy conception of government intervention to assist the homeless, tenants and home owners.

[17] There are also a number of relatively minor state government payments to help tenants (home buyers) meet deposit requirements (mortgage payments, or deposits on purchases).

[18] The potential behavioral responses to Capital Gains Tax exemptions are beyond the scope of this research project and are not therefore taken into account in our estimates of housing subsidies.

4.1 Distribution of housing subsidies by demographic group

Wood, Stewart and Ong (2010) estimated the average housing subsidy received by private renters in 2006 at $901 (1.1% of income), while home owners received an average of $2201 (2.5% of income). These estimates are substantial levels of support; but there is a wide variation around these averages. In the preliminary findings reported below, our report documents the average levels of support received by different demographic groups as a result of some of the more important sources of housing subsidy. We begin with CRA.

4.1.1 Distribution of direct (or cash) housing assistance among renter groups

Commonwealth Rent Assistance

Commonwealth Rent Assistance (CRA) and public housing rental subsidy are the two major forms of housing assistance offered to low-income renters in Australia. CRA is an additional income supplement offered by the Federal Government to assist low-income private renters and community housing tenants in meeting their housing costs. Eligibility for CRA is restricted to low-income individuals (families) in receipt of Income Support Pensions, Allowances and Family Tax Benefit (Part A above the base rate) and who are paying more than some minimum rent threshold on private rental housing. Those eligible receive rent assistance at a rate of 75 cents for every dollar above the minimum rent threshold and below the maximum rate payable as determined by the recipients' family size and composition.

Table 1 below presents descriptive statistics on the amount of CRA received by different demographic groups in 2011. Using AHURI-3M (which is benchmarked on HILDA data—see Chapter 3), we find that in 2011 there were approximately 1.3 million individuals receiving CRA, a majority of whom were either in a coupled household with children (40%) or were single (30%). Couples with children also received the largest amount of CRA, with their mean CRA benefit 17 per cent higher than the average amount received by all persons. These household types are most likely to be new family units in the early stages of their housing careers, and this receives support from an inspection of the age profiles of CRA recipients. Individuals aged 25–34 and 35–44 are entitled to above average amounts of CRA, and they account for a little over one-half of all recipients of CRA. At $2.3 billion the cash payments received by those eligible in these two age groups amount to 58 per cent of all payments ($3.9 billion).

Table 1: Count of CRA recipients and amount received by household type and age, 2011

	Annual amount received ($)		Total amount received (nationally) ($)		No. of recipients	
	Mean	Median	Unweighted (thousands)	Population Weighted* (millions)	Unweighted	Population Weighted* (thousands)
Income unit type						
Couple with dependents	3,505	3,556	1878.9	1873.3	536	526.9
Couple only	2,472	2,855	474.6	381.7	192	159.8
Sole parent	3,299	3,556	887.4	744.8	269	225.6
Single	2,354	3,026	1125.4	876.7	478	379.7
Total	2,960	3,026	4366.4	3876.6	1,475	1292.1
Age range						
15–24	2,675	3,026	778.4	376.9	291	144.3
25–34	3,389	3,556	1281.0	1248.6	378	367.2
35–44	3,356	3,556	953.1	1011.5	284	298.2
45–54	2,840	3,026	499.9	504.4	176	175.8
55–64	2,451	2,855	284.4	254.3	116	109.8
65 and over	2,477	2,855	569.7	480.9	230	196.8
All persons	2,960	3,026	4366.4	3876.6	1,475	1292.1

Note: Authors' own calculations using AHURI-3M and wave 11 of the HILDA Responding Person files, Release 11;

* HILDA cross-sectional population weights are used to estimate population-weighted amounts/counts.

Public housing rent concession (rebate)

Public housing provision is the second major form of housing assistance offered to low-income renters in Australia. Though the Australian public housing sector is a small one by international standards, it is still a popular option for low-income renters in need of housing support. State and territory governments assume responsibility for administering the provision of publicly-owned dwellings. Funding was provided through the Commonwealth State Housing Agreement (CHSA)—and now the National Affordable Housing Agreement (NAHA)—to low-income individuals in acute need of affordable housing. Public housing tenants pay a reduced rental amount that is determined by their household income; while this amount varies across state boundaries it is typically set at 25 per cent of total (assessable) household income.[19] The subsidy amount is calculated by estimating the difference between the actual amount paid by tenants and the market rent that would be paid without the rebate.

Table 2 below shows the distribution of public housing rebates in 2011.[20] Couples with children receive a higher average amount in rental rebates as compared to the other household types, and in common with the pattern of CRA disbursements by household type. But there are only 34 thousand persons living in couple with children households and residing in public housing (only

[19] The amount varies because the rules governing determination of assessable income vary across state jurisdictions.

[20] As explained in Chapter 3, the public housing rent rebate calculations in the current version of AHURI-3M are based on the 2006 rules governing determination of assessable income. We intend to update the public housing component of AHURI-3M in the second phase of this project.

9% of the total). Singles living alone account for the largest proportion of all public housing tenants (54% of the total). Public housing tenants also tend to attract a much older cohort of individuals compared to CRA recipients, with roughly one-half (51%) of all public housing tenants aged 55 and over. Those aged 65 years and over typically benefit from a rent rebate that is larger than the average (or median); the estimates in Table 2 suggest that these age groups receive rebates that are 8 per cent higher than that typical in the sector.

Table 2: Count of public housing tenants and amount of rental rebate (based on 2006 public housing rules) received by household type and age range, 2011

	Annual amount received ($)		Total amount received (nationally) ($)		No. of recipients	
	Mean	Median	Unweighted (thousands)	Population Weighted* (millions)	Unweighted	Population Weighted* (thousands)
Income unit type						
Couple with dependents	5,193	4,895	311.6	161.1	60	33.8
Couple only	5,134	4,228	554.4	534.9	108	96.0
Sole parent	4,707	4,102	244.7	244.7	52	47.2
Single	3,871	3,569	905.8	740.9	234	208.4
Total	4,442	3,988	2016.6	1681.7	454	385.4
Age range						
15–24	3,879	2,818	294.8	103.0	76	36.0
25–34	4,482	3,669	219.6	184.5	49	43.4
35–44	4,026	3,781	261.7	205.9	65	53.8
45–54	4,967	5,142	312.9	288.5	63	56.3
55–64	4,327	3,981	350.5	307.5	81	73.6
65 and over	4,808	4,258	577.0	592.2	120	122.1
Total	4,442	3,988	2016.6	1681.7	454	385.4

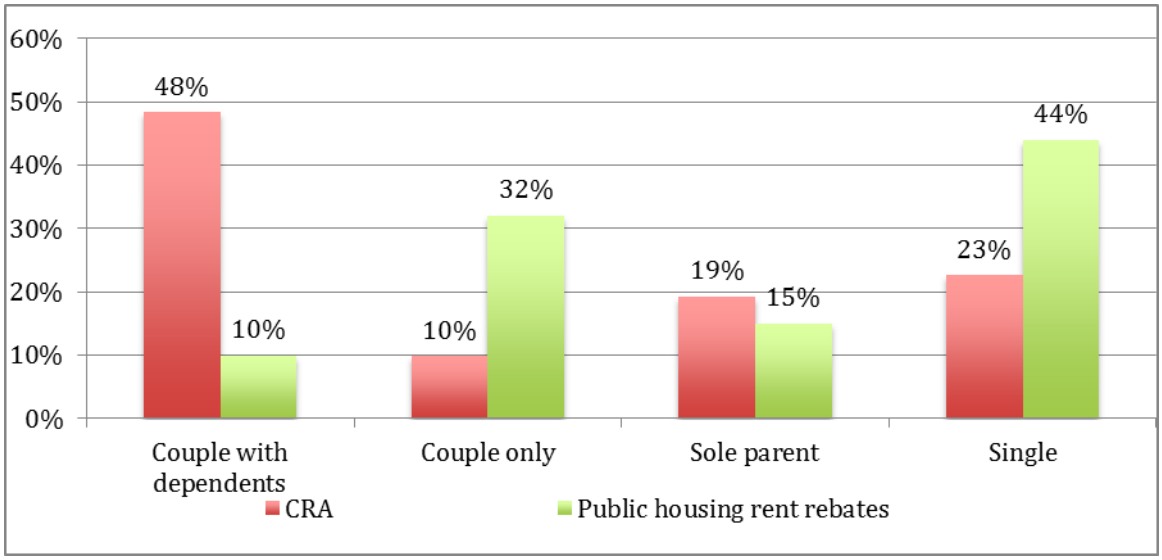
Note: Authors' own calculations using AHURI-3M and waves 6 (for State public housing parameters only) and 11 of the HILDA Responding Person files, Release 11.

* HILDA cross-sectional population weights are used to estimate population-weighted amounts/counts.

In comparing the demographic composition of CRA recipients and public housing tenants, it becomes clear that each housing subsidy program provides assistance to a very different demographic group. While CRA typically caters for young families most likely on the edges of home ownership (Wood et al. 2013), public housing rebates are more likely to assist older individuals approaching or in retirement, and in the final stages of their housing careers. Figures 1 and 2 below offer a visual illustration; they depict the share of aggregate subsidy program assistance (CRA and public housing rebates) received by our household type and age categories. These figures are based on estimates of the population weighted total cost of CRA and public housing, as presented in Tables 1 and 2. It can be seen that close to half of total CRA expenditure is received by persons living in a 'couple with children' living arrangement, but this same household type accounts for only 10 per cent of the total public rent rebates received by public housing tenants. Childless households are the largest beneficiaries of public housing rebates, with singles receiving the largest share of the pie.

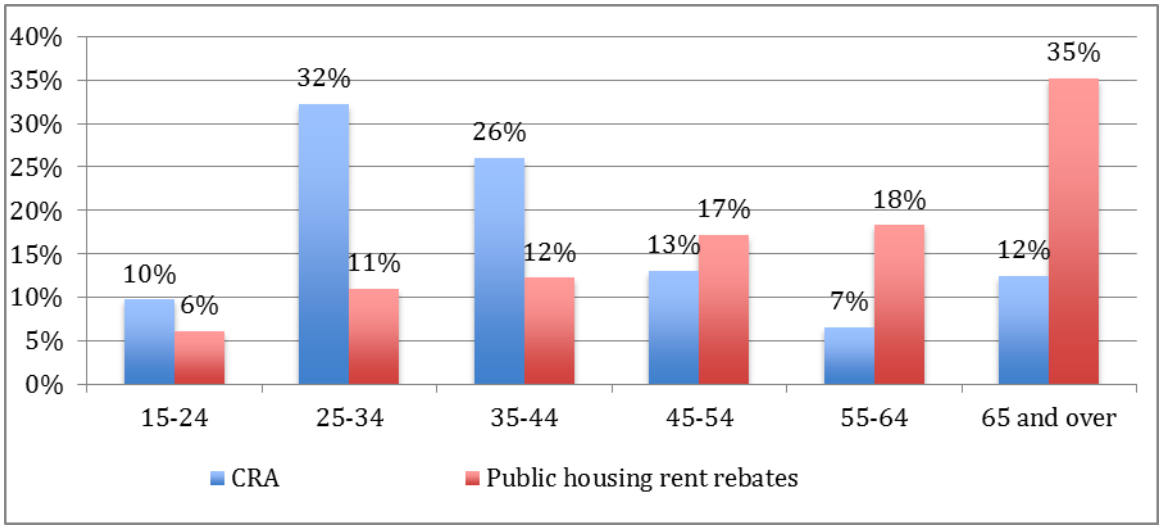
Nearly one-third (32%) of the CRA budget is received by individuals aged between 25 and 34, and over two-thirds (68%) by those 44 years or under. The opposite pattern is evident when we break down the aggregate value of public housing rebates by age group. Now we find that over two-thirds (70%) benefits public housing tenants aged 45 years and over. Among the 45 years and over group, an increasingly larger share is accounted for by progressively older age cohorts.

Figure 1: Percentage share of total CRA (Public housing rebate) expenditure, by household type, 2011



Note: Authors' own calculations using AHURI-3M and waves 6 (for State public housing parameters only) and 11 of the HILDA Responding Person files, Release 11; HILDA cross-sectional population weights are used to estimate population-weighted total amounts/proportions.

Figure 2: Percentage share of total CRA (Public housing rebate) expenditure, by age groups, 2011



Note: Authors' own calculations using AHURI-3M and waves 6 (for State public housing parameters only) and 11 of the HILDA Responding Person files, Release 11; HILDA cross-sectional population weights are used to estimate population-weighted total amounts/proportions.

4.1.2 Distribution of indirect housing assistance among home owners

In this segment of the descriptive analysis, we shift our attention to home owners in receipt of indirect housing subsidies that arise as a result of asset test concessions. Under current welfare arrangements, the asset test rules governing most pensions, allowances and concession cards differs between home owners and renters. A critical point of difference is exemption of the

primary home from the assets assessable under the means tests governing eligibility and entitlement to common pensions, allowances and concession cards. However, minimum asset-test thresholds are significantly lower for home owners, so the taper rate applying to age pensions, allowances and so on cuts in at a lower asset threshold for owners (see Table A1 in Appendix for the 2011 asset test thresholds that applied to home owners and renters). The values of owners' homes are then critical to the size of indirect subsidies under this asset test concession.

We are especially interested in quantifying the amount of subsidy delivered under asset test concessions extended to home owners on income support payments. To estimate the value of asset test concessions for home owners under current welfare arrangements, we begin by using wave 11 of AHURI-3M to calculate the amount of ISP received by home owners under the 2011 asset test arrangements. Next, we create a second hypothetical scenario where:

- Asset test thresholds are tenure neutral—this means that home owners' asset test thresholds are set at the same value as those of renters.
- The primary home is no longer exempt and net housing wealth (primary home value net of mortgage debt) is included in assessable assets under the assets test.

Table A1 in the Appendix presents the actual and hypothetical asset test thresholds applied to both home owners and renters. We re-estimate the amount of pension, allowance or benefit received via ISP under the hypothetical asset test arrangements. The value of the asset test concessions to home owners is set equal to the difference between the actual amount of ISP income received under the 2011 arrangements, and the simulated ISP income that would be received had asset tests been tenure neutral. The findings are summarised in Table 3 below.

We report the findings relating to Age Pension (AP) and Disability Support Pension (DSP) recipients—the two main types of ISP programs—separately from all other ISP programs. In 2011, over 2 million individuals received some form of ISP, with a large majority (68%) receiving ISP via AP. Recipients of DSP are also substantial, accounting for 12 per cent of all ISP recipients. Our simulations suggest that more than 1.4 million or 64 per cent of ISP recipients receive an indirect subsidy as a result of the non-neutral application of the asset test since they qualify for a larger ISP under present non-neutral asset thresholds. Under the 2011 asset test arrangements, the average annual amount of ISP income received is estimated at $12 644. Under the hypothetical neutral asset test, mean ISP income would be reduced by $3000 per year or by around 24 per cent. AP recipients are likely to be 'hit' hardest by these reforms, with their median income expected to fall by around 8 per cent or $1100. The Federal budget would benefit from savings of $5.8 billion under tenure neutral asset thresholds.

Table 3: Impact of changes to assets test regime, 2011–12 Asset values, 2011–12 taper rates, by ISP type

	Age Pension	Disability Support Pension	Other ISP	All
Number receiving ISP under current regime (thousands)	1,544.0	266.2	444.6	2,254.7
Number of ISP recipients whose payments would be reduced *if the assets test regime were made tenure neutral* (thousands)	1,109.0	154.0	182.4	1,445.4
Median [mean] reduction in payments to ISP recipients ($)	1,101.8 [2,978.4]	78 [1,666]	0 [2690.0]	696.4 [2,768.9]
Total saving to government ($) (millions)	4,448.8	428.4	1,004.3	5,881.5

Note: Authors' own calculations using AHURI-3M and wave 11 of the HILDA Responding Person files, Release 11.

4.2 Demographic and home ownership rate projections

4.2.1 Demographic projections

As noted in Chapter 3, there are two main Australian data sources that offer demographic projections that overlap with our period of analysis—2011 to 2031. These are the NHSC projections of household numbers, which form the basis for their forecasts of future demand for housing, and ABS projections of population numbers. In this section, we describe the demographic projections from both sources.

Table 4 below documents the projected increase in households/housing need from 2011 to 2031 under the low, medium and high growth scenarios described in Chapter 3. Under the medium-growth scenario, the number of households is projected to increase from approximately 8.9 million to 12.2 million between 2011 and 2031, an increase of over one-third (37%) over the two decades, or 160 000 households per year. As expected, the projected rate of growth is slower at roughly 140 000 per year under the low-growth scenario. But if the high-growth scenario were to unfold, there would be an additional 190 000 households per year. Under all three scenarios, the projected growth is likely to be evenly paced across the 20-year time frame 2011–31. Household projections are a key component of housing supply analyses as they are commonly interpreted as a forecast of the number of additional dwelling units required in order to house increases in the nation's population. These projections imply that Australia roughly needs a one-third larger stock of housing than in 2011 if it is to accommodate the anticipated growth in household numbers.

Table 4: Household projections based on low, medium and high household growth scenarios, '000s, 2011–31

Year	Total number			Annual increase		
	Low	Medium	High	Low	Medium	High
2011	8,862.4	8,909.2	8,963.8	139.1	162.6	190.1
2012	9,002.7	9,073.4	9,155.9	140.3	164.2	192.1
2013	9,143.6	9,238.5	9,349.2	140.9	165.1	193.3
2014	9,283.8	9,403.2	9,542.5	140.2	164.8	193.3
2015	9,423.9	9,568.1	9,736.3	140.0	164.8	193.8
2016	9,563.7	9,733.0	9,930.5	139.8	164.9	194.2
2017	9,703.2	9,897.8	10,124.9	139.5	164.8	194.4
2018	9,842.5	10,062.8	10,319.7	139.3	164.9	194.8
2019	9,981.1	10,227.2	10,514.3	138.6	164.5	194.6
2020	10,118.5	10,390.8	10,708.3	137.4	163.5	194.0
2021	10,254.7	10,553.2	10,901.5	136.2	162.5	193.2
2022	10,390.6	10,715.7	11,095.0	135.9	162.5	193.5
2023	10,525.7	10,877.6	11,288.1	135.1	161.9	193.1
2024	10,660.4	11,039.4	11,481.3	134.7	161.7	193.2
2025	10,795.8	11,202.0	11,675.7	135.4	162.6	194.4
2026	10,932.6	11,366.3	11,872.2	136.8	164.4	196.5
2027	11,068.9	11,530.4	12,068.7	136.3	164.1	196.5
2028	11,203.1	11,692.7	12,263.6	134.2	162.2	194.9
2029	11,335.1	11,852.9	12,456.7	132.0	160.2	193.1
2030	11,465.4	12,011.5	12,648.5	130.2	158.6	191.8
2031	11,593.2	12,167.9	12,838.2	127.8	156.4	189.7

Source: NHSC (2011), updated[21] Table A2.6

Table 5 below reports future household numbers by household type for the years 2011, 2016, 2021 and 2031.[22] Medium-growth projections are reported because the distribution of households by type does not differ greatly across the three scenarios. Table 5 shows that we can expect some significant differences in the rate of growth of different household types over the two decades under study. Lone person households (lone persons) will grow at the fastest pace (2.6% annually). By 2031, the number of lone persons is expected to be two-thirds larger than now, a surge in numbers that is almost twice the percentage increase in all household types. Between 2011 and 2031, lone persons' share of the total population of Australian households is forecast to grow by roughly 6 percentage points (from 26% to 32%) to be almost one-third of all households. This increase is largely at the expense of couples with children and group households. It comes about due to longer life expectancies, historically high rates of divorce since the 1970s (Qu and Weston 2011) and a shift in preference to age in place that delays entry into institutionalised care in later life. By 2031 lone persons are the most common

[21] The NHSC (2011) report presents household projections up to the year 2030. However, updated tables were subsequently made available in an accompanying excel document which provides updated projection estimates up to the year 2031.

[22] Projections by household type are available in the NHSC (2011) report for these years only.

household type; their emergence is the most important demographic trend exhibited in the demographic forecasts in Table 5.

At the same time, the rate of childlessness in households has risen as fertility falls. But in households where children are present, there has been an increase in the number of children being raised by single parents (Beer et al. 2006). These trends lead to a future increase (2011–31) in the number of childless couples and sole parent households of 34 per cent and 25 per cent respectively. Though they are the second and third fastest growing household types, their rate of increase is below the percentage increase in all households because of the soaring number of sole person households. They are therefore a declining share of all households, though those declines are not as precipitous as those evident for two parent families and group households (the decline in the latter reflecting an ageing population).

Table 5: Household projections by household type, medium-growth scenario, 2010–31

Year	Two parent families	Sole parent families	Couples without children	Lone person households	Group households	All
Number of households ('000s)						
2011	2,771	1,007	2,438	2,335	358	8,909
2016	2,918	1,061	2,694	2,678	383	9,733
2021	3,065	1,117	2,911	3,057	402	10,553
2031	3,320	1,261	3,254	3,882	451	12,168
Total % growth 2011–31	19.8	25.2	33.5	66.3	26.0	36.6
Annual % growth rate	0.9	1.1	1.5	2.6	1.2	1.6
Distribution of household type (% by row)						
2011	31.1	11.3	27.4	26.2	4.0	100.0
2016	30	10.9	27.7	27.5	3.9	100.0
2021	29	10.6	27.6	29	3.8	100.0
2031	27.3	10.4	26.7	31.9	3.7	100.0
Percentage point change 2011–31	-3.8	-0.9	-0.7	5.7	-3.8	

Source: NHSC (2011), updated Table 2.3

Table 6 below breaks down the household projections by state and territory. New South Wales and Victoria have the largest numbers of households both at the start (2011) and end (2031) of the forecasting period. But the fastest growth in household numbers is expected to take place in Queensland and Western Australia, spurred on by high demand for labour in these resource-rich areas. Household numbers in these two states are projected to rise by 50 per cent, equivalent to an annual rate of increase of 2 per cent, which is well above the national rate of 1.6 per cent. On the other hand, South Australia and Tasmania are expected to experience sluggish growth in household numbers of 1 per cent and 0.9 per cent per annum respectively. These shifts in the geography of Australia's population have been evident for some time; so these projections add to this westward and northward drift in the nation's population.

Table 6: Household projections by state and territory, medium-growth scenario, '000s, 2010–31

Year	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aus
2011	2,844.9	2,198.9	1,802.6	688.6	934.3	213.3	83.4	143.2	8,909.2
2016	3,057.1	2,395.1	2,029.5	727.6	1,051.4	225.5	91.9	154.9	9,733.0
2021	3,266.7	2,588.3	2,261.7	766.1	1,167.6	236.8	100.1	166.1	10,553.2
2026	3,471.8	2,779.3	2,495.9	803.1	1,284.4	247.2	108.3	176.4	11,366.3
2031	3,669.3	2,969.6	2,732.2	837.0	1,400.8	256.0	116.4	186.5	12,167.9
Total % growth 2011–31	29.0	35.0	51.6	21.6	49.9	20.0	39.6	30.2	36.6
Annual % growth rate	1.3	1.5	2.1	1.0	2.0	0.9	1.7	1.3	1.6

Source: NHSC (2011), updated Table A2.8

Table 7 below shows projected household growth rates by tenure type. The projections rely on an assumption that tenure shares in defined age cohorts of the population remain at their 2006 Census values (NHSC 2011). The estimates therefore predict how Australian households will be distributed across housing tenures given forecast changes in demographics (i.e. the population size and structure), while assuming other factors (e.g. real incomes, the after-tax economic cost of housing) are held constant.

The estimates show that the underlying need for public housing will grow most strongly over the period 2011–31, an outcome that reflects population ageing. The total number of public housing tenants will rise by 42 per cent over the study timeframe, or 1.8 per cent annually, provided supply keeps pace with need. A 154 000 increase in the stock of public housing is required to satisfy this requirement, an expansion that appears unlikely in view of recent declines.[23] Owner occupation has the second biggest rate of expansion at 39 per cent. This is equivalent to an extra 2.4 million households (dwellings), but it is important to bear in mind that this forecast assumes that age cohort rates of home ownership are unchanged from their present values. Under this scenario, ageing of the population naturally boosts home ownership numbers because older age cohorts have higher rates of home ownership. However, it is important to note that significant changes have been taking place within the owner-occupied sector over recent decades, which will have implications for the future demand for housing subsidies (see Section 4.2.2).

[23] According to the Productivity Commission's Report on Government Services 2014, the number of public housing dwellings declined from 345 000 in 2004, to 328 000 in 2013.

Table 7: Dwelling projections by tenure type, medium-growth scenario, 2010–31

Year	Owner-occupier	Public rental	Other rental	Other	Total
Number of dwellings ('000)					
2011	6,316	366	2,065	162	8,909
2016	6,912	400	2,243	178	9,733
2021	7,542	438	2,381	192	10,553
2026	8,165	479	2,516	206	11,366
2031	8,756	520	2,671	221	12,168
Total percentage growth 2011–31	38.6%	42.1%	29.3%	36.4%	36.6%
Annual growth rate	1.6%	1.8%	1.3%	1.6%	1.6%
Distribution of tenure type (% by row)					
2011	70.9%	4.1%	23.2%	1.8%	100.0%
2016	71.0%	4.1%	23.0%	1.8%	100.0%
2021	71.5%	4.2%	22.6%	1.8%	100.0%
2026	71.8%	4.2%	22.1%	1.8%	100.0%
2031	72.0%	4.3%	22.0%	1.8%	100.0%
Percentage point change 2011–31	1.1%	0.2%	-1.2%	0.0%	

Source: NHSC (2011), updated Table 2.6

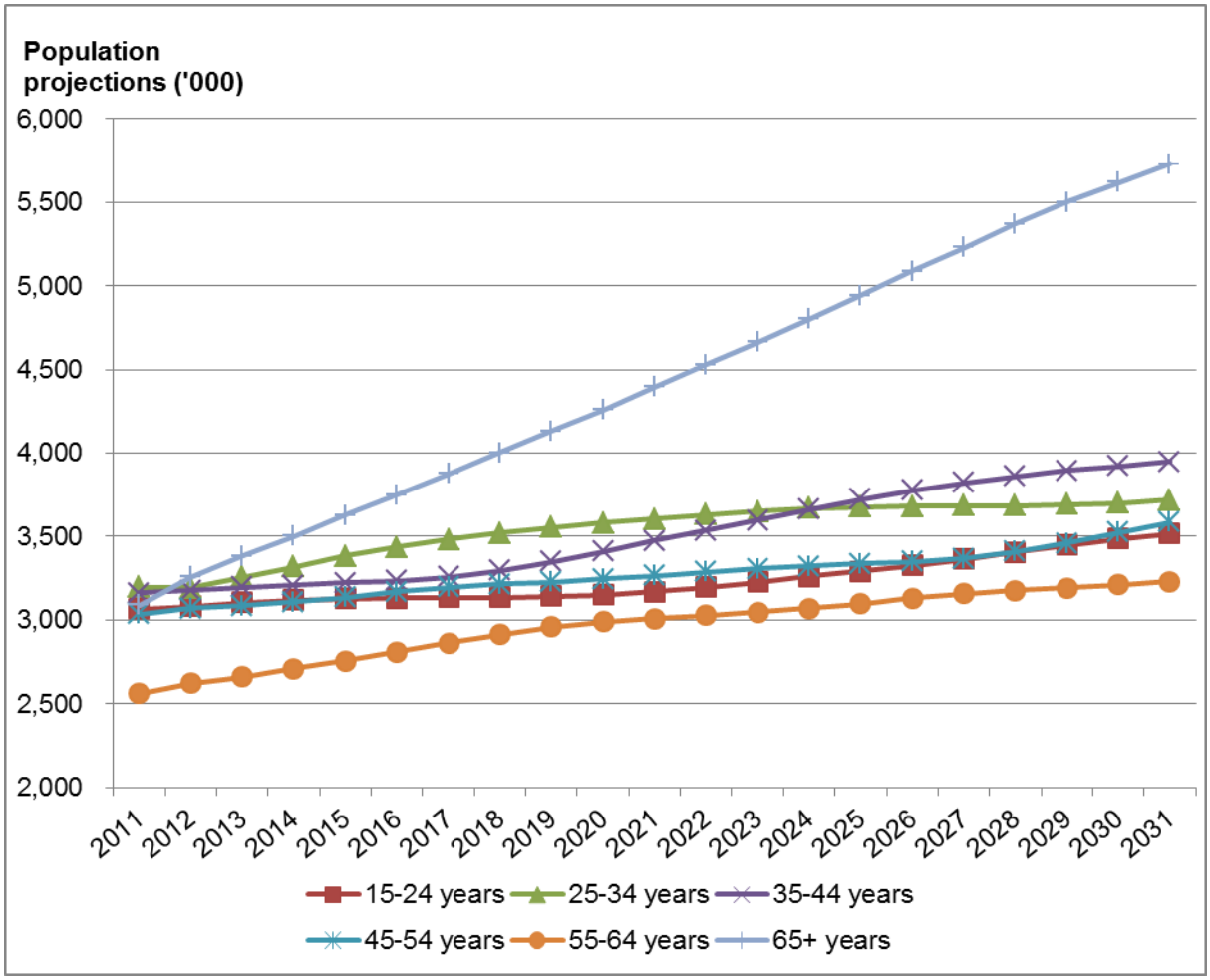
The NHSC projections provide some useful household projections that can inform analysis of the future demand for housing subsidies. But as explained in Chapter 3, we are unable to access these projections broken down by age and household type due to the abolition of the NHSC prior to the commencement of this study. Given the importance of population ageing and its effects on household type, our empirical analyses will instead draw on ABS population projections which also offer these breakdowns. In Figure 3 below, we report the ABS population projections from 2012 to 2031 by age group. The 2011 data are derived from the estimated resident population numbers in the 2011 Census. The ABS produces three projections that are based on either high, current or low assumptions of fertility, life expectancy at birth and net overseas migration (see Chapter 3). Only the projections from series B, which reflect current trends in fertility, life expectancy at birth and net overseas migration, are reported here.

It is clear from Figure 3 below that the rate of increase is expected to be steepest among the oldest group aged 65 years and over, reflecting the rapid rate of population ageing which Australia will undergo in coming decades as baby boomers enter their retirement years. While the youngest (15–24 years) and oldest (65 years and over) group each comprised around 3 million persons in 2011, by 2031, the oldest age group is expected to balloon out to 5.7 million people, which is 60 per cent higher than the projected estimate of 3.5 million 15–24 year olds in that year. In the mid-20th century Australia's population featured youth dependency with large numbers of young dependents supported by a still rapidly growing working age population. The above figures suggest that while we have now reached a position where there is a balance between young and old dependents, the demographic forecasts suggest that in the years to 2031 Australia's population will complete a transition from youth dependency to age dependency.

Table 8 below shows the annual rate of change in population from 2011 to 2031 for each age group, based on the projection counts reported in the preceding Figure 3. In the second half of this project we envisage these annual rates being applied to a population base sourced from the

2011 HILDA dataset. The annual rate of growth among the 65 and overs is expected to slow somewhat from 5.5 per cent to 2 per cent between 2011 and 2031. However, by the end of the projection period, it will still be the fastest growing population group in Australia.

Figure 3: Population projections, by age band, 2011–31



Source: 2011 estimate from the 2011 Census, 2012 to 2031 estimates from ABS population projection time series B

Table 8: Annual rate of change in projected population, by age band, 2011–31

Year	15–24 years	25–34 years	35–44 years	45–54 years	55–64 years	65+ years
2011–12	0.6%	0.0%	0.4%	1.1%	2.3%	5.5%
2012–13	0.7%	2.0%	0.6%	0.6%	1.5%	3.8%
2013–14	0.5%	1.9%	0.4%	0.8%	1.8%	3.5%
2014–15	0.3%	1.9%	0.5%	0.8%	1.8%	3.6%
2015–16	0.2%	1.6%	0.3%	1.1%	2.0%	3.4%
2016–17	0.1%	1.3%	0.7%	0.9%	1.9%	3.3%
2017–18	0.1%	1.0%	1.3%	0.5%	1.7%	3.3%
2018–19	0.2%	0.9%	1.5%	0.4%	1.6%	3.2%
2019–20	0.2%	0.8%	1.9%	0.6%	1.0%	3.1%
2020–21	0.7%	0.7%	1.9%	0.6%	0.7%	3.2%
2020–22	0.8%	0.7%	1.8%	0.7%	0.6%	3.1%
2020-23	1.0%	0.6%	1.8%	0.6%	0.6%	3.0%
2020–24	1.0%	0.5%	1.7%	0.4%	0.8%	2.9%
2020–25	1.0%	0.2%	1.7%	0.5%	0.8%	2.9%
2020–26	1.0%	0.1%	1.5%	0.3%	1.1%	2.9%
2020–27	1.2%	0.1%	1.2%	0.6%	1.0%	2.8%
2020–28	1.2%	0.1%	1.0%	1.2%	0.6%	2.7%
2020–29	1.2%	0.1%	0.9%	1.5%	0.5%	2.5%
2020–30	1.1%	0.2%	0.8%	1.8%	0.6%	2.2%
2020–31	0.9%	0.6%	0.6%	1.8%	0.6%	2.0%

Source: Authors' own calculations from the 2011 Census and ABS population projection time series B

4.2.2 Home ownership rate projections

As mentioned in Chapter 3, we will employ Yates et al.'s (2008) forecasts of age-specific rates of home ownership to explore the implications of changing home ownership rates for housing subsidies. Table 9 below documents actual home ownership rates in 1982 and 2001 that are based on Census data, and anticipated rates in 2026 and 2046 also taken from Yates et al. (2008). Their study was conducted prior to the release of the 2006 Census data, so it assumes that 2006 rates remain the same as in 2001. The home ownership rates for 2026 and 2046 are obtained using the methodology described in Chapter 3.

Future home ownership rates among households aged 15–24 are projected to remain constant at their 2006 rates. In previous decades home ownership rates among young adults have remained steady, and so this forecast extrapolates that flat profile. Between 1982 and 2001, there was a sharp 10-percentage point decline in the home ownership rate among those aged 25–34 years, the stage of the life course during which first home purchase is typically assumed to occur. Similarly, home ownership rates among those aged 35–44 years also fell by some six percentage points despite this group being in their prime wealth accumulating years. This reflects declining affordability, preventing growing numbers of young working age adults from breaking into the home ownership market. Yates et al. (2008) assume that home ownership rates from 2006 onwards will remain relatively constant for these two age groups at their 2006 levels. Importantly, home ownership rates are projected to fall among older cohorts aged 45

years and over, reflecting recent research findings on the growing precariousness of home ownership in Australia (see Ong et al. 2014; Wood et al. 2013). Wood et al. (2013) show there is an increasing number of Australians falling out of home ownerships due to financial pressures, and this will contribute to falling rates of ownership in older age cohorts. This is an important trend because it calls into question the sustainability of home ownership as a pillar of support for the retirement incomes system in future years. Furthermore, using data from the 2002, 2006 and 2010 HILDA Survey, Ong et al. (2014) find that older home owners who lose home ownership due to adverse biographical events, such as divorce or unemployment, are more likely to transition onto housing assistance four years later than similarly positioned long-term renters. Hence, the projected decline in home ownership rates among older age groups reported by Yates et al. (2008) could have serious ramifications for the demand for housing assistance. This anticipated outcome will be explored in greater detail in the next section.

Table 9: Current and projected age-specific home ownership rates, 2001 to 2046, per cent

Age group	Actual		Assumed	Projected	
	1981 (Census)	2001 (Census)	2006 (as per 2001)	2026	2046
15–24	25	24	24	24	24
25–34	61	51	51	51	51
35–44	75	69	69	68	68
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

Source: Yates et al. (2008)

HILDA Compound annual growth rate 2006 to 2026

We implement some adjustments to Yates et al.'s (2008) projected age-specific home ownership trajectories in order to apply them to the HILDA Survey data. First, our base year is 2011 rather than 2006. Hence, we calculate the compound annual rate of change in the projected home ownership rates between 2006 and 2026 using Yates et al.'s (2008) estimates as reported in Table 9. These annual rates of change are reported in Table 10 below, and they are applied to the home ownership rates computed from the 2011 HILDA Survey in order to project home ownership trajectories forward from 2011 to 2031. Table 10 reports forecast rates of ownership in two key years of interest—2021 and 2031. Predicted home ownership rates are more or less steady for groups aged less than 45 years, and also among those that have reached retirement age (65 years and older). But they are expected to decline quite sharply in the middle age cohorts—45 to 54 years and 55 to 64 years—in the former by 10 percentage points (74% to 64%) and in the latter by 6 percentage points (79% to 73%). Because of population ageing and higher rates among seniors, the Australian home ownership rate is expected to fall by only 1 percentage point (65% to 64%).

Table 10: Current and projected age-specific home ownership rates, 2011 to 2031, per cent

Age group	Annual rate of change 2006–26	Current	Projected	
	(Yates et al. 2008)	2011 (HILDA)	2021	2031
15–24	0.00	9.0	9.0	9.0
25–34	0.00	31.5	31.5	31.5
35–44	-0.07	59.0	58.6	58.1
45–54	-0.68	73.9	69.0	64.4
55–64	-0.38	78.6	75.7	72.8
65 and over	0.00	81.0	81.0	81.0
Total	-0.07	65.2	64.7	64.3

Source: Authors' own calculations from Yates et al. (2008) and the 2011 HILDA Survey

4.3 Likely impacts of demographic change on demand for housing subsidies

Two related demographic changes stand out as far as housing subsidies and their future cost to Commonwealth budgets is concerned. The first is a sharp increase in the size of the 65 years and older age cohort, from just over 3 million in 2011 to 5.7 million 20 years later. Singles living alone is a common living arrangement among the elderly due to bereavement, and so a second important demographic development will be a surge in this household type, from 2.3 million individuals in 2011 to 3.9 million in 2031. This 66 per cent increase dwarfs the 37 per cent increase in all households; by 2031 singles become the most important as a share of all households at 32 per cent. There are important ramifications for the likely future budget cost of housing subsidies.

The asset test concession that exempts the family home will become more prominent than it already has become; in 2011 age pensions are estimated to be $4.4 billion higher than would otherwise be the case under a tenure neutral asset concession. If the proportion of over 65s affected by the home owner asset test concession were to remain unchanged, the almost 90 per cent increase in the number of those at or beyond current pension age will add roughly $4 billion (at current prices) to the age pension budget provided 'all else remains equal. At least two offsetting developments will help curb a spiralling budget cost. First, rates of home ownership are expected to decline in this age cohort; the Yates et al. (2008) forecast is decline from 82 per cent in 2011 to 72 per cent in 2031.[24] In the second stage of this project we will estimate the future age pension 'bill' given ABS demographic projections and the anticipated reduction in the share of home owners among the elderly.

Population ageing will have opposite effects on public housing subsidies and Commonwealth Rent Assistance. If tenure shares in defined age cohorts of the population were to remain at their 2006 Census values, and the supply of public housing matched the projected increase in demand, it will largely become accommodation for the elderly. Public housing tenants benefit from average subsidies ($4808) that are larger than those received by either CRA clients ($2960), or the beneficiaries of home owner asset test concessions ($2611). Furthermore, the 65 years and over public housing tenant benefits from subsidies that are typically larger than those benefiting almost all other age cohorts. The aggregate value of these subsidies (an estimated $1.7 billion) is then set to soar; a 'back of the envelope' *ceteris paribus* calculation

[24] While this will help curb the age pension budget impost, there are negative implications for asset based welfare (see Wood et al. 2013).

indicates that the 42 per cent anticipated growth in public housing tenants through to 2031 would increase the aggregate value of subsidies to $2.4 billion at current prices.

By contrast, the changing demographics will help curb growth in the budget cost of CRA. Younger CRA recipients typically receive more CRA than their older counterparts; singles also receive less than the other three household types analysed in Table 1 above. The changing demographic composition of the Australian population is then likely to restrain future enrolments onto the CRA program. However, this expectation is predicated on the assumption that public housing will expand to accommodate the increasing demand from a growing elderly population.

4.4 Next steps

In the second stage of this project we will build on and extend the analytical methods presented in this positioning paper. This is to be achieved in four important ways.

First, the public housing rebate estimates that are presented in Section 4.1.2 are based on state and territory public housing rent setting parameters that applied in 2006. Updates to the public housing parameters within AHURI-3M are currently ongoing and will be available by the time we commence the next stage of the empirical analysis. This work focuses on revising each state and territory's rules governing the definition of assessable income used in formulae determining concessionary rents. We will employ the updated version of AHURI-3M to re-estimate the magnitude and distribution of subsidies in public housing.

Second, the indirect housing subsidy calculations presented in Section 4.1 are restricted to home owner asset test concessions. We will expand this narrow definition of indirect subsidies to also include the indirect subsidies provided to home owners in the form of tax concessions (i.e. capital gains tax exemption, tax exemption of imputed net rental income, stamp duty tax exemptions for first time home buyers, land tax exemption etc.).

Third, we will forecast the future value of direct and indirect housing subsidies, taking into account the home ownership rates projected by Yates et al. (2008), and the demographic projections generated by the ABS for years 2021 and 2031. This will be undertaken by applying the data 'ageing' exercise, as described in Section 3, to the sample of individuals in wave 11 of HILDA. It will generate a synthetic population profile with a distribution by age and living arrangements that matches the ABS's 2031 state and territory-level household projections, and a distribution across housing tenures that reflect those forecast in Yates et al. (2008). Detailed forecasts of direct and indirect subsidies in 2031 will be obtained by applying AHURI-3M to our synthetic sample under *ceteris paribus* conditions; that is, we assume the tax-benefit system as well as macroeconomic and labour market conditions remain unchanged at their 2011 values. Two sets of forecasts will be generated; one with home ownership rates and other tenure shares held constant at 2011 values. The other set combines demographic change with projected changes in home ownership rates. A decomposition exercise will separate those differences in housing subsidies that are down to demographic change and those attributable to changes in rates of home ownership.

Finally, we will once again exploit microsimulation techniques to sketch the financial repercussions of possible reforms to housing subsidy arrangements and the tax-benefit system. These simulations will be conducted toward the end of the second stage of the project, and will highlight two possible reforms. The first has a particular resonance in the context of an ageing population, because it measures repercussions for the home owner asset test concession of lifting the eligibility age at which Australians can claim the retirement pension. Our calculations in Section 4.2 point to significantly inflated pensions due to the asset test concession that will grow further into the future as more and more elderly home owners benefit from the concession. However, the legislated increases in retirement age will curb this increase, and our simulations will document how effective they are as a restraint on the cost of this concession.

The second simulation is one that we have used AHURI-3M to conduct before, but in a contemporaneous setting rather than future demographic scenario. The interim McClure Report has flagged possible reform to public housing, and in particular a move to market rents but with potential eligibility for Commonwealth Rent Assistance (CRA) extended to public housing tenants. We believe this to be an important policy simulation as it is the subject of lively debate in policy circles, but also because the distributional properties of CRA and public housing rent rebates by age are very different. As Australia completes its transition from youth to age dependency over the next 20 years, this reform could have potentially dramatic effects on the future housing subsidy landscape.

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APPENDIX

Table A1: Actual and hypothetical asset test thresholds for home owners and non-home owners by household type, 2011

Family situation	For home owners	For non-home owners
	Asset test threshold for pensions and allowances under 2011 arrangements	
Single	$186,750	$321,750
Couple (combined)	$265,000	$400,000
	Asset test threshold for pensions and allowances under hypothetical asset neutral scenario*	
Single	$321,750	$321,750
Couple (combined)	$400,000	$400,000

Note: * Under the hypothetical asset neutral scenario, the primary home is included in the asset test rules, and the same asset test thresholds apply to both home owners and renters.

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