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The Residual Income Method: A New Lens on Housing Affordability and Market Behaviour

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Final Report

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The residual income method: a new lens on housing affordability and market behaviour

authored by

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CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

BLS	Bureau of Labor Statistics
CRA	Commonwealth Rent Assistance
FHOG	First Home Owners Grant
FTBA	Family Tax Benefit Part A
FTBB	Family Tax Benefit Part B
HDI	household disposable index
LCBS	low cost budget standard
MCBS	modest cost budget standard
MIAESR	Melbourne Institute of Applied Economic and Social Research
NAHA	National Affordable Housing Agreement
NATSEM	National Centre for Social and Economic Modelling
NRAS	National Rental Affordability Scheme
NRV3	National Research Venture 3
RTBA	Residential Tenancies Bond Authority
SPRC	Social Policy Research Centre

EXECUTIVE SUMMARY

This study was designed to explore the viability of an alternative method of measuring affordability (the residual income method) to that of the ubiquitous 30 per cent benchmark method and to use this alternative method for enriching understanding around a range of affordability and housing market issues. The work has been exploratory but it does reveal both the potential and the limitations of the method. This Final Report was preceded by a Positioning Paper (Stone et al. 2011) which reviews the national and international literature on measuring housing affordability and outlines the methodology and assumptions behind the residual income method.

Put simply, the residual income method calculates how much is left over for housing rents or mortgage *after* relevant expenditure items for different household types have been taken into account. If there is insufficient left for rents and mortgages after meeting this budget standard, a household has an affordability problem. The basis for formulating such a measure for Australia was enabled by the development of indicative budget standards by the Social Policy Research Centre (SPRC) at the University of New South Wales (Saunders et al. 1998). They established a low cost budget standard (LCBS) and a modest cost budget standard (MCBS); the former might be seen as a minimum level of consumption in contemporary Australia, while the latter allows for a comfortable but far from luxurious lifestyle. Both have been used in this study, but with most emphasis on the LCBS, and have been indexed to relevant years by a composite index of the CPI minus housing component and of disposable Income.

This Final Report is not an exhaustive treatment of the residual income method but is designed to illustrate its potential, relative to benchmark methods, for understanding a number of housing affordability related issues. And, while the subject matter could potentially be quite technical and detailed, the report aims to minimise the detail and concentrate on understanding and exemplification. The report has a number of objectives. These are to:

1. Use the residual income method to calculate the distribution of housing affordability in Australia in aggregate and for individual household types by tenure, income, state and other relevant variables in order to get some assessment of the scale and distribution of residual income affordability. This includes comparison with the ratio method, either the aggregate 30 per cent measure or the more targeted 30/40 ratio, that is, 30 per cent for the lowest 40 per cent of income earners.
2. Compare these aggregate Australian findings with those for the USA, as representing a form of benchmark to assess how badly or well Australia performs in terms of affordability.
3. Model the affordability capacity of case study households (single person, couple with two children) across a broad income range to provide a better understanding of how affordability constraints, as indicated by the residual income method, are potentially shaping the operation of housing markets.
4. Illustrate using the Melbourne and Adelaide *home purchase* markets what the residual income method suggests about the performance of these housing markets in terms of affordability.
5. Illustrate using the Melbourne rental market what the residual income method suggests about the performance of this housing market and associated submarkets in terms of affordability.

6. Test the appropriateness of the residual income method for social and affordable housing rent-setting policy and eligibility practices.

These objectives have required their own sections in the report, with their own distinctive findings summarised in Section 8. However, the major findings or implications are:

1. Appropriateness of the model. For a broad measure of affordability across *all* households, the residual income method provides results not too dissimilar to the benchmark method, but in terms of compositional elements where the results are affected by the type of household and their different expenditures it is likely to be more accurate as to what is the household experience. For example, it is obvious that large families will have more expenses than smaller ones and that this will affect their capacity to purchase or rent.

2. For the households examined (representing about 75% of all Australian households), the residual income method (for the lowest 40% of income earners) shows a much higher incidence of affordability problems, 33.6 per cent using a LCBS, compared to 23.9 per cent by the 30/40 method. One reason why the 30/40 disposable income rule is lower than the LCBS for those households in the lowest 40 per cent of income earners is that under 30/40 principles no social housing tenants have an affordability problem (it is defined away) where the LCBS identifies that most do so. The second is that outright owners, again by definition in the 30/40 rule, cannot have an affordability problem but the LCBS says that small numbers can, although strictly speaking it is not a housing affordability problem but a liveability problem, that is, their incomes are too low to cover the necessities of life even without a mortgage.

3. In terms of various compositional effects, the data shows that renters have the most severe affordability problem, with aged renters the worst off, 84.3 per cent of singles and 62.2 per cent of couples being below the LCBS.

4. Families are also problematic, particularly if they have younger children. Among households with children, 34.3 per cent were below the LCBS, but if the children were under five it was 68 per cent. Why this is the case is probably a combination of the additional costs of the second children being less (they can use the first child's belongings) and, more importantly, a parent may have to drop out of the workforce for some time to undertake child-rearing functions. If they had taken on a mortgage on the assumption of two incomes, this could explain what appears to be a higher incidence of affordability problems among young families in ownership than in rental.

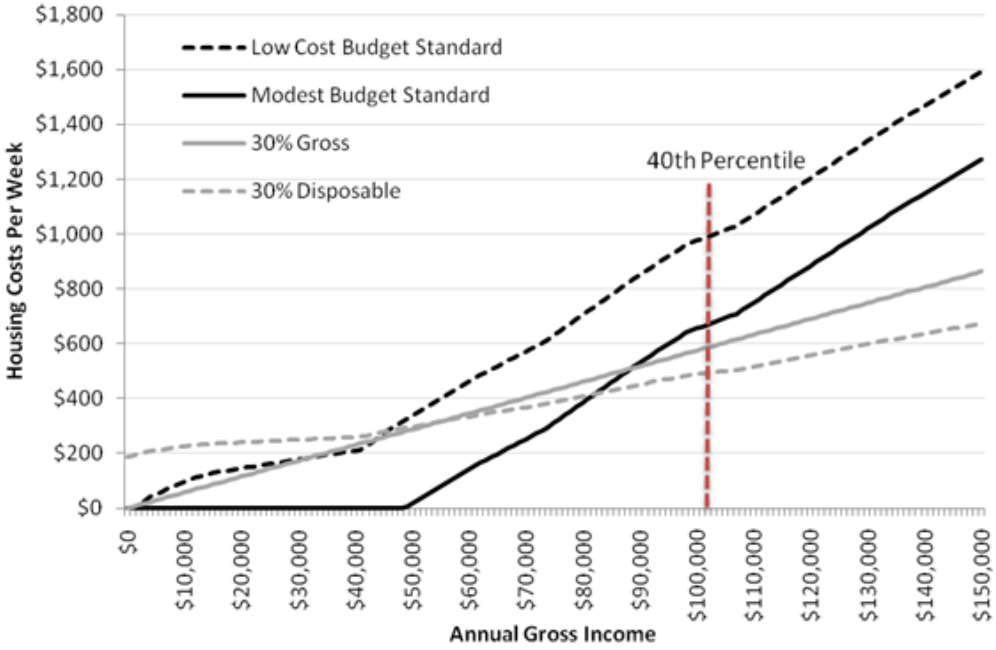
5. Hitherto in Australia there has been little attempt to break down the income composition of households below the 40 per cent decile. In this study we do this, and not surprisingly find that the affordability problem is most intense in the bottom two income deciles when using the LCBS, indeed, they account for 75 per cent of all households with an affordability problem. But, suggesting the housing affordability problem is as much an income support problem as a housing cost one, 73 per cent of households below the LCBS (mostly in these two bottom deciles) had government pensions or benefits as their main source of income.

6. If we use the MCBS we find some 30.7 per cent of households are below that standard. These are very high proportions, with the implications here not being just about housing but a broader one about the economy: a very large proportion of Australian households *after meeting housing costs* have little capacity to save or to purchase goods and services beyond what is needed for a modest lifestyle. Mortgage default data indicates that such housing stress levels are not resulting in people falling out of housing, as in the USA, but it is likely that other consumption

is being sacrificed. Perhaps it is little wonder that the retail, hospitality and domestic tourism sectors in Australia have been flattish for some time, given the degree to which housing costs crowd out other expenditures. And, of course, as the affordability problem deepens there will be even less capacity to consume other items. The crowding-out effect of housing costs on other expenditures is an obvious point but one that has not been made strongly enough in Australia: high housing costs may have major impacts on economic growth.

7. A comparison of the scale and form of residual income affordability between Victoria and Massachusetts (very comparable states in similar market liberal societies) found that affordability was much worse in Massachusetts, but again this has more to do with income support than housing costs (see Section 4). This emphasises another point that is often neglected, that is, affordability solutions are not always about housing. The form and structure of income support (as discussed in Section 4) is fundamental to understanding issues around housing affordability. This section also highlighted the limitations of raw measurement tools such as those of Demographia (2010) in international comparisons of affordability. This would have Melbourne relative to Boston as an affordability basket case but, using the more nuanced residual income method, this is not so: taking into account household composition and residual incomes in relation to house prices and rents, Boston is much worse.
8. Section 5 outlined a residual income model building exercise where for any household type and income the relevant deductions (taxation) or additions (family allowance, benefits) could be made. This then creates a residual income that enables, as illustrated in Figure 1 (a case study of a couple with two children), a working out of how much is left over to afford ownership or rental. The modelling shows that (a) there are very great differences in ability to purchase or rent between household types, with families the most problematic, and (b) above a certain income point there is much greater capacity to purchase or rent than the much used 30 per cent rule would tell us. This, as Section 5 discusses, gives us a better understanding of housing dynamics, including why people can still purchase in the face of what seem insurmountable prices and rents and why the building industry is building what it does and where (one and two-bedroom apartments in the inner city, detached houses on the fringe).

Figure 1: Maximum affordable mortgage repayments using two types of budget standard and two measures of housing affordability, couple with two children, 2010



9. Section 5.3.3 applied the modelled household residual incomes to the Melbourne and Adelaide residential property markets in 2010 to assess to what degree there were affordability constraints across housing submarkets for different household types contemplating first-time home purchase. For both markets, it found that families with incomes less than $40 000 were out of the market, and between $40 000 and $80 000 their only option was outer suburbs and, in Melbourne, growth areas. Not until household income exceeded $100 000 was there much ability for families to purchase in the inner city and middle ring. The short message here is that having children and home purchase are potentially important trade-offs for many first-time buyer households. On the other hand, singles and couples on incomes above $60 000 had much wider housing choice and could effectively consider inner urban purchase, particularly in Melbourne where, unlike families, they could choose one and two-bedroom apartments.

10. Section 6.2 illustrated the use of the residual income method for developing price points for what represents affordable housing for different household types. These could be used in inclusionary zoning or planning negotiations with industry around affordable housing provision. The price points when linked to data on the income distribution of renters also suggest the usefulness of the method in getting some assessment of how many such households can afford to become home purchasers. The answer is: increasingly few.

11. As discussed in Sections 5.3.3 and 8, these household affordability differentials appear to be shaping a new urban and social form, with families and detached housing on the fringe and non-family households in inner city and middle ring locations clustered in growing numbers of one and two-bedroom apartments. As discussed, there may be long-term problems in such an urban form.

12. Section 7 looked at the implications of the residual income model for social housing, including capacity to be an alternative basis for setting rents. The conclusion was that it does not have this capacity. If rents were set at the budget standard for public housing, they would have to be at levels that would greatly compound financial viability problems for housing agencies. Into the bargain, a

residual income rent remains a household rent, with all the administrative costs and work disincentive implications of such a rent.

13. The residual income method does show that many public tenants are in hardship after paying a so-called affordable rent, the 25 per cent household rent, which is not surprising as there has never been any rationale for it as an affordable rent. If rents were set to an affordable level, it would mean near zero rents for some household types and incomes but increases for others. Thus, under the current rent structure, those on very low incomes may be paying an excessive amount of income on rents and not leaving enough for other expenditure, while those on higher incomes in most cases have more than enough to live on after paying the 25 per cent household rent (see Tables 18, 19, 20 and 21). However, if rents were restructured to reflect these inequities, the net effect would likely be a major reduction in rental income for housing agencies in a context where they are already financially problematic. In short, this exploration of the implications of the residual income model only adds to the evidence that the current mix of a flat 25 per cent household rent and a market rent is highly difficult for tenants and housing organisations. Funding and rent-setting reform is necessary, but the latter requires dealing with the former first.
14. The residual income model was used to test income eligibility for the National Rental Affordability Scheme (NRAS) and the discounted market rent for targeting. How well does the scheme meet the affordability capacity for the various household types? The answer (reflected in Table 22) was 'very well', with the general conclusion being: 'If only public housing, and perhaps by default community housing, rent could be as well targeted to what households can actually afford!'

The analysis did prompt consideration of whether similar levels of funding could be used for a home ownership program, as discussed in Section 8.

Conclusion

While exploratory, the findings in this report suggest the usefulness of the residual income method as a basis for more informed decision-making around affordability issues and for more detailed analysis of the implications. As one of the model's limitations is the complexity in creating it, this Final Report is accompanied by a template of the model to enable any agency or individual to undertake residual income analysis based on whatever assumptions of gross income, interest rates, deposits, taxation, pensions, benefits and allowances are relevant to their research purpose.

1 INTRODUCTION

While researching this report, one of the authors had to visit a dentist. The dentist started talking (why they do so when patients cannot answer back is a puzzle) and commented on how he found the high house prices in Melbourne completely inexplicable and was worried about his children's housing futures. Now, if a dentist on his high salary is expressing puzzlement over high house prices, it is understandable why large proportions of ordinary Australians do likewise. The next day one of us was attending the launch of the first evaluation report of a homelessness pilot program, and the speeches had many in the audience reflecting on how has this all occurred. Why, at the most affluent point in our history, do we have more homelessness, more people in marginal housing forms (e.g. boarding houses, caravans) and longer waiting lists for social housing than at any other time in our recent history? Obviously part of the answer is about politics and policy and, to be blunt, a political unwillingness to tackle these problems. But in part, and where this study comes in, it is also about the fact that, despite considerable research, there are still gaps in our knowledge of the scale and form of our housing problems and the relationship to housing markets and policy.

Housing affordability and housing market dynamics (in the case of this project, the latter a shorthand for the drivers of and the decision-making processes in housing markets) have moved to the front of the housing policy agenda in recent years. While the two topics are related, different processes have given them greater prominence. The former (housing affordability), of course, has been around for decades (Priorities Review Staff 1975; Committee of Inquiry into Housing Costs 1978; National Housing Strategy 1991; Productivity Commission 2004) and takes on renewed vigour every time there is an escalation in interest rates, house prices or rents, although the first two get much more attention, particularly from the media, than the third (rents). And the lack of policy reform varies inversely with the number of reports and studies: the more there appear to be, the less that happens.

Economists have long given attention to housing markets but rarely has this analysis had such prominence in research and policy environments. One reason is recognition that markets can fail, for example the collapse of the Irish, Spanish and US housing markets, with major implications for economies and society. But another is that, in Australia, we still do not know enough about what drives house prices and rents, about the decision-making of market actors (consumers, builders, investors) and how they might respond to changing policy environments. In a context where the external environment for housing users and producers is becoming more complex as a result of demographic growth, sustainability needs, government fiscal constraints and rising consumer expectations, this lack of understanding of market dynamics is troubling.

This report is a contribution *by intent* to the affordability literature and *by default* to the housing market dynamics literature. In other words, in seeking to provide a better measure and explanation of the housing affordability problem in Australia we provided findings which give us a different and perhaps better understanding of how Australian housing markets work.

This is the Final Report from a large study on using the residual income approach to measure housing affordability. For those unfamiliar with the concept, this is an alternative to the benchmark method of affordability measurement and calculates how much is left over for rents or mortgages *after* relevant expenditure items for different household types have been taken into account. If there is insufficient left for rents and mortgages after meeting this budget standard, a household has an affordability problem.

The study does not aim to replicate the substantial housing affordability research already undertaken by AHURI in the National Research Venture 3 (NRV3) but to build on that research (Yates & Milligan 2007). It is therefore much more limited in focus, and complements the NRV by updating and expanding information on the scale and form of affordability using a residual income approach and by taking affordability research in some new directions (i.e. as a tool to understand housing market dynamics). A substantial Positioning Paper (Stone et al. 2011) already written on the topic did two things.

Using existing literature, Part A provided an overview of the various semantic, substantive and definitional issues around the notion of affordability, leading to an argument in support of the soundness of the residual income approach. This overview is set in the historical contexts of discussions about affordability measures in the Australia, the UK and the USA.

Part B was methodological; it showed for selected household types and income ranges, both for home purchase and rental, how the residual income method can be operationalised. The latter also provided details on the methodology and, although there has been some fine-tuning for this Final Report (discussed where relevant in the text), there is no need to repeat the methodological details here. However, a summary of the method is provided in Section 3.

This Final Report is not meant to be an exhaustive treatment of the residual income method but is designed to illustrate its potential, relative to benchmark methods, for understanding a number of housing affordability related issues. And while the subject matter could potentially be quite technical and detailed, the report aims to minimise the detail and concentrate on understanding and exemplification for an informed lay public.

2 RESEARCH OBJECTIVES

Building on the Positioning Paper, this Final Report has a number of objectives. These are to:

1. Use the residual income method to calculate the distribution of housing affordability in Australia in aggregate and for individual household types by tenure, income, state and other relevant variables in order to get some assessment of the scale and distribution of residual income affordability. This includes comparison with the 30/40 measure of affordability to evaluate the difference.
2. Compare these aggregate Australian findings with those for the USA, as representing a form of benchmark to assess how badly or well Australia performs in terms of affordability.
3. Model the affordability capacity of case study households (single person, couple with two children) across a broad income range to provide a better understanding of how affordability constraints, as indicated by the residual income method, are potentially shaping the operation of housing markets.
4. Illustrate, using the Melbourne and Adelaide *home purchase* markets, what the residual income method suggests about the performance of these housing markets in terms of affordability.
5. Illustrate, using the Melbourne *rental* market, what the residual income method suggests about the performance of this housing market and associated submarkets in terms of affordability.
6. Test the appropriateness of the residual income method for social and affordable housing rent-setting policy and eligibility practices.

3 WHAT IS THE RESIDUAL INCOME METHOD?

Australia has almost become immune to stories about the scale of the housing affordability problem. A considerable amount of research shows that mortgage stress for lower income households has increased over the last decade and that the absolute numbers and percentages involved are high. Using the 30/40 rule, Yates and Gabriel (2006) found 49 per cent of purchasers were in housing stress, while the National Centre for Social and Economic Modelling (NATSEM) suggests around 35 per cent on the same criteria (Tanton et al. 2008). Among renters, the figures are even more startling with Yates and Gabriel (2006) finding that 65 per cent of all renter households were in housing stress and in fact accounted for 51 per cent of all low to moderate income households with an affordability problem.

These studies used a benchmark method of measuring housing affordability to produce these results. This method typically takes 30 per cent of gross and sometime disposable income committed to mortgage or rental payment as the benchmark and applies this either to all households or to the lower 40 per cent. However, it takes no account of the different taxation and expenditure requirements of different household types and thus may overstate or understate the actual amount a household type has available to afford housing. As discussed in the Positioning Paper, it has also been criticised because there is no clear rationale that underpins the chosen benchmark and for its inability to indicate price points to guide industry or government as to what represents affordable housing.

The major alternative method for measuring affordability is the residual income method which, as the name implies, calculates for different households how much is left over for housing after relevant expenditure as measured by some budget standard is taken into account. Table 1 below compares the ratio and residual method at their most simplistic. Both Household A and Household B have incomes of $40 000. If a ratio of 30 per cent is used, Household A has $12 000 to spend on housing, but if a residual method is used and the budget standard for that household type (Household B) is $30 000 they only have $10 000 available. In the latter case, if there is insufficient left for housing after meeting this standard, then the household has an affordability problem. The challenge in creating such a measure is: what is an appropriate budget standard?

Table 1: Simplified comparison of ratio and residual affordability measures

Household	*Affordability measure*	*How much can be spent on housing?*
Household A: gross income $40,000 per annum	Ratio method: 30% of income	$12,000 (30% of $40,000)
Household B: gross income $40,000 per annum	Residual method: How much is available if budget standard is, say, $30,000?	$10,000 ($40,000 less $30,000)

The basis for formulating such a measure for Australia was provided with the development of indicative budget standards by the Budget Standards Unit of the SPRC at the University of New South Wales (Saunders et al. 1998). Drawing theoretically and methodologically upon the extensive history of such work in the UK and USA, but pushing beyond it, they formulated normative budgets as the sum of cost standards (as of February 1997) for nine separate categories of consumption. Two budget standards were established: ‘modest but adequate’ and ‘low cost’. The ‘modest but adequate’ standard was similar to the US Bureau of Labor Statistics (BLS) ‘intermediate’ budget, which had earlier been called ‘modest but adequate’. The

'low cost' standard was similar to the BLS 'lower' budget and the UK Family Budget Unit 'low cost but acceptable' budgets that have been used to operationalise residual income affordability standards for the UK and USA (see Positioning Paper). Throughout this report we refer to the two budget standards as the MCBS and the LCBS.

One of the notable advances of the Australian indicative budgets over the work in the UK and USA is that the MCBS was computed for 26 household types and the LCBS for 20 household types, differing by size, composition and tenure. This level of detail obviated the need for contentious equivalence scales[1] that plagued the UK and US standards and the Henderson poverty standard in Australia. The Australian budget standards are, however, only for areas where costs for household expenditures are normal. They do not factor in the different expenditures in remote and regional areas where transport and other costs related to distance are much higher than in metropolitan areas or nearby regional areas.

This data base provides the foundations for measuring the scale and form of a residual income affordability problem in Australia by stripping out the housing expenditures estimated in the budget standard, such as mortgages and rents, thus making it possible to calculate the residual left for housing. This is not the first time that this has been done In Australia. Seelig (1999) and Burke and Ralston (2003) did some exploratory work using census data and Yates and Gabriel (2006) applied it to the 2002–03 ABS Income and Housing survey. This study also uses the ABS Income and Housing survey data but updates it to 2006–07, with the caution that both the method used and the data attributes were slightly different to those of Yates and Gabriel's analysis and therefore direct comparison with that study cannot be made.

The major difference is that fewer households were included in the current analysis. This study only looks at the main household types of singles, couples, couples with one, two or three children, and sole parents with one or two children, partly on the grounds that other household arrangements have more complicated financial and housing cost relationships creating more difficulties of analysis, but also because a template is to be created by which residual income data can be updated by any agency interested in doing so, and the more household types, the more work is involved in undertaking such a process. But even within these household types there were exclusions. Households with children were excluded if they had a non-dependent offspring as their income is typically not included in the acquisition of a mortgage (and may or may not contribute to rental costs), and therefore to include their income would understate the affordability problem. For the same reason, households with more than one income unit or multi-income units were also excluded, other than those which were an income of the reference person or their spouse/partner. Also excluded were those households renting privately from a parent or other relative.

Other household arrangements were excluded because the data would not be meaningful or relevant, for example those who had disposable incomes of less than zero or if their disposable income minus housing costs left zero income. Households who had mortgages, but other descriptors indicated the borrowing was not for the house being lived in but a second house (e.g. rental unit or holiday home), were also

[1] When there is no expenditure data to use to calculate the different expenditure needs for different household types, each household type in the population is assigned a value in proportion to its needs, that is, an equivalence scale. For example, a childless couple might be deemed to have 0.8 needs of a couple with one child. The factors commonly taken into account to assign these values are the *size of the household* and the *age of its members* (whether they are adults or children). The problem is that there is no internationally accepted set of equivalence scales.

excluded. After these deletions, 72 per cent of all households were still included in the analysis for both years.

Some may question why the data was not pushed back further, for example to the 1997–98 Income and Housing survey, to allow for some historical analysis. The reason is that the survey record files in that year are set up as 'income units' within a household rather than as an actual household as is the case for 2003–04 and 2007–08. Furthermore, the 1997 survey did not have disposable income as a variable. Thus the data for the 1990s is non-comparable to that for 2003–04 and 2007–08.

The other methodological challenge in updating the SPRC budget standards was what index to use in order to bring them up to the relevant year. In the Positioning Paper, the ABS consumer price index was used, but this Final Report uses a composite index made up of 50 per cent of the CPI all groups minus housing and 50 per cent of the per capita household disposable income index, the latter being the same index as used by the Melbourne Institute of Applied Economic and Social Research (MIAESR) (2011) for the construction of its poverty line. The former can be seen as a measure of the cost of the basket of goods that makes up the expenditure standard, and the latter as a measure of changing aspirations and as recognition that there are new items of necessary expenditure now that were not recognised in 1998, for example mobile phones and broadband web connection. A composite was seen to be appropriate as the household disposable index used by the MIAESR would exaggerate the rate of increase as it is solely an income measure and has no relationship with expenditure, while the CPI would be too low as it is only about a fixed bundle of expenditure and does not allow for changes in consumption and the emergence of new expenditure items as incomes rise. Setting an appropriate index will always be a vexed problem in the absence of updated budget standards (see Appendix 2 for more details on indexing).

To exemplify the broad level of expenditures determined by indexing of the budget standard, Table 2 shows the 2010 LCBS and MCBS excluding housing for owner occupiers and renters for each of the household types. For example, a young single person living to a LCBS could get by on spending $275 per week while, say, a couple with three children would require $747. If they were to live to the MCBS, expenditures would be a lot more.

Table 2: LCBS and MCBS for selected household types, 2010

Household type		*LCBS 2010 composite index*	*MCBS 2010 composite index*
Single	Under 65	$275	$392
	65 and over	$272	$377
Couple	Under 65	$416	$603
	65 and over	$400	$548
Couple with children	1	$555	$805
	2	$655	$975
	3	$747	$1,233
Sole parent	1	$348	$565
	2	$467	$771

Source: Original budget standard data; Saunders et al. (1998); indexed by composite of ABS CPI and per capita household disposable income.

These budget standards when applied to measures of income and housing costs provide the potential for determining the scale of affordability problems and the capacity for households to participate in the market, whether for rental or purchase.

4 THE POLICY ENVIRONMENT

The large AHURI affordability study (NRV3) concluded that there were major weaknesses and limitations in current approaches to assisting households to access and maintain affordable housing (Yates & Milligan 2007, p.38). While there have been some policy changes since then, they have not been substantive enough or sustained enough to make any real impact on the affordability problem, and in fact the situation has been worsened by continuing escalation of rents and house prices above the rate of growth of household incomes. Yates and Milligan's conclusion thus still stands.

Table 3 below lists the major forms of housing and housing-related policy that affect housing affordability in Australia and summarises their policy intent, the degree to which they have any performance measurement attached, and their strengths and weaknesses in terms of dealing with affordability issues. The distinction between housing and housing-related policy is an important one as Australia has few housing explicit policies (i.e. designed for designated housing outcomes). Much policy is designed for other outcomes and the effects on the housing market and submarkets in most cases are accidental or collateral. Nevertheless they are still as important as, if not more important than, explicit housing policy.

In terms of this research, which is concerned with affordability as a complex relationship between incomes, expenditures and housing costs, the crucial policies are those related to incomes and housing costs. Often housing affordability studies tend to focus just on housing costs but income support policies are also crucial; house prices and rents may be low by international standards but if incomes are even lower then there is an affordability problem.

Table 3: Housing and housing-related policy instruments, Australia, 2011

	Supply/demand side directed	*Explicit housing outcomes*	*Income support outcome*	*Performance measures*	*Affordability outcome*	*Weaknesses*	*Strengths*
National Affordable Housing Agreement (NAHA)	Supply side	Yes	No	Substantial	Yes, but not to the degree necessary to eliminate hardship.	Funding inadequate for scale of the problem so that supply increments now marginal.	Ensures an element of affordability for recipient households.
National Rental Affordability Scheme (NRAS)	Supply side program to deliver 50,000 units at no more than 80% of market rents	Yes	No	Substantial	Yes, but not to the degree that eliminates hardship.	Not enough of it. Ten year lifespan.	Increases supply of lower end housing.
First Home Owner Grant (FHOG)	Demand	Yes	No	No	Unclear but may actually accentuate problem by increasing prices.	Untargeted. Not sufficiently focused on new supply.	Boosts home purchase market in times of flatness.
Common-wealth income support program	Neither. Provides pension and benefits to low income households.	No	Yes	No	Income support, no affordability objectives.	To a large extent payments premised on outright ownership.	Provides minimum income safety net.
Commonwealth Rent Assistance (CRA)	Demand side income support program to assist eligible households in the private rental sector.	Yes	Yes	No	Alleviates rental pressures but does not produce affordability.	Untargeted to high cost locations. No housing outcomes in terms of supply, quality, sustainability. Not available to public housing	Alleviates rental pressures for low income households.

						tenants.	
Negative gearing	A tax rule that allows investors, not just in residential property, to write off cost of borrowing used to acquire an asset as well as other holding costs.	No	No	No	None	Not targeted to new supply. No requirement for any affordability outcome. Increases demand pressures and prices. Maximum assistance to those who need it least	Maintains neutrality of residential property vis-à-vis other investment categories. When used for new construction increases supply of housing.
Planning		Yes	No	Some	Very limited	Limited targeting for affordable housing. Restrictive provisions can undermine affordability.	Has potential to target to specific locations and quantities.

Part of the problem for Australian housing affordability is that income and support payments (i.e. pensions and benefits) are simply too low for households in receipt of them to afford the level of private housing market rents and prices, and the same could be said of the household rents charged in social housing. Income support payments are welfare payments made by the Commonwealth Government whose principles were broadly set decades ago (beginning in 1909 for the first age pension) to meet (very) basic consumption needs, with the view being that recipients are dependent on those payments as their primary source of income (Mendelsohn 1979). What represented basic consumption needs at the time and the various payment structures that were evolved to address them were different to the present, and the system has away been handicapped by two features: first, the assumption that payments were made out of general tax revenue (i.e. it was not a contributory system as exists in virtually all other developed societies) (Hill 2006, p.47); and second, that recipients of benefits (originally just aged persons) would be outright home owners (Kemeny 1981). The former assumption was premised on a belief that entitlement to social security was rights based and related to need, rather than something to be 'bought' by paying a financial contribution (Kewley 1969). Given the funding of payments out of tax, this has meant that any attempt to substantially boost income support payments founders on the problem that this would require an increase in tax levels to fund it. And with Australia being a conservative market liberal nation broadly resistant to taxation, despite being one of the least taxed countries in the OECD (OECD 2010, Table A), the constraints on any government wishing to increase income support levels are substantial. Historically this has meant that there has been no universal attempt to boost payments overall, but rather reform has come incrementally by extending eligibility to new groups (but not increasing levels of funding) or by creating a highly targeted add-on payment, such as the supplementary payment for age pensioners which morphed into CRA (Herscovitch & Stanton 2008).

The second assumption, home ownership, has always meant a low level of payment compared to equivalent societies. The standard measure of such payments is the net replacement rate, that is, the degree to which a pension or unemployment benefit replaces employed earnings. Using this measure, OECD data reveals that Australia is one of the bottom countries (out of 28) in terms of the level of such payments (Ortiz 2009; OECD 2011). While a general problem for all recipient households, the low level of payments is a major problem for renters that is only partly addressed by CRA. And while pensions and benefits are premised on outright ownership, we have to remember that many of these income support payments are based many decades in the past and have been indexed from such times, and by 2011 there is no guarantee even for outright owners that they will automatically cover all expenditures required to keep to a minimum and certainly a budget standard.

Turning now to housing rather than income, it is notable that the two housing-specific policies that offer definite housing affordability outcomes are the National Affordable Housing Agreement (NAHA) (formerly the Commonwealth-State Housing Agreement (CSHA)) and the NRAS. However, in terms of delivering affordability outcomes, they are both compromised. In the case of NAHA/CSHA, the capacity to address affordability problems for low income earners has been weakened by a funding environment which is financially unsustainable both for housing agencies (Hall & Berry 2007) and for many clients, the latter because of the adoption of a household rent (typically around 25% of income) that has more to do with revenue generation than actually providing a rent that leaves sufficient to live on (i.e. meeting a budget standard) (Burke & Ralston 2003; McNelis 2006). Compounding these problems is a decade and a half of targeting to those with the highest needs (worsening the cost structures of social housing) and creating an affordability gap in eligibility for low wage

households (the working poor) or those without complex needs as very few of these two groups can now access, or be eligible for, social housing.

NRAS was a welcome supply-side initiative of the 2007–10 Labor government designed to provide assistance and funding to increase the supply of affordable rental dwellings for lower to mid-income earners. It does so by providing an incentive of up to $9140 per annum ($6855 from federal and $2285 from state governments, increasing annually by the CPI) for investors willing to provide housing that meets designated standards and with rents charged out at no more than 80 per cent of market rents. There are to be 50 000 NRAS properties funded. While this will make a useful addition to the stock of housing that is more affordable than full market housing, the rents charged do not necessarily mean affordability as defined by the budget standard method. However, this does depend on the household type and where a household falls in relation to income limits which are much higher than for social housing. The real advantage of supply-based schemes, such as NRAS, is that, by increasing the stock of lower end rental housing, they potentially mitigate rental pressures, although 50 000 is not a substantial amount, given the deficiency of low cost private rental stock (Wulff et al. 2011).

CRA, often seen as a housing payment, is in fact an income support payment, starting out as indicated above as a supplementary payment for age pensioners who were private renters. Eligibility has widened over the years but the program is weakened by the levels of payment not being linked to any affordability target. The objective is to reduce the effect of high rents, and it does put many households into a more affordable situation (Melhuish et al. 2004) although again not for the working poor, given that eligibility only extends to those in receipt of income support. Rates of increase are not linked to increases in rents, thus, as rents rise faster than incomes, the ability to provide any semblance of affordability is further weakened and there is no difference in payment rates between different housing markets despite major variations in rents. Like other countries that have a rental allowance system imbedded in an income support system with no explicit housing objectives, there is no evidence that allowances, for example CRA, have stimulated an increase in the supply of rental housing that is affordable for households in receipt of them (Hulse 2002). Instead, there is a decreasing supply of affordable housing (Wulff et al. 2001, 2011). It also has no quality requirements, and this arguably has been a contributing factor to the recent growth of illegal boarding houses in capital cities where landlords extract excessive rents, which include capturing CRA for a minimal standard of dwelling (normally one run-down room), from individuals unable to access other affordable rental accommodation.

Of the other policies, FHOG, taxation and planning appear to be as much part of the affordability problem as a solution in that they all have the potential to increase dwelling prices or rents rather than stabilise them. Thus, with minor exceptions in New South Wales and South Australia, current approaches to planning and managing residential development and redevelopment are not directed to assisting affordable housing provision (Gurran et al. 2008) while tax policies appear to be encouraging demand by investors but with much of that investment going into existing stock rather than new supply, with the gap in new investment most visible at the lower end of the market (Wulff et al. 2011). FHOG also appears to be an important driver of demand rather than of supply outcomes (Wood et al. 2003; Newman 2002).

In short, the current policy environment in relation to lower income renters, aspirant purchasers and struggling first-time buyers is unlikely to provide many with a solution to their affordability problem. In principle, one might think therefore that the scale of

the problem could create a ‘policy window’ where reform of the current policy environment might occur.

However, one suspects that the collapse of home purchase and associated house price falls in other home ownership societies, such as Ireland, Spain, UK and the USA, following the global financial crisis has removed any desire to touch policy that might destabilise or help dwelling prices and rents fall in the interests of greater affordability. For Treasury and Finance departments concerned primarily with economic stability and productivity, affordability is not a problem unless it links through to these two objectives. Thus, while we may document in this study that some 14 per cent of Australian households are under major financial and wellbeing pressures, this is seen by central agencies as a personal trouble for such households, not a problem that affects the stability or productivity of the economy. If this affordability problem was to threaten mortgage default and cause an economic downturn the position would change but, as data provided by Berry et al. (2010) and Hulse et al. (2010) demonstrates, at the time this data was collected (2007–08) this was not the case in the Australian context. Moreover, given that housing wealth is a driver of consumption (Yates & Whelan 2009), central agencies would be reluctant to risk a contraction in consumer spending by policies which would undermine that wealth by reducing dwelling prices. Similarly at the state level, stamp duty is a major source of revenue and thus any slowdown in property turnover or contraction in prices will affect the bottom line of state finances. In this policy environment it is easy to see why dramatic reform by way of improving affordability is not, and in some respects cannot be, a major government objective. Reform must be incremental and managed in such a way as not to threaten market stability. The question in this study is what research findings might it yield which could contribute to incremental reform.

5 RESEARCH FINDINGS

5.1 Measuring the scale of the affordability problem

The first research task for the residual income method using the 2007–08 ABS Income and Housing Survey was to compare the aggregate findings with the 30 per cent benchmark method (both gross and disposable). Table 4 below reveals that there are differences, but not consistent differences. For the key measure in Australia, that is, for the lowest 40 per cent of income earners, and using the LCBS the latter is higher (33.6%) than the 30/40 disposable income method for all households (23.9%) but lower for private renters (47.7% vs 61.7%). If the MCBS is used, this method is higher for all households other than private renters where it is almost the same as the 30/40 (32.8% vs 27.0%). If a gross 30/40 rule is used, the overall (all households and tenures) percentage is slightly higher again than the LCBS (15.8 vs 14.1%). Given these differences, we might conclude that for an overall measure of affordability (i.e. all households and tenures), the 30 per cent rule is fine as it is not that different to the LCBS budget standard. However, for compositional analysis by tenure and income type, the residual method is likely to be more accurate.

One reason why the 30/40 disposable income rule is lower than the LCBS for those households in the lowest 40 per cent of income earners (33.6% vs 23.9.0%) is that under 30/40 principles no social housing tenants have an affordability problem (it is defined away) where the LCBS identifies that most do so. The second is that outright owners, again by definition in the 30/40 rule, cannot have an affordability problem but the LCBS says small numbers have a financial problem, although it is not a housing affordability problem but a liveability problem, that is, their incomes are too low to cover the necessities of life even without a mortgage.

Table 4: Households with an affordability problem: LCBS, MCBS and 30 per cent benchmark method

	Below LCBS	*Below MCBS*	*Paying more than 30% of disposable income on housing*	*Paying more than 30% of gross income on housing*
All households	14.1%	30.7%	21.0%	15.8%
Lowest 40% (of equivalised disposable income)	33.6%	69.6%	23.9%	23.3%
All households, private renters	17.0%	32.8%	31.9%	27.0%
All households, private renters lowest 40%	47.7%	85.2%	61.7%	60.2%

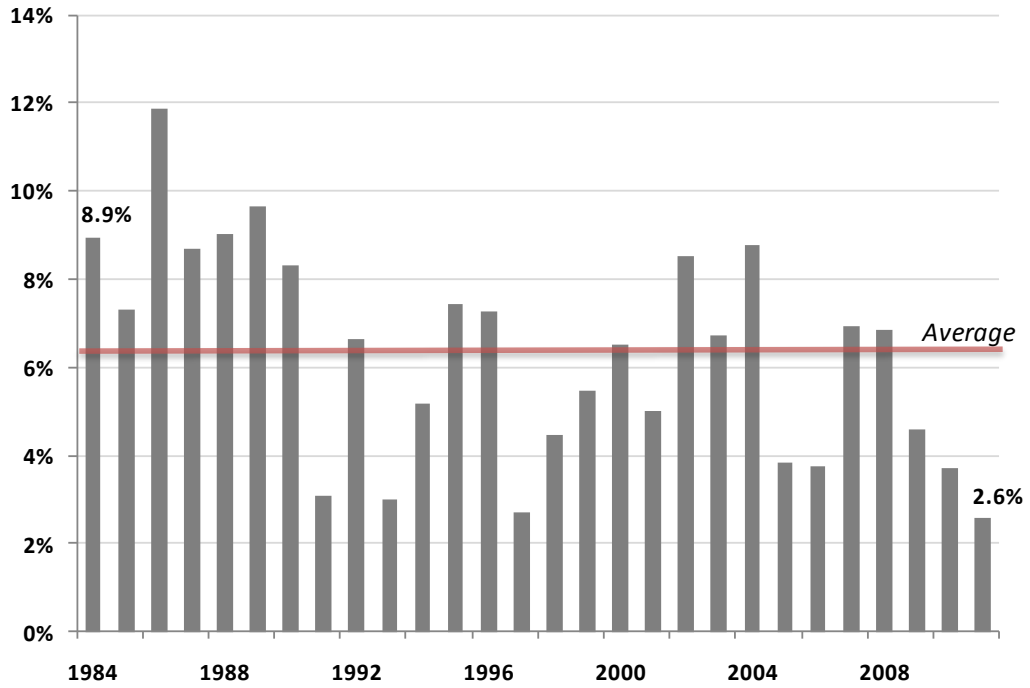
Source: ABS Income and Housing Survey 2007–08 unit record files.

Turning to the tenure-specific data, Table 4 (all households) and Table 5 (lowest 40%) show not surprisingly, and consistent with other findings, that renters have the most severe affordability problem although in absolute numbers they are just slightly beaten by owners. On the LCBS measure for the lowest 40 per cent of household incomes, 55 per cent of renters in 2007–08 had an affordability problem compared to 22 per cent of owners. For the MCBS, it was 88 per cent and 60 per cent respectively. These are very high proportions, with the implication here not just about housing but a broader one about the economy: a very large proportion of Australian households *after meeting housing costs* have little capacity to save or purchase goods and services beyond what is needed for a modest lifestyle. As noted earlier, mortgage

default data (Berry et al. 2009) indicates that such housing stress levels are not resulting in people falling out of housing as in the USA, but it is likely that other consumption is being sacrificed.[2] This raises the possibility that housing outlays, whether mortgages or rents, are another factor in explaining subdued consumption expenditure in other sectors. Do housing costs crowd out other expenditures? And, of course, as the affordability problem deepens, there will be even less capacity to consume other items.

While there is some evidence that housing wealth can increase consumption (Yates & Whelan 2009), the counter-argument could be put that some of the effect is negated by the costs associated with generating that wealth, that is, the foregone consumption required of large mortgages and rents. There is not the evidence here to rigorously support the argument but it is worthy of more attention, given the scale of the affordability problem and that all consumption requires trade-offs between different goods and services. Perhaps suggestive of the need for further work here is Figure 2 below. This figure shows the long-term trend in retail spending and highlights that the current flatness is not a phenomenon of the last few years, as much industry and media commentary would suggest, but is part of a sustained flatness relative to the high rates of spending of the 1980s. This is despite the latter not having the same availability of easy finance as more recent years. However, what the era of more subdued retail spending coincides with is the major decline in housing affordability since the 1990s. It is a relationship needing more research.

Figure 2: Retail turnover: percentage change on previous financial year, 1984–2011



Source. ABS Retail Turnover by Industry Group, Tables 8501.0, Retail Trade, Australia

[2] It should be noted that the data collection was in 2007–08. Given that rents and particularly house prices have increased since then, with many buyers purchasing in 2009 when interest rates were 3 per cent, there are now likely to be greater affordability problems and potential for default. No doubt some buyers who took on mortgages at 3 per cent had not planned on them (or budgeted for) being 7.5 per cent in 2011.

It is low income public renters who have the most severe affordability problem (69% LCBS 2007–08), which contradicts the false assumption that the 25 per cent household rent formula shelters such tenants from an affordability problem (see Tables 5 and 6). The 30/40 rule by definition means that no public housing tenants have an affordability problem but it is tautological, of course, to call such a benchmark the affordable rent (as noted earlier, such ratios have no rationale) then set the rent at this level and subsequently claim all households who pay such a rent are in a position of housing affordability.

What this public housing affordability data reveals is the severe stress on both tenants *and* housing organisations of operating in a funding context (the NAHA) that can provide neither affordability to tenants nor financial sustainability to organisations. Rents have to be pushed to these unaffordable levels to create some semblance of financial sustainability for housing organisations but, in doing so, enormous pressures are placed on the tenants. However, this affordability outcome does not mean that the impact bears equally on all tenants, as a flat rent-setting formula does not recognise the affordability capacity of different household types. This point is taken up in more detail in Section 8.

Table 5: Number and percentage of households with residual income affordability problem, all households

Tenure	*Below LCBS*		*Below MCBS*		*Total households*
	Households	*%*	*Households*	*%*	
Owner without a mortgage	174,210	8.3%	641,141	30.7%	2,087,036
Owner with other mortgage	28,522	6.7%	66,704	15.7%	424,164
Owner with a mortgage	212,692	12.2%	404,019	23.2%	1,740,077
OWNER	415,424	9.8%	1,111,864	26.2%	4,251,277
Private renter	216,799	17.0%	417,524	32.8%	1,273,462
Public renter	186,337	65.4%	251,982	88.5%	284,735
RENTER	403,135	25.9%	669,506	43.0%	1,558,197
Total	818,559	14.1%	1,781,370	30.7%	5,809,474

Table 6: Number and percentage of households with residual income affordability problem, lowest 40 per cent of equivalised income

Tenure	*Below LCBS*		*Below MCBS*		*Total households*
	Households	*%*	*Households*	*%*	
Owner without a mortgage	174,210	14.7%	641,141	54.2%	1,183,967
Owner with other mortgage	26,671	25.7%	60,047	57.9%	103,631
Owner with a mortgage	178,280	56.2%	282,278	88.9%	317,477
OWNER	379,161	23.6%	983,466	61.3%	1,605,075
Private renter	214,356	47.7%	382,713	85.2%	448,987
Public renter	186,337	69.1%	251,982	93.4%	269,727
RENTER	400,693	55.8%	634,695	88.3%	718,714
Total	779,853	33.6%	1,618,161	69.6%	2,323,789

Source: ABS Income and Housing Survey 2007–08 unit record files

Another cut on the affordability problem is that between first and subsequent home purchasers who purchased in the last three years. One could hypothesise that first-time purchasers would have the greater affordability problems as with no equity they

would have to borrow more, as well as in all likelihood being younger and having not yet reached their income earning peak. Table 7 below shows the residual income affordability outcomes for first and second and subsequent buyers by both the MCBS and LCBS, for all households and for the lowest 40 per cent of income earners.

Table 7: Number and percentage of households with residual income affordability problem, lowest 40 per cent of equivalised income by first and subsequent home purchaser, 2007–08

	All households				*Lowest 40%*			
	LCBS		*MCBS*		*LCBS*		*MCBS*	
	House-holds	*%*	*House-holds*	*%*	*House-holds*	*%*	*House-holds*	*%*
First-time buyer	28,524	11.3%	54,392	21.5%	20,594	62.6%	32,211	97.9%
Change-over buyer	44,045	11.6%	86,443	22.9%	37,977	60.8%	59,177	94.8%
Total	72,569	11.5%	140,834	22.3%	58,571	61.5%	91,388	95.9%

Source: ABS Income and Housing Survey 2007–08 unit record files

Perhaps surprisingly, there is remarkable similarity: there is not a lot of evidence that first-time purchasers, whether all households or lower income households, have any more residual income problems than second and subsequent purchasers. What this suggests is that many households (the bulk in the case of lower income households) extend their purchasing capacity close to or beyond their residual income when buying. As pointed out elsewhere, the implication of this is not one of dropping out of ownership (Australian households have a remarkable ability to stay in) but for the purchase of other goods and services. However, the real attraction of the budget standard measure lies less in the aggregated data than in its ability to provide more accurate affordability measures for different household types. As Table 8 (all households) and Table 9 (lowest 40%) show, singles under 65 and sole parents with two children have the highest rates of an affordability problem. For those below the 40 per cent quintile, 42 per cent of singles have an LCBS affordability problem, rising to 62 per cent for those under 65. For sole parents, the figure is 39 per cent, but higher (42%) for those with more than one child. If we just look at private rental the problem is worse.

Table 8: Number and percentage of households with residual income affordability problem, by household type, all households

Household type	*Below LCBS*		*Below MCBS*		*Total*
	Count	*Row%*	*Count*	*Row%*	*Count*
Single (under 65)	229,442	21.1%	322,245	29.6%	1,087,093
Single (65 and over)	160,979	24.1%	420,449	62.9%	668,343
SINGLE	**390,421**	**22.2%**	**742,694**	**42.3%**	**1,755,436**
Sole parent 1 child	48,987	20.9%	106,244	45.3%	234,506
Sole parent 2 children	41,450	27.9%	83,930	56.4%	148,827
SOLE PARENT	**90,437**	**23.6%**	**190,174**	**49.6%**	**383,333**
Couple 1 child	49,821	9.2%	107,540	20.0%	538,639
Couple 2 children	89,498	11.2%	205,690	25.8%	797,247
Couple 3 children	44,252	14.2%	127,369	40.8%	311,887
COUPLE WITH CHILDREN	**183,570**	**11.1%**	**440,599**	**26.7%**	**1,647,773**
Couple (under 65)	76,471	5.7%	179,622	13.4%	1,345,151
Couple (65 and over)	45,656	6.7%	206,506	30.5%	677,781
COUPLE ONLY	**122,128**	**6.0%**	**386,128**	**19.1%**	**2,022,931**
Total	**786,555**	**13.5%**	**1,759,595**	**30.3%**	**5,809,474**

Source: ABS Income and Housing Survey 2007–08 unit record files

Table 9: Number and percentage of households with residual income affordability problem, by household type, lowest 40 per cent based on equivalised income

Household type	*Below LCBS*		*Below MCBS*		*Total*
	Count	*Row%*	*Count*	*Row%*	*Count*
Single (under 65)	214,927	62.4%	276,667	80.3%	344,463
Single (65 and over)	160,979	29.6%	418,625	76.9%	544,505
SINGLE	**375,906**	**42.3%**	**695,292**	**78.2%**	**888,968**
Sole parent 1 child	47,487	37.6%	95,339	75.5%	126,251
Sole parent 2 children	40,354	41.9%	77,484	80.5%	96,247
SOLE PARENT	**87,841**	**39.5%**	**172,823**	**77.7%**	**222,498**
Couple 1 child	47,441	42.2%	85,951	76.4%	112,481
Couple 2 children	78,104	34.8%	170,390	76.0%	224,341
Couple 3 children	43,208	34.2%	106,256	84.2%	126,255
COUPLE WITH CHILDREN	**168,752**	**36.4%**	**362,597**	**78.3%**	**463,077**
Couple (under 65)	71,545	28.2%	160,698	63.4%	253,324
Couple (65 and over)	45,656	9.2%	205,744	41.5%	495,922
COUPLE ONLY	**117,201**	**15.6%**	**366,442**	**48.9%**	**749,246**
Total	**749,700**	**32.3%**	**1,597,155**	**68.7%**	**2,323,789**

Source: ABS Income and Housing Survey 2007–08 unit record files

In recognition of the private rental sector being the problematic one in terms of affordability, Table 10 below provides greater detail on this sector and looks at rental households in the lowest 40 per cent of income quintiles for each household type. Using the LCBS it reveals high proportions of affordability problems across all

household types, but with older households the stand-out group. Among aged singles in private rental, 84.3 per cent have an LCBS affordability problem, and for couples it is 62.2 per cent. In absolute numbers these are not huge, and for couples represent less than 10,000 households. This group could be the focus of some form of targeted assistance, for example rent assistance plus (see Section 7). Strangely, in private rental the scale of the affordability problem decreases with additional children, suggesting that the problem related to more children as revealed in Tables 8 and 9 is more linked to home purchase.

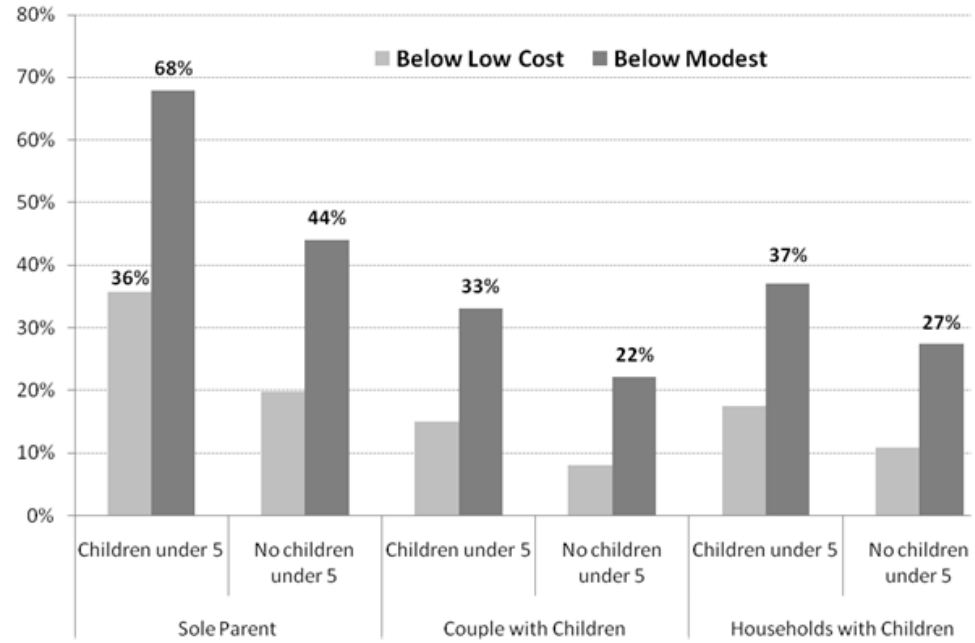
Table 10: Number and percentage of lowest 40 per cent households in private rental with residual income affordability problem, by household type

Household type	*Below LCBS*		*Below MCBS*		*Total households*
	Households	*%*	*Households*	*%*	
Single (under 65)	67,817	60.9%	89,055	79.9%	111,406
Single (65 and over)	40,705	84.3%	45,719	94.7%	48,269
SINGLE	108,522	68.0%	134,774	84.4%	159,675
Sole parent 1 child	21,137	38.1%	45,783	82.6%	55,458
Sole parent 2 children	17,523	38.5%	39,772	87.4%	45,513
SOLE PARENT	38,660	38.3%	85,555	84.7%	100,971
Couple 1 child	20,062	48.3%	35,473	85.5%	41,507
Couple 2 children	18,475	27.8%	56,411	84.8%	66,527
Couple 3 children	9,163	29.6%	27,759	89.7%	30,950
COUPLE WITH CHILDREN	47,699	34.3%	119,643	86.1%	138,984
Couple (under 65)	9,813	29.0%	28,440	84.1%	33,822
Couple (65 and over)	9,662	62.2%	14,302	92.1%	15,534
COUPLE ONLY	19,475	39.5%	42,741	86.6%	49,357
Total	214,356	47.7%	382,713	85.2%	448,987

Source: ABS Income and Housing Survey 2007–08 unit record files (NB: incomes are based on equivalised income)

The comments about the poorer affordability position of sole parents with two children raise an interesting issue for if we drill down even further into the data and look at households with children, we find that having a child under five years of age is a major predictor of an affordability problem (Figure 3). Whether for sole parents or couples, if the children were under five, the housing affordability problems increase sharply. Thus, for sole parents and using the LCBS, 44 per cent with no children under five had an affordability problem, but this increased to 68 per cent for those with a child under five. The equivalent figures for a couple with children were 22 per cent and 33 per cent. This is probably due to a combination of the additional costs of the second children being less (they can use the first child's belongings) and, more importantly, a parent may have to drop out of the workforce for some time to undertake child-rearing functions. If they had taken on a mortgage on the assumption of two incomes, this could explain what appears as a higher incidence of affordability problems among young families in ownership than in rental.

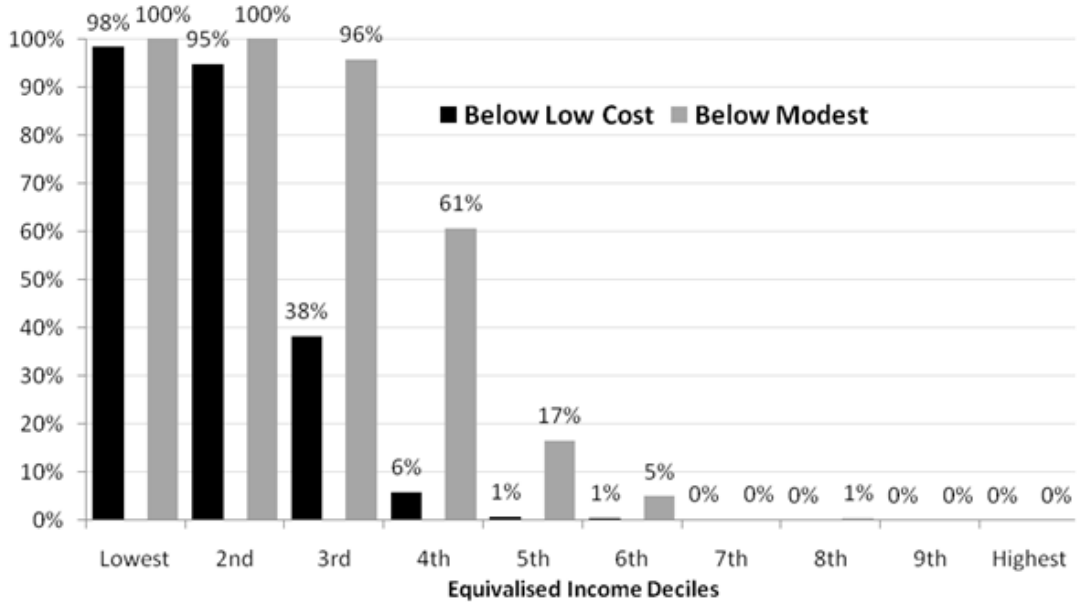
Figure 3: Percentage of households with children with residual income affordability problem



Source: ABS Income and Housing Survey 2007–08 unit record files

Not surprisingly, as Figure 4 below shows, the affordability problem is most intense in the bottom two income deciles when using the LCBS, but is spread more broadly if we use the MCBS. Most previous studies on affordability In Australia have aggregated all households below the 40 per cent rule, but this data draws attention to the need to focus on the bottom two income deciles as they account for 75 per cent of the most severe affordability cases. This suggests that the housing affordability problem is as much an income support problem as a housing cost one as 73 per cent of households below the LCBS (mostly in these two bottom deciles) had as their predominant source of income government pensions or benefits. The bulk of these were in the private rental sector which highlights the point that historically pensions and benefits were premised on the assumption of outright ownership. Because of this assumption, private renters dependent on pensions and benefits are always going to be in trouble. This of course is one of the reasons why lower income singles (many dependent on such income support) figure so prominently among the households with the most severe affordability problems.

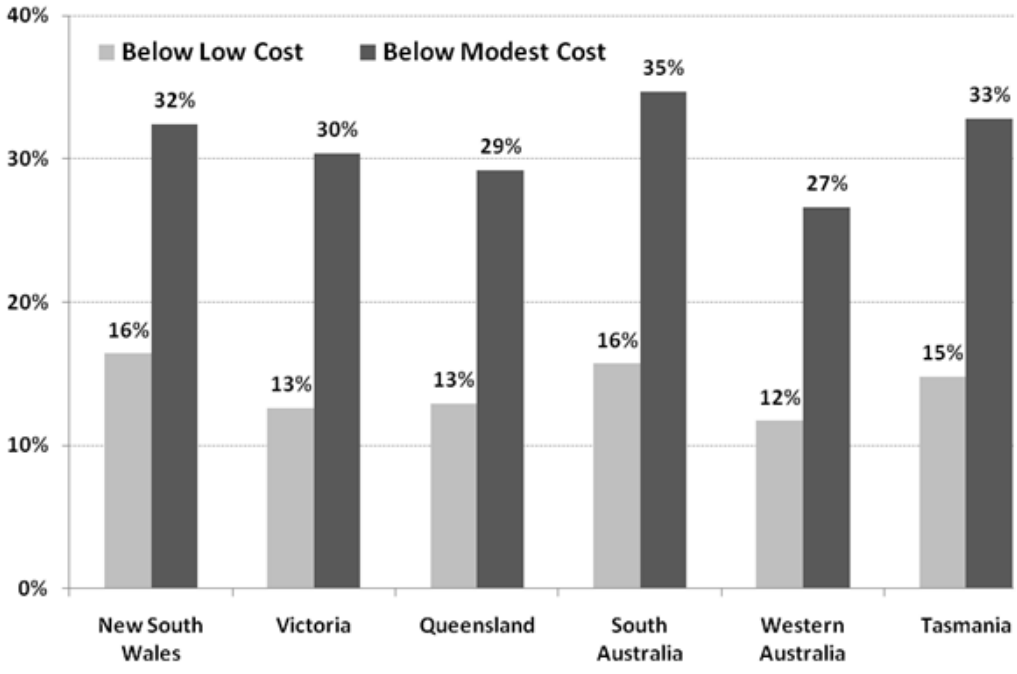
Figure 4: Housing affordability, LCBS and MCBS, by income deciles, 2007–08



Source: ABS Income and Housing Survey 2007–08 unit record files

Figure 5 below summarises the state perspectives in terms of LCBS and MCBS affordability in 2007–08. Affordability (i.e. the LCBS) was worst in New South Wales and South Australia and best in Western Australia. For the MCBS, South Australia, Tasmania and New South Wales were the worst. The high affordability proportions in South Australia and to a lesser extent Tasmania, given their lower house prices and rentals, reaffirms that much of the affordability problem at the low end is about incomes as much as dwelling costs.

Figure 5: Percentage of households with residual income affordability problem, by state, 2007–08



Source: ABS Income and Housing Survey 2007–08 unit record files

Whether in aggregate or broken down into its components, Australia has a serious affordability problem. However, long and continuing exposure to such problems appears to have made Australia somewhat immune to figures of these proportions. Perhaps it is the case that while the affordability problem remains a personal trouble for the households experiencing it rather than a wider problem for society, there will be little policy action. Given that as researchers we are yet to fully demonstrate, most notably to central agencies of government, how the affordability issue is a broader social and economic problem, there is likely to be continuing lack of policy initiative around the issue.

The key findings for this section are shown in diagrammatic summary in Figure 6 below. This shows the LCBS outcome applied to the lowest 40 per cent of households. Figure 7 shows the outcome for all households (i.e. all incomes), but still using the LCBS.

Figure 6: LCBS for households in lowest 40 per cent of incomes

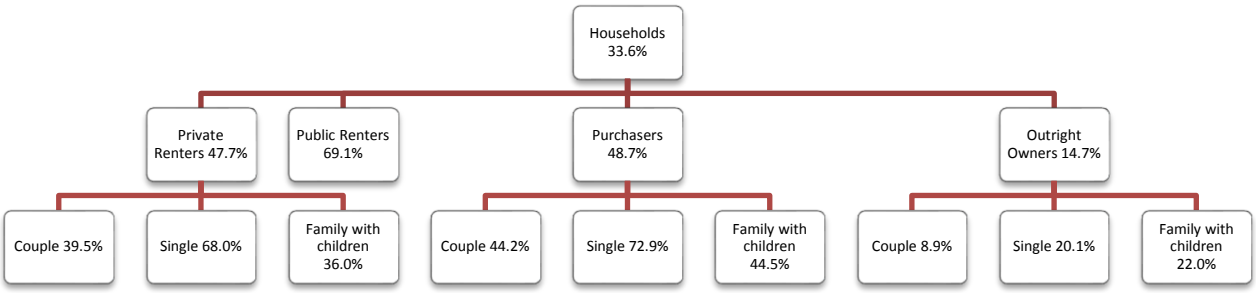
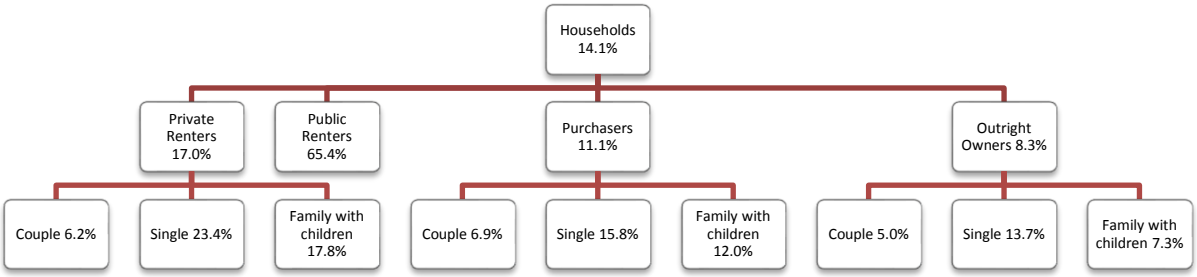


Figure 7: LCBS for all households



Source: ABS Income and Housing Survey 2007–08 unit record files

5.2 The Australian and US comparison

Much of the formative work on the residual income model internationally has been done by Michael Stone in the USA (Stone 1993, 2006). It was therefore thought opportune to use his knowledge of the method and of US data to provide some comparison with that of Australia.

In various typologies of countries, the USA and Australia tend to be aggregated together as market liberal societies with an emphasis upon smaller government, individualism and minimum welfare safety nets (Esping-Andersen 1990). How then do we compare with another country with broadly similar social and economic attributes although still with many differences, for example the larger population and huge regional income differences of the USA?

The approach taken here is to control for some of these differences, not by comparing the USA with Australia, but by comparing Massachusetts with Victoria. Massachusetts has a population of 6.4 million compared to Victoria's 5.5 million and each state is dominated by a major metropolis, Boston (4.4 million) and Melbourne (4.1 million). Both are characterised by affluent mixed economies experiencing strong growth pressures, although Massachusetts less so since the global financial crisis.

As mentioned in Section 4, incomes as much as dwelling prices and rents drive the affordability equation, so some brief commentary is required on both. One of the major differences between the USA and Australia as market liberal societies is Australia's tradition of protecting wage levels as a means of achieving a minimum living standard (Castles 1985). This century-old tradition (the first minimum wage was in 1907) stands in contrast to many other countries where welfare spending is the path to ensure a minimum standard and where there have been no or limited wage standards. The USA is one of those countries where income support through the wage system has been limited. In Australia the minimum wage in 2010 was just on A$15 per hour, compared to A$8 in Massachusetts, which is one of the most generous US states in terms of wage support (US Department of Labor 2010, Historical Table). Thus, for those in the lowest paid employment, a Victorian worker will have considerably more income than their Massachusetts equivalent.

If out of the workforce, the comparisons are much more complicated as they depend on whether we are talking about age pensions, disability pensions or unemployment benefits, and, in the case of the age pension, on the degree to which this is supplemented by any private superannuation. The situation with the US age pension is even more complicated as, unlike Australia's flat rate, it varies depending upon previous workforce income and age at retirement. However, for a single person on a low income in the years prior to retirement (e.g. A$40 000), the US weekly pension in 2010 would have been of the order of A$270 compared to A$330 for an Australian Centrelink pension, a slightly meaner level of support.

Unemployment benefits are also more complicated in the USA, with no national unemployment program as it is left up to the individual states. Moreover, again it is not a flat rate but related to previous income levels. Massachusetts again is one of the more generous states in that claimants receive a weekly benefit of approximately 50 per cent of their average weekly wage, up to the maximum set by law which in 2010 was roughly A$600 a week with additional amounts, for example A$25 for each child. However, the payment is only for a maximum of 30 weeks, unlike the time-unlimited Australian payments (Executive Office of Labor and Workforce Development 2010; Centrelink 2010). For somebody previously on a full-time minimum wage of around A$320 a week, however, the payment will only be A$160 a week. These compare with an Australian single person Newstart allowance of $230 in 2010 (Centrelink 2010). In short, for those made unemployed from low income employment, the Massachusetts model is harsher than in Australia, particularly when we take into account that it is time limited.

The other side of the affordability equation is rents and dwelling prices. Can US incomes buy more because of cheaper rents and dwelling prices or vice versa? Table 11 below shows the broad attributes of the two states/cities in terms of rental and house price values. On the surface there is a certain similarity. In 2006, the year before the US housing market collapse, median rents for all property and sale prices were almost the same in Boston as in Melbourne. Since then there have been divergent paths, with Melbourne's house prices and rents increasing and Boston's falling for prices and increasing for rents. However, medians always disguise distributions, and one of the distinctive features of the US housing market is its much

greater spread (in turn reflecting wider income inequalities) and, while data relating to this is not available for Boston compared to Melbourne, it is available at a state level. Where in Massachusetts 22 per cent of all dwellings sold for less than $200 000 (2009), in Victoria it was only 8 per cent, although the relative proportions (22% vs 18%) were closer in 2006 prior to the global financial crisis. One big difference which the aggregate data does not show is prices for newly constructed dwellings. It would be difficult anywhere in Victoria to find newly constructed property for less than $200 000, but in Massachusetts in 2009 24 per cent of all dwellings constructed sold for less than this amount (Bluestone et al. 2010, p.36).

Table 11: House prices and rents, Massachusetts and Victoria, 2006 and 2010

Year	*All property median rental*		*Median dwelling price*		*Percentage of all dwellings for sale below $200,000*	
	Boston	*Melbourne*	*Boston*	*Melbourne*	*Massachusetts*	*Victoria*
2006	$246	$240	$370,400	$330,000	22%	18%
2010	$390	$350	$275,000	$460,000	24% (2009)	8%

Sources: Massachusetts: Center for Urban and Regional Policy (various years) The *Greater Boston Housing Report Card*; Victoria: Office of Housing Rental Report and Valuer General's Property Sales statistics unit record analysis (all prices in Australian dollars at an exchange rate of 1:1)

With this context, what can we observe from the comparisons? Table 12 below, using the same residual income approach to that of Australia,[3] shows the number and percentage of Massachusetts households (for the same set of households) with an affordability problem as compared with Victoria. Both owners and private renters are much worse off in Massachusetts. For Massachusetts renters, some 40.2 per cent have an affordability problem using the LCBS and 56 per cent if using the MCBS. The equivalent figures for Victoria are 24.1 per cent and 42.9 per cent. Given rent levels which are not too dissimilar to Victoria's, the difference is more likely due to the lower incomes that many Massachusetts renters are on, which is both a function of the labour market and benefits system but also of the higher proportion of sole parent households, 20 per cent in Massachusetts compared to 15 per cent in Victoria (Center for Urban and Regional Policy 2010, ABS 2007). This is not to say that the rents are affordable. Even if incomes at the low end were increased somewhat, the rents in both states/cities would be still too high for many lower income earners, illustrating that the private market without interventions cannot (and never has been able to) provide decent and affordable housing for all citizens.

Among home owners the differences are much less, with Victorians having a slightly lower rate of affordability problems if using the LCBS (9.2% vs 13.9%). If the MCBS is used, the situation is reversed, with 23.9 per cent of Massachusetts owners having an affordability problem compared to 26.7 per cent in Victoria. The LCBS difference appears to be a contradiction in that Victorian house prices are higher than those of Massachusetts. However, the data conflates owners and purchasers (the data cannot be separated out for Massachusetts) and it is likely that Victoria has a higher rate of outright ownership, particularly for lower income earners, given that many entrants into the market in the USA in the second half of the 1990s and 2000s were first-time buyers (Belsky & Duda 2002; Gramlich 2007). By contrast, in Australia this group

[3] The actual budget standards will of course differ because of different judgments as to what represents essential expenditure. The US budget standard used to create the Massachusetts residual income is that of the Economic Policy Institute (2005) indexed to 2007–08 by the US CPI. In Australia, the SPRC budget standard is a composite of the Disposable Household Income Index and the CPI all items less housing.

contracted over the same period (Hulse et al. 2010; Flood & Baker 2009). Indicative of this point is that for Massachusetts in 2006, 47 per cent of all purchasers were first-time buyers (Bluestone et al. 2008, p.51, Table 4.5), while in Victoria they only accounted for 19 per cent (ABS 2010b, Table 10b). And, as the global financial crisis brought to light, many of those attracted into purchase in the decade to 2005 had incomes too low or mortgages too high to sustain ownership (Gramlich 2007). Many have been foreclosed, but many others are still hanging in there representing a continued foreclosure threat in the US and Massachusetts markets.

One can hypothesise that the much higher dwelling prices in Australia created an affordability barrier for many households, particularly families (see Section 5.3.2), and even if Australian banks had ventured into the sub-prime loan territory there still may have not been the take-up. In the US market, even a high cost one by US standards, many properties seem so cheap (under $200 000 (in 2010 prices) is not unusual) that ownership seemed the logical direction to take for those desiring doing so. By contrast, in Victoria, the entry price to first ownership was much higher because of higher dwelling prices and interest rates, and for many households it was just a bridge too far. This meant the households that did take up borrowing in the 2000s were higher income households (Debelle 2008, p.6). This analysis suggests that, perversely, Australia's affordability problem provided a cushion against the financial crisis by keeping households that may have been foreclosed out of the market.

As a general point, the data highlights that the real problem sector in both societies is the rental sector, but as both are dominated by the ideology of home ownership they seem unable or unwilling to tackle the problems.

Table 12: Number and percentage of households with residual income affordability problem, by household type, Massachusetts and Victoria, 2007–08

Household type	*Renter*				*Owner*			
	LCBS		*MCBS*		*LCBS*		*MCBS*	
	Mass.	*Vic.*	*Mass.*	*Vic.*	*Mass.*	*Vic.*	*Mass.*	*Vic.*
Single (under 65)	39.8%	31.3%	52.3%	38.0%	18.3%	11.9%	26.6%	21.7%
Single (65 and over)	47.9%	65.0%	64.6%	83.7%	29.0%	11.6%	40.6%	53.3%
SINGLE	42.3%	37.5%	56.1%	46.5%	22.6%	11.7%	32.3%	37.2%
Sole parent 1 child	42.4%	28.4%	57.1%	52.3%	13.0%	13.8%	23.4%	37.9%
Sole parent 2 children	53.4%	16.7%	69.8%	62.6%	14.7%	12.8%	29.0%	26.5%
SOLE PARENT	46.6%	22.9%	62.0%	57.2%	13.6%	13.4%	25.5%	34.2%
Couple 1 child	36.3%	15.4%	47.0%	46.9%	9.9%	9.0%	21.0%	17.9%
Couple 2 children	39.8%	24.4%	52.4%	66.8%	10.9%	10.6%	20.8%	26.3%
Couple 3 children	48.7%	17.6%	58.5%	74.4%	13.7%	19.3%	32.7%	43.9%
COUPLE WITH CHILDREN	40.5%	18.7%	51.5%	56.5%	12.0%	12.1%	24.2%	27.6%
Couple (under 65)	17.9%	6.1%	33.0%	11.7%	4.0%	4.2%	6.4%	12.8%
Couple (65 and over)	38.4%	40.8%	52.4%	72.9%	12.0%	5.2%	20.8%	26.2%
COUPLE ONLY	24.6%	9.0%	39.4%	16.9%	9.1%	4.6%	15.6%	18.2%
Total	40.2%	24.1%	54.3%	42.9%	13.9%	9.2%	23.9%	26.7%

Sources: Massachusetts: American Housing Survey 2007 (US Bureau of the Census 2008); Victoria: ABS Income and Housing Survey 2007–08 unit record files

Looking at the comparisons in terms of household composition, there are some important differences. Give that renters are the problem tenure, the analysis concentrated on them. In Massachusetts, it is sole parents who have the highest degree of rental affordability hardship, but in the USA they do so to a not much greater degree than couples with children, illustrating that the additional expenditures required of children greatly impact on the ability to achieve affordability. And, as with Australia, the problem worsens with each additional child. By contrast, in Australia it is singles who have the greatest affordability problem, although predominantly those over 65. There are probably two explanations for the much greater housing hardship for Massachusetts family renters than Victorians. The first is that larger properties (three and four-bedrooms) in Massachusetts are much more expensive than equivalent properties in Australia, and second, support for children in Australia through family allowance payments (A and B) is much more generous than the US equivalents. For example, where the family allowance payment (Tax Benefit A) can go up to A$100 per week per child depending on age, for Massachusetts the equivalent is only A$25 per child. There is indirect family support in the USA delivered via tax breaks and credits but these are strongly linked to employment, which means that without an employed income, or just a minimum income, little family support is forthcoming (OECD 2011). On the other hand, the greater affordability problems of aged persons in Australia (notably those who are 100 per cent pension dependent) are likely to reflect the flat pension structure, compared to one in the USA that varies in relation to work history and age (more akin to Australian superannuation).

What this embryonic comparative analysis indicates is that housing affordability issues are not just a function of housing programs but of the nature and degree of payment of income support. And what it indicates in terms of Australia is that the area for income support reform is aged singles, as both by comparison with the USA and by comparison with other household types in Australia, this is the stand-out household in terms of residual income affordability. A more minor point is that the data illustrates the importance of more complex and nuanced analysis in comparative work. The much publicised Demographia comparisons of affordability in Australia vis-à-vis other English language countries would have Australia as the affordability basket case, but the preceding analysis suggests a different story. While affordability may not be good in Australia, as represented here by Melbourne, it is much worse in Boston and one suspects in other large metropolitan areas of the USA. The difference highlights the problem of using very raw one-dimensional measures of affordability, that is ratio methods that take no account of the income source and distribution of a society, the make-up of that society in terms of household types and the tenure composition; Demographia is a home purchase affordability measure and takes no account of rental affordability even though in its host country, the USA, many of the largest cities (e.g. Los Angeles, New York, Washington and Boston) have more renters than home owners.

6 RESIDUAL INCOME MODELLING: AFFORDABILITY AND HOUSING MARKET DYNAMICS

To date, this study has complemented previous affordability research by updating or expanding the detail on Australia or by making comparisons with the USA as a form of benchmark. In this section the study changes direction and moves us into new territory in the application of the residual income method, modelling the affordability capacity of different household types in different housing markets. We want to know, for example, what a couple with two children on a $60 000 income can afford by way of rental or home purchase after deducting the relevant budget standard, or how does increasing the income from $40 000 to $60 000 for, say, a single person improve their rental or purchasing capacity. This can be achieved by working the residual income method into a model that can:

- Provide for a broad range of incomes and household types a measure of capacity to purchase or rent.
- Indicate what could be price points for affordable housing development for a wide range of incomes and household types.
- Indicate affordability capacity in different housing submarkets.

This Final Report uses that methodology to exemplify each of these objectives, but only for a few household types and two housing markets. However, it is replicable more generally, and a by-product will be the provision of a template to model outcomes for other household types and markets. In the course of modelling these examples we offer some insights into explaining what the benchmark method suggests is inexplicable, that is, the sustained increase in house prices despite evidence that these prices are not affordable. It also offers a way to understand some of the decision-making by residential developers in Melbourne and, given that Melbourne is not particularly unique in Australia, in other Australian cities. Before doing so, a brief review of the methodology and methodological hurdles is offered.

There are three major practical issues that have to be dealt with in translating the residual income logic into an operational affordability standard. These are, first, how to specify the monetary level of a minimum standard of adequacy for non-shelter items other than taxes; second, how to scale this standard for various types of households; and third, how to deal with personal taxes and other government benefits that households on different income levels may receive.

As previously mentioned, the availability of the two SPRC budget standards has been essential for this project, making it possible to devise and apply operational residual income affordability scales based on both the very conservative standard of living defined by the low cost budget and the modest but adequate standard defined by the modest cost budget for a wide range of household types. For any nominated household type, this essentially involves deducting the appropriate budget standard from the household income, leaving a residual that is available to cover housing costs.

However, getting a measure of the relevant income is easier said than done as there is the matter of taxes and income sources; that is, on top of any labour market income, or if there is no such income, there are a whole range of pensions and benefits such as family allowances that have to be factored in. In the residual income method, it is a disposable income that faces the tension between housing and non-housing necessities. This means that, to the extent that datasets and policy analysis are based upon gross household incomes, prototypical taxes and income-based

government benefits need to be computed as a function of income for every household type in order to determine the relevant disposable incomes and thus to fully operationalise a residual income standard.

Thus, what the model does is calculate for any income level the amount of tax paid and any entitlements by way of benefits. The relevant tax (if any) is deducted from the income amount while benefits (if any) are added. This creates the disposable income from which either the LCBS or MCBS is deducted to produce the residual income available for home purchase or rent. Appendix 1 outlines in detail the features of the model and how taxes and benefits are incorporated into it. The Positioning Paper provides even further detail, in particular, how it is worked through for two household types, a single person and a couple with two children, which are used as case studies in this report. This modelling is complex and certain assumptions have to be made (again summarised in the Positioning Paper) but, for example, even for a couple with two children the residual income will be different depending on how an income is earned between the two adults; a household on $100 000 but with one adult head as the sole income earner will confront a different tax and allowance regime than one with both adult heads working. We adopt the latter. What details as to household types, benefits and taxes are plugged into the model can be modified as the policy environment changes, for example restructuring of benefits or new tax rates, and the AHURI template in principle allows for such changes.

The home purchase and rental markets require separate models because the housing cost and income measures and assumptions that sit behind these tenures, and which are required to build the model, are different. For example, a renter's income may be boosted by CRA, compared to a purchaser who gets no equivalent subsidy, while there are ongoing costs for owners (rates, repairs etc.) that renters do not have. So, in looking at the applications of the model, let's start with home purchase and the first of the model's applications.

6.1 The home purchase model

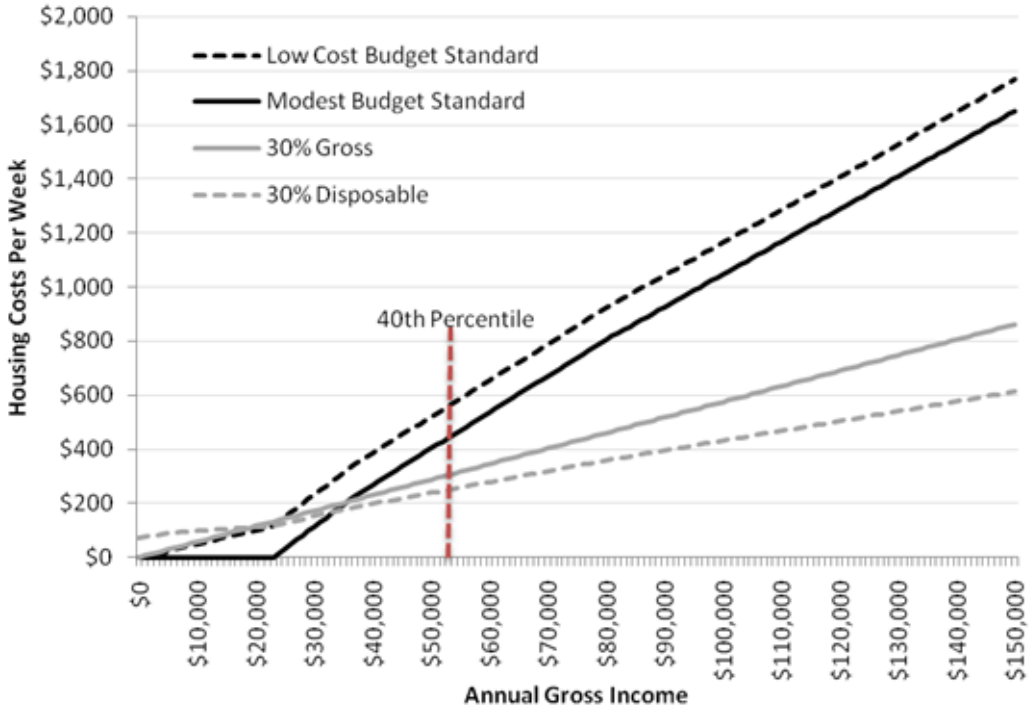
6.1.1 Maximum affordable mortgage repayments

One of the paradoxes of recent housing affordability data is that posed by the question*: If the home purchase affordability problem is so bad, how can low-moderate income households still afford to buy?* The annual international affordability report by Demographia which compares median dwelling prices to household incomes for 1100 or so cities inevitably has Australia as the least affordable country among those surveyed, and in 2010 it accounted for five of the top ten least affordable cities, with Hong Kong pipping Sydney and Melbourne for the number one position. Such data, along with the everyday observations of ordinary Australians, such as the dentist quoted at the beginning of this report, causes people to reflect on how is this all possible.

A large part of the answer is in the weakness of benchmark methods of affordability as used by Demographia. Using the residual income method, we were able to calculate the maximum weekly mortgage costs affordable for household incomes above $30 000 per annum using, as with all purchase examples in this study, the 7 per cent interest rate holding for Australia in early 2011. Here we illustrate the findings for a single income household (Figure 8), a childless couple (Figure 9) and a couple with two children (Figure 10). Each shows the weekly mortgage affordable for all incomes between $30 000 and $150 000 and for two versions of the budget standard (MCBS and LCBS) and for two 30 per cent benchmarks (gross and disposable income). Note that the vertical line is the 40th income percentile for this household type and for purchaser households only. It should be emphasised again that the

incomes on the horizontal axis are the gross incomes, while that which is modelled to give the residual income removes relevant taxes and adds in any allowances such as child payments.

Figure 8: Maximum affordable mortgage repayments using two types of budget standard and two measures of housing affordability, single person household, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

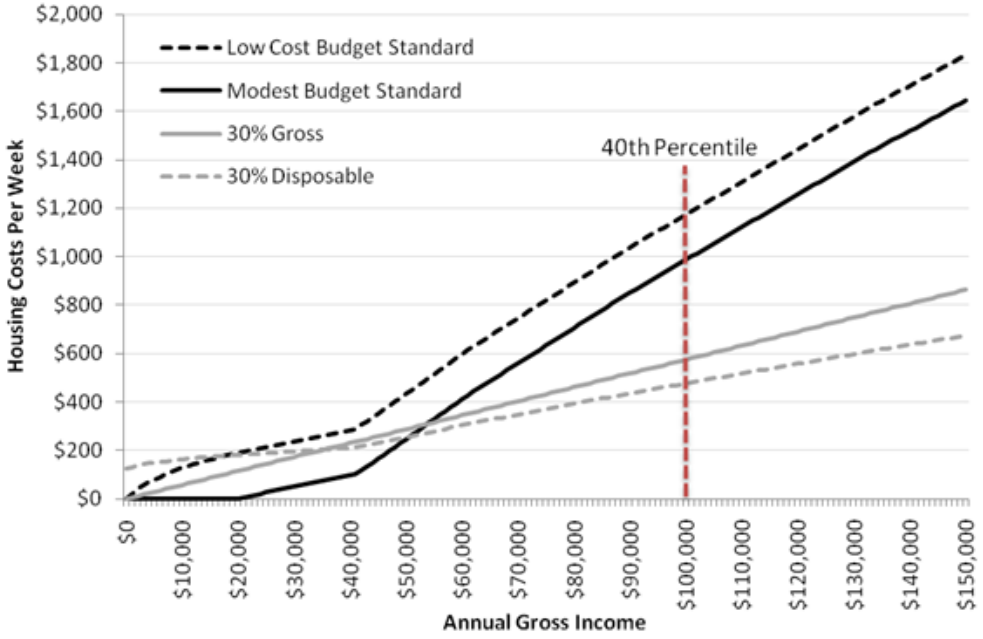
The findings are significant. First, as illustrated in Figure 8 above, a single person willing to live on the MCBS can afford to pay much more per week on housing than if the 30 per cent of income was used as benchmark for capacity to afford. Thus, a single person whose income was at the 40th percentile cut-off ($52 000) could afford a mortgage repayment, if he or she were willing to live to the MCBS, of around $360 a week and $410 if the LCBS is used. This compares to $200 if the 30 per cent disposable income benchmark is used. The $410 repayment capacity would enable such a household to borrow around $260 000 compared to $125 000. The former in most Australian cities could gain you the ability to purchase even if it is only a single bedroom unit. The latter would not. This suggests that for certain household types, properties *are* affordable when the benchmark method has been telling us they are not. A simple plugging in of data to any financial institution's mortgage calculator will reveal that they recognise this and have clearly departed from any semblance of a benchmark method, although since the global financial crisis they have tightened their lending criteria. The Commonwealth Bank calculator as of May 2010 would, for example, lend to a household with a $50 000 income and no other debt a mortgage with annual repayments of $19 764, which represents 39.5 per cent of income. The basis for calculation is unclear, but one suspects some form of a residual income model. However, such calculators appear not to be household type specific, and there is potential to use the residual methods to evolve more accurate mortgage affordability calculators.

The greater capacity to pay than suggested by the benchmark method becomes even stronger as incomes increase. Many people have speculated on how moderate (although not necessarily low) income homebuyers have been able to afford the high

prices of recent years, particularly if they are first-time purchasers who do not have more than a minimum deposit. The residual income method offers an explanation. On an income of $65 000 p.a., a single person would only be able to borrow $255 000 if they are not to exceed 30 per cent of their income. Using the MCBS, however, they could afford to borrow up to $368 000 which enables much more active participation in the housing market. This person might be living modestly to achieve the latter loan size but, provided there were no other issues that affected their expenditures (e.g. maintenance payments to children of a previous marriage), they could afford the repayments if this is how they chose to set their priorities. Of course, the further one moves up the income scale, the more it could be argued that the MCBS is too modest for such groups and they would spend more on other items. That is very likely the case, but what the budget standard does show is the maximum potential for dwelling purchase if a household was willing to make the expenditure sacrifices. If there was no departure from the MCBS or only a smallish departure, it would be possible for single person households on a good but not excessive income, for example $80 000, to afford to borrow around $600 000, creating the potential to be a very active player in the housing market. These figures in some cases do imply very high debt to income ratios, in some cases more than 50 per cent, but it is not the ratio per se that is the risk element, it is the capacity to pay.

Figure 9 below models the outcome for a childless couple. Here there is an additional household member for expenditure to relate to so that, for any given income, the housing cost affordable per week is lower irrespective of whether it is LCBS or MCBS, although for purchasers we tend to prefer the MCBS as the standard given that purchasers tend to be on higher incomes than renters and are likely to use some of that additional income on non-basic expenditures. The figure also shows the 40th percentile for all income earners for this household type with the fact that it is so high in itself being a measure of the barrier to purchase, that is, a household type of this composition requires an income greater then average to be a purchaser. A more affordable market would have the 40th purchaser percentile at a much lower income level.

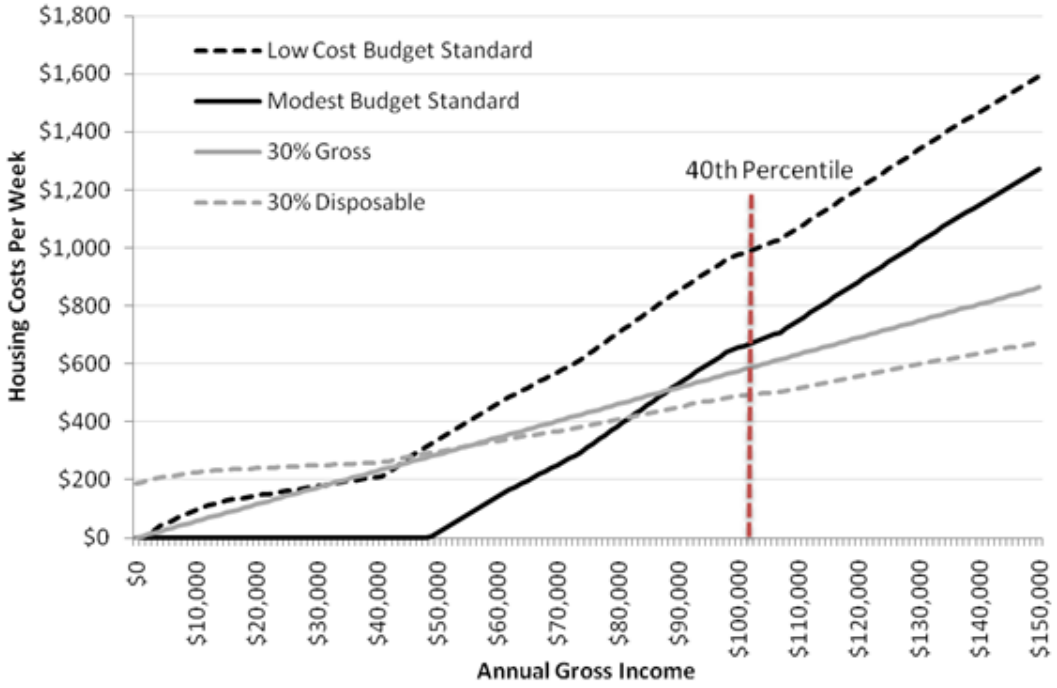
Figure 9: Maximum affordable mortgage repayments using two types of budget standard and two measures of housing affordability, childless couple, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

Now let us look at another family type: a couple with two children. The important point to remember here is that the benchmark method ignores the number of family members, whereas the budget standards build in the additional expenditures generated by a larger family. Figure 10 below shows very different results to that of a single person household. While the low cost residual income is still above both benchmark measures for all incomes, the modest residual income (the most relevant for purchasers) is *below both* of them until around the $85 000 to $90 000 income point. In short, families require a relatively high income to participate in the home purchase market and may be competing with singles or childless couples who have much higher residual incomes and therefore affordability capacity. Moreover, they have fewer dwellings to choose from as they will need at least a three-bedroom dwelling, while smaller family types can choose smaller dwellings but can also compete for the larger ones if they so want. What this all says is that the additional living expenses of households with children constrain their ability to borrow and therefore to afford housing even in lower price areas. This analysis is consistent with the findings of Hulse et al. (2010, Ch.5) who, in their research on changes in low-moderate income home purchasing patterns, noted a sharp decline in the number of purchasers who are households with children and a very big increase in the proportion who are single person, single income households, with these changes being much greater than explainable by demographic change alone. When this information is applied to actual housing markets (see Section 5.3.3), the analysis has even more salience.

Figure 10: Maximum affordable mortgage repayments using two types of budget standard and two measures of housing affordability, couple with two children, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

Figure 9 also indicated that if the MCBS is used as the measure for purchasers, then below an $85 000 income a family is essentially out of the housing market as this suggests capacity to afford a loan of around $400 a week that would enable the purchase of a house for about $250 000, perhaps a possibility in regional areas with weak labour markets or for a smallish run-down property in an outer urban metropolitan market.

The method suggests there is much greater capacity for households to afford housing at the prices prevailing in Australia than benchmark methods indicate, and therefore simplistic measures such as those of Demographia, which ignore household composition and the costs of other goods and services, may distort or disguise the real situation. For the growing number of smaller households in Australia, the affordability situation may not be as bad as surface impressions suggest, with many having substantial ability to afford what objectively might seem very high prices. On the other hand, for the larger moderate income families there is a problem even worse than suggested by budget standard methods. This latter point is made even more visible by subsequent analysis.

6.2 Home purchase affordability price points

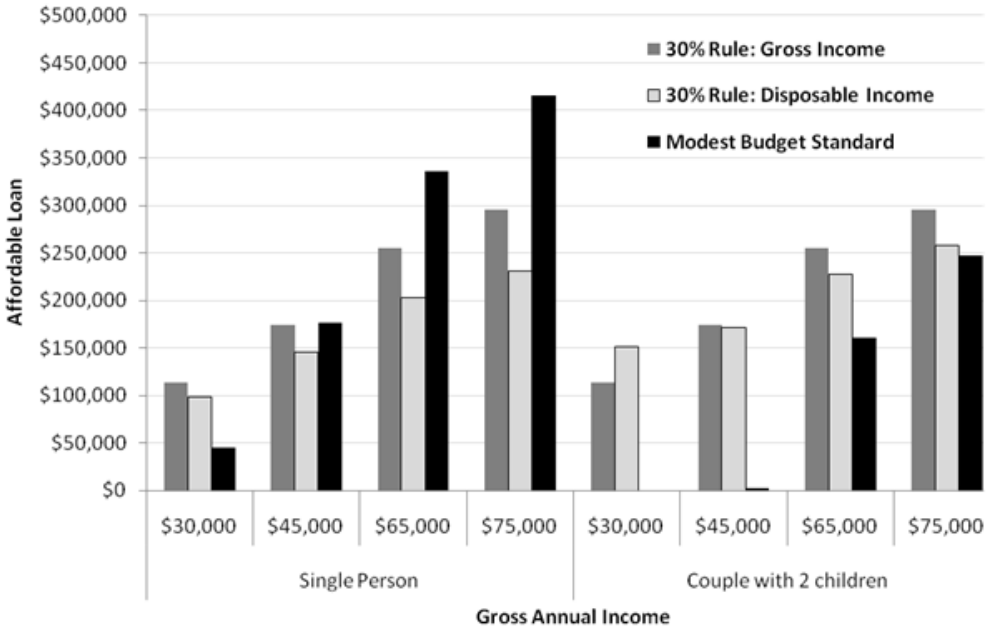
The next application of this model which follows logically from the above is the identification of affordability price points. The model enables identification of the price point that may be deemed affordable, given interest rates and deposit assumptions, for all relevant household types and income ranges. A price point is that price whereby a property is deemed affordable. It is a concept which has meaning to the building and development industry in a way that an abstract notion such as a 'benchmark measure of income to price' does not, although the latter can be converted into a price point.

Figure 11 below shows the affordable loan price point for a single person and family (couple and two children), assuming a 7 per cent interest rate and a 25-year loan period, and highlights the different price points of the residual income method compared to the MCBS which is the method used for subsequent home purchase analysis. For purchasers, it is assumed that the MCBS is more appropriate than the LCBS, particularly as incomes rise.

For the single income household, the affordable mortgage using the MCBS is $335 000. If a 10 per cent deposit was assumed, this would create a dwelling price point of $368 500, or $400 200 if a 20 per cent deposit was assumed. This is much higher than indicated by either of the ratio/benchmark methods. By comparison, the affordable price points are much lower than for the couple with two children and, importantly, even up to the $75 000 income point the figure shows that the ratio method overstates their capacity to purchase. Even families on what might seem an adequate household income could be struggling if pushed beyond relevant price points.

For single person households it is interesting to note how the price points for the two incomes, $65 000 and $75 000 (yielding dwelling prices of $368 500 and $465 500 respectively), are close to the advertised prices for many new one and two-bedroom apartments in our capital cities. It is as if the industry has used similar thinking to guide its production and pricing decisions.

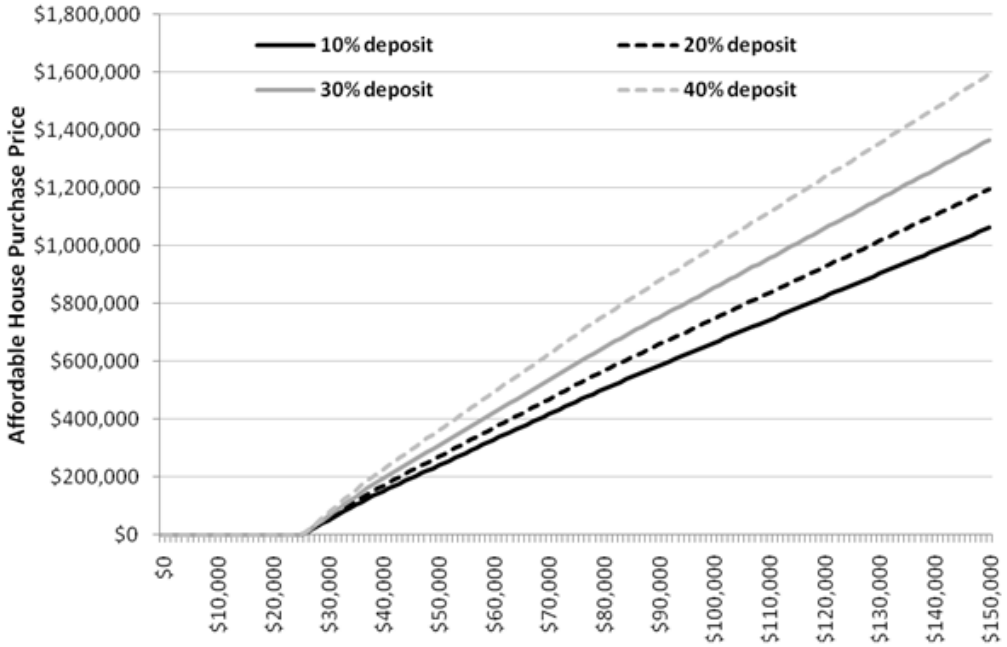
Figure 11: Affordable loan price points at nominated income levels, different family types, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

While not central to the theme of this report with its emphasis more on first-time home purchase opportunity, Figure 12 below provides the basis for looking at the impact on the market of second and subsequent home buyers who have greater levels of equity to bring to the purchase process. Using the example of a single person household, it shows how current market prices, which some find hard to comprehend, are easily reached. Thus, a single person on $90 000, such as many professionals, and with a 40 per cent deposit ($240 000 in this case) could afford an $840 000 dwelling. If on a $100 000 income, that affordability goes up to $1 million. This could be someone who at the age of 28 purchased, with a loan of $120 000, a unit in, say, 1996 for $135 000 (then the Melbourne unit median) and 15 years later uses the equity in that property (now worth the Melbourne unit median of $423 000) to trade up. With that equity and a willingness to live to the MCBS they can trade up to a quite expensive dwelling. This in part is due to the sizeable equity enabled by dwelling price inflation and indicates how the market up to a point feeds on its past history of growth. In the process it is increasingly driving first-time buyers out of the market and potentially creating a recipe for a market slowdown. This is illustrated by making the link between the concept of price points and what renters as potential first-time buyers can afford.

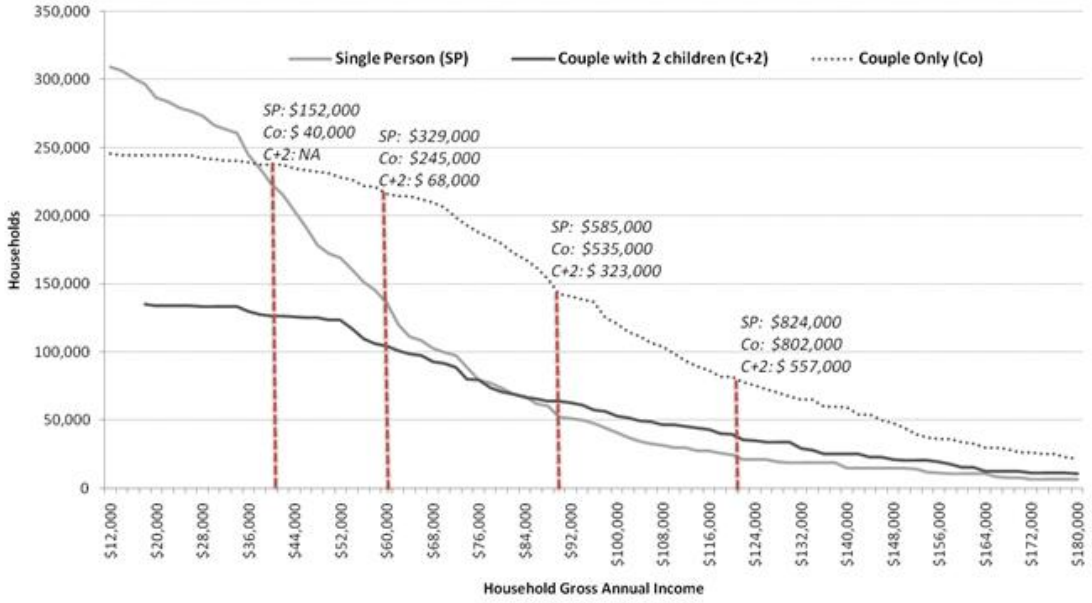
Figure 12: Affordable housing price points in different deposit assumptions, single person, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

Figure 13 below suggests an exploratory but more nuanced way of understanding the effects of affordability on housing demand than hitherto has been the case, even in the National Housing Supply Council (2010, p.194) analysis of affordability of renters. It shows the income distribution range of renters in the age cohorts 18–50 (potential purchasers) for our two case study households *plus* childless couples, the largest population group in the private rental sector. Renters represent the bulk of potential first-time buyers. This concept of potential first-time buyers excludes those who are living at home with parents and have the capacity to go directly into ownership, and recent arrivals from overseas who also have the ability to go directly into ownership (e.g. business migrants).

Figure 13: Capacity for home purchase: Income distribution of three private renter households and affordability price points, 2010



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

Assuming renter households could put together a 10 per cent deposit (in itself a hurdle for lower income ones) and finance a 25-year loan at 7 per cent interest, the figure suggests how many could *in principle* afford transition to ownership. This is achieved by reading up the dotted lines for four relevant residual income price points of $40 000, $60 000, $90 000 and $120 000. This shows the dwelling price affordable at that income point for each household type based on the MCBS and therefore the potential size of the market at that same point for each household type. Visually the difference is clear: as house prices increase, the household income point necessary to achieve ownership is pushed further and further to the right such that there are fewer and fewer renters able to purchase.

Thus, at the $60 000 income point, a single person household could buy something up to $329 000, with around 40 per cent of singles (all those above the $60 000 income point) able to afford such a price. By contrast, a couple with two children at the same $60 000 income price point could only afford a $68 000 dwelling, of which there would be none in Australia. Even so, around 35 per cent of renter couples with children could not even afford this amount. It is not until a household income of $90 000 is reached that prices remotely in the range of the Melbourne median are affordable for a couple and two children. At $90 000 and a related price point of $323 000, around 70 per cent of couples and children are out of the market; at the same point a $585 000 property is affordable for singles, but less than a quarter would still be in the market. Couples, the largest group in the rental market, could afford up to $585 000 and at this price some 40 per cent would still be in the market. A $120 000 household income would buy a $530 000 property for a family and an $800 000 plus property for both singles and couples, but at this point the market has declined substantially. For singles and couples with two children, it is now in the order of less than 10 per cent, while for couples about 20 per cent of that market is left.

What the data suggests and again in a very exploratory way (it would need to be fleshed out for all household types) is that, given the current level of dwelling prices and interest rates, we would appear to be close to the point where first-time buyer demand cannot be sustained, particularly for new family accommodation on the urban

fringe. Prices for new dwellings have reached a point where many households, most notably families, are out of the market. Using Melbourne as the example where new dwellings (a house and land package) on the urban fringe are commonly in the range of $370 000 to $500 000, probably less than 20 per cent of couples with children who are renting could be in the market in these price ranges. Above $500 000 the market for first-time buyers' families is very small, but still reasonably large for couples and singles. In this environment, a lack of demand for new construction will continue to be subdued for the foreseeable future so long as prices and interest rates remain around the levels of 2010–11. Prices must ultimately reach their affordability limits, and this analysis suggests we are getting very close to them. The growth in new demand must come from existing purchasers or investors.

The situation is somewhat better for established dwellings, but not a great deal, as Section 6.3 discusses.

6.3 Reshaping housing opportunity: share of houses sold in 2010 with affordable purchase prices

The question was raised earlier: *If the home purchase affordability problem is so bad, how can low-moderate income households still afford to buy?* As demonstrated above, the residual income method suggests that many household types (notably smaller households) have greater capacity to afford purchase than the benchmark methods of affordability suggest. But the other reason why many low-moderate income households can afford to buy is that many properties sell for less than the metropolitan median, with many submarkets having local median prices some 30 per cent below this. These locations are clearly more affordable.

To some extent this principle is recognised in the NAHA ratio (30%) indicator of house price affordability which measures the proportion of homes sold that were affordable to moderate income households, that is, those on less than the 40 per cent decile where this is equivalised (adjusted) for the relevant family type. For example, this revealed that in Melbourne in 2007–08 (based on a small sample) around 37 per cent of dwellings sold were affordable by moderate income households. However, what this data does not show is (a) where these properties are located and the implications for policy and (b) the differences in household types in their ability to purchase across different submarkets.

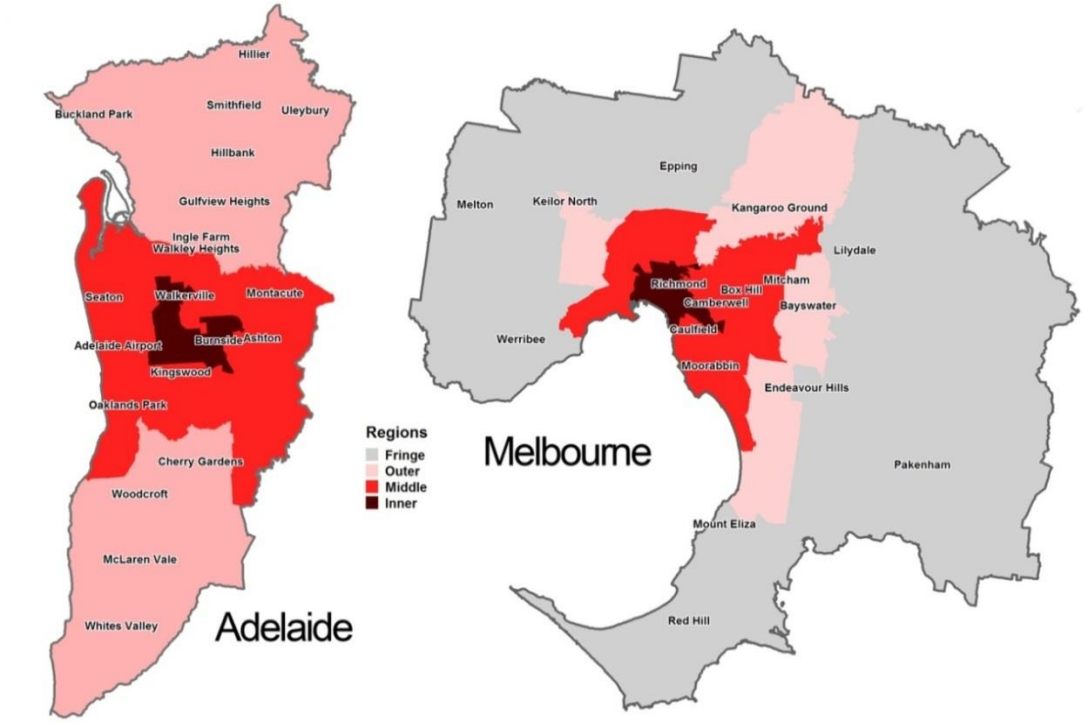
Thus, the next part of this study is to examine the differences in affordability across metropolitan areas using the residual income method and again looking at the circumstance of different household types. Given a methodology that is household-specific in its measurement of affordability, the obvious hypothesis is that certain household types have greater housing choice across the various submarkets than others.

The two metropolitan areas we are looking at in this study are Melbourne and Adelaide, and for each city their housing markets have been broken into broad regional areas reflecting distance from the CBD. In Melbourne, because of its larger geographical area, there are four areas: inner city, middle ring, outer urban and growth area, and in Adelaide three: inner, middle and outer. The boundaries of these areas are somewhat arbitrary and quite different from city to city as a result of their different geographies, history and size. Figure 14 below shows the areas of the two cities.

Development in Melbourne has taken place in a broad arc largely unimpeded by geography, except of course by Port Phillip Bay. Unlike Sydney, Melbourne's water line is not penetrated by rivers and bays which greatly affect accessibility in that city.

Nor is it hemmed in by mountain ranges except to the east where the urban fringe runs into the Dandenongs. Adelaide, like Melbourne, is not hindered to any degree by mountains except again to the east in the form of the Adelaide Ranges, and its flat geography enables growth in any direction away from the coast on which it is located. The geography of the two cities and their relative flatness mean that housing submarkets are much less complex than, say, that of Sydney where the many rivers, bays, inlets and hillier topography affect accessibility, attractiveness and amenity in highly nuanced ways.

Figure 14: Regions of Adelaide and Melbourne, 2011



As in all Australian cities, much of inner Melbourne and Adelaide up to the 1980s was given over to industry, including manufacturing and light engineering, and the inner areas of mixed industrial and residential use in the post-war period were not seen as desirable areas to live in, with property values reflecting this. At the same time, the attractions of suburbia with the new house and car meant that the outer areas had considerable demand (Forster 2004).

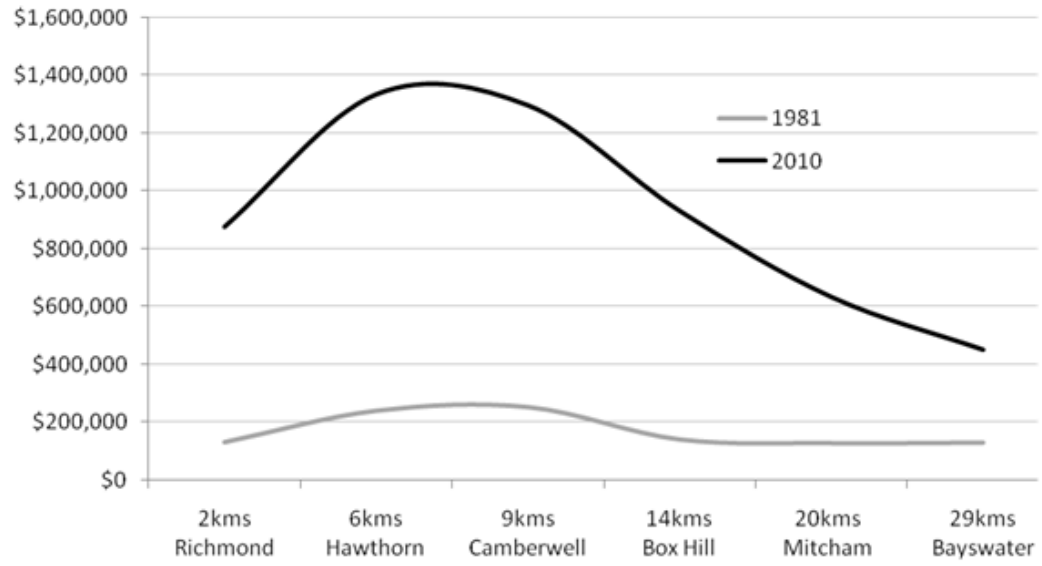
Over recent decades, the inner and middle ring suburbs of Australian cities have become much more valued as places of residence. Households have changed their perceptions of the more and less desirable places to live, while developers and builders have to a degree responded with shifts in where new property is built and in what form. The inner urban areas, in particular, have become much more attractive to both households and developers; by contrast, outer urban living does not have the same appeal as in the past and is seen by many to be increasingly problematic (Dodson & Sipe 2008). As a result, most inner urban areas have now been gentrified (Atkinson et al. 2011). This locational restructuring is explained by interrelated demographic, social, economic and policy changes which have been identified elsewhere (e.g. Flood & Baker 2009; Baum et al. 2006).

The important point is that these changes have been paralleled by, and perhaps reinforced by, a fundamental restructuring of dwelling prices such that where inner

urban areas were once the cheapest areas of a city they are now among the most expensive.

As outlined in Burke and Hulse (2010), one long-established way of understanding the dynamics of housing submarkets is through a bid rent curve which graphs variations in land or property prices as distance increases from some point in a property market, usually the CBD. The point at which rents or prices are most intense reflects the most desirable locations (Alonso 1964). To illustrate both the concept and how fundamentally Australian housing markets and associated household opportunities have been restructured, Figure 15 below shows the bid rent or price curve for the eastern corridor of Melbourne for 1981 and 2010.

Figure 15: Melbourne eastern corridor house price curve, 1981 and 2010 (2010 constant prices)



Source: Victorian Valuer General's Property Sales Statistics 1981–2010 (unit record files)

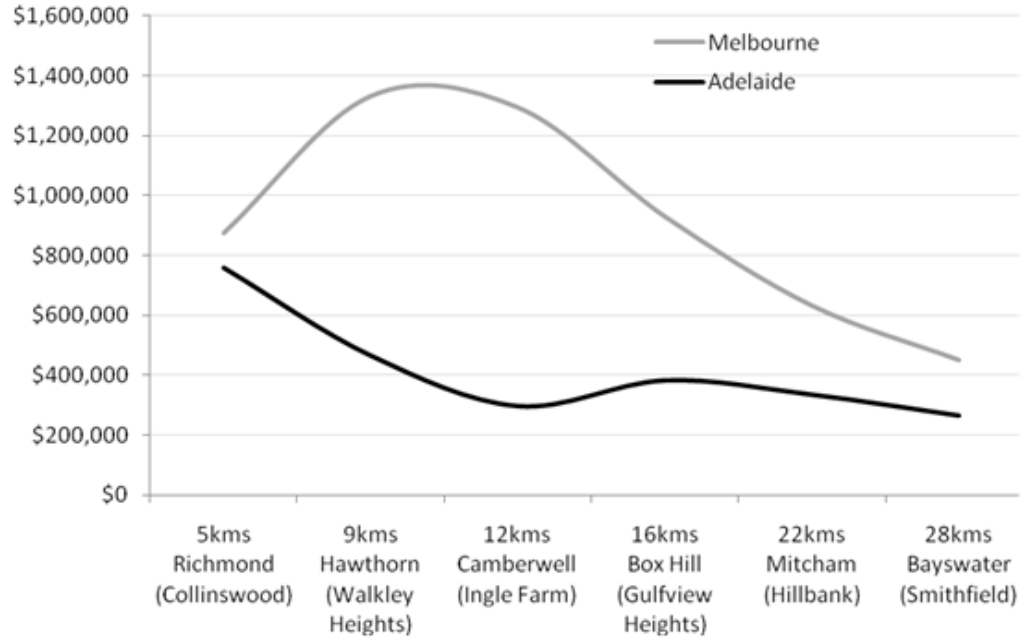
In 1981, the eastern corridor house price curve was relatively flat with a slight bulge in the affluent middle ring suburbs of Hawthorn and Camberwell. Inner urban Richmond was slightly cheaper than Bayswater, 28 kilometres from the CBD.

By 2010, prices were much higher in general but considerably so in the inner and middle ring suburbs, with the suburbs toward the fringe being dramatically lower. The bulge in the middle ring suburbs, particularly those eight to 12 kilometres from the CBD, has become much more marked, reflecting the increasing premium on CBD access. This pattern was little different across the other corridors of Melbourne (Hulse & Burke 2010) and suggests spatial polarisation of the housing market in that households had a wide choice of affordable properties in 1981 but by 2010, for those on more moderate incomes, the choices were much more limited, the degree to which is assessed below.

Adelaide traces a different pattern to Melbourne but does not invalidate the price curve thesis that properties should be more expensive closer to the city. The price in both cases is for houses only, in recognition that Adelaide does not have many apartments while Melbourne, notably in the inner city, does, and therefore an all-dwelling comparison would not be appropriate. Melbourne house prices are higher than Adelaide's at any distance from the city and have that bulge in the middle suburbs, while those of Adelaide decline progressively from the CBD until about 12

kilometres out where they have a slight kick up and then trail away again, but only moderately. The premium on proximity to the CBD has worn off much earlier in Adelaide than in Melbourne, which is what one would expect in a smaller city.

Figure 16: Adelaide and Melbourne house price curves: Corridors in 1981 and 2008 (2008 constant prices)



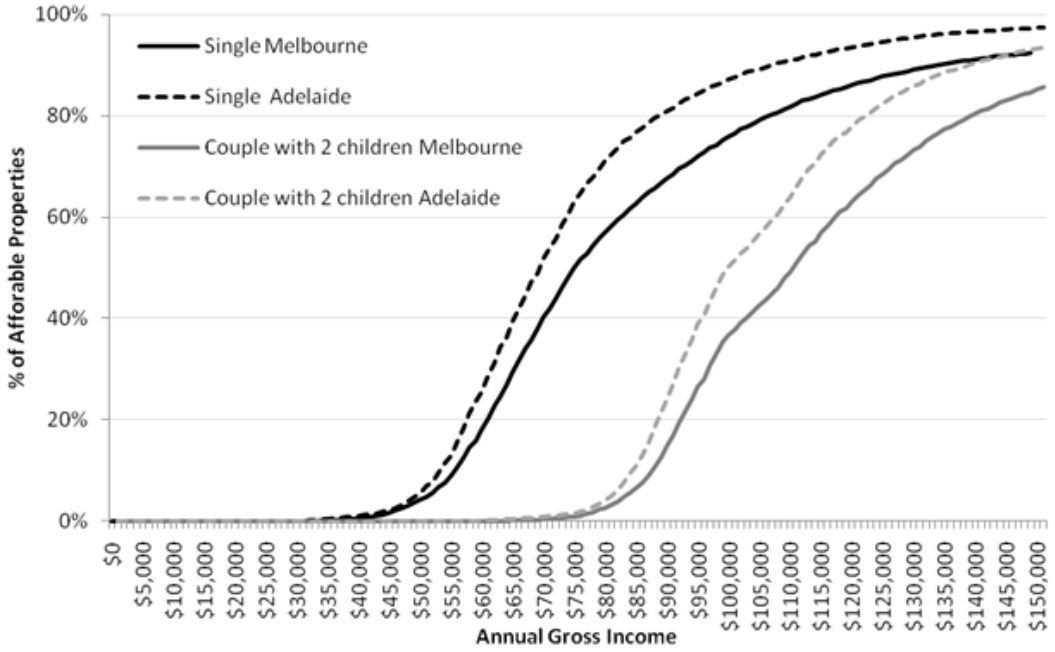
Source: Victorian and South Australian Valuer General's Property Sales Statistics 2010 (unit record files)

With this brief context, we can now look at the degree to which different households (assuming first-time ownership) are constrained in their ability to purchase across these broad regional areas.

By taking the residual income and associated mortgage capacity for a given household type and applying the modelled mortgage capacity to the Valuer General's unit record sales data for each jurisdiction, it is possible to determine where households for any given income can purchase. Figure 17 below uses the Valuer General's data for Melbourne and Adelaide to overview their respective total markets prior to regional analysis. In Melbourne the data is for all properties while for Adelaide it is for houses only. The analysis is undertaken again with just two household types (singles and childless couples) who are potential first-time purchasers.

The figure highlights two major points. The first (reaffirming what the modelled data in Section 6.1 suggests) is that first-time ownership for families is difficult. In both markets, nothing in 2010 was affordable by a couple with two children before around $75 000 was earned, and even $90 000 could purchase less than 20 per cent of the market. Only when income exceeds $100 000 in Adelaide and $115 000 in Melbourne is at least 50 per cent of the market available. For singles the market is much more affordable and the entry point is around $40 000 to $45 000 but improves substantially over $60 000. The second point is that Adelaide not surprisingly is more affordable than Melbourne, but more so for higher income earners of either family type, suggesting a flatter market in Adelaide such that those on higher incomes have more choice. The lower 40 per cent of the market is much more similar for both cities.

Figure 17: Affordable housing in Melbourne and Adelaide: Singles and couples with two children, MCBS, 2010



Source: South Australian and Victorian Valuer Generals' Property Sales Statistics 2010 (unit record files) (mortgage to purchase affordable properties assumes 7.4% interest rate. 25-year loan period. 10% deposit)

This aggregated data still does not tell us about the submarkets, so let's now make that switch.

Figures 18 and 19 below show the percentage of Melbourne properties affordable to a single first-time purchaser (Figure 18) and a couple with two children (Figure 19), revealing the degree to which few properties are affordable for either household type anywhere below $50 000 ($80 000 for the family) and the differences between regions in affordability generally and between household types. The growth areas of Melbourne are almost universally affordable for both household types so long as they have around $85 000 household income, but affordability drops away sharply for inner city and middle ring locations where families need an income of $120 000 plus to have any real market choice.

Figure 18: Percentage of Melbourne properties affordable to single person households, MCBS, 2010

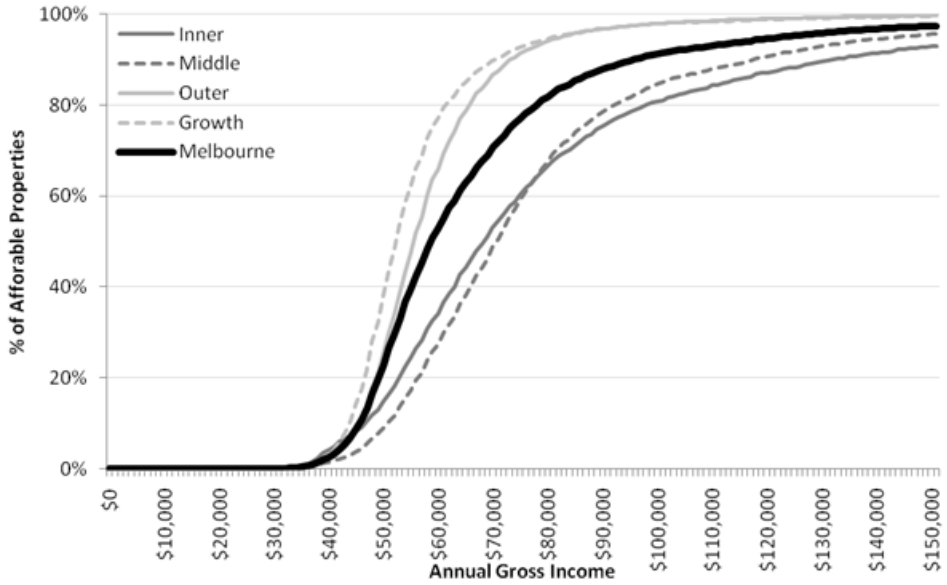
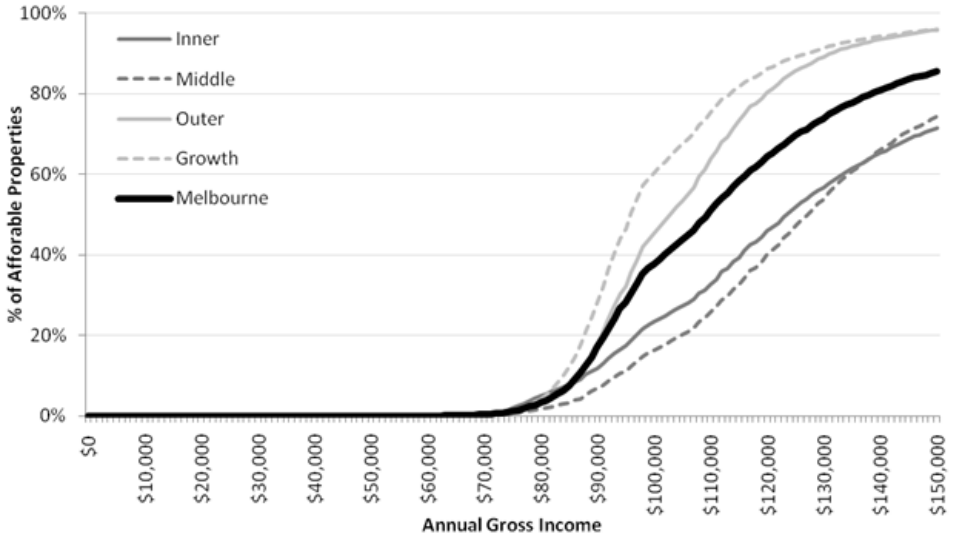


Figure 19: Percentage of Melbourne properties affordable to couple with two children, MCBS, 2010



Source: Victorian Valuer Generals' Property Sales Statistics 2010 (unit record files) (mortgage to purchase affordable properties assumes 7.4% interest rate, 25-year loan period, 10% deposit)

The information in Figures 18 and 19 is given sharper resolution in Table 13 which shows for singles, couples and couples with two children the proportion of properties available in each of the regions and for different income levels, but this time compared with the 30 per cent rule (disposable income). This shows a reasonable degree of similarity between the two methods for singles. For example, at $50 000, 27 per cent of properties are available using the MCBS and 28 per cent using disposable income. But, of course, singles do not have other household members to divert potential housing expenditure, and thus when we go to couples with two children at $50 000 there is nothing affordable on the LCBS, while the 30 per cent rule would say that 44 per cent of the stock is affordable. The second point is that regional differences are less sharp for singles and to a lesser degree couples than for families (couple and two children). Thus, at $60 000 for a single on the MCBS, 79 per cent of the fringe is

affordable, and 37 per cent of the inner city and 30 per cent of the middle ring. However, it takes up to $100 000 for a family to have any real choice at all, with most of that being on the fringe (90%) and outer suburbs (86%). Most importantly, the data reaffirms the affordability problems of lower income households. Below $40 000 for all three family types, using the MCBS, virtually nothing is purchasable where the 30/40 rule would say there is, and ironically most so for families. Note that the shading in Table 13 identifies income level and location combinations that are highly unaffordable.

Table 13: Percentage of Melbourne properties affordable for purchase to singles, couples and couples with two children, using MCBS and 30 per cent disposable income rule, 2010

	Single MCBS					*30% rule: disposable income, single person household*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$10,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
$20,000	0%	0%	0%	0%	0%	1%	0%	1%	1%	1%
$30,000	0%	0%	0%	0%	0%	5%	2%	3%	4%	3%
$40,000	5%	2%	3%	4%	3%	9%	5%	11%	19%	11%
$50,000	16%	11%	30%	44%	27%	17%	11%	32%	46%	28%
$60,000	37%	30%	69%	79%	55%	20%	14%	39%	54%	33%
$75,000	62%	61%	92%	93%	78%	43%	36%	77%	84%	61%
$100,000	81%	85%	98%	98%	91%	62%	61%	92%	93%	78%
$150,000	93%	96%	100%	99%	97%	82%	86%	98%	98%	92%
	Couple MCBS					*30% rule: disposable income, couple*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$10,000	0%	0%	0%	0%	0%	3%	1%	2%	2%	2%
$20,000	0%	0%	0%	0%	0%	6%	2%	4%	5%	4%
$30,000	0%	0%	0%	0%	0%	8%	4%	7%	13%	8%
$40,000	0%	0%	0%	0%	0%	11%	6%	15%	24%	15%
$50,000	4%	1%	2%	3%	2%	20%	13%	38%	53%	32%
$60,000	17%	11%	32%	46%	28%	24%	16%	46%	61%	38%
$75,000	50%	45%	84%	88%	68%	48%	42%	82%	87%	66%
$100,000	79%	82%	97%	98%	90%	67%	68%	94%	95%	82%
$150,000	93%	96%	100%	99%	97%	84%	87%	98%	98%	93%
	Couple with two children, MCBS					*30% rule: disposable income, couple with two children*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$10,000	0%	0%	0%	0%	0%	8%	3%	7%	12%	7%
$20,000	0%	0%	0%	0%	0%	11%	6%	14%	22%	14%
$30,000	0%	0%	0%	0%	0%	14%	8%	22%	34%	21%
$40,000	0%	0%	0%	0%	0%	18%	12%	33%	48%	29%
$50,000	0%	0%	0%	0%	0%	28%	21%	54%	68%	44%
$60,000	0%	0%	0%	0%	0%	31%	24%	60%	73%	48%
$75,000	7%	3%	6%	11%	7%	50%	45%	84%	88%	68%
$100,000	53%	49%	86%	90%	71%	68%	70%	95%	95%	83%
$150,000	87%	91%	99%	99%	95%	84%	87%	98%	98%	93%

Tables 14 and 15 below provide another way of looking at the affordability problem, showing for all properties in Melbourne and for houses only in Adelaide (here there are too few apartments to provide meaningful data) the income that is necessary to afford the median dwelling in each of the regions of the two cities using the LCBS. One interesting observation is that while a single person needs an income of $89 000 to buy in inner Melbourne, they need $105 000 in inner Adelaide. This highlights an important point, discussed in Section 9, as to the need for dwelling diversity. Melbourne, compared to Adelaide, had the advantage of the flat boom in the 1960s and 1970s that provided substantial diversity of stock which, to a large extent, Adelaide missed out on, with its much more compact urban form at that time not acting as a driver for as much multi-unit accommodation. On top of that has been the one and two-bedroom high rise boom in Melbourne since the early 1990s which is now beginning to appear on a much lesser scale in Adelaide. But without that diversity in the inner city of Adelaide, purchasers have to look to more expensive detached housing for choice. This is a problem that growth areas on the fringes of Melbourne and Adelaide are in danger of replicating.

It is in the middle ring suburbs that Adelaide achieves its affordability. There the median is only $455 000 compared to Melbourne's $620 000, this amount representing for any household type, but particularly moderate income families, a major affordability barrier. Many moderate income households in Adelaide can still enjoy the benefits of purchase reasonably close to the city, whereas those in Melbourne cannot.

Table 14: Income required to purchase median priced dwelling, Melbourne regions, 2010

Median dwelling price	*Inner* *$585,200*	*Middle* *$620,000*	*Outer* *$420,000*	*Fringe* *$377,000*	*Melbourne* *$460,000*
Single	$89,000	$94,000	$70,000	$65,000	$74,000
Sole parent 1 child	$100,000	$104,000	$77,000	$72,000	$82,000
Sole parent 2 children	$117,000	$121,000	$92,000	$87,000	$97,000
Couple	$95,000	$99,000	$78,000	$73,000	$82,000
Couple 1 child	$110,000	$114,000	$90,000	$85,000	$94,000
Couple 2 children	$123,000	$127,000	$102,000	$95,000	$109,000
Couple 3 children	$142,000	$147,000	$123,000	$118,000	$128,000

Source: Victorian Valuer General's Property Sales Statistics 2010 (unit record files) (mortgage to purchase affordable properties assumes 7.4% interest rate, 25-year loan period, 10% deposit)

Table 15: Income required to purchase median priced dwelling, Adelaide regions, 2010

Median dwelling price	*Inner* *$710,000*	*Middle* *$455,000*	*Outer* *$321,500*	*Adelaide* *$400,000*
Single	$105,000	$74,000	$59,000	$68,000
Sole parent 1 child	$116,000	$81,000	$66,000	$75,000
Sole parent 2 children	$133,000	$96,000	$80,000	$89,000
Couple	$109,000	$81,000	$67,000	$75,000
Couple 1 child	$124,000	$93,000	$79,000	$88,000
Couple 2 children	$137,000	$108,000	$89,000	$98,000
Couple 3 children	Outside scope	$127,000	$109,000	$121,000

Source: South Australian Valuer General's Property Sales Statistics 2010 (unit record files) (mortgage to purchase affordable properties assumes 7.4% interest rate, 25-year loan period, 10% deposit)

In summary, what this exploratory analysis tells us to date for first-time buyers is:

- The residual income measure suggests (compared to the benchmark method) that capacity to pay (and therefore potential demand) is greater than thought, for some household types more than 50 per cent greater.
- The greater capacity to purchase comes from smaller (childless) households on relatively good incomes.
- Low income *families* (i.e. those below income of $40 000) in Melbourne and Adelaide are now completely out of the first home purchase market. Virtually nothing is affordable. Low income singles and couples (same income) still have opportunities for purchase, but these are spatially constrained and likely to be for older lower quality flats rather than new demand.
- Moderate income families ($40 000 to $80 000) can still purchase, but only in very spatially constrained markets, largely in outer suburbs (Adelaide and Melbourne) and the fringes of metropolitan Melbourne.
- Moderate income singles (same income as above) have much greater dwelling choice and can still purchase in the inner city and middle ring.
- Higher income families ($80 000 plus) have much increased choice although substantially more so once household incomes exceed $100 000, when at least 50 per cent of inner city and middle ring properties in Melbourne are affordable.
- For higher income singles and couples, the world is their oyster; once an income of $80 000 plus is achieved, substantial choice becomes available in both cities.
- The broadest lesson here is that if you want to be a first-time home owner in the inner city or middle ring suburbs, particularly in Melbourne, do not have children.

Of course, these observations have to be modified for second and subsequent purchasers who have built up a sizeable equity in their existing property, but in terms of first-time home purchase demand this analysis enables us to understand the Melbourne and Adelaide housing markets, and no doubt other Australian housing markets, much better. It is an understanding that the residential development sector appears to already have, given what they are currently building.

The big market for new construction in the inner city and middle ring is for one and two-bedroom apartments as these can be built for around $350 000 to $600 000 (around $1700 per square metre building cost) for which there is still sizeable purchase capacity among moderate to high income singles and couples. Larger apartments can rarely be built for less than this and, if they were, the price of $600 000 plus is not affordable for the household types that would desire such accommodation (i.e. families). Detached dwellings and large townhouses anywhere other than on the fringe have relatively limited new demand from first-time buyers. The demand has to largely come from existing owners who already have substantial equity.

The market for family accommodation (i.e. detached dwellings, townhouses or larger apartments) can *only* be in outer areas where in Melbourne, for example, it is still possible to purchase a house and land package for $350 000 to $550 000, which is affordable by families with household income in excess of $90 000.

This all suggests a market driven by differential affordability across household types which has important implications for urban form (and planning) as well as for the occupants of the dwellings that make up this urban form. These implications are drawn out in Section 9.

7 THE RENTAL MODEL

In broad terms, the model for the rental market is the same as for home purchaser affordability. The difference is that because more tenants than purchasers are on low incomes, many households are entitled to pensions and benefits which in some cases become the dominant sources of income. The model therefore has to be adjusted for all the permutation of pensions and benefits as affected by age of applicants, number of children and relevant income eligibility tapers and cut-off points as incomes rise. Among such benefits is the CRA, and this too has to be factored in, given certain assumptions (see Appendix 1 for an overview of the treatment of pensions and benefits, and Appendix 4 for CRA).

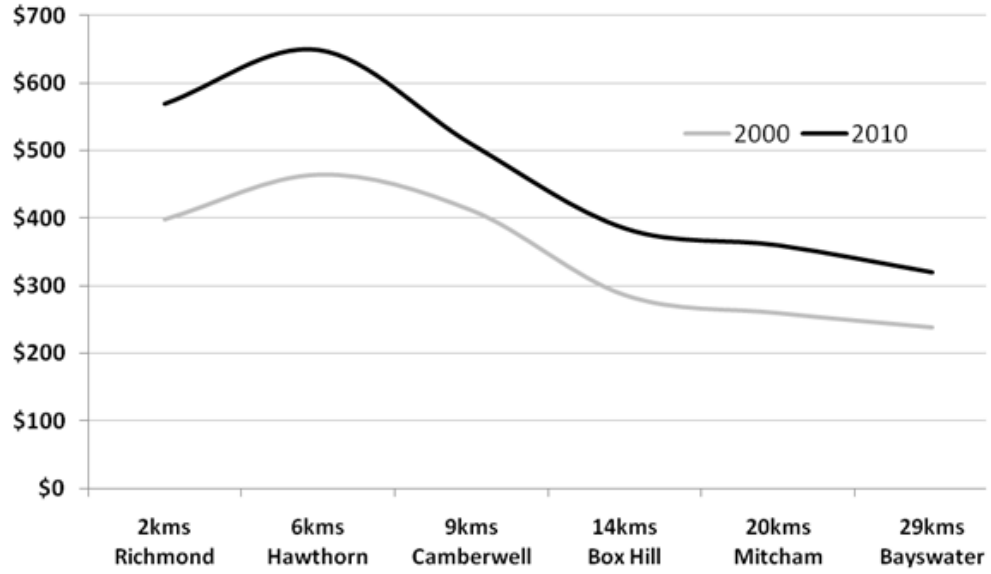
The data analysis here relates only to the Melbourne rental market for which detailed unit record data is available by rent, location, property type and bedroom size. This market has broadly been swept up in the market restructuring outlined in relation to home ownership reviewed in Section 5.1, but the impacts do not play out in quite the same way. Between 1945 and 1980, a disproportionate amount of Melbourne's rental stock was located in the inner urban areas, largely due to an intensive period of flat/apartment development in the 1960s and 1970s, mostly in the form of one and two-bedroom units (Archer 1980). In 1981 for example, 44 per cent of inner Melbourne stock was private rental, with another 9.5 per cent public housing (Burke et al. 1985, ch.1). Most of this was apartments, although around Melbourne University and RMIT there was a sizeable stock of older terrace houses used as cheap student rental.

By 2006, the rental stock in the inner city had fallen in relative terms but still was larger in absolute numbers than in 1981, with some major transformations. New commercial and residential areas (Southbank and Docklands) around the CBD have been developed since the late 1980s with much of this new stock being high rise, some of which was relatively expensive rental. Much of the rental stock made up of old houses in the inner area has been converted to expensive owner-occupied dwellings or pulled down and replaced with expensive townhouses. Both reflect the gentrification processes impacting on the area. Many of the now 30- to 40-year-old 'six-pack' apartments (two storeys, with six to eight units compressed onto one block of land) have been moved up market by virtue of renewal or simply by intense price pressures from the international student market and the growing number of young professionals wanting to live and work in the now attractive lifestyle suburbs of the inner city. However, they still represent some of Melbourne's most affordable rental stock, although the term 'affordability' is very much a relative one. As Atkinson et al. (2011, p.30) found, the displacement rate of private renters in inner Melbourne in response to gentrification pressures does not mean displacement to the urban fringe but to areas contiguous to the inner city. This suggests the hypothesis that there is a much flatter bid rent curve for the rental market than that of the purchase market, meaning that the lower cost rental stock is slowly moving to the outer suburbs but is not yet concentrated in these locations as is the purchase stock. More often than not, rental stock beyond the inner city is in the form of a detached dwelling that three or more decades ago would have been constructed for ownership. More generally, and as part of an Australia-wide process, the stock of lower end rental accommodation in Melbourne is contracting, with pressures on rents and problems of availability (Wulff et al. 2011).

Figure 20 below shows the rent curve for three-bedroom houses for the same corridor of Melbourne as used for home purchase (Figure 15) and confirms that, as yet, the market restructuring of Melbourne has not hit the rental market to the same degree.

Rent levels in real terms have been pushed up for the full length of the corridor and more so for the inner and middle ring locations, but in the case of the latter nowhere near as much as for dwelling prices.

Figure 20: Melbourne eastern corridor rent curve: Three-bedroom houses, 2000 and 2010 (2010 constant prices)



7.1 Rental affordability

Figure 21 below shows, for a couple with two children, the difference the model makes when applied to rental and again as compared with the benchmark method. The rental model is more complex as CRA has to be modelled into the income position with the effect of cut-ins, tapers and cut-outs of income support and benefits such that the increase in incomes for any household type is not linear.

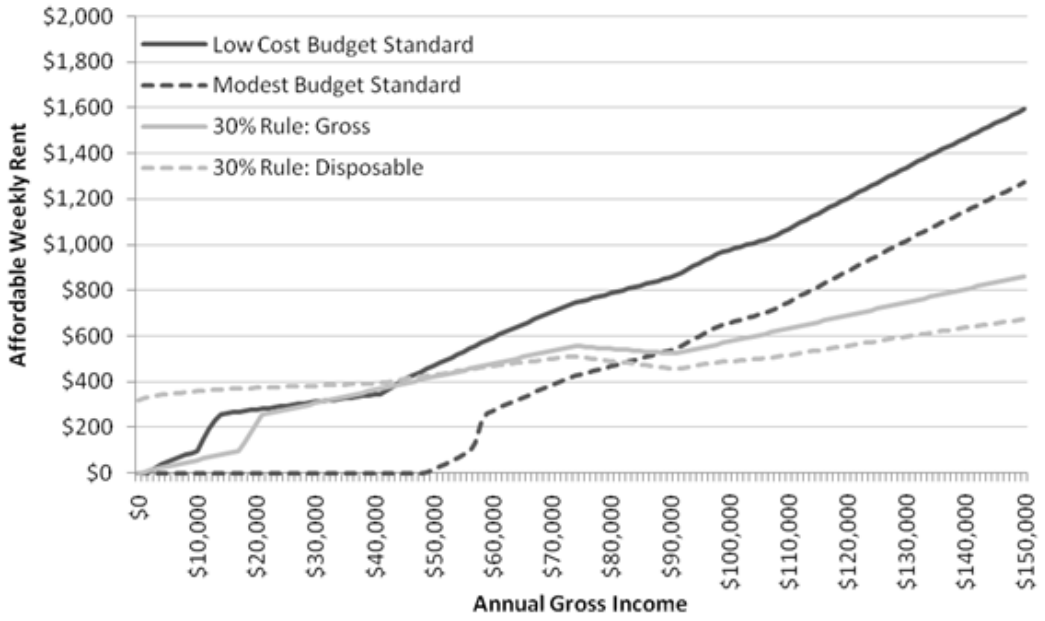
As with ownership, this data clearly reveals differences between the benchmark model and the budget standard model. Using a couple with two children as the example, it would suggest that above some income level, that is, $45 000 using the LCBS but a high $90 000 using the MCBS, they can afford more by way of rent than indicated by the benchmark method, with the difference widening as incomes increase. By contrast, *below* some minimum level of income, again around $40 000, the opposite holds true: the disposable income benchmark method (the one most equivalent to the budget standard) *overstates* the degree of affordability. By contrast, if the gross benchmark method is used, the LCBS and it are very similar.

Second, and related to these differences, is that the budget standard method offers a better explanation of the rental market dynamics. One of the puzzles of recent years has been how rents have been able to increase to the degree that they have done, given the extent of income resistance that would be suggested by the benchmark method, that is, lack of affordability should have acted as a drag on the rental market. That this has not been the case is suggested by the budget standard method which indicates an ability of a couple with two children on a household income over $45 000 (data not shown) to pay more than we previously thought was affordable. For singles, this amount is $30 000 and, given that they are a sizeable proportion of rental households, their market influence would be substantial.

Third, if the MCBS is used, a couple with two children on less than $60 000 has minimum capacity to afford a rental property at all, and, if the LCBS is used, any rent higher than $230 a week is unaffordable. In short, below a certain point the private

market is effectively not accessible. This is really no surprise as awareness of the problem of private rental housing failing to meet lower income needs was, back in the 1920s and 1930s, one of the major rationales for social housing provision in Australia and internationally. Today the problem does not create the same immediacy for policy action as it did then, perhaps because in that era the lack of affordability in private rental was overlaid by problems of quality and slum formation (Harloe 1995, ch.3). Also, the numbers of renters were much greater and the composition different, that is, many more families, and perhaps because this is no longer the case the political risks of inaction are lower.

Figure 21: Rental affordability using different affordability measures, couple with two children



Source: Modelled data using SPRC budget standards indexed to 2010 using composite index

The test of the size of the affordability problem is to see what happens when the modelled residual income data is applied to the actual housing market.

Victoria has a Residential Tenancies Bond Authority (RTBA) which holds all residential tenancy bonds for rental properties, including long-term caravans and rooming houses, houses and flats. The bonds are held in trust for landlords/agents and tenants, or owners and residents, giving all parties an equal say in how they should be repaid when a rental agreement (lease) ends. When a new lease is taken on, the landlord or agent provides the RTBA with the bond along with information including property type, number of bedrooms, rent and address. Confidentialised RTBA unit records thus enable us to calculate for each household type the percentage of appropriate dwelling units available for Melbourne, using the LCBS, MCBS and 30/40 benchmark method.

The following tables analyse a single person childless couple and a couple with two children, and apply the Canadian National Occupancy Standard which has been used to set minimum standards for each household type. Thus a couple with two children, in addition to facing an affordability constraint, face an availability one as they are ineligible for one or two-bedroom properties under this standard.[4] The data does not include boarding houses as a potential option as these are deemed not to be long-

[4] This ignores the Canadian rule that children under 18 of the same sex can share a bedroom.

term rental. The postcodes of the rental addresses have been amalgamated into inner, middle, outer and fringe areas of Melbourne on the same basis as the purchase regions (see Appendix 3). Relevant rent assistance is factored into the residual income model on the formula provided in Appendix 4.

Table 16 below highlights how sensitive the analysis is to the chosen budget standard and illustrates the problem of which to choose to reflect market and household realities. Taking the example of a couple on $40 000, if the LCBS is used, 71 per cent of all rental stock is affordable, but only 2 per cent if the MCBS is used. Above $60 000 (or in reality somewhere between $50 000 and $75 000), the results from each of the methods become much closer, illustrating that this income range is a transition zone between having affordability pressures and not. For subsequent analysis (with the exception of Table 16) we will use the harsher measure (the LCBS) and compare it to the most equivalent benchmark method, disposable income. Note that shading in Table 16 identifies income level and location combinations that are highly unaffordable.

Table 16: Percentage of affordable rental properties by region, LCBS and MCBS, Melbourne, couple, 2010

Income	*LCBS*					*MCBS*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
$10,000	4%	8%	12%	8%	8%	0%	0%	0%	0%	0%
$20,000	15%	25%	45%	44%	30%	0%	0%	0%	0%	0%
$30,000	28%	46%	76%	76%	52%	0%	0%	0%	0%	0%
$40,000	44%	68%	92%	91%	71%	1%	2%	4%	2%	2%
$50,000	57%	78%	96%	96%	80%	5%	10%	14%	12%	10%
$60,000	85%	94%	99%	99%	94%	52%	74%	94%	94%	76%
$75,000	96%	98%	100%	100%	98%	88%	95%	100%	99%	95%
$100,000	99%	100%	100%	100%	100%	98%	99%	100%	100%	99%

Source: RTBA unit record files and relevant budget standard

Table 17 below illustrates a story that is rarely told for lack of comparative data, and that is the relative affordability of rental versus ownership. On the supply side, the data is as good as one can get, including all properties for sale and all new rental properties in Melbourne in 2010. On the demand side, it is the same income available for rent or purchase as both use the MCBS which adjusts both incomes for all relevant income additions and losses (i.e. taxation).

Table 17: Percentage of affordable purchase and rental properties by region, Melbourne, MCBS Couple, 2010

Income	*MCBS purchase*					*MCBS rental*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$10,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
$20,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
$30,000	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
$40,000	0%	0%	0%	0%	0%	1%	2%	4%	2%	2%
$50,000	4%	1%	2%	3%	2%	5%	10%	14%	12%	10%
$60,000	17%	11%	32%	46%	28%	52%	74%	94%	94%	76%
$75,000	50%	45%	84%	88%	68%	88%	95%	100%	99%	95%
$100,000	79%	82%	97%	98%	90%	98%	99%	100%	100%	99%
$150,000	93%	96%	100%	99%	97%	NA	NA	NA	NA	NA

In this table, we can use a couple as an example and compare for any level of income the different affordability offered by tenure across Melbourne. Below $40 000, the situation is grim, with neither rental nor purchase possible at an MCBS level. Above $50 000, 10 per cent of the rental market is affordable but only 2 per cent of the purchase market. Thereafter, the situation changes dramatically, notably for renters. At $60 000 household income, 76 per cent of all properties are rentable but only 28 per cent for purchase. At $75 000, a couple have almost complete choice in rental and 68 per cent choice in purchase. The real difference is spatial where, from $50 000 upwards, opportunities open up for rental in the inner city and middle ring, but these properties are still constrained for purchase (e.g. 74% at $60 000 in the middle ring for rental but only 11% for purchase). The relative affordability of rental compared to purchase in inner city and middle ring locations suggests why many households cannot make the transition to purchase. For those with employment, family or community connections in the inner city, the only way to retain these is through rental. But even for, say, professionals on higher income who want to live in the inner city (perhaps for lifestyle choice as much as employment or family reasons), the choices offered by rental are much greater. A $75 000 income for a couple will give them a choice of 95 per cent of middle ring rental properties and 88 per cent of inner, where the respective percentages for purchase are 45 per cent and 55 per cent. The problem here is that as more and more of the higher income professionals remain in inner area rental for reasons of inability to purchase in their preferred lifestyle locations, they are occupying stock once used as lower income rental accommodation. The pressures on lower cost rental stock, as captured in Wulff et al.'s (2011) study, are intense.

Tables 18, 19 and 20 return to the LCBS, which some would argue is more appropriate for rental. Not surprisingly, these show some similar features to the purchase data, but not as sharp. For example, for all three household types there are spatial constraints across the regional submarkets but to a lesser degree than purchase; more affordable rental accommodation is available in inner city and middle ring locations and at lower levels of income. For example, while virtually nothing is purchasable for any household below $50 000 in the inner city, this income level offers wide choice for single renters (76%) and even some choice for families (16%).

The second point is the very big difference in affordability outcomes between household types when the LCBS is compared to the 30 per cent benchmark. For singles, the LCBS suggests much greater availability over $40 000 across all regions,

while under the benchmark method there is no real availability until $75 000. On the other hand, a couple and two children have much less availability up to $50 000 using the LCBS than the benchmark method, and what is available is disproportionately in the outer suburbs and fringe. In short, the benchmark method suggests a significant overstatement of rental choices for families.

The third point follows from the point about where the stock is available. For lower income renter families (i.e. those families on less than $50 000), virtually nothing is available in the inner city and only a small amount (21% at $40 000) the middle ring. What the LCBS indicates is effective choice over $40 000 in the outer suburbs and fringe, meaning that the rental affordability patterns are beginning to mirror those of purchase. Moderate income renting families can only locate in outer areas that are also the domain of moderate income purchasers.

A final point, and perhaps the most compelling, is that *below* the $40 000 household income point for singles (LCBS) and $30 000 for families there is minimal accommodation in the private rental market, even factoring in CRA. Only couples on low incomes appear to have some choice.

Table 18: Percentage of affordable rental properties by region, Melbourne, single person, 2010

Income	*LCBS*					*30% disposable income*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$0	0%	0%	0%	0%	0%	1%	2%	3%	1%	2%
$10,000	0%	0%	0%	0%	0%	2%	4%	7%	4%	4%
$20,000	2%	4%	7%	4%	4%	3%	6%	9%	6%	6%
$30,000	4%	8%	11%	8%	7%	0%	1%	1%	0%	1%
$40,000	43%	66%	91%	90%	69%	1%	3%	4%	2%	2%
$50,000	76%	90%	99%	99%	90%	4%	8%	12%	8%	8%
$60,000	90%	96%	100%	100%	96%	11%	18%	31%	29%	21%
$75,000	97%	99%	100%	100%	99%	26%	43%	72%	72%	49%
$100,000	99%	100%	100%	100%	100%	57%	78%	96%	96%	80%

Source: RTBA unit record files and relevant budget standard

Table 19: Percentage of affordable rental properties by region, Melbourne, couple, 2010

Income	*LCBS*					*30% disposable income*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$0	0%	0%	0%	0%	0%	4%	8%	11%	8%	7%
$10,000	4%	8%	12%	8%	8%	11%	17%	29%	28%	19%
$20,000	15%	25%	45%	44%	30%	13%	21%	39%	37%	25%
$30,000	28%	46%	76%	76%	52%	19%	30%	53%	53%	36%
$40,000	44%	68%	92%	91%	71%	21%	33%	59%	60%	40%
$50,000	57%	78%	96%	96%	80%	7%	12%	19%	17%	13%
$60,000	85%	94%	99%	99%	94%	19%	30%	53%	53%	36%
$75,000	96%	98%	100%	100%	98%	38%	61%	88%	88%	65%
$100,000	99%	100%	100%	100%	100%	67%	85%	98%	98%	86%

Source: RTBA unit record files and relevant budget standard

Table 20: Percentage of affordable rental properties by region, Melbourne, couple with two children, 2010

Income	*LCBS*					*30% disposable income*				
	Inner	*Middle*	*Outer*	*Fringe*	*Melb.*	*Inner*	*Middle*	*Outer*	*Fringe*	*Melb.*
$0	0%	0%	0%	0%	0%	2%	14%	52%	61%	38%
$10,000	0%	0%	0%	0%	0%	4%	29%	75%	80%	55%
$20,000	2%	4%	14%	22%	12%	5%	37%	82%	86%	62%
$30,000	2%	11%	43%	53%	32%	5%	42%	86%	89%	65%
$40,000	3%	21%	66%	72%	48%	6%	45%	88%	90%	68%
$50,000	16%	69%	97%	97%	81%	10%	59%	95%	95%	76%
$60,000	40%	87%	99%	99%	90%	16%	69%	97%	97%	81%
$75,000	75%	95%	100%	100%	96%	22%	78%	98%	98%	85%
$100,000	91%	98%	100%	100%	99%	19%	73%	98%	98%	83%

Source: RTBA unit record files and relevant budget standard

In summary, the application of the residual income model to private rental draws out broadly similar findings to those of purchase:

- Over a certain income level, singles have more capacity to afford rental accommodation than families.
- Families (represented in the modelling by a couple and two children) have a much greater affordability problem than suggested by the 30 per cent rule.
- Below certain income levels (containing still sizeable numbers of households, as Figure 13 indicates), there is *no* accommodation available in Melbourne that is affordable.
- While not as marked as purchase, the rental market is more affordable in outer and fringe areas, and this is where all households have greater choice once a certain income level is achieved.
- The inner city and middle ring are highly problematic in terms of affordable housing.
- Families are constrained in choice, not just because of rent levels but also type of dwelling. Part of the reason for families having little choice in inner areas is the application of the Canadian National Occupancy Standard to the data which assumes it is inappropriate for families to live in one and two-bedroom accommodation.

The implications of these findings are discussed in Section 9.

8 SOCIAL HOUSING

One of the other objectives of this study was to test the appropriateness of the residual income model for social housing rent setting.

Social housing in Australia comprises a number of sectors: public housing, community housing including the growth associations, Indigenous housing and affordable housing. The largest sector by far is public housing, and the rental system within this sector has largely become the norm for the others. However, each sector differs in some way from this norm and together they illustrate a range of possible variations to rental systems within social housing in response to different financial, social and political imperatives.

The current public housing rent-setting structure around Australia is a household rent, usually referred to as a 'rebated rent' or an 'income related rent', which is based on the income of each tenant. While the formula used to calculate household rents varies between state housing authorities, most apply an upper benchmark of 25 per cent (up to 30% in New South Wales) of income. However, the treatment of Centrelink family payments and the income of other residents can vary, which means that there can be variations around the upper benchmark for different household types. For those on higher incomes there is also a property rent in the form of a quasi-market rent which represents the upper limit that a household can pay.

Rent setting in social housing (predominantly public housing until the 1990s) has traced a complex history of property and household rents, with cost rents being dominant for most households until the 1980s but overlaid by a household rent for those whose circumstances had changed and who could no longer pay a cost rent (McNelis & Burke 2005). In earlier years, household rents varied around much lower benchmarks than at present, but with financial viability increasingly threatened by the greater targeting that started in the 1980s (accelerating greatly from the mid-1990s), these were slowly pushed up to their current 25 per cent. The financial viability problem derives from the fact that the cost of the rebate (the difference between market-derived rents and household rents) is largely the direct responsibility of state housing authorities, with neither Commonwealth nor state governments reimbursing them for the difference between property rents and household rents.

Australia, New Zealand and the USA are the only developed societies operating a household rent which keeps rents for individual households to some defined benchmark (McNelis & Burke 2005). Most others charge only a property rent, with eligible tenants receiving a housing allowance calibrated according to different types and sizes of households and different regional rents using implicit benchmarks. This aims to achieve the intended level of affordability for groups of households with common characteristics rather than as a function of the particular circumstances of individual households. And, by virtue of the housing agency receiving a property rent that covers costs, there are not the financial pressures which Australian social housing agencies, most crucially public agencies, confront in striking a balance between financial viability and household affordability. In Australia this is not an easy balance as there is no guarantee that the high benchmark (25% to 30%) required for financial viability will guarantee affordability for households, particularly given that, as this report has stressed, benchmark rents do not recognise the different expenditure requirements of different household types.

Table 21 below illustrates the problem for housing agencies. This shows, for a range of household types and different combinations of age and children, the relevant statutory income (column 4) and budget standard (LCBS). By deducting the LCBS

from the residual income, the difference in principle is what should be available for rent. With the exception of older couples and sole parents with one or two young children, the statutory benefit is not enough to meet the budget standard, let alone pay rents. This would suggest that, for these family types, rents should be set at zero.

If Table 6 did not highlight this point sufficiently (69% of public tenants were below the LCBS), Table 21 does. This table shows for four household types and different age combinations of children the statutory income (column 4) and the actual budget standard (column 5). For singles (40 years of age), couples (same) and couples with two children, the statutory benefit is not enough to meet the budget standard, let alone pay rents. This in part is a function of indexing, given that statutory incomes are indexed by the CPI and the budget standard by the composite index method, with the latter increasing at a more rapid rate than the CPI. Accepting this method of indexing would suggest that, for these family types, rents should be set at zero and for the others at no more than $124 (for older couples). If a CPI measure was used, the LCBS would be reduced by around 15 per cent (see Appendix 2), but even this would produce rents that are below current household rents for most household types. Some, including one of this report's authors (Burke 2005), have suggested extending rent assistance to public housing tenants and this would certainly help the financial status of housing agencies (so long as NAHA funds were not withdrawn in the same proportion). Some tenants on full Centrelink incomes would still find themselves in a difficult financial position while others, for example aged couples, would be quite financially comfortable, particularly compared to private renters in the same age and pension categories.

Thus, in terms of the objective of testing the appropriateness of the residual income model for social housing rent setting, the answer is simple: it would not work for social housing agencies although it would work for most tenants. If rents were set at the budget standard for public housing, the levels that they would be set at for tenant affordability would greatly worsen the financial viability for housing agencies. Into the bargain, a residual income rent remains a household rent, with all its administrative costs and work disincentive implications of a household rent that changes as income changes.

Table 21: Statutory incomes compared to LCBS for various household types, 2010

1	*2*	*3*	*4*	*5*	*6*
Household type	*Adults' age*	*Children's age*	*Statutory income*	*BS amount*	*Potential rent (4-5)*
Single	40		$231	$278	-47
	65		$351	$276	75
Couple	40, 40		$418	$421	-3
	65, 65		$529	$405	124
Couple, 1 child	40, 40	8	$566	$562	4
Couple, 2 children	40, 40	8, 10	$659	$664	-5
Couple, 3 children	40, 40	8, 10, 12	$759	$756	3
Sole parent, 1 child	40	8	$398	$353	45
Sole parent, 2 children	40	8, 10	$492	$473	19

Source: Centrelink 2010 LCBS modelling

This does not invalidate the residual income method for getting a more subtle understanding of the household-specific implications of the current rent-setting model. Thus, not all tenants are on a maximum Centrelink income, many will combine elements of such an income with other income sources, and some will be on full employed incomes. Table 21 repeats the above exercise for households on Victorian Office of Housing *maximum* income eligibility and shows what rent they could afford to pay using the LCBS (column 8). This highlights the problem of a household rent on a relatively flat percentage amount. Those on very low incomes may be paying an excessive amount on rents and not leaving enough for other expenditure, while those on higher incomes in most cases have more than enough to live on after paying the 25 per cent household rent (as compared with what they would be paying with the LCBS). Sole parents in particular are doing relatively nicely. On the other hand, the household rent for couples with large families (four children) appears too harsh and does not leave enough to meet the LCBS. They are $68 out of pocket, whereas sole parents have between $285 and $190 more relative to what the LCBS rent would be, depending on the number of children.

Table 22: Victorian Office of Housing maximum income eligibility, household rent and LCBS, comparative analysis for selected household types, 2010

1 Household type	*2 Adults' age*	*3 Children's age*	*4 Public housing maximum eligible income*	*5 LCBS*	*6 Public housing LCBS rent*	*7 Public housing rent, 25% benchmark method*	*8 LCBS rent/ public housing rent difference*
Single	40		$470	**$278**	$192	$118	74
	65*		$470	**$276**	$194	$118	76
Couple	40, 40		$816	**$421**	$395	$204	191
	65,65*		$816	**$405**	$411	$204	207
Couple, 1 child	40,40	8	$850	**$562**	$288	$212	76
Couple, 2 children	40,40	8,10	$884	**$664**	$220	$221	1
Couple, 3 children	40,40	8,10,12	$918	**$756**	$162	$230	-68
Sole parent, 1 child	40	8	$850	**$353**	$497	$212	285
Sole parent, 2 children	40	8,10	$884	**$473**	$411	$221	190

In the interests of vertical equity (between lower and higher income tenants in public housing), this would suggest an increase in the proportion of rent required for each household type as income increases. While superficially equitable, such a rent increase creates a potentially greater welfare trap by virtue of the workforce disincentive build in to sharper rent tapers. It would also be even more administratively burdensome than the current model and, as targeting bears its impact on tenancy mix over time and more and more households are at the low end of the income range, for example 100 per cent Centrelink income dependent, then any restructuring of rents along these lines would probably be financially problematic for social housing agencies. This would likely occur because the proportion of households requiring a rent increase and contributing to revenue would be more than negated by those requiring a reduction. In short, this exploration of the implications of

the residual income model only adds to the evidence that the current mix of a flat 25 per cent household rent and a market rent is highly problematic for tenants and housing organisations.

Turning to the NRAS, the budget standard model as applied to its income limits suggests that the scheme is very well targeted as the point of eligibility. Table 23 below shows the initial income limits for NRAS eligibility for selected household types as of June 2010. Initial eligibility is the maximum amount for a relevant household at the point of allocation of a property (column 5). There is also an upper limit as to how much the income can increase by over a two-year period without having to vacate an NRAS property, but that is not relevant to the assessment of initial targeting.

The table shows the residual income measure for each household type (column 5) and deducts this from column 6 to produce an amount that would be the desired rent to meet MCBS requirements. The MCBS estimates (which would exclude CRA) would appear to be close to the market rents less 25 per cent in most capital cities. For example, looking at a childless couple in their 40s, the MCBS rent (the amount they should pay as CRA goes to the provider) is $284. In Melbourne in December 2010 the median rent for a two-bedroom flat was $340. Discounted by 25 per cent as required by NRAS, the rent is $255, not too far from what the LCBS would suggest. For a large family (couple with four children) the 75 per cent discounted median December rent for a four-bedroom house is $290 and the LCBS suggests they should be paying $305—again very close. If only public housing, and perhaps by default community housing, rent could be as well targeted to what households can actually afford! Into the bargain, the NRAS rent structure (being a discounted market rent) has no inbuilt work disincentives.

Table 23: NRAS maximum income eligibility and MCBS rent applied to NRAS eligibility, June 2010

1	*2*	*3*	*4*	*5*	*6*	*7*
Household income composition	*Household type*	*Adult's age*	*Children's age*	*NRAS maximum income eligibility*	*MCBS*	*MCBS rent (5–6)*
100% income	Single	40		681	**397**	284
	Single	65		681	**382**	299
	Couple	40, 40		$894	**$610**	$284
		65, 65		$894	**$555**	$339
	Couple, 1 child	40, 40	8	$1,152	**$816**	$336
	Couple, 2 children	40, 40	8, 10	$1,356	**$988**	$368
	Couple, 3 children	40, 40	8, 10,1 2	$1,554	**$1,249**	$305
	Sole parent, 1 child	40	8	$928	**$572**	$356
	Sole parent, 2 children	40	8, 10	$1,193	**$781**	$412
60/40%	Couple	40, 40		$970	**$610**	$360
		65, 65		$970	**$555**	$415
	Couple, 1 child	40, 40	8	$1,204	**$816**	$388
	Couple, 2 children	40, 40	8, 10	$1,430	**$988**	$442
	Couple, 3 children	40, 40	8, 10, 12	$1,655	**$1,249**	$406

9 CONCLUSIONS AND IMPLICATIONS

By its nature, this study was not designed to have a direct policy focus. The intention was to explore the viability of an alternative method of measuring affordability (the residual income method) to the ubiquitous 30 per cent benchmark method and to look at how this might enrich our understanding around a range of affordability and housing market issues. The work has been exploratory but reveals both the potential and the limitations of the method.

For a broad measure of affordability (i.e. the scale of problems across *all* households), the residual method provides results not too dissimilar to the benchmark method (12.6 % residual income, 14.3% benchmark method) and, given the ease which the latter can be constructed and the complications with the residual method, we would recommend its continued use.

However, in terms of compositional elements where the results are affected by the type of households and their different expenditure and the make-up of these household types in different tenures, then the residual income method is likely to be more accurate in terms of the actual household experience. It is obvious, for example, that large families will have higher expenses than smaller ones and that this will affect their capacity to pay for housing.

This report offers no broad overall conclusions other than that above. Instead, there are conclusions specific to each section and to the key questions to be addressed by the study. The conclusions are thus pulled together in relation to these questions and in part serve as a summary of results and in part an indicator of policy directions. Some are speculative as it has to be remembered that this is not a full blown study of all household types and all housing markets, but rather of a few case study households and two metropolitan locations.

9.1 Using the method to measure the scale and form of the problem

If we accept the residual income method as a complement to the benchmark, what are some of the key findings in terms of the first objective set for its use, that is, to calculate the distribution of housing affordability by household type, tenure, income, state and type of purchasers?

1. For the lowest 40 per cent of household income earners, the 30/40 rule actually *understates* the affordability problem. If we already thought it was bad, it is actually worse, with the residual method showing 31 per cent of all Australian households having an affordability problem. The degree to which this is a housing cost versus an income distribution problem cannot be determined via this research, although the residual income model could be used to show how manipulations of housing costs or incomes could improve the financial position of different household types.

   It must be appreciated that in a highly marketised housing system with little not-for-profit housing (around 95% of Australian housing is market provided), the percentages of lower income households with an affordability problem will always be high as markets can never get rents or house prices to levels affordable for such households. In the absence of a much larger not-for-profit sector, the challenge is working out the mix of supply side and demand side subsidies that can achieve the best affordability outcomes in the market sector. A starting point suggested by the residual income method is to focus on those household types and tenures that have the most intense affordability problems.

2. Lack of affordability is an obvious personal hardship for these families but what the findings hypothesise, given that almost a third of households have no spending discretion after meeting the necessities of life and housing costs, is that affordability may also be a drag on consumer spending and therefore on the economy. The households have not the capacity to save or to drive consumer spending.
3. It is the rental sector where the affordability problem is most intensely felt. Of the 779 853 lower 40 per cent income households, 51 per cent were renters, split relatively evenly between private and public sectors.
4. The residual income method indicated that public renters *can* have an affordability problem, but this is as much about low income as about rents and highlights the problematic nature of social housing, particularly public housing, in Australia. Rents are too high for many tenants but not high enough for the housing organisations' financial sustainability. Rental reform is necessary.
5. Among private renters, the stand-out group are aged singles and couples. The numbers here are not huge and very few have the capacity to increase their income in old age. But as other AHURI studies have pointed out, the numbers will increase substantially over coming years. The solutions are always complex, requiring new supply side housing forms and financial models, but on the income side there is a strong case for some form of rent assistance top-up. We are only talking about some 50 000 households and thus an additional budgetary outlay of $125 million per annum if they were to receive another $50 a week. Ideally, such a 's' would have performance requirements, for example housing quality, attached to prevent exploitation.
6. What the latter point reveals, however, and one alluded to throughout the study, is that the housing affordability problem is not just about housing costs. To expect solutions in the housing domain only will not address much of the problem. The relationships between income support programs and housing affordability outcomes, and labour market programs (whereby households can increase their earned income) and housing affordability, need greater understanding and potential review.

9.2 How well or badly we perform in comparison to the USA

1. This short section highlighted the importance of understanding the broad institutional environment when making comparisons between countries. While Australia may come up badly on very raw measures of affordability, a more fine-grained analysis that looks at income support schemes, housing market structure, and household composition, may suggest that the situation is not as bad as it seems. That is certainly the case in the Victoria/Massachusetts comparison. The important point here is that this appears to have more to do with income support programs and income distribution than housing market performance, reaffirming point 5 above.
2. Reinforcing the point made in Section 9.1, where Australia does have a worse affordability problem is for aged singles and couples.

9.3 Modelling affordability capacity by household type

1. The most important conclusion here is that the 30/40 method is not an adequate tool for understanding affordability and the housing market implications. Different household types have much greater capacity to participate in the housing market than others, and this is important in understanding market dynamics.

2. The residual method with a focus on specific household types can provide a better understanding of the compositional make-up of the affordability problem and suggests, among other things, the need for financial institution mortgage calculators that recognise the different expenditure attributes of different household types.
3. Below some income point (varying for each household type), but in some cases (notably for families) higher than suggested by the 30/40 rule, no private market housing is affordable, whether rental or purchase. What the modelling suggests is, of course, consistent with the proportions of an affordability problem documented in Section 5 and in other AHURI studies. The obvious point is that policy initiative and reform is necessary, but what form this should take leaves considerable room for debate.
4. Given the same income, singles and couples have much greater market capacity to work within the high house prices and rents of the inner city and middle ring suburbs and can purchase or rent at levels way beyond what the 30/40 rule would tell us. The development industry has already worked this out, which explains the proliferation of one and two-bedroom apartments in inner city and middle ring Melbourne in the last decade.
5. The method enables the development of household-specific price points that can be used by industry or government to identity the targeting of affordable housing developments. This could be important where there is inclusionary zoning or simply in government (state and local) negotiations with developers to include some proportion of affordable housing. It provides a precise measure *with underlying rationale* to say what that is, which was not previously the case.
6. By relating the affordability capacity to price points and then to the distribution of renters' incomes, it is possible to get some assessment of the potential size of the first-time home purchase market. This exploratory exercise for the case study households would suggest that current prices are at a level where this market is very limited. We may have finally hit the affordability price wall.
7. The residual income method suggests that it is families that face the greatest barriers to purchase, and yet for reasons such as the ontological security ownership provides it is probably more important to encourage ownership for this household type. One policy alternative is to target the FHOG to families only, capped at different income levels for family size. Thus, for couples with two children it could be capped at $100 000, as above that point there do not appear to be any difficulties for a household of this type purchasing. For three children it might be $105 000 and for one child $95 000, but with the residual income method providing the information to set the amounts more precisely.
8. An alternative or complement might be the adaptation of rent assistance to a parallel home purchase assistance program where the same or similar amounts to CRA are made available to potential home purchasing households, but with eligibility targeted only to families (income capped as above) and only for a five-year period (i.e. to get over the initial purchase hump), and most importantly as a contingent payment to be repaid on sale out of any capital gains.

9.4 Affordability performance of home purchase markets on a spatial basis

1. Using the Melbourne and Adelaide home purchase markets and applying the residual income affordability to actual dwelling prices, we were able to document the degree of market constraint for different household types. Lower income families (below $40 000) are out of the market completely; only at around $60 000

is there capacity to purchase, but then this applies only in outer suburbs and growth areas. Singles and couples had much less constrained choice and those with incomes below $80 000 were the only household type that could be first-time home buyers in inner city and middle ring suburbs. These observations have to be modified for second and subsequent purchasers who have built up a sizeable equity in their existing property.

2. The differential choice of household types to purchase indicates a driver of spatial polarisation that, in the absence of any policy interventions, is no doubt likely to be sustained in the future. However, it is a nuanced polarisation, not simply one of lower versus higher income but also of household and housing type. The outer suburbs as a whole will *not* become dominated by low income households as many of the larger households that are constrained or choose to live in such areas because of their greater affordability and more appropriate dwellings (houses rather than flats) still have objectively good incomes of $75 000 plus. In 15 years or so, when these households' mortgages reduce relative to hopefully rising incomes, they will have substantial discretionary income to spend on goods and services in these areas. And many who traced the same housing career a decade or more ago probably already have.

   This means that the outer suburbs will not trace the path of US inner cities where concentrations of low income households undermine the viability of local industry and create a pathway to concentrations of spatial disadvantage. This may occur in limited areas of Australian outer suburbs where the particular nature of the stock, that is, tired six-pack apartments, run-down detached dwellings and, in some cases, ex-public housing stock, will attract 'slum' landlords, low income purchasers and renters. These areas should be identified, the processes causing change better understood and potential interventions designed.

   Conversely, these processes do not mean that the inner and middle ring areas of our cities are going to be concentrations of high income households. The growing proportion of multi-unit accommodation that will be occupied by singles and couples will ensure this. To purchase in such areas, these household types only need an income much the same as, or even less than, the income needed by larger households to purchase in the outer areas. Across Melbourne there may be relatively even distribution of household incomes, but with very different household compositions.

   What will certainly occur, and is already occurring, in response to the current market affordability is a polarisation of dwelling form and household type. Inner city and middle ring housing will be increasingly dominated by multi-unit development, often high rise and targeted at small households, while outer and growth areas will be dominated by detached houses marketed at larger households and only occasionally relieved by a small pocket of multi-unit housing.

3. The unintended side effect of the polarisation could be an inability for many outer urban detached home owners to trade down or across. There has been a growing assumption (in many countries, now undermined by the global financial crisis) that home ownership could be a de facto form of welfare policy in that older households could sell their outright owned property, trade down to a smaller dwelling and have the residual as an income stream or de facto pension. In a spatially divided housing market this will have only limited potential as already the cost of apartments in the areas where they are largely available (inner city and middle ring) are equal to or exceed outer urban detached housing. And in the outer urban areas of Melbourne such is the focus on the larger household (family market) that there is very limited construction of multi-unit housing. For example, in 2009, of 17 628 dwelling permits for construction projects in these areas, 98.4

per cent were for detached dwellings (Victorian Building Commission 2010). Households in outer areas will not even be able to trade across to a more suitable dwelling form as their housing circumstances change.

4. Until the outer urban households' children leave home, or the households have very large increases in income to sustain a much larger mortgage and/or build very substantial equity, they are effectively trapped in space with little prospect of moving into the inner and middle suburbs, such is the gap between what they can afford and the value of dwellings in outer urban areas relative to those in the inner city and middle ring areas. Compared to the housing market in Melbourne in the 1945–80 period when affordability was fairly uniform across space, the now spatially constrained housing market is potentially limiting labour market mobility (many people are less able to move around metropolitan areas) or accentuating car use as many whose jobs are in inner urban locations are forced to live further away from where they work and where there is poor public transport. Both represent problems for urban sustainability.
5. A locking-in of two distinctively different residential construction industries whereby there is a sector of small or contract builders specialising in the techniques of single unit housing construction and a commercial multi-unit sector specialising in four or more storeys, with the former tending to only operate in the outer area and the latter only in the inner, where they both know their relevant markets and the building techniques and funding mechanisms to make their products work in those markets. In addition to the demand side constraints on creating a more diverse housing form in the outer areas, this may create a supply side constraint with few multi-unit builders with the interest or expertise to venture into the outer areas. As Newton et al. (2011) observe, there is a shortage of high quality low rise median density development in Australian cities, in part because this specialisation of the two residential construction sectors.

   In US and Canadian cities, the latter type of development where there might be hundreds of townhouses and low rise apartments designed around community facilities is not uncommon in outer and growth areas. But the dynamics of the Australian housing market, much of it arguably driven by the affordability patterns documented above, create a barrier to the emergence of such a development form.

9.5 Affordability performance of rental housing on a spatial basis

1. The rental affordability patterns reaffirm the problem of increasingly polarised urban form. As more and more renters, notably families, are pushed to outer urban areas, the response will come from landlords buying up existing stock of detached dwellings. In the absence of either carrots or sticks, the process will not drive much new purpose-built rental accommodation, particularly multi-unit housing. The rental drivers will reinforce the homogeneity of dwelling form in such areas.
2. The inability of low to moderate income households to afford inner city and middle ring housing is highly problematic. These were the areas where such households traditionally found accommodation and it is also where the services they use and the sectors they may work in, for example security, cleaning and hospitality, are disproportionately located. Many would argue it was their residence in these areas that created the social and economic mix that made such areas attractive. It is important that low cost rental stock be retained in such areas, and programs such as the NRAS are very significant in terms of achieving this, but affordable housing providers in these areas will always confront the land cost barrier, and

Commonwealth programs cannot be expected to deal with this. The low cost rental shortage in such areas is a rationale not only for inclusionary zoning, but for the formation of a regional authority with the responsibility for land amalgamation and planning coordination, including around affordable rental provision, and for some flexibility in the central agency requirement that government land (of which there are still considerable holdings in inner areas) should be sold at full market value.

3. The findings simply reaffirm the need for more social housing, given the clear market failure in the private rental sector.

9.6 Implications for social housing

1. Besides documenting the need for social and affordable housing, the study also suggests that the current household rent used in public housing (Victoria being the example) is neither here nor there; it neither provides housing agencies with a sustainable rent nor does it provide an affordable rent for many tenants. In addition, the way it is structured means that some households benefit more than others. A household rent based on the residual income method is not the answer as it too has its problems, but it could be used to provide information for a different type of rent (e.g. a fixed cost rent by household type and size modified for location and dwelling quality). In short, a restructuring of rent accompanied by a new funding model is essential for the sustainability and equity objectives of social housing.

2. The analysis does raise the question of whether there could be a parallel program aimed at home purchase. If eligible households could get the $9100 per annum indexed as a household subsidy (it could be targeted, e.g. at key professions that receive low pay, e.g. the human services sector), many NRAS households would be able to afford home purchase. There would need to be conditions. It could only be for a new dwelling and therefore increases supply, and importantly the funds provided would in effect be contingent loans to be repaid out of capital gains when the property is sold. This would enable households to build equity and have the other ontological advantages of ownership but without great long-term cost to government. Alternatively or in addition, a scheme could be targeted at housing growth providers, but for sale not rental. Purchasers would buy in at a discount on the market price, but the property could only be sold back to the growth provider on a formula that kept the stock at below market values. Again, the objective of such a national affordable home purchase scheme is to enable households to build equity and have ontological security while simultaneously increasing the affordable housing stock. It could replace the FHOG and therefore use the same budget allocation but provide better outcomes.

9.7 Overall conclusion

While exploratory, the findings in this report suggest the usefulness of the residual income method as a basis for more informed decision-making around affordability issues and for more detailed analysis of the implications. The analysis is far from exhaustive and more work needs to be done in extending it to more households and working through in greater detail the implications for market behaviour.

One of the model's limitations is the complexity in creating it, and thus this Final Report is accompanied by a template of the model to enable any agency or individual to undertake residual income analysis based on whatever assumptions of gross income, interest rates, deposits, taxation, pensions, benefits and allowances are relevant to their research purpose.

REFERENCES

ABS (2007) *2006 Census QuickStats :Victoria*, Australian Bureau of Statistics, Canberra.

ABS (2009) *Income and Housing Survey, Australian 2007/08* Australian Bureau of Statistics, Canberra.

ABS (2010a) *Retail Turnover by Industry Group, Tables 8501.0*, Retail Trade, Australia Australian Bureau of Statistics, Canberra.

.ABS (2010b) Housing Finance Commitments Table 9B Australian Bureau of Statistics, Canberra.

Alonso, W. (1964), *Location and Land Use*, Harvard University Press, Cambridge, Mass.

Archer, R. (1980), 'The market for new multi-unit housing in Sydney and Melbourne' in *Housing Economics: Papers Prepared for National Housing Economics Conference 1978*, Australian Government Publishing Service, Canberra.

Atkinson, R., Wulff, M., Reynolds, M. and Spinney, A. (2011), *Gentrification and Displacement: The Household Impacts of Neighbourhood Change*, Final Report no. 160, Australian Housing and Urban Research Institute, Melbourne.

Baum, S., Haynes, M., van Gellecum, Y. and Han, J. H. (2006), 'Advantage and disadvantage across Australia's extended metropolitan regions: A typology of socioeconomic outcomes', *Urban Studies*, 43(9), pp.1549–79.

Belsky, E. and Duda, M. (2002), 'Anatomy of the low-income homeownership boom in the 1990s' in N. Retsinas and E. Belsky (eds), *Low-Income Homeownership: Examining the Unexamined Goal*, Brookings Institution Press, Washington, DC.

Berry, M., Dalton, T. and Nelson, A. (2009), *Mortgage Default in Australia: Nature, Causes and Social and Economic Impacts*, Positioning Paper no. 114, Australian Housing and Urban Research Institute, Melbourne.

Berry, M., Dalton, T. and Nelson, A. (2010), *Mortgage Default in Australia: Nature, Causes and Social and Economic Impacts*, Final Report no. 145, Australian Housing and Urban Research Institute, Melbourne.

Bluestone, B., Billingham, C. and Casey, J. (2010), *The Greater Boston Housing Report Card 2010: Taking Stock in an Uncertain Time*, Center for Urban and Regional Policy, Northeastern University, Boston.

Bluestone, B., Billingham, C. and Davis, T. (2008), *The Greater Boston Housing Report Card 2008: From Paradigm to Paradox: Understanding Greater Boston's New Housing Market,* Center for Urban and Regional Policy, Northeastern University, Boston.

Burke, T. (2005), 'Social housing over the horizon: Creating a contemporary social housing system' in S. Darby, P. Flatau and I. Hafekost (eds), *Building for Diversity: Proceedings of National Housing Conference*, Department of Housing and Works, Perth.

Burke, T., Campbell, D., Hayward, D. and Nisbet, P. (1985), *Melbourne Housing Indicators*, Estate Agents Board, Melbourne.

Burke, T. and Hulse, K. (2010), 'The institutional structure of housing and the sub-prime crisis: An Australian case study', *Housing Studies*, 25(6), pp.821–38.

Burke, T. and Ralston, L. (2003), *Analysis of Expenditure Patterns and Levels of Household Indebtedness of Public and Private Rental Households, 1975 to 1999,* Final Report no. 34, Australian Housing and Urban Research Institute, Melbourne.

Castles, F. (1985), *The Working Class and the Welfare State*, Allen & Unwin, Sydney.

Center for Urban and Regional Policy (various years) *The Greater Boston Housing Report Card*; North Eastern University, Boston

Centrelink (2010), *Payments*, Canberra, <http://www.centrelink.gov.au/internet/internet.nsf/payments/index.htm>

Committee of Inquiry into Housing Costs (1978), *The Cost of Housing*, Parliamentary Paper 272/1978, Parliament of Australia, Canberra.

Debelle, G. (2008), *A Comparison of the US and Australian Housing Markets*, Reserve Bank of Australia, Sydney, <http://www.rba.gov.au/Speeches/2008/sp_ag_160508.html>

Demographia (2010), *Demographia International Housing Affordability Survey: 2010*, <http://www.demographia.com/dhi.pdf>

DFaCS (2007), *The SPRC Budget Standards Project and Costs of Children Estimates*, Policy Research Paper no. 7, Department of Families and Community Services, Canberra.

Dodson, J. and Sipe, N. (2008), 'Shocking the suburbs: Urban location, home ownership and oil vulnerability in the Australian city', *Housing Studies*, 23(3), pp.337–401.

Economic Policy Institute (2005), *EPI Issue Guide: Poverty and Family Budgets: Guide to Creating a Basic Family Budget*, Washington, DC.

Esping-Andersen, G. (1990), *The Three Worlds of Welfare Capitalism*, Polity, Cambridge.

Executive Office of Labor and Workforce Development (2010), *Unemployment Insurance: Overview of Benefits*, Boston, <http://www.mass.gov/?pageID=elwdconstituent&L=2&L0=Home&L1=Claimants&sid=Elwd>

Flood, J. and Baker, E. (2009), *Housing Implications of Economic, Social and Spatial Change: Key Issues*, Positioning Paper no. 116, Australian Housing and Urban Research Institute, Melbourne.

Forster, C. (2004), *Australian Cities: Continuity and Change*, 3rd edn, Oxford University Press, Oxford.

Gramlich, E. (2007), *Subprime Mortgages: America's Latest Boom and Bust*, Urban Institute Press, Washington, DC.

Gurran, N., Milligan, V., Baker, D., Bugg, L. B. and Christensen, S. (2008), *New Directions in Planning for Affordable Housing: Australian and International Evidence and Implications*, Final Report, no. 120, Australian Housing and Urban Research Institute, Melbourne.

Hall, J. and Berry, M. (2007), *Public Housing: Shifting Client Profiles and Public Housing Revenues*, Final Report no. 108, Australian Housing and Urban Research Institute, Melbourne.

Harloe, M. (1995), *The People's Home? Social Rented Housing in Europe and America*, Blackwell, Oxford.

Herscovitch, A. and Stanton, D. (2008), 'History of social security in Australia', *Family Matters*, 80.

Hill, M. (2006), *Social Policy in the Modern World*, Blackwell, Oxford.

Hulse, K. (2002), *Demand Subsidies for Private Renters: A Comparative Review*, Final Report no. 24, Australian Housing and Urban Research Institute, Melbourne.

Hulse, K., Burke, T., Ralston, L. and Stone, W. (2010), *The Benefits and Risks of Home Ownership for Low-Moderate Income Households*, Final Report no. 154, Australian Housing and Urban Research Institute, Melbourne.

Kemeny, J. (1981), *The Myth of Home Ownership: Private Versus Public Choices in Housing Tenure*, Routledge and Kegan Paul, London.

Kewley, T. H. (1969), *Australia's Welfare State: The Development of Social Security Benefits*, Macmillan, Melbourne.

McNelis, S. (2006), *Rental Systems in Australia and Overseas*, Final Report no. 95, Australian Housing and Urban Research Institute, Melbourne.

McNelis, S. and Burke, T. (2005), *Rental Systems in Australia and Overseas*, Positioning Paper no. 74, Australian Housing and Urban Research Institute, Melbourne.

Melbourne Institute of Applied Economic and Social Research (2011), *Poverty Lines Australia*, University of Melbourne, Melbourne.

Melhuish, T., King, A. and Taylor, E. (2004), *The Regional Impact of Commonwealth Rent Assistance*, Final Report no. 71, Australian Housing and Urban Research Institute, Melbourne.

Mendelsohn, R. (1979), *The Condition of the People: Social Welfare in Australia, 1900–1975*, Allen & Unwin, Sydney.

National Housing Strategy (1991), *Australian Housing: The Demographic, Economic and Social Environment*, Issues Paper No. 1, Australian Government Publishing Service, Canberra.

National Housing Supply Council (2010), *2nd State of Supply Report*, Commonwealth of Australia, Canberra.

Newman, P. (2002), *Sustainability and Housing: More Than a Roof Over Head*, Department of Premier and Cabinet, Perth.

Newton, P., Murray, S., Wakefield, R., Murphy, C., Khor, L. and Morgan, T. (2011), *Towards a Development Model of Housing Regeneration in Greenfield Residential Areas*, Final Report, Australian Housing and Urban Research Institute, Melbourne.

OECD (2010), *Benefits and Wages: OECD Indicators*, OECD, Paris.

OECD (2011), *Doing Better for Families*, OECD, Paris.

Office of Housing, (2010) *Rental Report,* Department of Human Services. Melbourne

Ortiz, J. (2009), *Social Security and Retirement Across the OECD Countries*, OECD, Paris.

Priorities Review Staff (1975), *Report on Housing*, Parliamentary Paper no. 261, Parliament of Australia, Canberra.

Productivity Commission (2004), *First Home Ownership*, Report no. 28, Commonwealth of Australia, Canberra.

Saunders, P., Chalmers, J., McHugh, M., Murray, C., Bittman, M. and Bradbury, B. (1998), *Development of Indicative Budget Standards for Australia*, Research Paper no. 74, Department of Social Security, Canberra, <http://www.fahcsia.gov.au/about/publicationsarticles/research/dss/Policy_Research_Series/Documents/policyresearchpaperno74.pdf>

Seelig, T. (1999), *Residual Income Approaches to Understanding Housing Affordability*, Needs Analysis Unit, Housing Policy and Research, Department of Housing, Brisbane (unpublished).

Stone, M. (1993), *Shelter Poverty: New Ideas on Housing Affordability*, Temple University Press, Philadelphia.

Stone, M. (2006), 'Housing affordability: One-third of a nation shelter-poor' in R. Bratt, M. Stone and C. Hartman (eds), *A Right to Housing: Foundation for a New Social Agenda*, Temple University Press, Philadelphia.

Stone, M., Burke, T. and Ralston, L. (2011), *The Residual Income Approach to Housing Affordability: The Theory and the Practice*, Positioning Paper no. 139, Australian Housing and Urban Research Institute, Melbourne.

South Australian Valuer Generals Department (2010) *Property Sales Statistics*, Adelaide.

Tanton, R., Nepal, B. and Harding, A. (2008), *Wherever I Lay My Debt, That's My Home: Trends in Housing Affordability and Housing Stress, 1995–96 to 2005–06*, Income and Wealth Report no. 19, AMP.NATSEM, Canberra.

US Department of Labor (2010), *Minimum Wage Laws in the States*, Wage and Hour Division, Washington, DC, <http://www.dol.gov/whd/minwage/america.htm>

US Bureau of the Census 2008: *American Housing Survey 2007* US Bureau of the Census Washington.

Victorian Building Commission (2010), *Building Permit Data*, Melbourne.

Victorian Valuer Generals Department ,(2010) *Property Sales Statistics*, Valuer General Melbourne.

Wood, G., Watson, R. and Flatau, P. (2003), *A Microsimulation Model of the Australian Housing Market with Applications to Commonwealth and State Policy Initiatives*, Final Report no. 33, Australian Housing and Urban Research Institute, Melbourne.

Wulff, M., Reynolds, M., Dharmalingam, A., Hulse, K. and Yates, J. (2011), *Australia's Private Rental Market: The Supply of, and Demand for, Affordable Dwellings*, Final Report no. 168, Australian Housing and Urban Research Institute, Melbourne.

Wulff, M., Yates, J. and Burke T. (2001), *Low Rent Housing in Australia 1986 to 1996: How Has It Changed, Who Does It Work for and Who Does It Fail?,* Project no. 213, Australian Housing Research Fund, Department of Family and Community Services, Canberra.

Yates, J. and Gabrial, M. 2006, *Housing affordability in Australia*, National Research Venture 3: Housing Affordability for Lower Income Australians, Research Paper 3 I Australian Housing and Urban Research Institute Melbourne.

Yates, J. and Milligan, V. (2007), *Housing Affordability: A 21st Century Problem*, Final Report no. 105, Australian Housing and Urban Research Institute, Melbourne.

Yates, J. and Whelan, S. (2009), *Housing Wealth and Consumer Spending*, Final Report no. 132, Australian Housing and Urban Research Institute, Melbourne.

APPENDICES

Appendix 1: Summary of assumptions and methods in building budget standard models

This appendix outlines in some detail the features of the model and how taxes and benefits are incorporated into it, using the examples of two household types: a single person and a couple with two children.

1. The model provides multiple indicators of affordability:

The model allows for a number of different applications. For home purchase they are:

a. maximum affordable mortgage payment

b. maximum affordable mortgage loan

c. maximum affordable purchase price

d. share of houses sold in 2010 that were affordable.

For rental they are:

e. maximum affordable rent

f. share of houses rented in 2010 that were affordable.

2. Affordability for a broad range of incomes:

The method allows for calculation of affordability indicators for a very large income spectrum. For renters it starts at $10 000, but in home purchase the starting income is $30 000 as it is assumed that purchase is not affordable below this level. Incomes are at $1000 intervals of gross annual household income up to $150 000.

3. Affordability for two case study household types:

Necessarily the residual income model is household-specific as that is one of its characteristic features (i.e. the ability to reveal that different household types have very different expenditures and therefore very different abilities to borrow). There are many types once permutations of marital status and number of children are taken into account. For the purpose of this study, we concentrated on two indicative types:

a. single adult, no children

b. couple, two children.

4. Affordability based upon two residual income non-housing standards:

The development of a residual income model of housing affordability requires indicative budget standards for different household types. Australia is fortunate to have the two standards developed by the SPRC at the University of New South Wales (Saunders et al. 1998):

a. low cost budget standard (LCBS) non-housing elements indexed for price changes

b. modest but adequate budget standard (MCBS) non-housing elements indexed for price changes.

These budget standards are indicative and some elements have been questioned, notably child care costs and housing costs (DFaCs 2007). The housing estimates are not relevant for this study as they emerge as a residual from the other data, and the child care methodological issues are not so great as to change the expenditure estimates in a way that could invalidate the findings here. There are also certain

consumption items whose importance has changed over time (e.g. mobile phones, broadband) and these have been factored into the final analysis, along with a measure of debt which has also increased greatly since the SPRC study. The MCBS assumes a monthly broadband charge of $20 and a mobile phone charge of $20.

There is also the problem with the SPRC budget standards that they assume expenditures are very similar across Australia. This would certainly be the case in capital cities and adjacent regional areas, but there are parts of Australia, for example remote areas or resource intensive areas (often one and the same), where many items by virtue of transport costs or high commercial rents are much dearer. The model therefore cannot have applicability in such areas.

5. User-set parameters to test market conditions as well as index over time:

The budget standards were developed in the late 1990s and therefore the parameters of any measures or indicators based on them have to be adapted for current circumstances. These include:

a. indexing to relevant time period by a composite index of 50 per cent household disposable income and 50 per cent CPI

b. mortgage loan-to-value ratio of 80 per cent

c. mortgage loan term (25 years)

d. mortgage interest rates (rates for June of relevant year)

e. mortgage establishment costs, for example stamp duty, legal (rates for relevant year).

6. Income assumptions:

a. For two-adult households, 60 per cent of total income is assumed to be from adult male employment and 40 per cent from adult female employment. It is assumed that no other family members' income is relevant for loan eligibility or is used in rental payments.

7. Income tax computations:

a. Income tax rates are based on personal tax rates for the 2009–10 financial year.

b. Tax rates are based on withholding rates for pay-as-you-go and do not include amounts credited or debited for taxation financial reconciliation such as the Medicare levy or low income tax offset. The computations also exclude tax deductions that are household-specific, such as those for length of tax year, higher education payments and the private health insurance offset. However, there are a number of income-based tax credits and benefits that are not household-specific.

8. Income-based tax benefits and credits:

The value of the following benefits has been computed, with the specifics differing by household type as Table A1 below shows and the accompanying text explains further. Consistent with Australian government policy, Newstart is based on disposable income while Family Tax Benefits are based on annual gross income. These are benefits prior to the 2010–11 budget.

Table A1: Relevant tax benefits and credits for sample household types

Household type	*Newstart*	*Family Tax Benefit Part A*	*Family Tax Benefit Part B*
Single person	√	X	X
Sole parent, 1 child	√	√	√
Couple, no children	√	X	X
Couple, 2 children	√	√	√

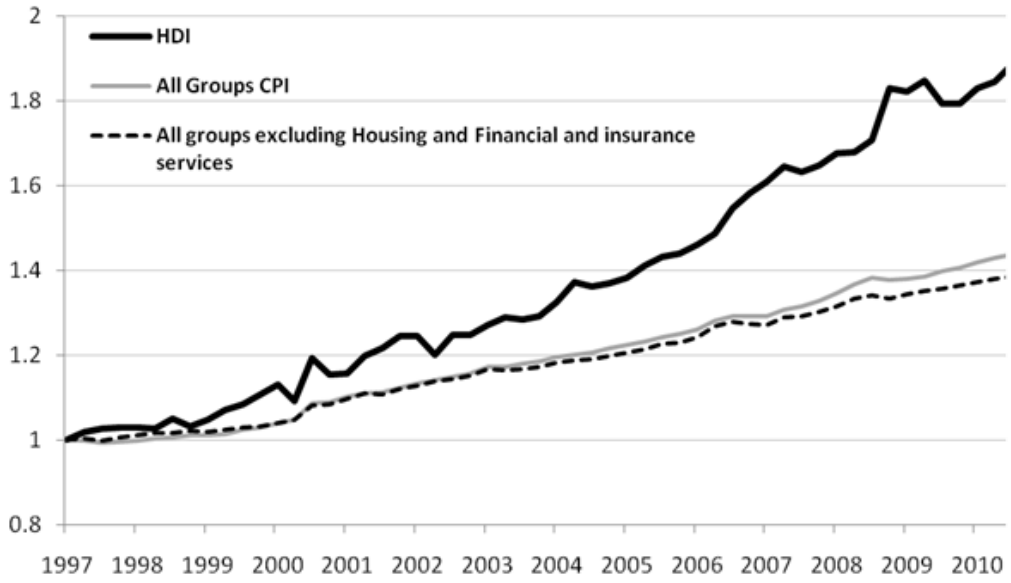
9. Modelling adjustment for specific household types

a. Sole person household: Not eligible for Family Tax Benefits, and for purchasers the $30 000 income cut-off means that no single persons are eligible for Newstart as it ceases at a disposable income of $853.34 per fortnight for single persons. Lowering of the cut-off below this requires computation of Newstart for this household group.

b. Couple household with two children: Eligible for Newstart up to $45 000. Family Tax Benefit Part A (FTBA) of $313.88 per fortnight is paid in full until combined income reaches $44 165 and then decreases on a sliding scale until the upper limit of $107 000. Maximum payment for Family Tax Benefit Part B (FTBB) is $93.10 per fortnight, based on the 'non-primary earner' if the primary earner's annual income is below $150 000. As it is based on the income of the non-primary earner, FTBB is no longer paid once the couple's combined income reaches $42 000.

Appendix 2: Testing of different indexing methods

Figure A1: Comparisons of outcomes for different indexing methods for the budget standard



Appendix 2 shows what would be the effect of choosing different indices for the budget standard. The household disposable index (HDI) would increase it at a much greater rate than the all groups CPI. Thus 13 years from the base year of 1997 the HDI is 35 per cent higher than the all groups CPI. This is because the former relates only to income increases and takes no account of expenditures. Choosing this would exaggerate the degree of affordability problems. On the other hand, the all groups index includes housing and the budget standard as used for the purposes of this study excludes housing and financial expenditures, and thus that is not an appropriate measure. Thus, the relevant expenditure index should be the CPI all groups minus housing. The problem with this measure, however, is that it does not take into account any change in tastes as incomes rise or new products emerge in response to greater affluence (e.g. mobile phone use and broadband). The compromise was to create a 'shandy index' which is half of the rate of the increase of the HDI and half that of the CPI minus housing costs.

Appendix 3: Regions of Melbourne

Appendix 3 shows the local government areas that make up the regional boundaries used in the figures and tables of Section 6.3. These are regions used by the Victorian Department of Planning and Communities.

Inner: Yarra, Stonnington, Port Phillip, Melbourne.

Middle: Manningham, Bayside, Hobsons Bay, Moonee Valley, Banyule, Maribyrnong, Kingston, Whitehorse, Darebin, Monash, Moreland, Boroondara, Glen Eira.

Outer: Nillumbik, Knox, Maroondah, Greater Dandenong, Frankston, Brimbank.

Fringe: Cardinia, Yarra Ranges, Whittlesea, Melton, Hume, Mornington Peninsula, Casey, Wyndham.

Appendix 4: Calculating affordable rent and rent assistance

Households who pay a rent above a threshold rent and receive a Centrelink payment (such as a pension, allowance or more than the base rate of Family Tax Benefit Part A) are eligible for rent assistance. The amount depends upon the type of household, the rent paid above the threshold rent, and the rent assistance rate (currently 75c for every $1 above the threshold rent) up to the maximum amount of rent assistance. In the model, the affordable rent is the disposable income after other expenses *plus* rent assistance. Rent assistance is calculated in a way which maximises the level of rent assistance paid. The formula for calculating the affordable rent is as follows:

1. If disposable income is less than the threshold rent for the household type, the affordable rent is the disposable income (and no rent assistance is paid).
2. If disposable income is *above* the rent at which maximum rent assistance is paid, the affordable rent is the disposable income plus the maximum rent assistance for that household type (and the maximum rent assistance is paid).
3. If disposable income is between the threshold rent and the rent at which maximum rent assistance is paid, the affordable rent is calculated as the disposable income (DI) less the threshold rent (R^{th}) multiplied by rent assistance rate (r), divided by 1 minus the rent assistance rate (r), that is, $(DI-R^{th} \times r)/(1-r)$ (and rent assistance is the difference between the affordable rent and disposable income). In other words, the rent is proportioned appropriately, depending on where the household sits between the threshold rent and the upper maximum.

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