Final Report

Australia's private rental market: the supply of, and demand for, affordable dwellings

authored by

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for the

Australian Housing and Urban Research Institute

Swinburne-Monash Research Centre

May 2011

Peer Reviewed

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ACKNOWLEDGEMENTS

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ACRONYMS

ABS   Australian Bureau of Statistics

AMI   Area Median Income (US)

AHS   American Housing Survey

AHURI   Australian Housing and Urban Research Institute Limited

CHRANZ   Centre for Housing Research Aotearoa New Zealand

CMHC   Canadian Mortgage and Housing Corporation

HUD   United States Department of Housing and Urban Development

NHSC   National Housing Supply Council

NRAS   National Rental Affordability Scheme

SIHC   Survey of Income and Housing Costs

EXECUTIVE SUMMARY

AIMS

In 2006 only 37 per cent of private renters with household incomes in the lowest 40 per cent of the national income distribution accessed affordable housing (Wulff et al. 2009). This Final Report aims to provide relevant information to assist policy-makers in addressing this situation. Specifically, the report addresses the following:

→ What are the characteristics of low and very low income households in the private rental sector? 'Low income' refers to households with incomes in the second lowest income quintile (21% to 40% of all incomes nationally) and 'very low' refers to households with incomes in the bottom income quintile (20% or lower).

→ Which low and very low income private renter households gain access to the affordable stock and which miss out? Is there a systematic pattern that might help to explain this outcome?

→ For low and very low income private renter households, what is the shortage or surplus of affordable stock and the true shortage (based on available stock) for each capital city and large regional centre?

Lower income households face two main difficulties in their efforts to access affordable rental dwellings:

→ The first relates to the actual supply of affordable dwellings; in other words, whether the stock of affordable dwellings, irrespective of who occupies these dwellings, is sufficient to meet the demand from low income renters.

→ The second relates to the availability of the stock. In the competitive private market, not all affordable stock necessarily goes to households who need it the most. For a number of reasons, middle to high income households may occupy this stock, thereby effectively removing dwellings from the affordable supply for low income renters.[1]

METHODS

This analysis draws upon a special request ABS census matrix related to all occupied private dwellings in Australia. *All missing values* for dwelling rents and household incomes have been imputed by the Australian Bureau of Statistics in order to ensure the reliability and quality of the results.

Five gross unequivalised household income ranges, which represent household income quintiles, are used. Weekly rent categories are matched against the household income quintiles to represent no more than 30 per cent of the corresponding income category.

Although 'low income' households are defined generally for policy purposes as falling into the bottom 40 per cent of the national household income distribution, this analysis disaggregates between Q1 and Q2 private renter households in presenting results.

This study measures the *actual supply of affordable dwellings* by calculating the *number* of private rental dwellings that can be rented to households in the bottom two income quintiles for an amount no greater than 30 per cent of their household income.

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[1] HUD (2007a, p.24) refers to the number of affordable dwellings affected by this process as a 'displacement figure'. The displacement figure estimates the extent to which higher income households have accessed the stock and thereby reduced the available stock.

The *available* supply is measured by subtracting from the *affordable* supply any dwellings that are occupied by higher income households and are therefore *not available* to low income households.

For further insight into the rental affordability problems faced by Q1 and Q2 private renter households, this chapter has focused not only on those who can pay an affordable (30% of household income), but also divide the rest into two broad groups: unaffordable rent (31% to 50% of household income) and severely unaffordable rent (over 50% of household income).

FINDINGS

There was a shortage of affordable housing stock available to those on very low and low incomes in 2006.

Very low income renters (Q1) face affordability problems both because of an *absolute shortage* of housing that is affordable and because a significant proportion of affordable stock is *not available* to them because it is occupied by higher income households. Low income renters (Q2), on the other hand, do *not face an absolute shortage* of affordable housing. This group, however, experience affordability problems because the affordable stock is occupied by other income groups and is, therefore, unavailable to them.

For the 267 819 *very low income private renter households* (Q1), the results indicate that, in 2006, there was an absolute shortfall of 138 000 affordable dwellings. The shortage increased to 211 000 dwellings that were both affordable and available once use by higher income households was taken into account. Seventy-nine per cent of very low income renters miss out on affordable rental housing.

For the 360 467 *low income private renter households* (Q2), the results show a surplus of 527 533 affordable dwellings. Importantly, however, use of these dwellings by other households turns this surplus into a shortage of 87 000 dwellings that are affordable *and* available. Overall, 24 per cent of low income private renters face affordability problems that are a result of a shortage of affordable and available housing.

Affordable and available private rental supply varied by capital cities and large regional centres.

For Q1 private renter households, the greatest shortages, both in absolute and relative terms, in affordable and available private rental dwellings were observed in Sydney (-44,500; 93% miss out), Melbourne (-40,200; 87% miss out) and Brisbane (-19,100; 87% miss out). All eight large regional centres studied had high levels of Q1 private renter households missing out on affordable rental housing. It was particularly pronounced in the Gold Coast (93%) and the Sunshine Coast (88%) in Queensland. However, Geelong and Launceston had relative lower levels of shortages (64% and 63% respectively) than the others. This was associated with a larger affordable supply in these two regional centres compared with the other regional centres.

For Q2 private renter households, the geographic pattern is similar to that of Q1. More severe shortages in affordable and available housing were observed in Sydney, Melbourne and Brisbane than the smaller cities (with the exception of Canberra). The pattern among the regional centres also parallels that documented for Q1 private renters. Relatively fewer Q2 households miss out on affordable dwellings in Geelong (7%) and Launceston (6%) compared to the rest. Notably, a much greater proportion missed out in the regional centres of the Gold Coast (54%) and the Sunshine Coast (43%) compared with 31 per cent in the capital city of Brisbane.

Only 21 per cent of very low income private renter households pay an affordable rent; 19 per cent pay a severely unaffordable rent.

Of the 267 819 Q1 private renters, 57 313 households pay an *affordable* rent that was less than 30 per cent of their gross household income; an almost equal number of households (51 421) pay a *severely unaffordable* rent of over 50 per cent of their gross household income.

Age, living arrangements and number of children play an important role in determining access to affordable rental housing.

In general, elderly renters, people living alone, and households without children present are more likely to find an *affordable* rental dwelling.

In contrast, very few younger renters or families with two or more children access affordable rental housing. About 33 per cent of young childless couples; 36 per cent of couples with children and 21 per cent of single parents pay over 50 per cent of their gross household income to access a rental dwelling.

The vast majority (79%) of Q2 private renter households can find affordable rental housing. Severe unaffordability is not a major concern for this group (3% pay over 50 per cent of their gross household income on rent).

The social demographic differential in terms of accessing affordable housing was not noticeable among Q2 private renters.

POLICY IMPLICATIONS

The results of this study highlight the ongoing difficulties faced by very low income households (Q1) for whom there are just not enough affordable private rental dwellings.

The shortage of 211 000 dwellings that are both affordable and available for very low income households highlights the importance of ensuring that the affordable stock that does exist is somehow targeted in national affordability schemes, such as NRAS, to those most in need of it.

Policies aimed at increasing the supply of affordable dwellings could use the findings of this study to determine the affordability variations among different household types. For example, the need for small dwellings for singles should be balanced against the severe housing needs of the larger families with children. This study provides the information (on relative need and absolute numbers of households) that is required to develop appropriate housing targets. In this light, the Canadian concept of 'suitability', which assesses household size and composition against dwelling type, may be worth considering in Australia.

Shortages in the supply of affordable and available dwellings are felt most keenly in the major capital cities. This study found, however, that Geelong and Launceston have better affordability outcomes than either the other regional centres or major capital cities. It is worth studying these two locations in greater detail to help identify housing market or economic factors that reduce the affordability problems in these places.

Methodological policy implications are provided in Appendix 2. In brief, future research should consider disaggregating the second household income quintile (Q2) into two deciles and possibly supplementing this census-based approach between census years with other national survey data on the private rental sector. This may improve the measures of affordability and bring Australia's approach in line with what is international best practice. Further, some consideration may be given to investigating

the use of area median income levels in determining the affordable supply compared with the number of households in need in particular locations.

1   INTRODUCTION

1.1   Private rental supply in Australia

Between 2001 and 2006, Australia's private rental market grew by 11 per cent. This growth contributed an extra 142 000 dwellings and raised the national supply to 1.47 million (Wulff et al. 2009). Despite this growth, 211 000 private renter households with incomes in the bottom 20 per cent of the national household income distribution and another 87 000 households with incomes in the second lowest income quintile faced a shortage of affordable and available dwellings (Wulff et al. 2009). Overall, *only 37 per cent* of households in the bottom two income quintiles accessed affordable housing.

These figures demonstrate the complexity of the private rental market, particularly in its difficulty meeting the needs of low income renters. The share of stock that low income households can afford depends on factors often outside the private rental sector. For instance, even if the overall supply of private rental housing seems plentiful, within particular rent segments (such as low rent), the supply may be inadequate. In other words, the private rental stock may increase mainly at the top end of the rental market, but not in the lower or middle rent segments where it is needed by low income households. This was the case in Australia between 2001 and 2006. The private rental stock expanded at the top end and declined at the bottom end of the rent distribution (see Wulff et al. 2009, p.16). Escalating real house prices in the home purchase sector led many 'discouraged home purchasers' to seek private rental accommodation, thus lifting the demand for private rental housing (NHSC 2009, p.91; Yates & Milligan 2007, p.13). 'Discouraged home purchasers', moreover, brought relatively more purchasing power than low income renters into the private rental market and thus could afford relatively higher rents. Badcock (2008, p.4) refers to this phenomenon as creating an 'intermediate market' of private renters composed of 'working households … who are earning too much to qualify for social housing, but not enough to buy their own home without some assistance'.

The same socio-demographic, economic, taxation, financial, land and construction cost factors that determine the total housing stock also determine the supply of private rental stock (see Productivity Commission 2004 or NHSC 2009 for a fuller description). One of the key issues around the supply of lower rent housing stems from the fact that there is virtually no purpose built private rental sector housing.[2] As Seelig (2001, p.15) has noted: 'essentially no new low cost private rental stock is being produced' in Australia. Instead, new housing stock tends to be aimed at the home purchase market, which means that home-purchasers and rental investors compete for the same stock of new or established dwellings. In other words, there is 'a high degree of substitutability between rental and owner-occupied stock' (Yates 1996, p.39).

1.1.1   Research aims

Given that only 37 per cent of low income private renter households accessed affordable housing in 2006 (see the Positioning Paper for this study, Wulff et al. 2009), this Final Report aims to provide relevant information to assist in developing policies aimed at addressing this situation. Specifically, the report addresses the following:

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[2] A recent exception, established in 2009, is the National Rental Affordability Scheme (NRAS). Under this scheme, the Australian Government is offering incentives to help build 50 000 new rental properties across Australia by 2012. The two key elements of this scheme are an annual Australian Government tax offset or payment of $6000 for each dwelling, and a state or territory contribution of $2000 per dwelling per year. Properties will be rented out to eligible households at 20 per cent below market rates.

→ What are the characteristics of low and very low income households in the private rental sector? 'Low income' refers to households with incomes in the second lowest income quintile (21% to 40% of all incomes nationally) and 'very low' refers to households with incomes in the bottom income quintile (20% or lower).

→ Which low and very low income private renter households gain access to the affordable stock and which miss out? Is there a systematic pattern that might help to explain this outcome?

→ For low and very low income private renter households, what is the shortage or surplus of affordable stock and the true shortage (based on available stock) for each capital city and large regional centre?

Lower income households face two main difficulties in their efforts to access affordable rental dwellings.

1. The first relates to the actual supply of affordable dwellings; in other words, whether the stock of affordable dwellings, irrespective of who occupies these dwellings, is sufficient to meet the demand from low income renters.

2. The second relates to the availability of the stock. In the competitive private market, not all affordable stock necessarily goes to households who need it the most. For a number of reasons, middle to high income households may occupy this stock, thereby effectively removing dwellings from the affordable supply for low income renters.[3]

The key concepts in this report are:

1. 'Affordable': rental housing payments that amount to no more than 30 per cent of gross unequivalised household income.

Low income private renter households are assumed to have an affordability problem if their housing costs exceed this ratio. This 30 per cent benchmark, which is widely used in Australia and internationally in housing research,[4] is employed here because of its simplicity and its use in two previous reports on Australia's private rental market.[5] Studies have shown that rent payments that exceed 30 per cent of a lower-income household's income are likely to leave insufficient funds for essential non-housing expenditures.

2. 'Available': a housing unit is available for rent if it is affordable at a given level of income and is occupied by a household at that level of income.

All affordable stock may not be available, particularly at the low end of the market, as higher-income households may occupy dwellings that are affordable to low income households.

3. 'True shortage': the total number of both affordable and available dwellings minus the total number of private renter households at the relevant income level requiring the housing.

4. 'Very low income private renter households': households in the bottom 20 per cent of household incomes on the national household income distribution. Also referred to as Quintile 1 (or Q1).

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[3] HUD (2007a, p.24) refers to the number of affordable dwellings affected by this process as a 'displacement figure'. The displacement figure estimates the extent to which higher income households have accessed the stock and thereby reduced the available stock.

[4] See Appendix 1 for a discussion of its use in Australia, the UK, the US, Canada and New Zealand.

[5] See Yates, Wulff and Reynolds 2004; Wulff, Yates with Burke 2001.

5. 'Low income private renter households': households with incomes falling into the second lowest income quintile, or between 21 to 40 per cent of the national household income distribution. Also referred to as Quintile 2 (or Q2).

This Final Report also includes two Appendices. Appendix 1 describes how the private rental dwelling supply is measured in the United States, Canada, the United Kingdom and New Zealand. It then assesses aspects of the research design employed in this study. Appendix 2 contains an analysis of shortage results as derived from the ABS Survey of Income and Housing Costs and discusses these in light of the results derived from census data.

1.2 Research approach and data source

1.2.1 Research approach

This study measures the *actual supply of affordable dwellings* by calculating the number of private rental dwellings that can be rented to households in the bottom two income quintiles for an amount no greater than 30 per cent of their household income.

The *available* supply is measured by subtracting from the *affordable* supply any dwellings that are occupied by higher income households and are therefore *not available* to low income households.

The distinction between these two measures can be summarised thus: *affordability* can be seen as 'the broadest measure of housing stock sufficiency' (Vandenbroucke 2007a). In other words, the actual supply of affordable dwellings can answer the question: 'If housing units could simply be allocated to households based on cost, would there be enough housing to go around? (Vandenbroucke 2007a). *Availability*, on the other hand, takes into account that not all affordable dwellings are taken up necessarily by lower income private renters—many are already occupied by higher income households (paying less than 30% of their incomes on rent) and, therefore, are *not available* to those most in need. Once the number of such dwellings is discounted from the actual supply of affordable dwellings, a figure representing the *true shortage* can be obtained.

The methodology employed in this present study is comparable to that employed by the US Department of Housing and Urban Development (HUD), an overview of which can be found in Nelson (1994) and in Appendix 1 of this Final Report. Nelson (1994) provided an important stimulus for this study as it did for the two previous reports based on earlier census years (Yates, Wulff & Reynolds 2004; Wulff, Yates & Burke 2001).

The key features of our research approach are as follows:

→ While 'low income' households are defined for policy purposes as falling into the bottom 40 per cent of the national household income distribution, this analysis disaggregates between Q1 and Q2 private renter households.

→ The total private rental supply (dwelling stock) is compared with the total number of private renter households.

→ The analysis relies largely upon tabular and graphical examination of the absolute and relative distributions in the key variables.

→ Social and demographic characteristics of private renter households in Q1 and Q2 are compared against all private renters.

→ Percentage distribution comparison of the spatial distribution of Australia's private renter households. Where do low income private renters live?

→ For Q1 and Q2, the percentage of households who pay affordable rent (+ 30% of household income), unaffordable (approximately between 31% and 50%) and severely unaffordable (approximately over 50%).

1.2.2 Data source

This analysis draws upon a special request ABS census matrix related to all occupied private dwellings in Australia. All missing values have been imputed.[6] The imputation of *all missing values* for dwelling rents and household incomes represents a crucial aspect of our methodology. This imputation procedure has been undertaken to ensure the reliability and quality of the results. For example, the census variable 'household income' contains a large number of missing values (including partial and not stated incomes). In 1996, 8 per cent of households recorded missing values and in both 2001 and 2006 this figure had risen to 11 per cent. Following the imputation, all household incomes were reclassified to the new household income categories to provide the equivalent in real terms used in the previous study. The 'weekly dwelling rent' variable underwent the same process.

Rent and household income categories were limited to five categories in each[7] and these are presented in Table 1 below.

Table 1: Gross unequivalised household income and rent categories, 2006

Gross household income segment ($2006)			*Private rent segment ($2006)*	
	Weekly	Annual		Weekly
Quintile 1 (Q1)	$0–$422	$22,000 or less	Rent 1 (R1)	$1–$126
Quintile 2 (Q2)	$423–$809	$22,001–$42,000	Rent 2 (R2)	$127–$242
Quintile 3 (Q3)	$810–$1,287	$42,001–$67,000	Rent 3 (R3)	$243–$386
Quintile 4 (Q4)	$1,288–$1,977	$67,001–$103,000	Rent 4 (R4)	$387–$593
Quintile 5 (Q5)	$1,978+	$103,001 or more	Rent 5 (R5)	$594+

Note: Household income refers to gross unequivalised income ranges (weekly) that represent the sum of the individual incomes reported by all household members aged 15 years and over.

In other words, as seen in Table 1, an affordable rent for a Q1 household with a weekly income of up to $422 per week amounts to no more than $126 per week in rent. Similarly, a household in Q2, receiving a household income of between $423 and $809 per week can pay no more than $242 per week in rent.

In this study, household income quintiles have been adopted as the basis for identifying the various income categories.[8] The ABS calculated the income quintiles for *all* Australian households (regardless of tenure) and these were used as the cut-off points for each of the income groups shown above in Table 1. The rent categories were then defined as 30 per cent of these quintile values. Given that this approach is similar to that taken in the 1986–96 based study of Wulff, Yates and Burke (2001), it is possible to compare some findings over a 10-year period (1996 & 2006). Quintiles identify the bottom 40 per cent of the household income distribution so that the

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[6] For an outline of this imputation procedure, see Appendix A1 in Wulff et al. 2009

[7] In the previous studies, there were only four rent categories: this has been increased to five in the current study to match each household income quintile.

[8] For readers interested in comparing how this study relates to earlier reports: in the Yates, Wulff and Reynolds (2004) study, each 2001 rent and household income category was defined by CPI adjusting the 1996-based categories of Wulff and Yates 2001.

standard 30/40 affordability rule can be implemented consistently over time. [9] Household income quintiles also offer the following research design improvements:

1. Income quintiles[10] can be easily adopted in future studies that aim to replicate this methodology.

2. The methodology will be comparable with other Australian research studies that adopt the 30/40 affordability rule.

3. Confusion regarding nominal and real dollar values is removed by using Q1, Q2 etc, and the definition of 'very low' and 'low' will be consistent for future reports.

Appendix 2 assesses some of the features of this methodology by comparing the results of this census-based study with the results obtained by using the 2005–06 Survey of Income and Housing Costs (SIHC).

1.3   Report outline

Chapter 2 outlines the characteristics of very low (Q1) and low income (Q2) private renter households; and assesses the impact of stock utilisation on shortage estimates of affordable rental housing by capital cities and large regional centres. Chapter 3 presents the numbers and relative proportion of different household types (in terms of age and household/family type) of Q1 and Q2 private renter households living in affordable rental dwellings (paying less than 30% of household income); unaffordable (paying between 31% and 50%) and severely unaffordable (paying over 50%). Chapter 4 offers a synthesis of this study and related conclusions.

Two appendices accompany this report. The first reviews methodologies employed in the US, Canada, New Zealand, and the United Kingdom to measure shortages in the private rental sector. Appendix 1 also discusses some methodological issues for consideration in Australia based on overseas practice. Appendix 2 provides a robustness check on the findings of this study by presenting some comparable analysis of shortage estimates using data from the 2005–06 ABS Survey of Income and Housing.

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[9] A detailed rationale for the continued use of the 30/40 affordability rule is given in Gabriel et al. 2005.

[10] The ABS can easily calculate these values from Census data but only for gross and not disposable household income.

2 LOW INCOME PRIVATE RENTER HOUSEHOLDS: AFFORDABLE AND AVAILABLE STOCK BY GEOGRAPHIC LOCATION

This chapter includes three main aims:

1. To identify the demands and needs for housing as indicated by the social characteristics of very low (Q1) and low (Q2) income private renter households.

2. To measure the size of the *affordable* stock and the *available stock* for Q1 and Q2 private renter households nationally, by capital city, large regional centre, and other non-metropolitan areas

3. For each of these geographic levels, to calculate the true shortage.

This chapter begins by describing the age, family and household structure and employment status of low and very low income private renters. This information provides the key to the basic housing requirements of this group (in terms of, e.g. dwelling size and structure).

2.1 Private renter households—socio-demographic characteristics

Previous studies examining the supply of affordable housing have employed what is known as the 30/40 rule. In other words, the bottom two income quintiles together are defined as having a 'low income' and therefore having the 30 per cent of household income affordable to them applied. Given the diversification of the private rental sector in the last decade (and with the entry into the sector in growing numbers young couples, singles sharing and so forth), in this study we examine whether it is more beneficial to disaggregate the very lowest income households from the low income households. Thus, Table 2 compares the social characteristics of private renter very low (Q1) and low (Q2) income households. These two income groups, which fall into the bottom 40 per cent of household incomes nationally, are shown side by side. As a reference point, the characteristics of all private renters are shown in the last column of Table 2.

Table 2: Socio-demographic characteristics of private renter households, Australia 2006

Characteristics	Private renter households in Q1	Private renter households in Q2	All private renter households
Age	Per cent	Per cent	Per cent
15–24 yrs	15.8	15.0	14.3
25–34 yrs	19.3	28.3	30.8
35–44 yrs	18.7	25.1	24.1
45–54 yrs	14.6	15.6	15.9
55–64 yrs	12.5	9.0	8.5
65+ yrs	19.0	7.0	6.4
Total %	100.0	100.0	100.0
Total	268,000	360,000	1,470,000
Household type*			
Younger couple/no children	3.5	6.0	13.7
Older couple/no children	6.3	6.5	6.0
Couples families with children	7.0	16.3	22.3
Single parent families	22.0	27.2	16.3
Group household/other	7.9	9.8	14.3
Younger person living alone	20.7	21.0	15.3
Older person living alone	32.7	13.0	12.1
Total %	100.0	100.0	100.0
Total	268,000	360,000	1,470,000
Employed persons aged 25–54 years in household			
Nil employed	62.1	22.0	15.4
One employed	33.7	67.0	46.9
Two employed	4.2	10.9	37.8
Total %	100.0	100.0	100.0
Total	141,000	249,000	1,041,000
No. of children in household			
None	71.1	56.4	61.4
1	14.9	17.5	15.0
2	9.4	15.9	14.3
3 or more	4.6	10.2	9.3
Total %	100.0	100.0	100.0
Total	268,000	360,000	1,470,000

*'Younger' is <=44years; 'older' is 45 years or older; numbers may not sum exactly due to rounding.
Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

Compared with either Q2 private renters or all private renters generally, Q1 private renters stand out in terms of (1) their older age profile, (2) the predominance of singles living alone, (3) the large presence of jobless households, and (4) the absence of children living in these households.

The relatively older age of Q1 households is evidenced in the fact that 19 per cent are aged 65 years or older and another 12.5 per cent are aged between 55 and 64 years. In other words, 31.5 per cent of Q1 private renter households are aged 55 years or

older. This figure compares with just 16 per cent for Q2 private renters and 15 per cent for all private renter households. While the share of young (age 15 to 24 years olds) households is fairly similar for Q1 households to the other private renters, the share of 25 to 34 years olds and 35 to 44 years olds is considerably less.

As shown in panel 2 of Table 2, one-third (32.7%) of Q1 households are older singles living alone. This figure is close to three times that of the figure for all private renter households (12.1%). It is also worth noting that single parent families are more commonly found in the lowest two income quintiles than among private renters generally.

Just over 62 per cent of Q1 private renter households do not have an employed adult. In other words, the majority of these households are jobless and rely totally on government income support. Most Q2 private renter households (67%) have one adult employed and explains their Q2 income status, it suggests a lower reliance on income support. Q2 households, however, still have a lower level of labour force activity than private renters generally. For instance, 38 per cent of all private renter households had two or more persons employed compared with just 13 per cent among Q2 households. This reflects, in part, the presence of more couple headed families among all private renters (42%) compared with Q2 (27%) and Q1 (16%).

Q1 households are much less likely to contain children than Q2 households. About 30 per cent of Q1 households have at least one child compared to 44 per cent among Q2, and 40 per cent among all private renters.

2.2 Affordable and available stock for lower income private renter households

2.2.1 Q1 private renters: the number in need; the number of affordable dwellings, and; the number of available dwellings

Figure 1 provides an immediate snapshot of the national affordable and available housing situation for the Q1 group. This graph reveals that in 2006, the number of Q1 private renter households was nearly twice as great as the number of dwellings they could potentially afford (267 819 Q1 private renter households and only 129 334 affordable dwellings). The final column in Figure 1 reveals that only 57 247 Q1 households were able to access the affordable stock.

Figure 1: Number of Q1 private renter households, R1 affordable stock, and Q1 households living in affordable stock
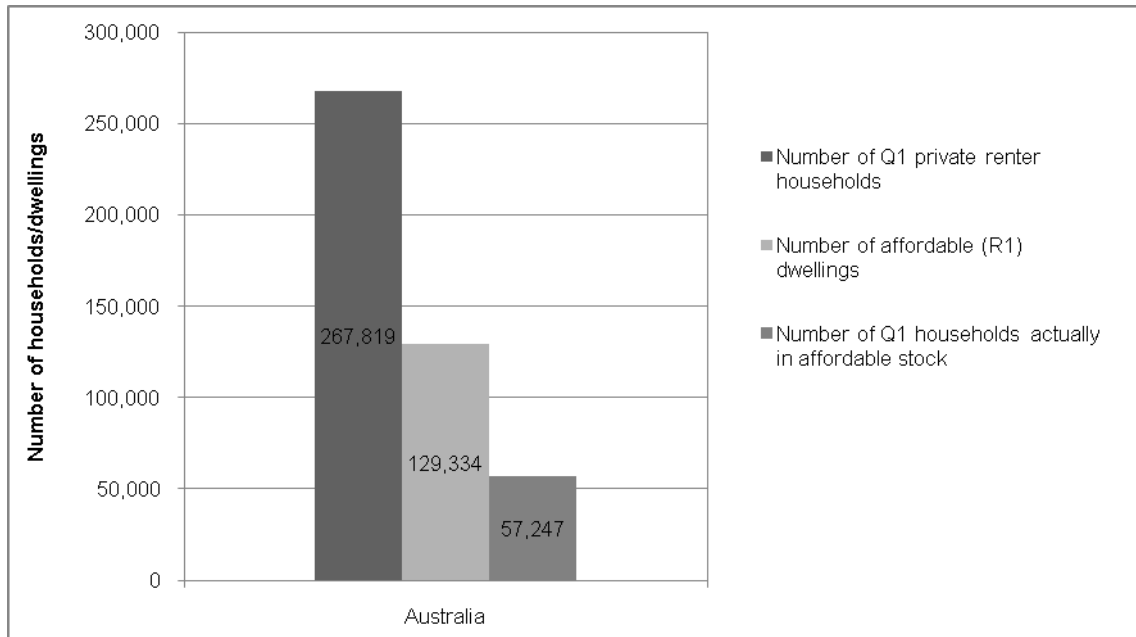
Source: ABS customised expanded matrices, 2006 Australian Census of Population and Housing

From a policy perspective, this figure shows that even if the private rental market worked perfectly and allocated all affordable rental dwellings to low income households, there are simply not enough affordable private rental dwellings to go around. The fact that much of this stock is taken up by higher income households only worsens the situation.

2.2.2 Q2 private renters: the number in need; the number of affordable dwellings, and; the number of available dwellings

Figure 2 presents a quite different and more positive affordability picture for the second lowest income group (Q2). The situation is quite the reverse as that presented for Q1 private renter households. The supply of affordable dwellings (888 004) far surpasses the number of Q2 private renter households (360 467). Underscoring the importance of taking availability into account, not all Q2 private renter households were able to access the stock. Only 273 385 Q2 private renters out of a total 360 467 (or 76%),[11] leaving 24 per cent of Q2 private renters paying unaffordable rents.

Overall, applying the 30/40 affordability rule to the bottom 40 per cent of private renter households, just over half (53% or approximately 331 000 private renter Q1 and Q2 households out of 628 286 households in the bottom two income quintiles) could avail themselves of affordable housing.

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[11] The number of affordable dwellings for Q2 households represents both R2 *plus* R1 dwellings as both rent levels are at or below the 30 per cent affordability measure for Q2.

Figure 2: Number of Q2 private renter households, R1 and R2 affordable stock, and Q2 households living in affordable stock
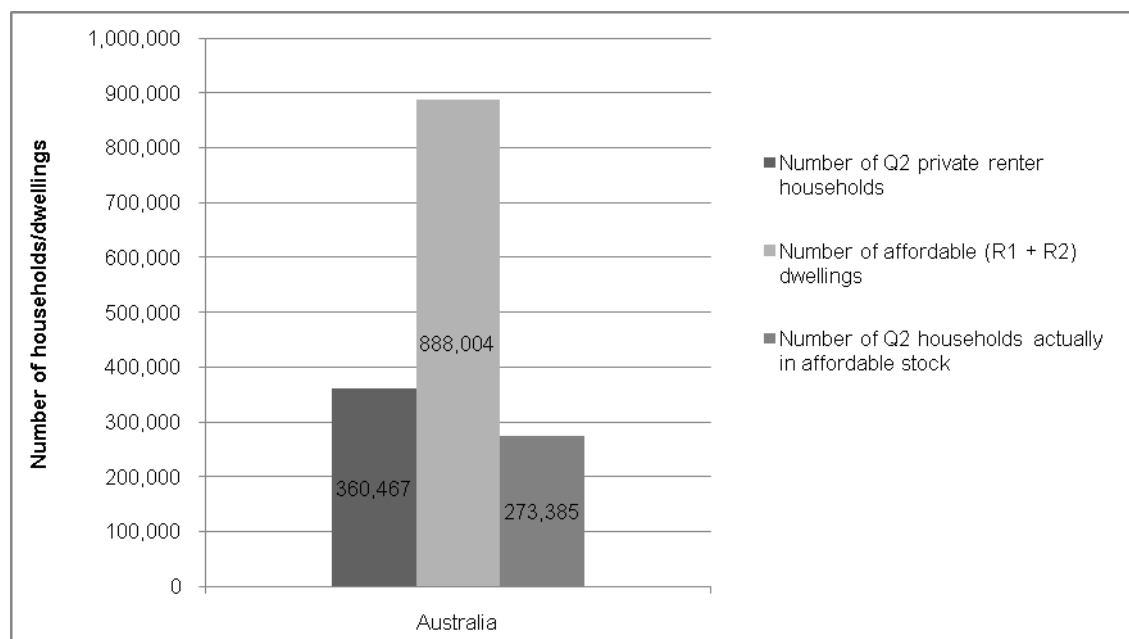
Source: ABS customised expanded matrices, 2006 Australian Census of Population and Housing

The preceding discussion focuses on the national picture. The next two tables present a similar analysis for Australian capital cities and large regional centres.

2.2.3   Q1 private renters: affordable and available stock and true shortages— the geographic outcomes

The analysis in the following two tables provides detailed information separately for Q1 and Q2 private renter households. It includes:

→   Number of households.

→   Number of dwellings that are affordable to this group, that is, the actual supply.

→   The hypothetical shortage or surplus (not taking availability into account).

→   The number of other income groups using the stock.

→   The number of available dwellings.

→   The true shortage.

→   The per cent of households in each group who miss out on affordable rental housing.

Turning to Table 3, at a national level, only 129 000 rental dwellings were affordable for 268 000 Q1 households needing this stock. Even if every one of these dwellings were available, it still remains 138 000 dwellings *short* for households in the bottom income quintile.

Table 3: Affordable and available private rental stock for Q1 households by geographic area, 2006

	No. of Q1 households	No. of dwellings affordable to Q1 households	Hypothetical shortage or surplus*	Other income groups using Q1 stock	No. of affordable dwellings actually available**	True shortage#	How many Q1 households miss out? (%)
	1	2	3	4	5	6	7
Australia	268,000	129,000	-138,000	72,000	57,000	-211,000	**79**
Metropolitan regions	155,000	48,000	-107,000	27,000	21,000	-134,000	**87**
Non-metro regions	113,000	81,000	-31,000	45,000	36,000	-76,000	**68**
Capital cities							
Sydney	47,600	7,300	-40,400	4,100	3,200	-44,500	**93**
Melbourne	46,100	14,400	-31,700	8,500	5,900	-40,200	**87**
Brisbane	21,900	6,500	-15,400	3,700	2,800	-19,100	**87**
Adelaide	15,100	7,200	-7,800	4,100	3,100	-11,900	**79**
Perth	19,500	9,600	-9,900	5,400	4,200	-15,300	**79**
Hobart	3,100	2,100	-1,000	1,100	1,000	-2,100	**68**
Darwin^	700	400	-300	300	100	-600	**81**
Canberra^	1,300	500	-800	400	100	-1,200	**89**
Large regional centres							
Newcastle	7,600	3,000	-4,500	1,400	1,600	-5,900	**78**
Wollongong	4,000	1,400	-2,600	600	800	-3,200	**81**
Geelong	2,700	1,900	-800	900	1,000	-1,800	**64**
Gold Coast	8,000	1,200	-6,800	600	600	-7,500	**93**
Sunshine Coast	4,400	1,000	-3,500	500	500	-3,900	**88**
Townsville	2,000	900	-1,100	500	400	-1,600	**80**
Cairns	2,000	700	-1,300	400	300	-1,700	**84**
Launceston	2,100	1,500	-600	700	800	-1,300	**63**

NB: Figures may not sum precisely due to rounding

* Hypothetical shortage/surplus = column 2 – column 1

**Availability = column 2 – column 4

True shortage = column 5 – column 1

^ very low frequencies for these areas and caution must be exercised in interpreting these figures

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

Approximately 72 000 higher income groups were renting this affordable stock, leaving only 57 000 dwellings available. Thus, the true shortage of stock for Q1 private renter households expands to 211 000 dwellings. In other words, this confirms that four out of five Q1 private renter households (79%) missed out on affordable housing in 2006.

This high level of unaffordability was experienced unevenly across Australia, although in each geographic area the true shortage is considerably larger than the hypothetical shortage.

Among the five major capital cities, Q1 private renter households in Sydney, Melbourne, and Brisbane face a higher level of unaffordability (between 87% and 93% missing out) than in Adelaide and Perth (79%). Moreover, the actual size of the shortage is also greater in the former three cities (103 800 dwelling shortage) than in the latter two (27 200 dwelling shortage). With respect to the proportion of Q1 renters missing out on affordable dwellings, the situation in Darwin and Canberra, in particularly, is similarly bleak, although it must be noted that the absolute number of households affected is much smaller.

Among the regional centres, the worst affected in terms of affordability are the Gold Coast and the Sunshine Coast where between 88 and 93 per cent of Q1 private renter households miss out on affordable housing. These levels are similar to those observed for the three major capital cities. The two standouts among the regional centres in terms of the share of Q1 private renter households missing out (column 7) are Geelong (64%) and Launceston (63%), figures relatively lower than the other regional centres. The relatively better affordability position of these two regional centres may reflect a relatively greater supply of affordable dwellings. For instance, the numbers of Q1 households in Wollongong (4000), Gold Coast (8000) and Sunshine Coast (4400) are much greater than found in Geelong (2700) and Launceston (1500), but the supply of affordable dwellings in the latter two (1900 & 1500 respectively) is greater in absolute and proportional terms than in the former three (1400, 1200 & 1000 respectively). This strongly suggests that the supply of affordable dwellings, irrespective of use by higher income groups, is a more important determinant of housing affordability for the lowest income group living in regional centres.

2.2.4 Q2 private renters: affordable and available stock and true shortages— the geographic outcomes

As described previously, Q2 households are better placed to find affordable rental properties than Q1 households: there are more than two affordable dwellings for every household in Q2.

Nevertheless, as presented in Table 4, the apparent surplus (528 000, column 3) is reduced by 615 000 dwellings (column 4) by the take up of this stock by other income groups. This leaves an adjusted shortage of 87 000 dwellings (column 6) nationally. The shortage is mainly brought about by the use of the stock by higher income groups. Moreover, the stock is accessed by very low income households, which exacerbates the shortage. This latter situation is understandable because Q1 households, as shown in Table 3, face an absolute shortage of affordable stock and are forced to look for stock at the next rent level. Australia-wide, the adjusted shortage leaves 24 per cent of Q2 households paying unaffordable rents.

Table 4: Affordable and available private rental stock for Q2 households by geographic area, 2006

	No. of Q2 households	No. of dwellings affordable to Q2 households	Hypothetical shortage or surplus*	Other income groups using Q2 stock	No. of affordable dwellings actually available**	True shortage#	How many Q2 households miss out? (%)
	1	*2*	*3*	*4*	*5*	*6*	*7*
Australia	360,000	888,000	+528,000	615,000	273,000	-87,000	**24**
Metropolitan regions	220,000	523,000	+303,000	367,000	156,000	-63,000	**29**
Non-metro regions	141,000	365,000	+224,000	248,000	117,000	-24,000	**17**
Capital cities							
Sydney	69,000	126,800	+57,800	88,200	38,600	-30,300	**44**
Melbourne	59,900	163,500	+103,600	116,700	46,800	-13,000	**22**
Brisbane	36,300	81,300	+45,000	56,200	25,200	-11,200	**31**
Adelaide	20,700	55,800	+35,100	37,600	18,200	-2,500	**12**
Perth	25,900	77,100	+51,200	54,900	22,200	-3,700	**14**
Hobart	3,800	10,000	+6,200	6,800	3,300	-600	**15**
Darwin^	1,500	3,900	+2,400	2,900	1,000	-500	**31**
Canberra^	2,700	4,800	+2,000	3,700	1,100	-1,700	**60**
Large regional centres							
Newcastle	9,800	25,000	+15,200	17,000	8,000	-1,800	**19**
Wollongong	4,600	11,200	+6,700	7,800	3,400	-1,100	**24**
Geelong	3,300	9,800	+6,500	6,800	3,100	-200	**7**
Gold Coast	12,600	17,200	+4,600	11,400	5,800	-6,800	**54**
Sunshine Coast	7,000	11,400	+4,400	7,400	4,000	-3,000	**43**
Townsville	3,200	8,500	+5,300	6,000	2,500	-600	**20**
Cairns	3,500	8,000	+4,500	5,400	2,600	-900	**24**
Launceston	2,200	6,300	+4,100	4,200	2,100	-100	**6**

NB: Figures may not sum precisely due to rounding

* Hypothetical shortage/surplus = column 2 – column 1

**Availability = column 2 – column 4

True shortage = column 5 – column 1

^ very low frequencies for these areas and caution must be exercised in interpreting these figures

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

The general geographic patterns in terms of affordability for Q2 are similar to those discussed for Q1. For example, among the five major capital cities, the least affordable outcomes for Q2 private renter households are found in Sydney, Melbourne and Brisbane followed by Adelaide and Perth. The situation in Canberra may be worth noting, despite a small population base. Among Q2 private renter households in Canberra, fully 60 per cent miss out on affordable stock. This is the highest relative level among all the capital cities. Part of the explanation may lie in the fact that relatively more households from other income groups take up the affordable stock in Canberra as compared with either Darwin or Hobart.

2.3   Summary

This chapter has examined private rental affordability among Q1 and Q2 households separately. An analysis of their characteristics showed they differ not only in terms of their household income, but also in their social demographic profile. Private renter households in Q1 tend to be older, living alone (particularly older singles) or single parent families, and outside the paid workforce. Q2 private renter households share a similar age profile to that of all private renter households: generally 25 to 34 years. Relatively more single parent families and couples with children are observed among Q2 private renters than for Q1. Also, compared to Q1 households, a majority are in the paid workforce (although mainly with one employed earner).

In 2006, households in the bottom income quintile encountered an absolute shortage of 138 000 affordable private rental dwellings. Furthermore, this shortage increased to 211 000 *affordable and available* dwellings when the use of affordable stock by higher income households is taken into account. In other words, only 21 per cent of Q1 private renter households managed to find an affordable rental dwelling. The analysis further showed that affordability varied by capital cities and large regional centres. The poorest affordability situation was observed in Sydney, Melbourne and Brisbane. Among the largest regional centres, all but Geelong and Launceston has affordability levels similar to the major capital cities. It would appear that a larger affordable supply reduced the problem in Geelong and Launceston compared with the other regional centres.

As this chapter reveals, Q2 private renter households are in a different position. In absolute terms, the number of affordable dwellings surpasses the number of Q2 private renter households. This apparent surplus, however, turns into a shortage when the use of the stock by other income groups is taken into account. At the national level, out of 360 000 Q2 private renter households, about 87 000 (true shortage) miss out on the opportunity to access an affordable rental dwelling. This figure represents 24 per cent of all Q2 private renter households, which is much lower than the 79 per cent estimated for Q1.

Geographically, as in the case of Q1, Sydney, Melbourne, and Brisbane suffered from higher levels of households missing out than the smaller cities (with the exception of Canberra). The pattern among the regional centres also reflects that documented for Q1 private renters. Relatively fewer Q2 households miss out on affordable dwellings in Geelong and Launceston compared to the rest. Although 31 per cent of Q2 private renter households missed out on affordable rentals in Brisbane, a much greater proportion missed out in the regional centres of the Gold Coast (54%) and the Sunshine Coast (43%).

3   WHO PAYS AFFORDABLE RENT AND WHO MISSES OUT?

Good policy development aimed at the private rental sector requires an understanding of the types of private renter households who are able to secure affordable housing, those who miss out and those who pay excessively large amounts on rent. Only in this way, as noted by Donnison and Ungerson (1982, p.15), can policy-makers 'talk sense about housing policies'. This is the purpose of Chapter 3.

The analysis reported in the previous chapters found that 79 per cent of Q1 households (or 210 505 households) and 24 per cent of Q2 households (another 86 873 households) pay over 30 per cent of their household incomes on rent. The question now asked is: How unaffordable are the rental costs for this group missing out on affordable rent?

Table 5 below addresses the issue of which low and very low income households are able to access the affordable stock and which households miss out. The analysis presents three broad levels of affordability: affordable rent (<=30% of household income), unaffordable rent (approximately 31% to 50% of household income), and severely unaffordable rent (51% or more of household income). In a tight private rental market, in which landlords and agents can choose to let properties to households they deem to be reliable tenants, characteristics such as age, family type, presence of children and/or employment status may influence a household's access to affordable housing.

Table 5: Rental affordability for Q1 and Q2 private renter households

	Quintile 1 private renter households		Quintile 2 private renter households	
	%	n	%	n
Paying affordable rent	21.4	57,313	75.8	273,234
Paying unaffordable rent	59.4	159,084	21.3	76,419
Paying severely unaffordable rent	19.2	51,421	2.9	10,454
Total	100.0	267,819	100.0	360,107

*Unaffordable rent for Q1 is paying R2 rents; severely unaffordable represents paying R3 to R5 rent. For Q2 households, the R3 rent segment is unaffordable and R4 to R5 rent segments are severely unaffordable.

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

As shown in Chapter 2, just 21 per cent of the very low income households (Q1) are housed in affordable rental dwellings. At the other end of the affordability continuum, close to one-fifth (19%) of Q1 households pay rents that consume over half of their income. In absolute terms, nearly as many Q1 households pay 'severely unaffordable rents' as pay affordable rents (51 421 against 57 313). The remaining 59 per cent of Q1 private renter households pay between 31 and 50 per cent of their incomes on rent (defined here as paying 'unaffordable rent').

In contrast to Q1, the vast majority (76%) of Q2 private renter households pay an affordable rent. Most of the remaining Q2 households pay an unaffordable rent and very few (2.9%) pay a severely unaffordable rent.

3.1 Q1 private renter households by selected characteristics

The following tables show the age and family/household types of Q1 private renters by the level of affordability.

Table 6: Rental affordability by age for Q1 households

	Age Group											
	15–24 years		*25–34 years*		*35–44 years*		*45–54 years*		*55–64 years*		*65 years+*	
	%	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*
Paying affordable rent	14.0	5,933	14.2	7,338	16.5	8,277	23.2	9,083	27.8	9,440	34.0	17,292
Paying unaffordable rent	54.3	23,010	63.4	32,814	61.3	30,749	59.4	23,255	60.2	20,443	57.5	29,244
Paying severely unaffordable rent	31.7	13,433	22.4	11,575	22.2	11,136	17.4	6,851	12.0	4,075	8.5	4,323
Total	100.0	42,376	100.0	51,676	100.0	50,161	100.0	39,149	100.0	33,958	100.0	50,859

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

The data presented in Table 6 reveal a number of patterns by age. The likelihood of paying an *affordable* rent steadily increases by age. Among Q1 households, rental housing affordability is more severely felt among younger private renters. In other words, whereas 14 per cent of young 15 to 24 years old private renters pay an affordable rent, fully 34 per cent of elderly private renters (65 years or older) do so. The reasons why older tenants seem to be in a better position than their younger counterparts is unclear, but it could be that older tenants may have been in the dwellings over a longer period of time or that older tenants are more attractive to landlords and agents. It may also relate to a possible spatial differentiation in the rental locations of younger and older tenants.

It remains the case, however, that the majority of Q1 private renters, irrespective of age, miss out on securing affordable housing. The next table considers rental affordability by household types.

Table 7: Rental affordability by household type for Q1 households

	Younger couple/no children		Older couple/no children		Couples with children		Single parent families		Living alone, age <45 years		Living alone, age 45 years+		Group/other	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Paying affordable rent	9.6	906	16.9	2,833	6.4	1,192	9.0	5,265	26.2	14,538	35.1	30,734	8.2	1,745
Paying unaffordable rent	57.4	5,361	66.3	11,116	57.7	10,714	70.2	41,250	56.7	31,461	56.9	49,822	44.8	9,534
Paying severely unaffordable rent	33.0	3,082	16.8	2,817	35.8	6,650	20.9	12,267	17.1	9,488	8.0	7,005	47.0	10,023
Total	100.0	9,348	100.0	16,766	100.0	18,556	100.0	58,783	100.0	55,487	100.0	87,561	100.0	21,302

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing.

Substantial difference by household types can be seen in Table 7. People living alone are more likely to pay an affordable rent than those in other living arrangements. The table also shows that having children increases the likelihood of unaffordability compared to not having children. In particular, older couples without children are more likely to be able to find an affordable dwelling (17%) than couples or single parents with children (6% & 9% respectively). In absolute numbers, of the 77 385 Q1 households with children, 18 956 (or 25%) faced severe unaffordability problems. The opposite is true in terms of severe unaffordability by household type. Couple families and single parent families and younger couples without children all face severe unaffordability problems compared to those living alone or older couples without children. It is interesting, although difficult to interpret, that close to 50 per cent of those living in 'group' households pay a severely unaffordable rent. Compared with the other household types, group households tend be more fluid arrangements. There may be special problems in collecting census income data on group households given the multiplicity of financial arrangements within such households.

In families with children, affordability problems are associated with the number of children. As seen in Table 8 below, the share paying severely unaffordable rents rises from 19 per cent with one child to 34 per cent with three or more children.

Table 8: Rental affordability by number of children in couple and single parent Q1 households

	One child		Two children		Three or more children	
	%	*n*	*%*	*n*	*%*	*n*
Paying affordable rent	10.3	4,101	6.7	1,685	5.4	671
Paying unaffordable rent	70.7	28,151	64.6	16,242	61.0	7,579
Paying severely unaffordable rent	19.0	7,565	28.7	7,216	33.6	4,175
Total	100.0	39,817	100.0	25,143	100.0	12,425

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing

Although only 12 425 private renter households report three or more children, affordability for this group is a serious problem (34% pay severely unaffordable rents). Given that rents tend to be set on the number of bedrooms in a dwelling, the likelihood of finding an affordable dwelling suitable for a large family is limited.

3.2 Q2 private renter households by selected characteristics

This section examines the pattern of rental affordability for Q2 private renter households. While just over three-quarters or more of all Q2 households pay an affordable rent, the age effect demonstrated for Q1 households still operates here. Those aged 65 years or older stand out in terms of access to an affordable rent. The problem of severely unaffordable rents, while present, ranges only from 2.3 (for those aged 65 years or older) to 3.5 (15 to 29 year olds) per cent. In contrast, the corresponding range of severely unaffordable rents for Q1 private renter households is 8.5 per cent among the 65 plus age group to 32 per cent among the 15 to 24 year olds. Severe unaffordability is a reality faced more by Q1 than Q2 private renters.

Table 9: Rental affordability by age for Q2 households

| | Age Group | | | | | | | | | | |
| | 15–24 years | | 25–34 years | | 35–44 years | | 45–54 years | | 55–64 years | | 65 years+ | |
	%	n	%	n	%	n	%	n	%	n	%	n
Paying affordable rent	75.5	40,904	75.7	77,194	73.2	66,194	75.6	42,473	79.2	25,686	83.0	20,916
Paying unaffordable rent	21.0	11,377	21.9	22,332	23.7	21,432	21.0	11,814	18.1	5,870	14.7	3,679
Paying severely unaffordable rent	3.5	1,896	2.4	2,447	3.1	2,803	3.4	1,913	2.7	908	2.3	580
Total	100.0	54,177	100.0	101,974	100.0	90,429	100.0	56,199	100.0	32,464	100.0	25,175

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing.

Table 10: Rental affordability by household type for Q2 households

	Household type												
	Younger couple/no. children		Older couple/no. children		Couples with children		Single parent families		Living alone, age <45 years		Living alone, age 45 years+		Group/other	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Paying affordable rent	73.7	15,979	79.4	18,744	68.4	40,257	75.0	73,771	82.0	62,044	84.1	39,430	65.2	15,360
Paying unaffordable rent	23.2	5,030	18.1	4,273	27.6	16,226	22.8	22,440	15.8	11,955	13.5	6,329	28.9	6,809
Paying severely unaffordable rent	3.1	672	2.5	590	4.0	2,331	2.2	2,123	2.2	1,665	2.4	1,125	5.9	1,390
Total	100.0	21,681	100.0	23,607	100.0	58,814	100.0	98,334	100.0	75,664	100.0	46,885	100.0	23,559

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing.

As was the case with Q1 households, people living alone are more likely to pay an affordable rent, while couple families with children are less likely to do so. It is noted that singles sharing in a group household are also less likely to pay an affordable rent. As noted previously, however, group households tend to be more transitory than family households (and therefore, the period of financial stress may be shorter).

Children have the same impact on affordability for Q2 households as they did for Q1 households. It appears that the greater the number of children, the more difficult it is to access an affordable rental dwelling. While 77.5 per cent of households with one child pay an affordable rent, only 66 per cent of households with three or more children are likely to do so.

Table 11: Rental affordability by number of children for couple and single parent Q2 households

	One child		*Two children*		*Three or more children*	
	%	*n*	*%*	*n*	*%*	*n*
Paying affordable rent	77.5	48,836	71.0	40,749	66.4	24,427
Paying unaffordable rent	20.2	12,729	26.0	14,922	30.1	11,073
Paying severely unaffordable rent	2.3	1,449	3.0	1,722	3.5	1,288
Total	100.0	63,014	100.0	57,393	100.0	36,788

Source: ABS customised expanded matrix, 2006 Australian Census of Population and Housing.

3.3   Summary

For further insight into the rental affordability problems faced by Q1 and Q2 private renter households, this chapter has focused not only on those who can pay an affordable (30% of household income), but also divides the rest into two broad groups: unaffordable rent (31% to 50% of household income) and severely unaffordable rent (over 50% of household income).

Of the 267 819 Q1 private renters, similar numbers of households pay affordable (57 313) rent as pay severely unaffordable (51 421) rent. An examination of the household characteristics of these groups show that age, household type and number of children explain why some fall into the affordable category and others into the severely unaffordable category. In general, people aged over 65 years, those living alone, and those without children (in particular, older couples without children) are more likely to find affordable rental housing. In contrast, younger renters, families with children (and with more children in particular) find it difficult to access affordable rental housing.

The results for Q2 show a similar pattern to Q1, but to a much lesser degree. The vast majority of Q2 can find affordable rental housing and hence severe unaffordability is not a major concern for this group. From a policy perspective, this suggests that policy effort should be aimed strongly at eliminating affordability problems among Q1 private renter households.

4   CONCLUSIONS

In 2006, only 37 per cent of private renters with household incomes in the lowest 40 per cent of the national income distribution accessed affordable housing (Wulff et al. 2009). This left 211 000 very low income (Q1) private renters paying more than 30 per cent of their household income on rent; and another 87 000 low income (Q2) in the same situation.

Lower income households, that is with incomes in the bottom two income quintiles (Q1 or Q2) face two main difficulties in their efforts to access affordable rental dwellings.

→ The first relates to the actual supply of affordable dwellings; in other words, whether the stock of affordable dwellings, irrespective of who occupies these dwellings, is sufficient to meet the demand from low income renters.

→ The second relates to the availability of the stock. In the competitive private rental market, not all affordable stock necessarily goes to households who need it the most. For a number of reasons, middle to high income households may occupy this stock, thereby effectively removing dwellings from the affordable supply for low income renters.[12]

For the 267 819 *very low income private renter households* (Q1), the results indicate that, in 2006, there was an absolute shortfall of 138 000 affordable dwellings. The shortage increased to 211 000 dwellings that were both affordable and available once use by higher income households was taken into account. Seventy-nine per cent of very low income renters miss out on affordable rental housing.

For the 360 467 *low income private renter households* (Q2), the results show a surplus of 527 533 affordable dwellings. Importantly, however, use of these dwellings by other households turns this surplus into a shortage of 87 000 dwellings that are affordable *and* available. Overall, 24 per cent of low income private renters face affordability problems that are a result of a shortage of affordable and available housing.

Affordable and available private rental supply varied by capital cities and large regional centres.

For Q1 private renter households, the greatest shortages, both in absolute and relative terms, in affordable and available private rental dwellings were observed in Sydney (-44 500; 93% miss out)), Melbourne (-40 200; 87% miss out) and Brisbane (-19 100; 87% miss out). All eight large regional centres studied had high levels of Q1 private renter households missing out on affordable rental housing. It was particularly pronounced in the Gold Coast (93%) and the Sunshine Coast (88%) in Queensland. However, Geelong and Launceston had relative lower levels of shortages (64% and 63% respectively) than the others. This was associated with a larger affordable supply in these two regional centres compared with the other regional centres.

For Q2 private renter households, the geographic pattern is similar to that of Q1. More severe shortages in affordable and available housing were observed in Sydney, Melbourne, and Brisbane than the smaller cities (with the exception of Canberra). The pattern among the regional centres also parallels that documented for Q1 private renters. Relatively fewer Q2 households miss out on affordable dwellings in Geelong (7%) and Launceston (6%) compared to the rest. Notably, a much greater proportion

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[12] HUD (2007a, p.24) refers to the number of affordable dwellings affected by this process as a 'displacement figure'. The displacement figure estimates the extent to which higher income households have accessed the stock and thereby reduced the available stock.

missed out in the regional centres of the Gold Coast (54%) and the Sunshine Coast (43%) compared with 31 per cent in Brisbane, the capital city,

Only 21 per cent of very low income private renter households pay an affordable rent; 19 per cent pay a severely unaffordable rent.

Of the 267 819 Q1 private renters, 57 313 households pay an *affordable* rent that was less than 30 per cent of their gross household income; an almost equal number of households (51 421) pay a *severely unaffordable* rent of over 50 per cent of their gross household income.

Age, living arrangements and number of children play an important role in determining access to affordable rental housing.

In general, elderly renters, people living alone, and households without children present are more likely to find an *affordable* rental dwelling.

In contrast, very few younger renters or families with two or more children access affordable rental housing. About 33 per cent of young childless couples, 36 per cent of couples with children, and 21 per cent of single parents pay over 50 per cent of their gross household income to access a rental dwelling.

The vast majority (79%) of Q2 private renter households can find *affordable* rental housing. *Severe unaffordability* is not a major concern for this group (3% pay over 50% of their gross household income on rent).

The social demographic differential in terms of accessing affordable housing was not noticeable among Q2 private renters.

4.1   Policy implications

The results of this study highlight the ongoing difficulties faced by very low income households (Q1) for whom there are just not enough affordable private rental dwellings.

The shortage of 211 000 dwellings that are both affordable and available for very low income households highlights the importance of ensuring that the affordable stock that does exist is somehow targeted in national affordability schemes, such as NRAS, to those most in need of it.

Australian Government and state and territory government initiatives, such as the National Rental Affordability Scheme and the Social Housing Initiative are certainly programs pointing in the right direction, but as reported in the National Housing Supply Council second report (National Housing Supply Council 2010, p.65), 'these actions will take time to be fully effective and are likely to need expansion and adjustment to address the need of people in the lower half of the household income distribution'.

Policies like the above mentioned aimed at increasing the supply of affordable dwellings could use the findings of this study to determine the affordability variations among different household types. For example, the need for small dwellings for singles should be balanced against the severe housing needs of the larger families with children. This study provides the information (on relative need and absolute numbers of households) that is required to develop appropriate housing targets. In this light, the Canadian concept of 'suitability', which assesses household size and composition against dwelling size (particularly number of bedrooms), may be worth considering in Australia.

Shortages in the supply of affordable and available rental housing are felt most keenly in the major capital cities. This study found, however, that Geelong and Launceston

have better affordability outcomes than either the other regional centres or major capital cities. It is worth studying these two locations in greater detail to help identify housing market or economic factors that reduce the affordability problems in these places.

The National Housing Supply Council Report (2010) describes a number of policy responses underway or introduced in recent years (since the 2006 Census on which the analysis in this Final Report is based) that will ease the affordability problems encountered for low income private renter households. These include increases in expenditure on Commonwealth Rent Assistance; the National Affordable Housing Agreement; the National Rental Affordability Scheme; affordable housing provision associated with land release in different states and, in the ACT; the Housing Affordability Fund; and the Henry Review of Australia's future tax system (see pp.86–92 in NHSC 2010).

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APPENDICES

Appendix 1: Review of methodology

As the third of three Australian census-based studies into the supply of, and demand for, private rental dwellings, this research project includes an assessment of the research design. Under discussion are:

→ International methodologies used to measure supply and demand in the private rental sector.

→ Possible options for modifying the Australian research design in order to ensure contemporary relevance and maximum robustness.

This appendix describes the methodologies used in the USA, Canada, New Zealand and the United Kingdom. Before doing so, however, a brief synopsis of the Australian methodology is provided below.

→ Definition of the private rental sector—the Australian private rental sector consists of occupied private dwellings in which the household pays rent to either a real estate agent or a person not living in the same household. The study definition excludes dwellings in residential caravan parks; employer provided housing; and dwellings occupied rent free. Dwellings that are either (a) occupied only by visitors (not residents) and (b) in which the household type is not classifiable are also excluded.

→ Institutional structure—Australia does not have a purpose-built or a specifically identifiable private rental sector. In other words, Australia's private rental market is indistinguishable from the home purchase market, which makes for 'a high degree of substitutability between rental and owner-occupied stock' (Yates 1996, p.39). Widespread use of strata titling provisions means that apartments, flats and units move between rental and owner occupation in the same way as detached houses. Thus, dwellings that constitute the private rental sector may differ in each Census collection.

→ Rent payment—rental payments generally cover rent only and utilities are paid for separately by the tenant.

→ Definition of low income and very low income households—households with incomes in the lowest two quintiles, Q1 and Q2, representing the bottom 40 per cent of the national household income distribution.

→ Affordability ratio—affordability refers to housing payments of not more than 30 per cent of gross household income.

→ Data source—all data are sourced from the ABS Census of Population and Housing. A customised request for census data ensures that all specifications and definitions are directly comparable to those used in previous studies. Missing values for all variables are imputed to ensure reliability and quality in the results (see Appendix 1, Wulff et al. 2009).

United States: cumulative measures of affordability, availability and adequacy

The United States Department of Housing and Urban Development (HUD) prepares regular reports to the US Congress on the number and characteristics of households with 'worst case' housing needs. HUD defines 'worst case needs' as renter households who do not receive government housing assistance (such as housing vouchers or public housing) and who have one of two 'priority problems': either paying more than 50 per cent of their income for housing ('severe rent burden') or living in

severely substandard housing (HUD 2007b). The HUD research uses the following concepts in its calculation:

Concept	Definition
Affordability	Measures the extent to which there is a sufficient supply of housing at different costs to place each household in a unit it can afford (based on the 30 per cent of income standard).
	Calculates for each level of household income, how the number of rental housing units affordable at that income or less compares with the number of households earning that income or less (ie, it is a cumulative analysis).
	Affordable rents are defined as those not exceeding 30 per cent of some proportion of an area's adjusted median family income.[13]
	Typically, adjustments are made for household size and the number of bedrooms by allowing the threshold incomes to vary with household size and threshold rents to vary with the number of bedrooms.
Availability	Measures the extent to which households are able to access units that are affordable at their household income (using the 30 per cent of household income measure) taking into account that some dwellings that are affordable at particular incomes are not available because they are occupied by households on higher incomes.
Adequacy	Measures units that are not only affordable and available for households on different levels of income, but are also of an adequate physical standard.
Sufficiency	Cumulative measure of affordability, availability and adequacy.

Source: Vandenbroucke (2007a, 2007b), ICF International (2009), HUD (2007b).

The American Housing Survey (AHS), a specific purpose sample survey, sponsored by HUD and conducted by the US Census Bureau provides the data. The AHS samples the same housing units every two years plus some newly constructed units. The national sample comprises on average 55 000 units together with samples of selected metropolitan areas that cover 4100 units each (HUD & US Department of Commerce 2008).

Compared with Australia, the United States private rental market tends to be a more distinctive sector covering a range of rental housing units (including mobile homes; employer provided housing and vacant rental units. Moreover, rent payments commonly include utility costs, particularly for renters in apartment complexes.

In the HUD analysis, the key variable for household income is Area Median Incomes (or AMIs), which are calculated by the Department for administrative purposes. AMIs are produced regularly by HUD for all metropolitan statistical areas and non-metropolitan counties for the purposes of setting eligibility limits for federally funded rental assistance programs such as housing choice vouchers (Vandenbroucke 2007b). Since 2007, these limits have been based on data from the US Census Bureau's American Community Survey.

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[13]The Area Median Income approach is used widely in the US and seems to have been adopted primarily because of its usefulness in determining eligibility for particular housing programs, which differ in different jurisdictions across the US. Typical thresholds are some fraction or area median family income (often 30%, 50%, 80% & 120%), income quartiles or quintiles, or some multiple of the minimum wage.

The HUD analyses use rent information from the American Housing Survey. Supplementary analysis, however, has included Fair Market Rents (FMRs) (Vandenbroucke 2007a, pp.182–183). FMRs are calculated annually to provide estimates of rents which provide sufficient opportunities for households in receipt of federally-funded rent assistance to access rental housing in metropolitan areas and non-metropolitan counties.[14] The analysis seeks to measure whether there is enough rental housing available at below FMR levels to meet the needs of these households, a question that is of relevance in Australia for households in receipt of rent assistance. FMRs are calculated from three data sources—the decennial Census, the American Community Survey, and regular telephone random surveys to assess housing market conditions (HUD 2007b).

The US analysis primarily aims to quantify unmet need for government housing assistance by households with worst case housing needs. To this end, the analysis uses established income limits for federal rental housing assistance programs, which are based on area median income levels (AMIs). These provide a standard, area-based definition of low income, very low income and extremely low income based on 80 per cent, 50 per cent and 30 per cent respectively of area median income (HUD 2007a).

Canada:core housing need and dimensions of acceptable housing

The Canadian Mortgage and Housing Corporation (CMHC) have a long-established, conceptual framework for measuring demand and supply for (rental) housing and the interaction between them. Key to this framework is the concept of *core housing need*, defined as any household living in unacceptable housing 'that does not meet one or more of the adequacy, suitability or affordability standards, and it would have to spend more than 30 per cent of its before-tax income to pay the median rent of alternative local market housing that meets all three standards' (CMHC 2009b). This definition applies to households living in both owned and rental housing (social rented and private rented are grouped together). Key concepts are as follows:

Concept	Definitions
Core housing need	Defined as households in dwellings which do not meet any one of the acceptable housing criteria (adequate, suitable and affordable), but who would have to pay 30 per cent or more of gross household income to pay the median rent of 'alternative local market housing' that meets all three standards. Refers to households in all tenures.
Acceptable housing	This is a composite measure and refers to housing that is adequate, suitable and affordable, defined as above.
Adequate housing	Refers to physical condition. An adequate housing unit does not need any major repairs as reported by residents.
Suitable housing	Assesses household size and composition against dwelling size using the National Occupancy Standard (NOS).The NOS is a well established means of establishing the number of bedrooms required by households of particular size and composition.
Affordable housing	Refers to housing which costs less than 30 per cent of gross household income.

Source: CMHC 2009b.

CMHC calculates the number of households in core housing need across Canada at each five-yearly Census period (CMHC 2009c) and by Province/Territory (CMHC

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[14] The areas correspond, with a few exceptions, with definitions of metropolitan areas set by the US Office of Management and Budget.

2009b) and selected Census Metropolitan Areas (CMHC 2009d). CMHC also adds several housing-related questions to Statistics Canada's annual sample household panel survey of Labour and Income Dynamics (SLID) to enable more frequent assessment of households in core housing need.

In comparison to Australia, Canada has much more institutional investment in apartment complexes for rental purposes. Canada's private rental market also includes a significant and stable number of individual rental investors (CMHC 2005). This difference in ownership and dwelling type means that apartment complexes tend to be clearly identifiable as part of the rental stock. Thus, the CMHC distinguishes between the rental market and the secondary rental market. The former refers to private buildings with at least three rental units, usually apartment buildings, and the latter to other types of rental properties including single and semi-detached dwellings, row/town houses, and accessory apartments and rented condominiums (CMHC 2008).

New Zealand: affordability and the intermediate housing market

Unlike Australia, USA and Canada, New Zealand does not yet have an established methodology measuring shortages in the private rental sector. Research conducted for the Centre for Housing Research Aotearoa New Zealand (CHRANZ) and the Auckland Regional Council, using a method derived from the Australian studies, identified 'a shortage of affordable and secure accommodation for poorer households' in the private rental sector. Some of the key concepts are as follows:

Concept	*Definitions*
Affordability/financial housing stress	Rent payments which are more than 30 per cent of gross household income (income from all sources including the accommodation supplement).
Availability	The extent to which 'better off' households (those with gross household incomes of over $70 000 pa) occupy properties with rents in the bottom two rent quintiles of the market.
Rental affordability ratio	Annual median rent paid divided by the annual regional median gross household income, thus the higher the ratio, the less affordable the rental.
Intermediate rental market	The proportion and number of working households unable to purchase a dwelling at the lower decile and lower quartile house prices.[15]

Source: DTZ 2008

Researchers have drawn on several data sources including the Statistics New Zealand Household Expenditure Survey; the New Zealand Department of Building and Housing and (unspecified) data from Statistics New Zealand.

Interest in the private rental sector in New Zealand developed as a consequence of a marked decline in the level of home ownership. The 2005 New Zealand Housing Strategy recognised that 'New Zealand faces the prospect of more households remaining in private rental accommodation through their lifetime' (HNZC 2005, p.37), but also acknowledged both a lack of understanding about the dynamics of the sector and the lack of New Zealand data. The issues identified in the New Zealand Housing

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[15] The intermediate household is further defined as households currently in the private rental market, that have at least one member of the household in paid employment; and that cannot afford to buy a house at the lower quartile house price under standard bank lending criteria. The latter is a 10 per cent deposit, no more than 30 per cent of household income in mortgage repayments, and mortgage lent at the one-year fixed mortgage interest rate (DTZ 2008, p.6).

Strategy primarily concern regulation (quality and security of tenure, advocacy and education) although there was a commitment to 'improving our knowledge of how the rental market operates' (HNZC 2005, p.41). The strategy has been followed by a review of regulation of the private rental sector.

The New Zealand research raises conceptual issues about *sub-markets* and, in particular, suggests three key sub-markets in private rental—'relatively well off' renter households, 'not in work' renter households, and the *'intermediate rental market'*. More detailed analysis of the intermediate rental market in New Zealand has been funded by CHRANZ suggesting that the percentage of the private rental market occupied by the intermediate market increased from 34 per cent to 58 per cent between 2001 and 2006 due to rising house prices. The work models some projections for the size of the intermediate rental market based on different scenarios of house price growth to 2016. It focuses on changing demand for private rental from this key group, finding that more work is required to develop appropriate data bases to monitor the growth and performance of the residential property rental market (DTZ 2008). While, in many ways, the focus on the intermediate rental market in New Zealand reflects particular market factors and concern about the implications of a decline in home ownership, the identification of distinct rental sub-markets for more detailed analysis, and the relationship between them, is an important conceptual development.

The United Kingdom: affordability, tenure choice, sub-markets and regulation

The UK does not have a direct equivalent of the methodology for analysing private rental supply relative to demand, as developed in Australia, the US and Canada. Recent English and Scottish reports on the private rental sector, however, use the concepts of affordability and adequacy, but do not address the issue of availability (Law Commission 2008; Scottish Government 2009). These reports also indicate a greater concern with the regulation of the sector as a means of improving outcomes for lower income households. The framework for analysis is thus different to the market-based analysis in Australia, the US and Canada. This does not mean that there is not an interest in supply; the private rental sector reports discuss, but do not quantify, supply shortages in the sector. They also express concern that increasing the supply of private rental dwellings primarily involves the transfer of dwellings from home ownership rather than new supply (see Rugg & Rhodes 2008, pp.39–42). As in Australia, there is a concern with attracting larger scale institutional investment into the sector through tax and other incentives to generate additional supply through new construction.

The size of the private rental sector in England and Scotland, though on the increase, is considerably smaller than in Australia. In England, private rental increased from 9 to 12 per cent of all households between 1988 and 2008 (NHPAU 2009, p.17). Growth of the sector in Scotland has been more modest from 5.1 per cent of all households in 1999 to 8.2 per cent in 2007 (Scottish Government 2009, p.14). As in Australia, such properties do not constitute an identifiable private rental stock.

Because the UK private rental sector is much smaller (12% of all households) and the social housing larger (20% of all households) than in Australia, UK housing policies do not rely on the ability of low income households to access private rental housing. Accordingly, there has not been the policy push to measure shortages in this sector.

Interest in the private rental sector in the UK has increased substantially in the 2000s. Our review found two strands of recent research, which are relevant to the Australian methodology used in this project. The first is modelling the overall housing supply which incorporates tenure choice, and the second are specific investigations of the private rental sector in England and Scotland.

The overall sufficiency of housing supply to meet demand has been on the policy agenda in England since the early 2000s. The driver of this work was a concern with housing affordability problems in the home ownership sector as indicated by rising house prices relative to household incomes. The influential Barker Review of Housing Supply in 2004 found very significant shortages in the supply of housing in England and also examined the social rental sector. It provided estimates of the number of additional private and social/affordable dwellings required to lower the trend in real house price increases, but had little to say about supply in the private rental sector, noting that it would be helpful to have better data on the private rental sector (Barker 2004, p.29).

Following the Barker Review, the central government commissioned the development of a methodology to quantify the relationship between housing affordability and new supply at a regional level, which became known as the Communities and Local Government Affordability Model. A requirement of the model was that the central indicator of affordability be defined as the ratio of lowest quartile house prices to lowest quartile household earnings. This approach did not take into account how different sized rental sectors in different regions would affect affordability measured in this way.

Subsequently, the model was developed further to incorporate tenure choice between owning and social and private renting (Meen et al. 2008). A report on this work argued that modelling of tenure choice should include three tenures rather than the simple binary between owning and renting, as in the US and Australia where most of the relevant prior empirical work had been conducted. This is due to the relatively large social housing sector in the UK.

This methodology (econometric modelling) differs substantially from the methodology and purpose of the current study. The latter is about modelling future medium and long-term outcomes of changes in key variables related to housing and labour markets and other factors. The current study analyses retrospectively observable and measurable changes over five year periods in the private rental sector. The relevance of the UK work to our review of the Australian methodology is in conceptualising the linkages between owning and two rental sectors and in recognising the importance of household choice between tenures in considering supply, including at a regional level.

Recent reviews of the private rental sector in both England and Scotland are as much about institutional settings as market analysis. The primary concerns are with the adequacy of accommodation, regulation and management of the sector, and the potential role of the sector in housing low income families and people on benefits, including homeless people. The review does examine affordability outcomes using a benchmark of 25 per cent of household income spent on rent as the benchmark of affordability. Moreover, both the English and Scottish reviews see intermediate housing markets as central to the discussion of affordability. Demand from these households is, by definition, dependent on accessibility to other housing sectors, namely home ownership and social rental. As discussed earlier, the concept of an intermediate housing market is also used in the New Zealand research.

In summary, the review of selected countries indicates that Australia, the US and Canada have established methodologies for analysing the private rental sector which, although they use other concepts such as adequacy and suitability, are primarily concerned with the affordability of rental housing and its availability. Established methodologies for analysing changes in the private rental sector over time have not yet been established in the UK and NZ; rather, these countries focus on the ways in which regulatory reform could improve outcomes for lower income private renters. Recent research reports in these countries, however, commissioned and/or funded by

governments, have started to investigate the extent to which supply meets household demand, using concepts such as sub-markets, which can inform discussion of future directions for the Australian research.

Issues raised by the international review

The international review highlights some conceptual and technical issues for consideration in setting future directions for on-going analysis of the private rental sector in Australia. The following section discusses selected major issues for consideration by AHURI.

Issue 1: Is the measure of affordability the right one; can it be improved?

The approach to affordability used in this project and widely elsewhere is the idea that households paying more than a set percentage of household income on rents face affordability problems, particularly if they are on lower incomes. We call this the ratio approach. although in other contexts it is also referred to as the 'outgoings to income ratio' (OTI) (Robinson, Scobie & Hallinan 2006) or shelter costs to income ratio (STIR) (CMHC 2009a, 2009b). While the concept is clear, applying the ratio approach involves difficult judgments about whether to use gross or net household income, whether gross rent or rent net of government subsidy is calculated, and whether rent includes any payments for electricity and other utilities as is common in the US and Canada, but not in Australia or New Zealand (Freeman et al. 1997; DTZ New Zealand 2004; Robinson, Scobie & Hallinan 2006).

Generally speaking, an affordability ratio is a simple but broad measure, which is valuable in charting changes over time and space. An affordability ratio, however, also has major limitations. After paying for housing that meets affordability benchmarks, households may be quite differently placed according to whether they have enough money left to meet other essentials. Depending on the income and the size/type of household, some may not be able to pay even 20 per cent of their income on housing and have enough money for other essentials, while others may be able to pay 50–60 per cent of their income on housing if they wish and still have enough to meet their non-housing needs. Dealing with this issue requires difficult decisions about equivalising household incomes.

In addition, the ratio approach does not reflect the quality of housing, the crowding of households or the taste/preference for cheaper or expensive housing (Hulchanski 1995; Freeman et al. 1997; Thalmann 2003; DTZ New Zealand 2004; Robinson, Scobie & Hallinan 2006). It is also possible that what is affordable housing may not be a satisfactory housing arrangement (e.g. sharing), but is often resorted to in order to overcome affordability problems. The ratio includes only on-going costs and not upfront costs involved in renting such as bond money and advance rent (DTZ New Zealand 2004).

The international review indicates that some countries have attempted a more sophisticated ratio measure by standardising for a number of household and housing characteristics (such as tenure, household composition & location). Separate measures may be calculated for rental and purchase or even between different types of rental as occurs in Australia where a lower ratio is used in public housing (25%). There could also be different percentages applied to different household income bands. Household incomes could be equivalised to take into account the different expenditure levels of larger or smaller households, as occurs in the HUD work discussed earlier. It is also possible to develop measures which reflect differences in rents between locations. Again, in the HUD work, affordability is defined as 30 per cent of a given geographic area's median income, although this is done to determine eligibility for different state and local housing programs.

The main benefit of the measure (30% affordability benchmark) used in this study is its straightforward calculation using readily available census data (though this study adds value by computing all missing values). Moreover, as seen in this Final Report, it can be applied across a range of geographic areas and can compare changes over time.

Issue 2: Is census data sufficient for the task?

Australia, New Zealand and Canada[16] conduct five-yearly Censuses which provide the basis for analysis of changes to the (private) rental sector. In the US and the UK, where Census collections occur every ten years, other sources of data are necessary to chart changes in supply and demand.

As documented in the literature, Census data on income suffer from a number of limitations including broad income brackets, non-reporting, and misreporting, all of which undermine the quality of the income data. These difficulties have led to complex and costly imputations procedures by ABS being a necessary precondition of the Australian analyses. Census data provide a unique opportunity to examine 'big picture' issues related to the supply of rental housing relative to demand in countries with five-yearly collections.

Nevertheless, the international review indicates that Census data, even taken at five-yearly intervals, may not be adequate for a thorough analysis of the private rental sector. This has been a key theme of the private rental reviews in the UK with, for example, the Rugg Report recommending 'developing a sound evidence base' as one of six 'directions of travel' (Rugg & Rhodes 2008). In its response, central government acknowledges the need to make better use of, and extend, existing data sources to enable more sophisticated analysis of the private rental sector. To this end, they have changed/extended the questions for tenants in the English Housing Survey, discussed above. The central government's response also indicates an intention to 'develop a more sophisticated and disaggregated understanding of the sector, both geographically and in terms of sub-markets. A key priority is better evidence on the 'housing benefit' segment of the market' (Department for Communities and Local Government 2009, pp.26–27).

In Australia, Census data provide a national overview and the capacity for spatial analysis, but specific data on rental dwellings (rather than households) is quite meagre. The time lag for release of data and the necessity to carry out complex imputations on household income data mean that the analysis is available up to four years after the collection of data. In some conditions, the sufficiency of supply at the time of publications may have changed. It is difficult to inform current policies when there is such a time lag.

The international review indicates that Census data in itself is not considered to be adequate, or timely enough, for a thorough analysis of the private rental sector. More comprehensive and accurate survey data on household income and housing expenditures are used from sample surveys in the US, Canada and the UK.

A consideration for Australia, therefore, is to what extent and how, the Australian methodology can be extended, or supplemented through households panel data sets (HILDA), cross sectional sample surveys (Household Expenditure Survey/Survey of Income and Housing).

Issue 3: Gross or disposable household income?

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[16] The Census of Canada was originally every 10 years but has been conducted at five-yearly intervals since 1956.

The methodology for this project, and the previous ones, uses *gross household income* since this variable has been collected consistently over the past censuses. The census does not collect information that would make calculating disposable income possible. Our review indicates that gross household income is used internationally, for example, in the HUD and CMHC analyses.

Other research on housing affordability in Australia, including for AHURI, has used 30 per cent of net (disposable) household income as a benchmark for lower income households with incomes in the bottom two quintiles (Yates & Milligan 2007). A research paper for AHURI's National Research Venture on Housing Affordability for Lower Income Australians has already canvassed many of the issues (Yates & Gabriel 2006).

Issue 4: Equivalised or non equivalised household income?

The Australian, like the Canadian methodology, uses *unequivalised* gross household income. It is recognised, however, that households have different expenditure needs based on the number of persons, age and composition—these characteristics will affect their financial circumstances.

Equivalising household incomes is the statistical method for addressing such differences, as used in much research into housing affordability in Australia.[17] It is also used in HUD's calculation of Area Median Income (AMIs). HUD uses equivalised household income in calculating eligibility for federally-funded rental assistance programs, such as housing vouchers. Larger households can have higher incomes than smaller ones in assessing eligibility for programs. HUD does not equivalise Area Median Incomes, however, and uses a different means of equivalising than in Australia: such that a four-person household is the base level and incomes are adjusted by up to 1.16 for six-person families and down to 0.7 for one-person households (Vandenbroucke 2007b). This contrasts with the process of equivalising in Australia with the income of a one-person household being taken fully into account, but reducing percentages of household income as household size increases.

There is no standard approach to equivalisation in Australian research into housing affordability. A detailed consideration of this issue for AHURI's National Research Venture No.3 on Housing Affordability for Lower Income Australians canvassed the different approaches (Yates & Gabriel 2006). Finally, this research settled on the lowest two quartiles of equivalised, *disposable* (net) income from all household income earners.[18] This contrasts with the current project, which also uses household income quintiles, but is based on non-equivalised, gross income from all household income earners.

Now that gross equivalised household income figures are available in the Australia census, this study could be complemented with a comparative analysis based on selecting low and very low (the bottom 40%) households from the equivalised gross household income distribution. This would provide a sensitivity analysis that would reveal the differences in the mix of households that comprise the bottom 40 per cent.

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[17] 'Equivalised household income is total household income adjusted by the application of an equivalence scale to facilitate comparison of income levels between households of differing size and composition, reflecting the requirement of a larger household to have a higher level of income to achieve the same standard of living as a smaller household' (ABS 2006, p.193).

[18] Yates and Milligan (2007, p.55 footnote 1) in the Final Report on NRV3 note that, while estimates of the numbers and composition of those in housing stress will differ depending on the precise measure employed, it makes little difference whether housing costs are defined in relation to gross or disposable income and whether the lowest two quintiles are based on gross or disposable income adjusted or unadjusted for household composition (that is, equivalised) when this indicator is used to indicate the broad scale of the housing affordability problem and trends in this over time (RP3).

If the current methodology is to be modified, a few issues should be kept in mind:

→ The research is based on census data, not *survey* data, so only equivalised gross (not disposable) household income is available.[19]

→ Information on incomes collected in the Census is reported in ranges, not individual dollar amounts.

→ Equivalised gross household income is not a common income measure in housing affordability studies. Rather, equivalised *disposable* household income is used.

→ The current research approach incorporates an analysis of demand for the affordable private rent stock by different types of households (e.g. composition, size, age, employment status). In some ways, therefore, the reasons for equivalising household income are accounted for through this in-depth, descriptive analysis of low income households in the private rental market.

→ Furthermore, it would be possible to expand the scope of households under analysis by disaggregating the second quintile (Q2) into two deciles to examine if the third decile includes more family households with affordability problems.

→ The results derived from the current methodology are considered to be conservative estimates of the number of households in housing stress (see Yates & Gabriel 2006, p.ix & Appendix 2).

In summary, the current research approach is intentionally straightforward and the introduction of further data refinements might invoke an unwarranted sense of precision.

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[19] Furthermore, equivalised gross household income is only available from the 2006 Census of Population and Housing, and presumably future Censuses, but not earlier ones.

Appendix 2: Robustness checks

The estimates of shortages in the private rental market provided in this Final Report are more likely to be seen as robust to the assumptions made if the outcomes can be validated by use of alternative data or alternative assumptions. Three potential concerns are addressed here.

The first is that the household income data employed in this study are derived from census data and, as such, were available only as *categorical variables*. Although relatively sophisticated imputation techniques (as described in the positioning paper) were employed to generate point estimates of income for each individual household, the question does remain whether these have affected the estimates of a household's capacity to pay rent.

Second, concern arises with use of self-reported incomes as is the case in either census or survey data in *that the very low or negative incomes in such data sources provide inadequate measures* of capacity to pay and are poor indicators of a household's well-being.

Third, a final concern arises with the *use of gross rather than disposable or equivalised disposable household income* to define very low and low income households.

Each of these is addressed below.

Use of categorical income data

As is made clear by the analysis in Chapter 3, the flipside of a shortage of affordable and available housing for lower income renters is the affordability problems that these households face. The 2006 census based estimate of a shortage of 298 000 dwellings for renters in the bottom two quintiles of the income distribution suggests that there must be at least this many lower income renters who are paying more than 30 per cent of their gross household income in meeting their rent (that is, who are in housing stress) because there is no alternative accommodation available for them.

One way of testing this proposition is to supplement these results with data from an alternative source. Here, the 2005–06 Survey of Income and Housing Costs(SIHC), in which income was reported directly rather than as a categorical variable, is used to provide an assessment of the reliability of these estimates.[20] For purposes of direct comparison with the results reported in the text and summarised above, lower income households (those in the bottom two quintiles of the income distribution) are defined in terms of gross household incomes. Gross household incomes are used to estimate shortages instead of the equivalised disposable incomes more conventionally used to estimate the extent of housing stress primarily because of a methodological imperative. While equivalence scales exist to adjust household incomes according to household size and structure, it is not possible to match the income so generated with dwellings defined as affordable on the basis of the relation of rents to gross household income.

Table A1 provides estimates of the extent to which lower income renters were or were not in housing stress from the 2005–06 SIHC to compare with the shortage estimates generated from the 2006 census data. It shows that the estimated numbers of lower income private renter households in columns 3 and 6 and their distribution between the first and second gross income quintiles are consistent, with census results, if

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[20] Census data were employed in this study because of the greater spatial detail that census data provide compared with survey data. The gross income quintiles defined for the (August 2006) census data based on these imputed point estimates had upper boundary cut-offs of $423, $809, $1,278 and $1,978. Those in the (slightly earlier July 2005 to June 2006) SIHC were $451, $822, $1,296 and $1,938.

anything understating the number of low income renters compared with the SIHC. The results for very low income households in stress from the SIHC (in column 2) are greater but similar to the estimates of shortage for such households. On the other hand, the estimates of low income households in stress from the SIHC are considerably greater than the census estimates of low income households who face affordability problems because of a shortage of affordable and available rental housing. This suggests that, the census estimates provided in this report are, if anything, under- rather than over-estimates.

Table A1: Housing stress in the private rental market: 2005–06

Private renter households	*2005–06 survey estimates*			*2006 census results*		
	1	2	3	4	5	6
	not in stress	in stress	total	in affordable housing	not in affordable housing	total
Very low income (Q1)	27,000	240,000	267,000	57,000	211,000	268,000
Low income (Q2)	211,000	185,000	396,000	273,000	87,000	360,000
All lower income renters	238,000	425,000	663,000	330,000	298,000	628,000

Source: Australia, Australian Bureau of Statistics Survey of Income and Housing, 2005–06. Results derived from ABS Basic CURF data. Census results from Table 2.1 in text.

One of the reasons why these stress and shortage estimates differ might lie in the way in which households with nil or negative incomes are treated.

Self-reporting of negative or nil incomes

In this report, households with nil or negative incomes are classified as being in the first income quintile and are assigned a point estimate in the same way as all other households with incomes in this income quintile.

ABS routinely defines low income households as those households with incomes in the second and third deciles of an equivalised income distribution. A detailed rationale for this was given in Appendix 4 of Household Wealth and Wealth Distribution, 2003–04 (cat. no. 6554.0). 'For some time, the ABS has noted that households at the very lowest end of the income distribution have average expenditures higher than those households with somewhat higher average levels of income. Due to this observation, the ABS has adopted the practice of describing the characteristics of persons in the second and third deciles of the income distribution when describing the characteristics of low income people' (ABS 2006, p.66).

The ABS suggest that 'of particular interest are those households that appear to have income below levels generally available through the safety net of the Australian social security system of Centrelink or similar income support payments, even though they do not have too many assets to qualify for these payments. Some households will only have the low income for a relatively short period of time and therefore their members may not be eligible for income support payments, or choose not to apply for them. Such households are likely to be more willing to use their savings to maintain relatively high levels of expenditure' (ABS 2006, p.70).

Such an adjustment to the definition of what constitutes a low income household has not been made in this report.

Analysis of data from the 2005–06 SIHC data indicates that only 40 000 households, or 0.5 per cent of all households, report zero or negative income levels. Only 16 000

of these households were in the private rental market. All of these households were defined as being in housing stress in the estimates provided above.

Of those with positive incomes below the fifth percentile, the vast majority (over 70%) had government pensions and allowances as their main source of income. While these households with negative, nil and low incomes may have additional resources from which to pay their housing costs, the low numbers with nil and negative incomes and the high proportion of those with low incomes who are reliant primarily on government benefits suggests that there is little justification for discarding 10 per cent of all households from the income distribution (approximately 800 000 households) simply because there may be a small number for whom income is not a good indicator of their short term capacity to pay.

A secondary reason is that, even for those with temporary affordability problems, solutions that require them to run down their assets in order to maintain their current levels of housing (or non-housing) expenditures ultimately reduce their level of well-being.

Estimates based on equivalised disposable income data

The third concern raised above was the use of gross rather than equivalised disposable income to define lower income households.[21]

Table A2 below shows that the choice of income measure has a relatively limited impact on estimates of those in housing stress.

Table A2: Housing stress in the private rental market: 2005–06

	2005–06 survey estimates gross income quintiles			*2005–06 survey estimates eq. disp. income quintiles*		
	1	2	3	4	5	6
Private renter households	not in stress	in stress	total	not in stress	in stress	total
Very low income (Q1)	27,000	240,000	267,000	40,000	236,000	276,000
Low income (Q2)	211,000	185,000	396,000	171,000	161,000	333,000
All lower income renters	238,000	425,000	663,000	211,000	398,000	609,000

Source: Australia, Australian Bureau of Statistics Survey of Income and Housing, 2005–06. Results derived from ABS Basic CURF data.

As shown by Yates and Gabriel (2006), however, the characteristics of those in stress, or who are unable to find affordable housing may differ with the use of gross rather than equivalised income with more households with children being included in the low income definition and fewer single persons than is the case with unequivalised data. The similarity in the overall estimates, with the proviso that singles are likely to be over-represented and households with children under-represented reinforces the concerns expressed in Chapter 3 about the problems faced by lower income households with children in facing a shortage of affordable and available rental accommodation.

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[21] As explained above, unequivalised rather than equivalised income is used in this paper because of the need to match affordable rental stock with capacity to pay (measured by gross household income). For much the same reason, gross income is used rather than disposable income. However, for households in the lowest income decile, the distinction between gross and disposable income is marginal because they generally fall below the tax threshold.

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