Research Paper

Peer Reviewed

The polarisation of housing affordability

National Research Venture 3: Housing affordability for lower income Australians

Research Paper No. 8

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for the

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September 2007

ISBN: 1 921201 75 4

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Australian Housing and Urban Research Institute

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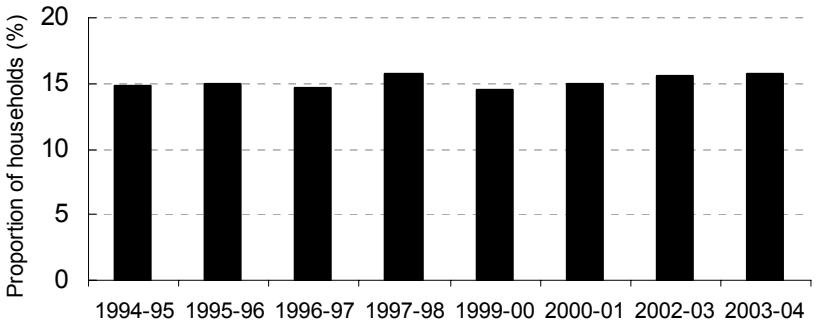
EXECUTIVE SUMMARY

One of the puzzling results of aggregate affordability measures in Australia in the past decade has been the remarkable stability of the proportion of households who spend at least 30 per cent of their gross household income in meeting their housing costs, shown below.

Figure 1: Housing costs more than 30% of gross income



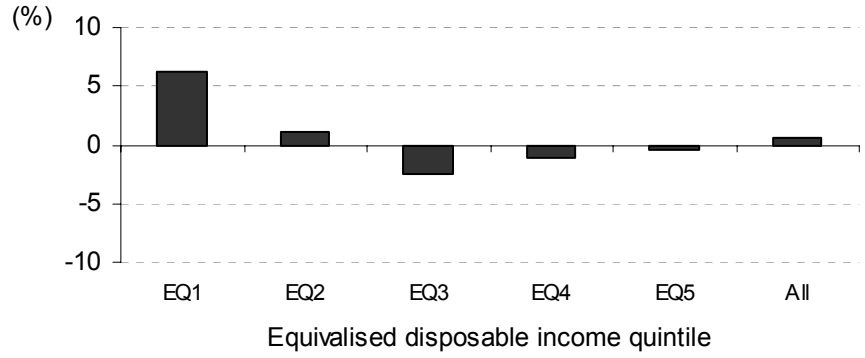
Source: ABS Cat No. 4130.0.55.001 Housing Occupancy and Costs, Australia, 2002-03, Table 3

This outcome is puzzling because it appears contrary to the changes in housing markets that have taken place over the period. Chapter 1 of this report provides an overview of these changes, the most obvious ones of which are the rapid rise in the ratio of house prices to household income that occurred in Australia in recent years and the fluctuations in a housing affordability index that measures access to home ownership for first home buyers. This has plummeted to its lowest level in 20 years.

The purpose of this report is to provide a statistical analysis of the factors that affect the aggregate proportion of households with a housing cost to income ratio of 30 per cent or more. The role of this ratio as an indicator of housing affordability is discussed in an earlier NRV3 report (Yates and Gabriel, 2006). Chapter 2 and Chapter 3 provide an explanation of why the ratio illustrated above has remained stable despite the significant changes that have taken place. Chapter 4 provides a summary of the conclusions that can be drawn from the data presented in Chapter 2 and Chapter 3. These results show:

- The stability of the aggregate ratio illustrated hides considerable variation in the incidence of housing stress at a disaggregate level.
- Between 1995-96 and 2002-03, the proportion of households in the bottom 40 per cent of the equivalised disposable income distribution who spent at least 30 per cent of their income in meeting their housing costs increased by 3.6 percentage points from 24.6 per cent to 28.2 per cent. Over the same period, the proportion of households in the top 60 per cent of the equivalised disposable income distribution who spent at least 30 per cent of their income in meeting their housing costs decreased by 1.3 percentage points from 8.4 per cent to 7.1 per cent. The change in incidence over time by income quintile is shown below.

Figure 2: Change in incidence of stress, 1995-6 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

- The incidence of housing stress amongst purchasers in the lowest two quintiles of the equivalent disposable income distribution has declined for most age groups.
- The proportion of private renters paying at least 30 per cent of their income in meeting their housing costs has remained relatively stable. However, at 31.3 per cent in 2002-03, it is almost three times that for households in other tenures.
- Increases in the incidence of housing stress have been highest amongst low income households in the capital cities and have not been limited to regions where stress was initially highest.
- Disaggregation of housing stress data which takes into account the interactions between the key variables (income, age, household type and tenure) shows there was considerable variation in the changes in the incidence of stress between 1995-96 and 2002-03 for different household types.

These observations reinforce concerns with the housing affordability outcomes for lower income households. The likelihood that such households will be in housing stress is not only high but also has increased over the past decade.

The measure of housing stress employed in this study is based on a 30 per cent of gross household income rule. As discussed in Yates and Gabriel (2006), this is a crude measure which is useful for presenting a broad brush picture and for indicating trends. However, it does not take into account differences that different household types in the lowest two quintiles of the equivalised disposable income distribution have in their capacities to pay for housing after they have met their non-housing needs.

These differences highlight the conclusions about the need to take into account the specific characteristics of those in stress (such as household structure) in order to ensure policies intended to relieve this stress are effectively targeted. Amongst lower income households, the incidence of stress is greatest for young purchasers and for both young and older private renters.

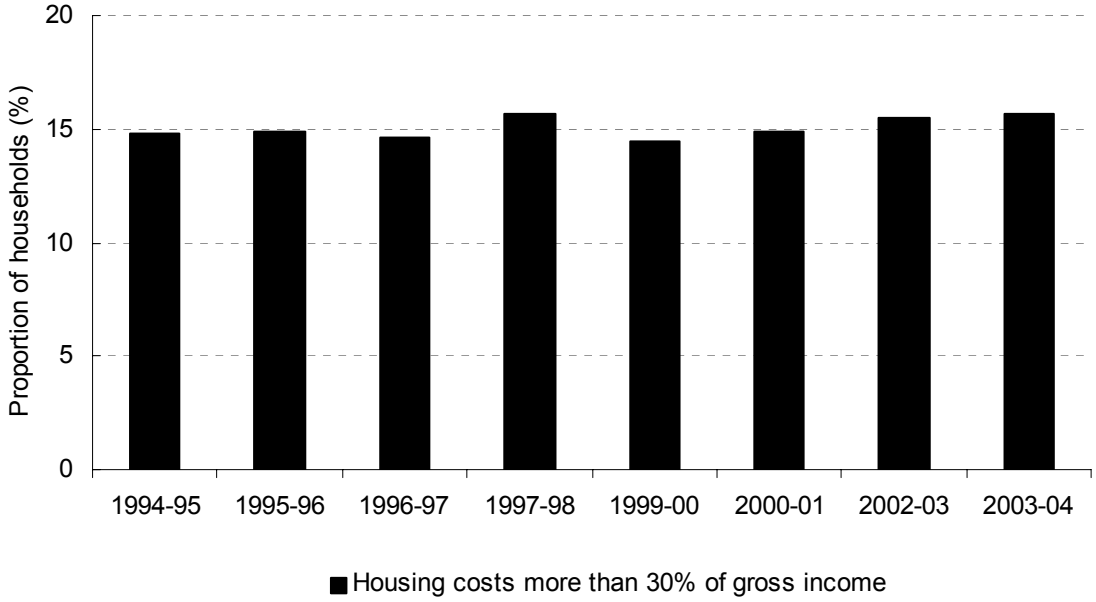
The report concludes with a cautionary note by pointing out that the focus in this study is on the factors that have contributed to a relatively stable proportion of households paying a high proportion of their income in meeting their housing costs. This focus should not detract from many of the significant results presented in the tables in Chapters 2 and 3. These show an incidence of housing stress which, for many household types, is persistently 50 per cent to 80 per cent, well above the Australia wide average of 15 per cent. It suggests that an explanation of why the incidence of stress for some households is so much higher than it is for other households might be more important than explaining why the aggregate ratio is stable.

1 AGGREGATE HOUSING AFFORDABILITY DATA

1.1 Background

One of the puzzling results of aggregate affordability measures in Australia shown in an earlier Research Paper for NRV3 (Yates and Gabriel, 2006) was the remarkable stability of the proportion of households in the past decade who spend at least 30 per cent of their gross household income in meeting their housing costs. Such households are defined as being at risk of facing a housing affordability problem. This proportion varied by just 1 percentage point between 1994-95 and 2003-04. It fell to a low of 14.6 per cent in 1996-97 and rose to a high of 15.7 per cent in 1997-98 and again in 2003-04. It has remained within these bounds for the period for which data are readily available.

Figure 1.1: Proportion of households spending 30 per cent of their income on housing: 1994-95 to 2003-04

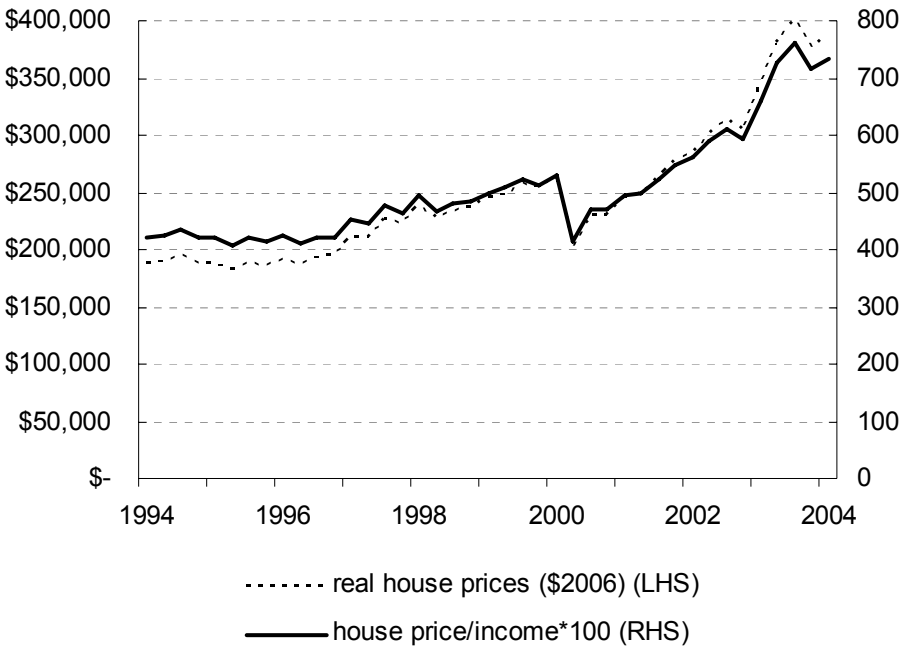


Source: ABS Cat No. 4130.0.55.001 Housing Occupancy and Costs, Australia, 2002-03, Table 3

At first glance, this relative stability appears to be at odds with aggregate housing data over the same period. In the decade to 2004, housing markets in Australia experienced a significant number of changes. The most remarkable of these was the rapid increase in house prices that occurred in the 5 years to 2004 when house prices doubled and real house prices increased by more than 50 per cent. This followed a 25 per cent increase in real house prices in the preceding 5 years. One outcome of this increase has been a commensurate increase in the house price to income ratio. The ratio of median house prices to (annual) household incomes rose from a relatively stable value of around 3 to 4 in the early 1990s to an all time high of around 7 at the peak of the housing price boom in the early 2000s. These outcomes are illustrated in

Figure 1.2 below.[1] As reported by the RBA, by 2003 the value for the ratio of median house prices to average household incomes had reached a level not previously seen in Australia and "the available evidence suggests that the ratio of house prices to incomes in Australia is now relatively high by international standards, whereas a decade ago it had been similar to that observed in a number of other countries." (RBA, 2003, p13)

Figure 1.2: Ratio of house prices to household income: Australia, 1994-2004

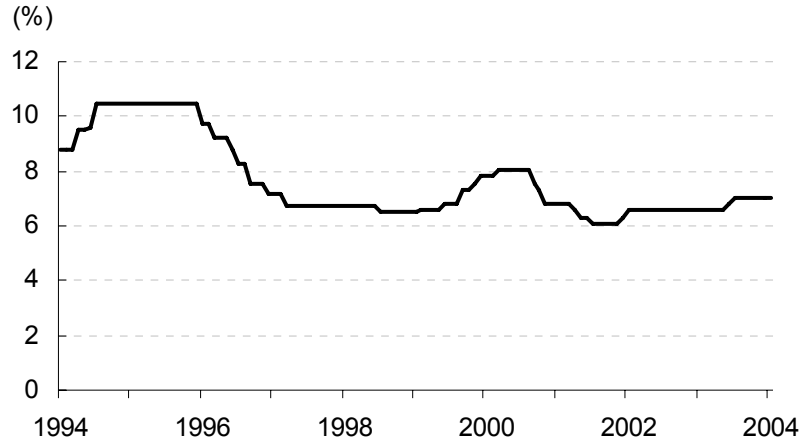


Source: HIA-Commonwealth Bank Housing Affordability Reports, median established house price for Australia; household income set at annual equivalent of average weekly ordinary time earnings, full time adults from RBA Table G06 (ABS 6302.0 Table 3).

Despite generally declining mortgage interest rates in the decade to 2004 (shown in Figure 1.3), the burden of rising real house prices was reflected in a general upward trend in the mortgage servicing ratio for Australian households (shown in Figure 1.4).

[1] This chart is similar to that presented in the RBA submission (RBA, 2003, chart 13) but, because income data are derived from average weekly earnings data rather than national accounts data for household income, it has a slightly lower estimate for household incomes than the RBA data and hence a slightly higher house price to income ratio. In 2006, Demographia (http://www.demographia.com/) described Australia as having the most pervasive affordability crisis of the English speaking countries covered by its survey because each Australian capital city had the dubious honour of being ranked as severely unaffordable, the top ranking of the house price to income categories employed in the report. A similar result held for 2007.

Figure 1.3: Mortgage interest rates, 1994-2004

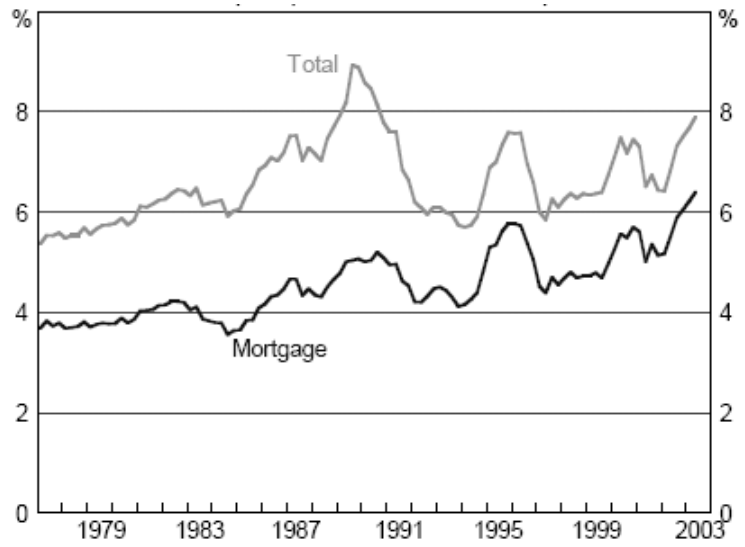


Source: RBA, Table F05, mortgage interest rate

This mortgage or debt servicing ratio is based on interest costs as a proportion of income. It is shown in Figure 1.4 for household interest paid on both mortgages and total borrowing as a percentage of household disposable income. By 2003, mortgage interest costs had reached a peak of 6.5 per cent of aggregate household disposable income. This exceeds the previous peak in 1995 (when interest rates were 4 percentage points higher) and is 50 per cent higher than the average ratio of around 4 per cent prior to financial deregulation two decades earlier.

Because the ratio charted is averaged across all household, it includes both households with a mortgage and those without. It therefore disguises the higher burden of mortgage interest payments on households who have a housing loan which, by 2003-04, represented 35.1 per cent of all households, up from 29.6 per cent in 1994-95 (ABS Cat No. 4130.0.55.001 Housing Occupancy and Costs, Australia, 2003-04, Table 3).

Figure 1.4: Debt servicing ratio, 1977-2003



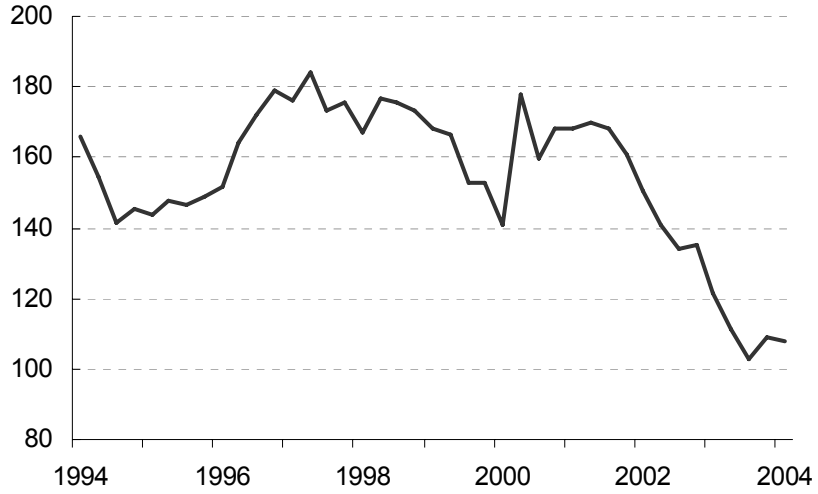
Source: RBA (2003, graph 11), in turn from ABS, RBA; debt servicing measured by household interest paid as a percentage of household disposable income

These outcomes are reflected in declining affordability in Australia as can be seen in the dramatic decline in the HIA-Commonwealth Bank housing affordability index for first home buyers in the years to the end of 2004, illustrated in Figure 1.5 below. Figure 1.5 also highlights the basis for a general perception that housing affordability in Australia has been extremely volatile over the past few decades and reinforces the puzzling nature of the stability of the housing cost to income ratio data illustrated in Figure 1.1.

However, an increase in the mortgage debt servicing ratio and in the proportion of households with a mortgage, and a dramatic decline in affordability do not necessarily imply an increase in the proportion of households who potentially face an affordability problem, defined here as those who spend at least 30 per cent of their income in meeting their housing costs. Ellis et al (2003), for example, suggest that much of the additional debt implied by the data shown in Figure 1.4 has been taken on by households most able to bear it. These are mid-life households with relatively high household incomes. Such households are less likely to face affordability problems than younger households or lower income households. Thus, an increase in the amount of housing debt or numbers of households with a mortgage may not lead to an increase in the proportion of households paying at least 30 per cent of their income in meeting their housing costs.

Potential first home buyers, on the other hand, are more likely to be affected by the higher mortgages needed to fund home purchase as house prices rise. The general downward trend in the affordability index illustrated in Figure 1.5 since the mid 1990s and the dramatic downward trend since 2001 highlights the declining affordability faced by first home buyers in the last decade.[2] The affordability index for December 2006 which is not included in the chart suggests that, after three interest rate increases in 2006 and continued real house price inflation, affordability for first home buyers was the lowest since the index was established (in 1984).

Figure 1.5: Housing affordability index: Australia, 1997 to 2004



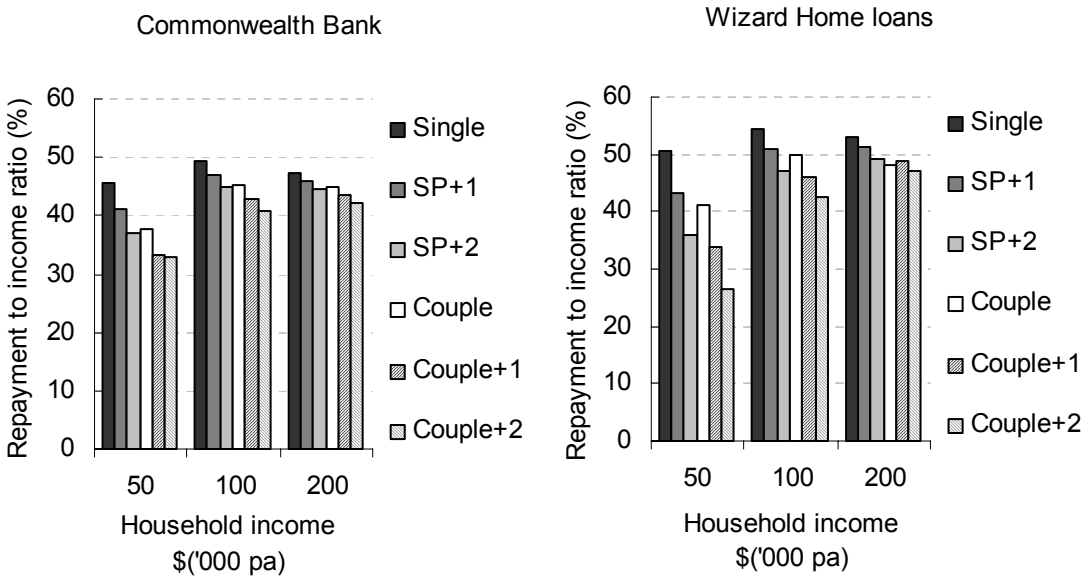
Source: HIA-Commonwealth Bank Housing Affordability Reports

[2] This index, based on the ratio of average household disposable income to the income needed to meet repayments on a 25 year loan for 80 per cent of the median price of established dwellings purchased by first home buyers, aims to provide a measure of accessibility to home ownership for an average first home buyer.

The index illustrated is derived by comparing median incomes with the income that would be needed to service the median loan actually obtained by first home buyers if mortgage repayments were set at 30 per cent of household income. However, changes in lending practices over the past few years have meant that home buyers are able to obtain loans where repayment to income ratios are well in excess of 30 per cent. Such loans are available from traditional lenders as well as from mortgage brokers. Figure 1.6 provides examples of repayment burdens for loans on offer according to the home loan calculators provided by two key home loan providers.[3] For a given level of household income, permissible repayment burdens are higher for households where there is more than one income earner.[4] Undertaking a loan in such circumstance, however, would be risky if interest rates were expected to increase or if there was any uncertainty about the sustainability of the contribution made to household income by either income earner.

The results illustrated highlight lenders' recognition of the increase in capacity to pay as income increases and as number of dependents decreases. They also illustrate the willingness of lenders to at least consider repayment burdens well in excess of the 30 per cent ratio illustrated in Figure 1.1. A significant increase in the take up of such loans would tend to result in an increase in the proportion of households with high housing cost ratios.

Figure 1.6: Indicative maximum repayment ratios



Source:

Commonwealth Bank home loan calculator (standard variable rate mortgage, interest rate 8.07%) http://www.commbank.com.au/personal/other/useful_tools.asp, 19/01/07

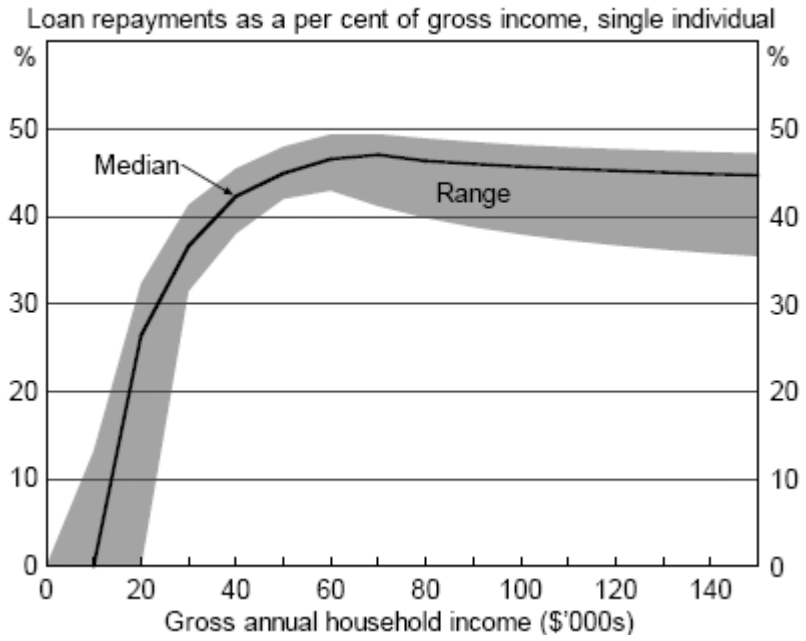
Wizard Home Loan calculator ('Smart Choice Loan', interest rate 7.72%) http://www.wizard.com.au/calculators/borrowing_calculator.aspx, 19/01/07

[3] The websites provide estimates only. There is no guarantee that such loans will be provided. All calculations are for a 25 year standard variable rate mortgage with monthly repayments and apply to first home buyers with no outstanding household debt and with a single earner contributing to household income.

[4] For a childless couple on $100,000 pa, repayments increase from 45 per cent of household income for a single earner household to 51 per cent of household income when at least one quarter of total income is earned by a second income earner. For couples with children on $50,000 pa, closer to AWE, repayment ratios are closer to the 30 per cent conventionally employed in most affordability indexes.

Figure 1.7 below, taken from the RBA's Financial Stability Review for March 2005, provides an indication of the range of estimates of borrowing capacity for a single person from banks' online housing loan calculators. A debt servicing ratio at the median outcome of around 47 per cent corresponds to an initial loan size of nearly 5.5 times gross annual income. Most borrowers, however, take out loans with debt service requirements well below the maximum (RBA, 2005, Box D).[5]

Figure 1.7: Maximum debt-servicing ratio, 2005



Source: RBA (2005, graph D1)

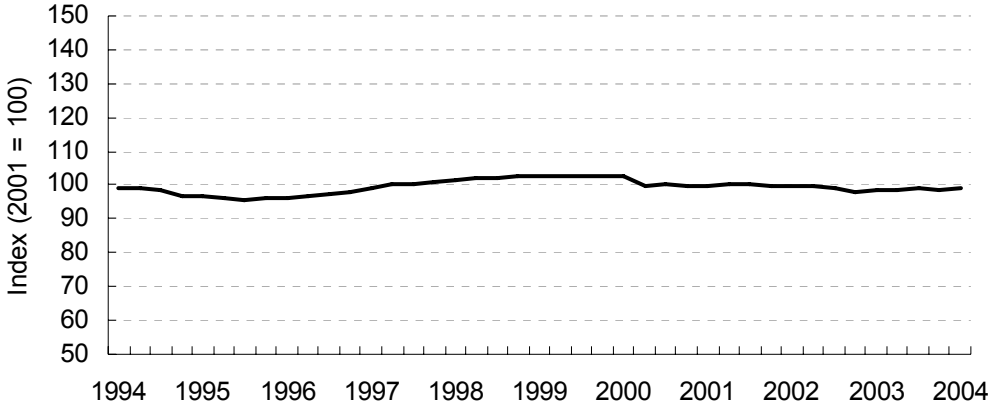
Alternative responses to the emergence of rising house prices and the affordability measures illustrated above are possible, particularly for potential home purchasers in the younger age groups. The first is that they are deterred from entering home ownership and, instead, remain in private rental. A second is they form group households rather than individual households in the private rental market, with the result there is a decline in the rate of household formation. A third is that they remain in the parental home. In the first two instances, affordability outcomes will be driven by what is happening in the rental market rather than by what is happening to house prices and home loan affordability.

Aggregate data on rents appear to provide one potential explanation of why the proportion of households paying a high proportion of their income in meeting their housing costs has not risen. Real rents, as reflected in the rent component of the CPI were stable in the decade to 2004. Along with the increase in house prices, this has meant that rental yields steadily fell over the period charted. The willingness of investors to not only retain but also increase their investment in rental housing under these circumstances has been attributed to a number of factors amongst which are

[5] The RBA notes the change from the past rule of thumb based on a requirement that the debt servicing ratio did not exceed 30 per cent to a more flexible assessment of borrowing capacity. It reports that a number of lenders, instead, assess borrowing capacity on the basis of what is available to service a mortgage after tax and living expenses are taken into account. Rather than relying on self-reporting, average living expenses are estimated from Henderson Poverty Line data for each type of household. The range of ratios illustrated in Figure 1.7 above indicates differences in the way in which the various lenders use the HPL. All calculations have been based on a 25 year loan and the then current interest rate of 7.3 per cent.

the significant tax advantages that have arisen as a result of a combination of negative gearing and significant capital gains. The relevant data for the period under consideration are illustrated in Figure 1.8.

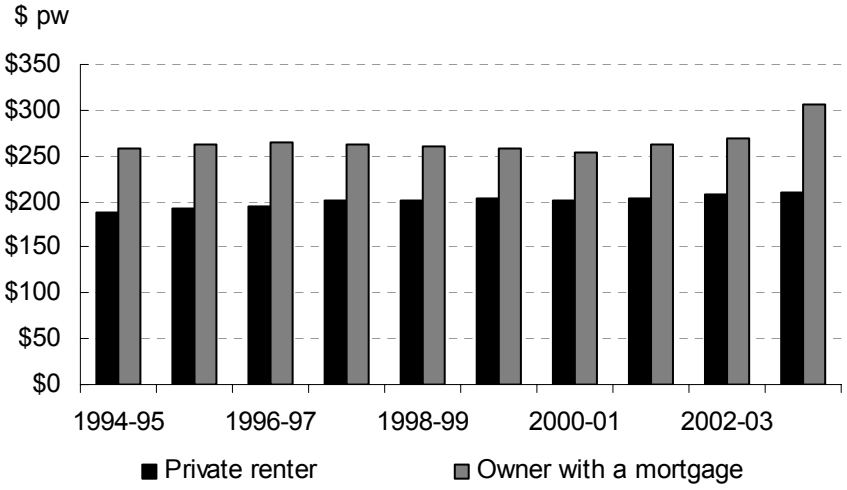
Figure 1.8: Real rents: Australia, 1994-2004



Source: ABS Consumer Price Index, Australia, Cat. No. 6401.0; rent component CPI adjusted

On the other hand, survey data on mean housing costs for renters and for purchasers indicate a slow upward trend for private renters over the decade to 2004 and a relatively stable trend for purchasers until 2003-04 when the survey data indicates a significant increase. These data are shown in Figure 1.9.

Figure 1.9: Mean housing costs: Australia, 1994-2004 ($2006)



Source: ABS Cat No. 4130.0.55.001 Housing Occupancy and Costs, Australia, 2003-04, data derived from Table 1 and Table 2, interpolated for 2 missing years; costs CPI adjusted to $2006

This introductory overview provides some insights into the factors that affect affordability outcomes for individual households: those covered are house prices, interest rates and rents in relation to incomes. It does not, however, provide an answer to the question of why the proportion of households paying at least 30 per cent of their income in meeting their housing costs has remained stable. An answer requires a more disaggregated analysis in order to determine which households have had their housing costs affected by changes in the housing market.

1.2 Overview of report and data employed

The purpose of this report is to provide a statistical analysis of the factors which affect the aggregate proportion of households with a housing cost to income ratio of at least 30 per cent in order to determine why it has remained so stable (as illustrated in Figure 1.1). In the following chapters, it does this by disaggregating the data in order to generate a more detailed picture of whether there is any systematic pattern in which households have been affected and which households have been unaffected by the dramatic changes that occurred in Australian housing markets in the decade to 2004 described broadly above. The final report from the National Research Venture on Housing Affordability for Lower Income Australians will put these results into a broader perspective.

The data employed in this study are taken from the Surveys of Income and Housing which have been available more or less continuously from 1994-95 (currently until 2003-04) and provide the basis for the data presented in Figure 1.1 and in Figure 1.9.[6] This report relies specifically on data from the 1995-96 and 2002-03 surveys. The end point of 2002-03 was chosen it was the base year for the results reported in Yates and Gabriel (2006). Their work provides a more detailed affordability analysis of the results presented here. The starting point of 1995-96 was chosen ahead of 1994-95 because of the change in tenure type classification that occurred in 1995-1996 and has continued since then.[7]

Between 1995-96 and 2002-03, the total number of households in Australia increased by 15 per cent from 6.7 million to 7.6 million households. The proportion of households who were owner occupiers was relatively stable but the proportion of households without a mortgage decreased from 42.8 per cent to 36.4 per cent whilst that of households with a mortgage increased from 28.0 per cent to 33.1 per cent. The proportion of households who were private renters increased from 19.0 per cent to 22.0 per cent whilst those in other tenures (including public rental) declined.[8] The proportion of childless households (both couples and singles) increased (with the proportion of couples increasing from 23.5 per cent to 25.4 per cent and proportion of lone person households increasing from 22.9 per cent to 25.2 per cent). The proportion of one family households consisting of a couple with dependent children decreased from 30.2 per cent to 26.8 per cent.

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[6] Some of the data from the earlier surveys were re-released to take into account a number of revisions designed to ensure a more consistent time series of income distribution data (see, for example, articles in Australian Economic Indicators ABS Cat. No. 1350.0, April 2002 and June 2003). The results in this paper use these revised data.

[7] Prior to 1995-96, tenure type classified owner occupiers as either owners or purchasers. From 1995-96 they were classified as owners without and with a mortgage. This change in classification was undertaken to reflect the increasing use of secured loans for non-housing purposes. Such loans are seen as potentially affecting security of tenure. The Yates and Gabriel study used the 2002-03 survey because their study was undertaken before the unit record files were released for the 2003-04 survey.

[8] Summary data have been taken from ABS Cat. No. 4130.0.055.001, Housing Occupancy and Costs, Australia, 2002-03. The data for 2003-04 suggest this trend continued with the proportion of owners without a mortgage in the most recent survey declining further to 34.9 per cent and those with a mortgage increasing to 35.1 per cent, up from 33.1 per cent in 2002-03. Data from ABS Cat. No. 4130.0.055.001, Table 11 show this 2 percentage point increase in the proportion of households with a mortgage is associated with greater increases at the top end of the equivalised income distribution than at the bottom end and average increases in the middle. The proportion of households with a mortgage in the lowest quintile decreased by 1.4 percentage points from 2002-03 to 2003-04 whereas it increased by 4.7 percentage points for those in quintile 4 and 3.4 percentage points for those in quintile 5. Households in the higher income quintiles are less likely to face high housing cost ratios than those in lower income quintiles.

Between 1995-96 and 2002-03, the mean of real equivalised disposable household income for households in the lowest two income quintiles grew more slowly (at, respectively, 9 and 13 per cent) than that for all households (16 per cent).[9] The impact of this outcome on the incidence of housing stress for lower income households will be examined in the following chapters.

Chapter 2 examines the proportions of households spending at least 30 per cent of their income in meeting their housing costs according to their income, tenure, age, household type and location in both 1995-96 and 2002-03. It combines these results with data on the economic and socio-demographic composition of Australian households in both 1995-96 and 2002-03 to determine the extent to which the stability in the aggregate proportion of households with a high housing cost ratio is robust at a more disaggregate level.

Chapter 3 follows with a more complex disaggregation, focussing specifically on outcomes for households in the 2 lowest quintiles of the equivalised disposable income distribution.

Chapter 4 provides a brief summary of the key results obtained from the analysis and concludes with an assessment of why the proportion of households spending at least 30 per cent of their income has remained constant.

[9] Equivalised disposable income is derived by dividing disposable income by an equivalence factor derived using the 'modified OECD' equivalence scale in which the first adult in the household has a weight of 1 point, each additional person aged 15 year or more is allocated 0.5 points and each child under the age of 15 is allocated 0.3 points. The equivalised income of a single person household is the same as its unequivalised income. The equivalised income of a household with more than one person is lower than its unequivalised income. The purpose of this adjustment is to allow for the economies of scale that arise from the sharing of income. When income is negative, income has been set to zero and the household has been classified as being in housing stress. The data on income growth reported here are based on the household weighted data used in the following chapters of this report. The results have been generated from the confidentialised unit record files for the Surveys of Income and Housing for 1995-96 and for 2002-03. Results reported in the ABS relevant publication (ABS Cat. No. 6523.0) are based on person weighted data which give a growth of, respectively, 10 and 14 per cent for first and second income quintiles (and an overall growth of 16 per cent).

2 INCIDENCE OF HOUSING STRESS BY ECONOMIC AND SOCIO-DEMOGRAPHIC CHARACTERISTICS, 1995-96 TO 2002-03

This chapter provides a disaggregated analysis of the incidence of housing stress over time by the key contributing factors to high housing stress that have been identified in past studies: viz. income, tenure, household age and type and location.

Conventionally, the term "housing stress" is restricted to those in the lowest two quintiles of the equivalised disposable income distribution. For convenience, in this chapter the term "housing stress" is used to denote any household spending at least 30 per cent of their gross household income in meeting their housing costs rather than adding the proviso that such households would be defined as being in housing stress only if they were also lower income households. The analysis undertaken by Yates and Gabriel (2006) suggest that the vast majority of household who do pay at least 30 per cent of their income in meeting their housing costs are, indeed, in the lowest two quintiles of the equivalised disposable income distribution. However, there are still significant numbers (particularly home purchasers) who are in the middle income quintile. In the following chapter, the results will be disaggregated according to equivalised disposable income quintile with outcomes for lower income households highlighted.

If a disaggregated analysis of results for both 1995-96 and 2002-03 shows a considerable variation in the extent to which the incidence of housing stress has changed, this provides a signal that the aggregate result of a stable proportion of households paying at least 30 per cent of their income in meeting their housing costs (as shown in Figure 1.1) arises either because increases in the incidence of stress amongst one group have been offset by decreases amongst a different group or because there has been a decline in the types of households facing high housing stress.[10]

2.1 Income

The final section of Chapter 1 pointed to the uneven growth in mean equivalised disposable household incomes between 1995-96 and 2002-03. It showed mean incomes for households in the lowest two quintiles of the equivalent disposable income distribution (that is, incomes of lower income households) grew considerably more slowly than average income growth. This slower growth in lower household incomes provides some explanation of a clearly identifiable worsening of the incidence of housing stress for lower income households in 2002-03 compared with 1995-96. In 1995-96, 14.9 per cent of all households and 24.6 per cent of lower income households spent at least 30 per cent of their gross household income in meeting their housing costs. By 2002-03, 15.5 per cent of all households and 28.2 per cent of lower income households spent at least 30 per cent of their gross household income in meeting their housing costs, where the lowest 2 quintiles of the equivalised disposable household income are used to define lower income households and where housing costs are defined by rents or by mortgage repayments (where relevant) plus rates.

[10] This can be explained formally as follows. In any year, the aggregate incidence of housing stress (S_t) is a weighted sum of the incidence of stress (s_{it}) amongst households with defined characteristics and the relative importance of such households (p_{it}): $S_t = \sum_i . s_{it}.p_{it.}$. S_t will remain stable if an increase in $s_{it}.p_{it}$ is offset by a decrease in $s_{jt}.p_{jt}$ ($i \neq j$) or if $s_{it}.p_{it}$ remains constant because an increase in s_{it} is offset by a decrease in $p_{it.}$

Table 2.1 shows the proportion of households whose housing costs amount to at least 30 per cent of their gross household income for both 1995-96 and 2002-03. It shows an increase in this incidence for households in the lowest 2 income quintiles and a decrease for households in the top 3 income quintiles.[11] Because the proportion of households in each of the income quintiles is, by definition, constant (at 20 per cent of all households), these changes in the incidence of households paying at least 30 percent of their income in housing costs provide the first explanation of why the aggregate proportion of households with high housing costs is stable. An increase in the proportion with high housing costs amongst lower income households (in other words, an increase in the incidence of housing stress) has been offset by a decrease amongst higher income households.

Table 2.1: Incidence of housing stress by equivalent disposable income quintile, 199596 and 2002-03

Equivalised disposable income quintile	Incidence of stress 1995-96	2002-03	change in incidence
	%	%	
1	29.1	35.3	6.2
2	20.0	21.2	1.1
Lowest 2	24.6	28.2	3.6
3	13.2	10.8	-2.4
4	7.4	6.3	-1.1
5	4.5	4.2	-0.4
All households	14.9	15.5	0.7

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

2.2 Tenure

Because the proportion of households with a specific tenure (and with specific socio-demographic characteristics) can change over time, examination of the change in the incidence of stress over time for those with a defined characteristic provides an indication of underlying changes for these specific households. However, additional information on any change in their relative importance is required before the impact of a change in the proportion of households with high housing cost ratios (illustrated in Figure 1.1) can be determined. The first set of columns in Table 2.2 shows the change between 1995-96 and 2002-03 in the proportions of households purchasing and privately renting. Households in each of these tenures have been shown to have a relatively high incidence of stress in earlier studies (for example, Yates and Gabriel, 2006). Households in outright ownership and public housing, shown to have relatively low levels of housing stress in earlier studies, are combined into a residual "other" tenure category. This first set of columns shows the increase in importance of purchasers and private renters (with a corresponding decline in outright owners and public renters).

[11] Any difference in the incidence of stress that exceeds 0.9 percentage points is significant at least at a 95 per cent level of confidence; any difference that exceeds 1.2 percentage points is significant at least at a 99 per cent level of confidence. Similar observations hold for Tables 2.2 to 2.5.

Table 2.2: Incidence of housing stress by tenure, 1995-96 and 2002-03

	Propn of h'holds in tenure		Incidence of stress		contribution to change in
Tenure	1995-96	2002-03	1995-96	2002-03	incidence
	%	%	%	%	
home purchase	28.1	33.1	24.8	19.5	-0.5
private rental	20.9	23.3	31.5	31.3	0.7
other*	51.0	43.6	2.6	4.1	0.5
All households	100.0	100.0	14.9	15.5	0.7

* includes outright owners, public renters

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

The second set of columns shows the incidence of housing stress in 1995-96 and 2002-03 for households in the three categories reported. Somewhat counter-intuitively given the housing market trends reported in Chapter 1, it shows decreases in the proportion of households with high housing cost ratios in home purchase and private rental, the high stress tenures. However, the result is consistent with an increase in the proportion of purchasers and private renters who are higher income households and who, as a result of their higher incomes, tend to have lower housing cost ratios. It is also consistent with a decline in the number of new purchasers and an increase in indebtedness amongst higher income established home owners. A decline in new purchasers reduces the numbers of households with high housing cost ratios. The increase in indebtedness amongst higher income established home owners has not been sufficient to increase the proportion of households paying at least 30 per cent of income in meeting housing costs.

The final column in Table 2.2 combines the changes in the proportion of households in each category and the changes in the tenure specific incidence of high housing cost ratios. This gives the net effect of these changes to the (0.7 percentage point) change in the aggregate incidence of high housing cost ratios. It shows that the increase in the proportion of households paying at least 30 per cent of their income in meeting their housing costs (from an aggregate figure of 14.9 per cent in 1995-96 to 15.5 per cent in 2002-03) is explained by an increase in the proportion of higher income private renter households. However, although there was a marginal decline in the proportion of private renters with high housing cost ratios over the period examined, the proportion of households with high housing cost ratios remains considerably higher for private renters than for other households. The combined effect of the increase in the proportion of households in private rental and their higher incidence of households with high housing costs means private renters have contributed to the entire increased incidence of high housing cost ratios in the aggregate data. The net effects of changes in the other two categories (home purchase and the residual 'other' category) offset each other.

The results suggest that disaggregation by tenure alone provides little indication of any significant change in the incidence of stress. Overall, the proportion of households spending at least 30 per cent of their income in meeting their housing costs is relatively stable for private renters, who make the greatest contribution to aggregate measures of stress. It has declined for purchasers (likely to be a reflection of their higher income status) and increased from a low base for all other households.

2.3 Age

Disaggregation of the data by age results shows less change than by tenure both in the proportions in each age group and in the age specific incidence of stress and little

discernible pattern in the outcomes. Table 2.3 shows the results for both incidence and proportion of households by age of reference person and, in the final column, the net contribution that the changes have made to the change in the aggregate incidence of stress.

Table 2.3: Incidence of housing stress by age of household reference person, 1995-96 and 2002-03

	Propn of h'holds by age		Incidence of stress		contribution to change in
Age of reference person	1995-96	2002-03	1995-96	2002-03	incidence
	%	%	%	%	
<25	4.5	4.7	27.1	29.3	0.2
25-34	20.3	18.5	24.1	22.6	-0.7
35-44	22.6	22.1	18.3	20.7	0.4
45-54	19.6	20.0	12.4	11.9	0.0
55-64	13.3	15.0	8.6	10.8	0.5
65+	19.8	19.7	5.5	7.1	0.3
All households	100.0	100.0	14.9	15.5	0.7

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Between 1995-96 and 2002-03 the incidence of stress increased for the very young (aged less than 25 years), for those aged 35-44 and for older households (with a reference persons aged 55 years and above). It decreased for those in the 25-34 and 45-54 year old age groups. The net effect of the changes in demographic structure and age specific stress levels meant all but one of the age groups contributed a small amount to the increased total, with the decline in the proportion of households in the 25-34 year old age group, combined with a decline in their stress levels offsetting the positive effects for all other age groups.

2.4 Household type

The final socio-demographic variable to be considered here is household type. Following the structure of the information presented in Table 2.2 and Table 2.3, Table 2.4 presents the results for the relative share of the different household types in Australia in 1995-96 and 2002-03 and the incidence of stress for each household type.

The data in the second set of columns show a marginal worsening of the proportion of couple households spending a high proportion of their income in meeting their housing costs and a considerable worsening for single person households and, from a low base, for other (multi-family) households. Couple households with children and sole parent households, on the other hand, show a reduction in the incidence of housing stress. The impact on the aggregate ratio of the improved outcome for couple households with children is, to a large extent, offset by a significant decline in the relative share of this household type. Conversely, the impact of the poorer stress outcome for single person households is exacerbated by an increase in the relative share of this household type.

Table 2.4: Incidence of housing stress by household type, 1995-96 and 2002-03

	Propn of h'holds type		Incidence of stress		contribution to change in
Household type	1995-96	2002-03	1995-96	2002-03	incidence
	%	%	%	%	
Couple	24.6	26.5	8.8	9.4	0.3
Couple + children	36.7	32.4	14.0	12.3	-1.1
Single	22.9	25.2	20.2	23.7	1.3
Sole parent	6.3	9.8	28.7	21.2	0.3
Group	4.3	3.2	18.8	19.8	-0.2
Other	5.3	2.8	6.6	12.1	0.0
All households	100.0	100.0	14.9	15.5	0.7

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

2.5 Location

Table 2.5, which disaggregates outcomes spatially at a state and within state level of disaggregation, provides the final set of the univariate results presented in this section.

Table 2.5: Incidence of housing stress by location, 1995-96 and 2002-03

	Propn by location		Incidence of stress		contribution to change in
Capital city	1995-96	2002-03	1995-96	2002-03	incidence
	%	%	%	%	
Sydney	20.7	20.2	19.4	19.3	-0.1
Melbourne	17.7	17.7	13.6	16.3	0.5
Brisbane	8.0	8.6	17.0	16.2	0.0
Adelaide	6.3	6.0	12.7	12.1	-0.1
Perth	7.2	7.4	14.6	15.7	0.1
Hobart	1.2	1.1	6.4	14.6	0.1
All capitals	61.2	61.0	15.9	16.8	0.5
R of NSW	13.0	13.0	13.0	14.6	0.2
R of Vic	7.2	7.0	11.6	10.7	-0.1
R of Qld	9.7	10.6	16.3	16.2	0.1
R of SA	2.3	2.1	10.5	8.1	-0.1
R of WA	2.5	2.6	13.6	15.0	0.0
R of Tas	1.6	1.5	7.2	8.6	0.0
All rest of state	36.4	36.7	13.2	13.7	0.2
All households	100.0	100.0	14.9	15.5	0.7

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

The incidence data show both the higher incidence of housing stress in the capital cities compared with the rest of the country and show that this differential increased over the period examined.[12] The impact on the aggregate ratio of the large increase in Hobart is offset by the small weight that this has in determining the aggregate result. The results suggest that most of the impact of the increase in the aggregate ratio between 1995-96 and 2002-03 arises because of the increase over the period in the incidence of stress for households living in Melbourne.

[12] Care should be taken in interpreting the data for Tasmania as the results are based on small sample sizes.

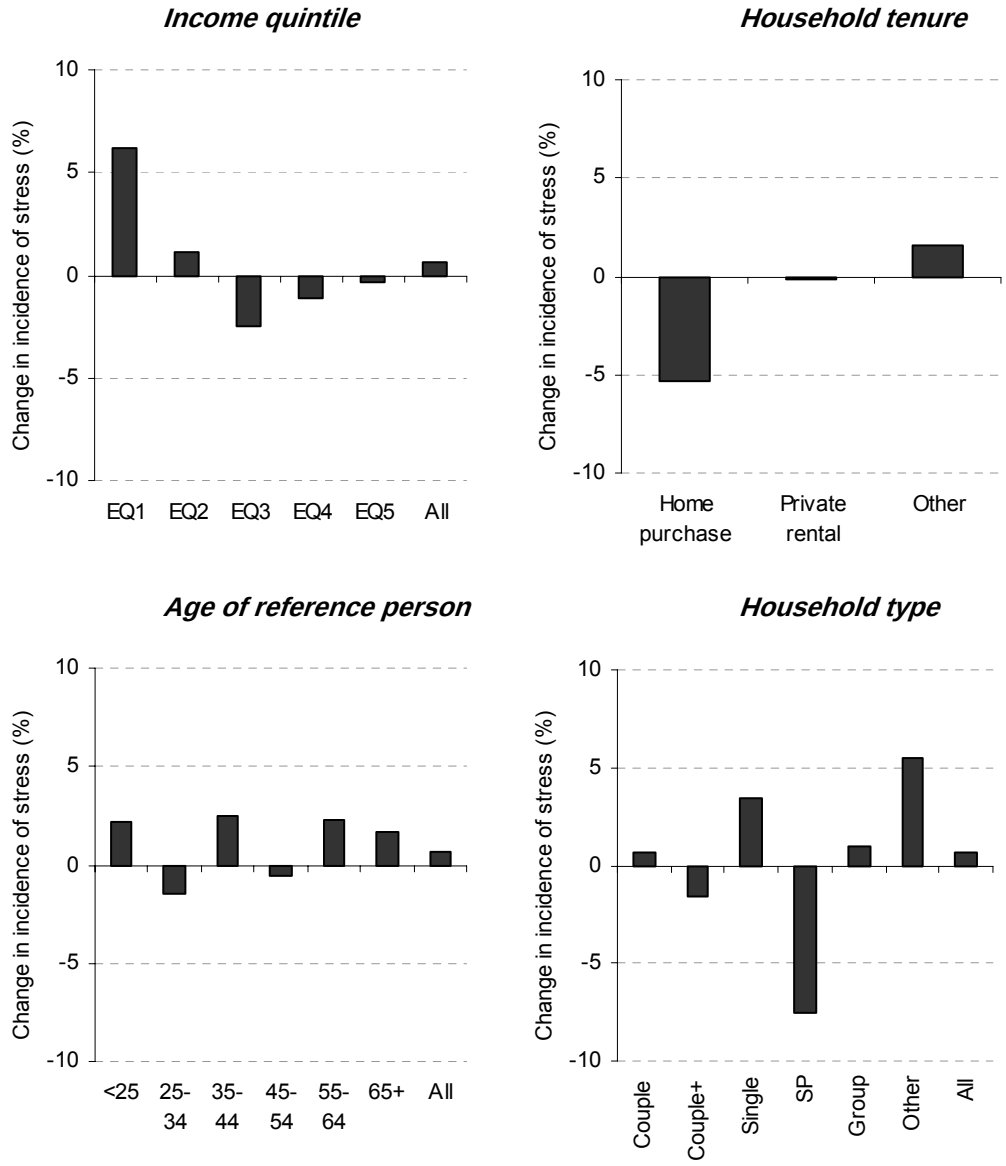
2.6 Summary

An overview of the changes in the incidence of housing stress by equivalised disposable income quintile, tenure and household age and type is presented in Figure 2.1.

Changes in the proportions of households by each of these characteristics are summarised in Figure 2.2. These charts are presented with the same scale on the vertical axis so that a visual representation of the most significant changes is easy to see.

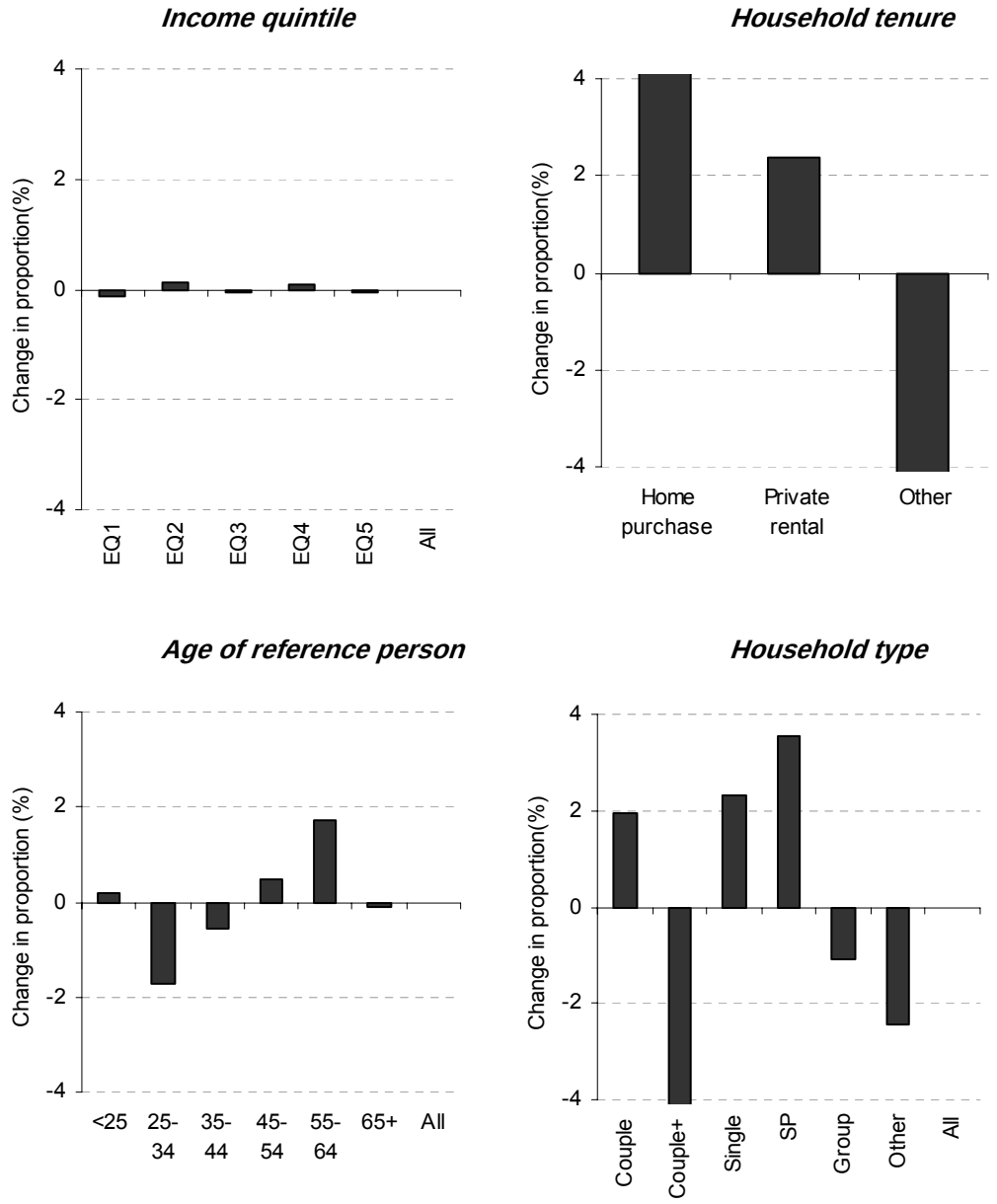
The results show that the stability of the aggregate proportion of households spending at least 30 per cent of their income in meeting their housing costs is, in fact, an artifact of the aggregation process. The simple univariate analysis undertaken in this chapter shows there are often quite significant changes in the incidence of housing stress that become apparent once the income, tenure and socio-demographic characteristics of households are taken into account. In many instances, a change in the incidence for one type of household is counteracted by an offsetting change in the incidence of stress for a household with different characteristics. The changes by equivalised disposable income quintile provide the clearest example of this result.

Figure 2.1: Change in incidence of housing stress by income and socio-demographic characteristics: 1995-96 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Figure 2.2: Change in proportion of households by income and socio-demographic characteristics: 1995-96 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

The results in Figure 2.2 show the changes in the proportions of households by the same characteristics as illustrated in Figure 2.1. In Figure 2.2, changes by income quintile (which, by definition, should be zero) occur only because of the lumpiness of observations at the critical quintile cut-off points. The tenure data show the marked shift to purchasers and private rental and away from other tenures. The age data show the ageing of the population with a declining proportion of younger households and increasing proportion of older households. The changes in the household type data in part reflect this change with a decrease in the proportion of couple households with children and an increase in the proportion of couple only and single person households.

The charts also can be used to show that a relatively small increase in the incidence of stress for households at a disaggregated level can be magnified if there is an

increase in the relative share of this type of household. The results for tenure provide a clear example of this. The overall changes in the proportion of households by tenure are greater than tenure specific changes in the incidence of those in housing stress.

Figure 2.3 provides the same illustrative summary for change by location as provided in Figure 2.1 and Figure 2.2 for income, tenure, household type and age. The results presented earlier in Table 2.5 showed that the highest incidence of housing stress in 1995-96 was in Sydney, Brisbane and Perth. Figure 2.3 shows that the largest increases in the incidence of housing stress were not necessarily in the regions where stress was initially highest although the earlier note of caution about small sample sizes for the smaller states must be remembered. The data in Figure 2.3 also suggest that changes in the incidence of stress are not necessarily correlated with internal migration as the changes in the proportion of households in housing stress are not correlated (either positively or negatively) with the changes in the proportion of households in each region.

Several key results relating to the stability of the aggregate proportion of households with high housing costs (illustrated in Figure 1.1) can be drawn from the findings presented in this chapter. The first is that the aggregate ratio hides considerable variation in the incidence of high housing cost ratios at a disaggregate level.

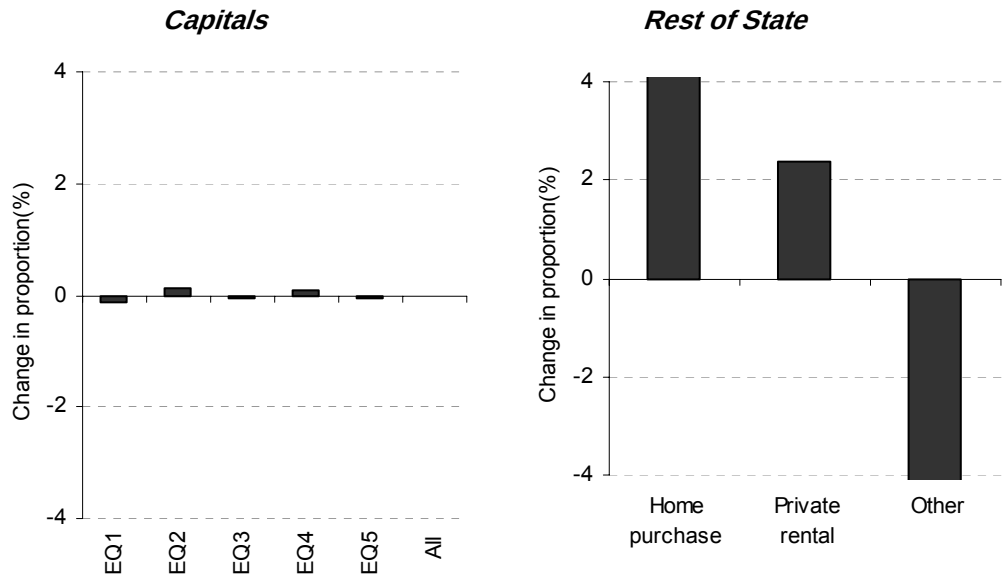
The second is that the stability of the aggregate ratio over time can due primarily to offsetting changes in the disaggregate ratios. An example of this was given with the results disaggregated by income. Increases in the proportion of households with high housing cost to income ratios amongst lower income households were offset by decreases amongst higher income households. This provides the key explanation for the task set for this paper.

A third key observation is that the results reinforce concerns with lower income households. It is amongst these households that the highest incidence of households with high housing cost to income ratios is found and it is these households who faced the greatest increase in this incidence of housing stress between 1995-96 and 2002-03.

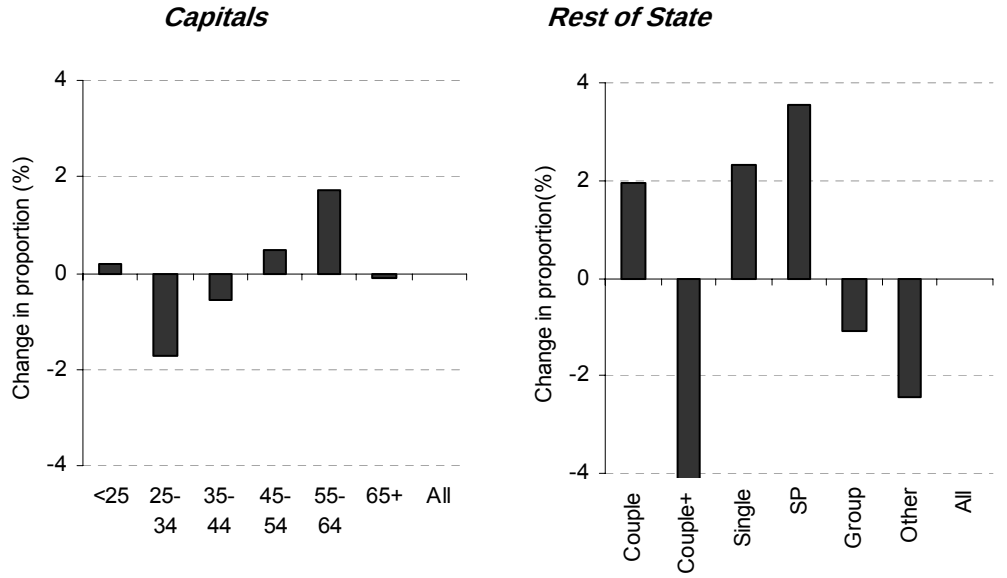
The following chapter focuses specifically on disaggregate outcomes for these lower income households because of their centrality to the National Research Venture (Housing Affordability for Lower Income Australians) for which this particular research paper has been prepared.

Figure 2.3: Change by location: 1995-96 to 2002-03

Incidence:



Proportions:



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

3 CHANGES IN THE INCIDENCE OF HOUSING STRESS FOR LOWER INCOME HOUSEHOLDS

The results presented in the previous chapter suggest that, in large part, the relative stability of the proportion of households paying at least 30 per cent of their income in meeting their housing costs is explained largely by offsetting effects both because changes in disaggregate incidences of housing stress work in opposite directions (as shown by the results for stress by equivalised disposable income quintile) and because increases in the incidence of stress for one particular group are ameliorated by decreases in the relative importance of that group (as shown by the results for stress by age of head of household).

This chapter examines in more detail these results from 1995-96 to 2002-03, focusing initially on the interactions between some of the key variables considered in the previous chapter. These are provided to enhance understanding of the interactions between the key variables and to provide a focus on outcomes for lower income households. The final section provides a summary of the outcomes based on a multivariate analysis and provides an overview of the data to be used in the decomposition analysis presented in the final chapter.

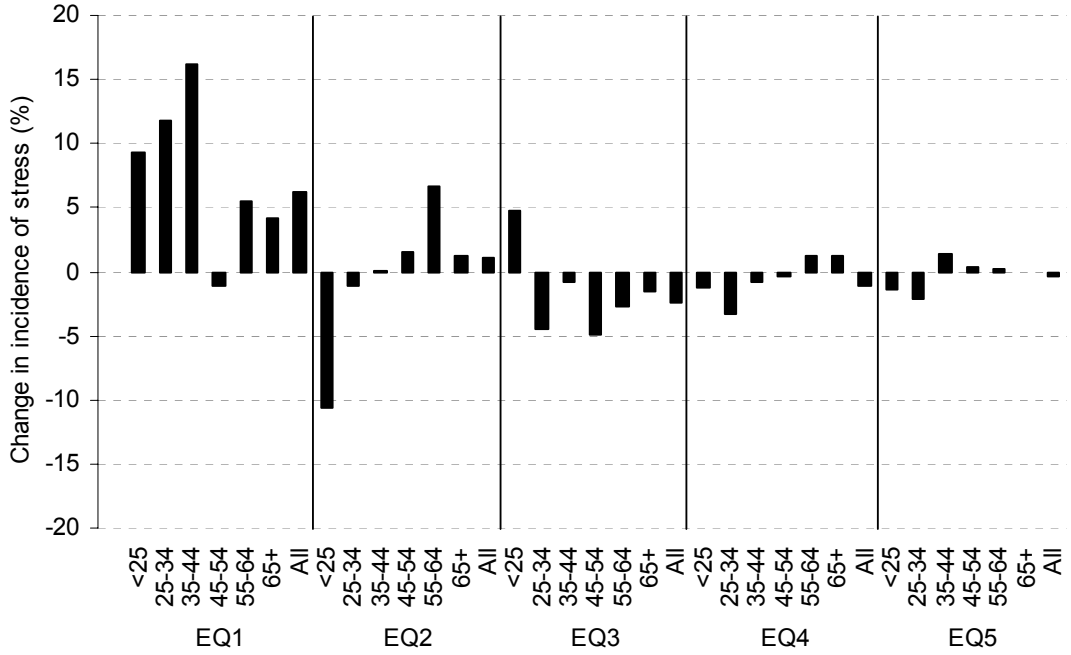
3.1 Changes in stress by income, age and tenure

The charts in this and the following section highlight the interaction between household equivalised disposable income quintile and the key factors examined in the previous chapter. Figure 3.1 shows these changes by age and income; Figure 3.2 shows them by age and tenure; and Figure 3.3 shows the changes in the incidence of stress disaggregated by age, tenure and income.

Figure 3.1, which shows the change in the incidence of housing stress by income quintile and age of head of household, shows that the systematic worsening of housing stress which is strongest for household in the lowest equivalised disposable income quintile holds for almost all age groups. Of those with the lowest incomes, only 45-54 year olds escape from an increase in the incidence of housing stress. For those in the second income quintile, only young households had a reduction in housing stress between 1995-96 and 2002-03.[13] All households in the second income quintile aged 35 years old or more faced an increase in housing stress.

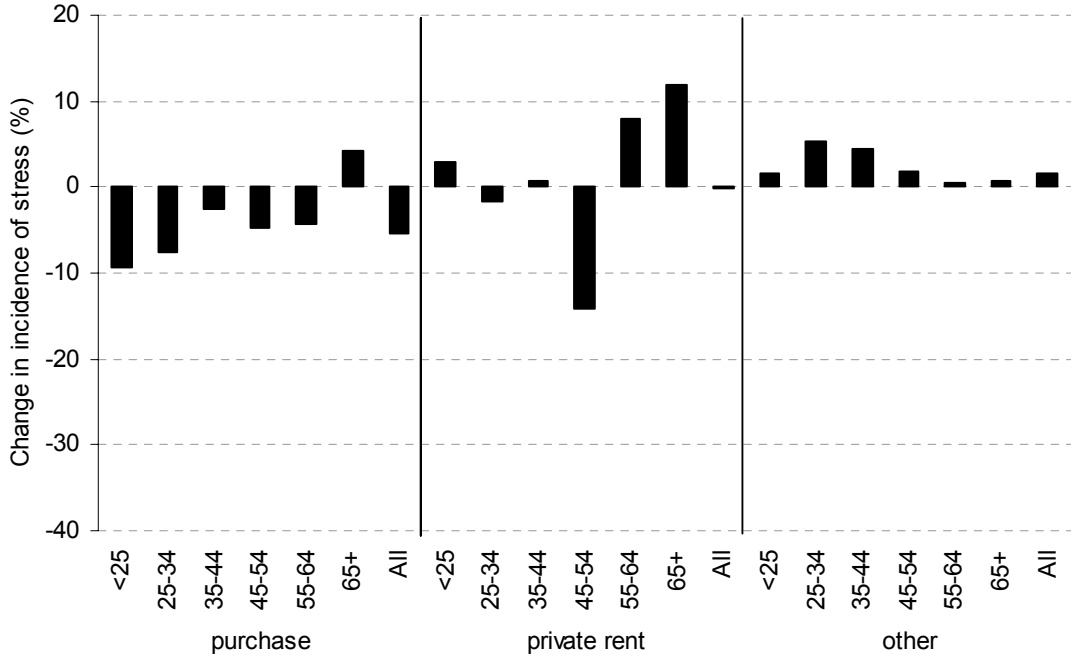
[13] As with some of the other results presented in this report, when data on young households are cross classified by other variables, the outcomes need to be treated with caution because of the relatively small sample sizes involved. There are fewer than 400 observations for households where the reference person is younger than 25 years old and only 100 cases where the household is also in housing stress. Further disaggregation by any variable will result in unreliable estimates.

Figure 3.1: Change in housing stress by income and age, 1995-96 to 2002-03



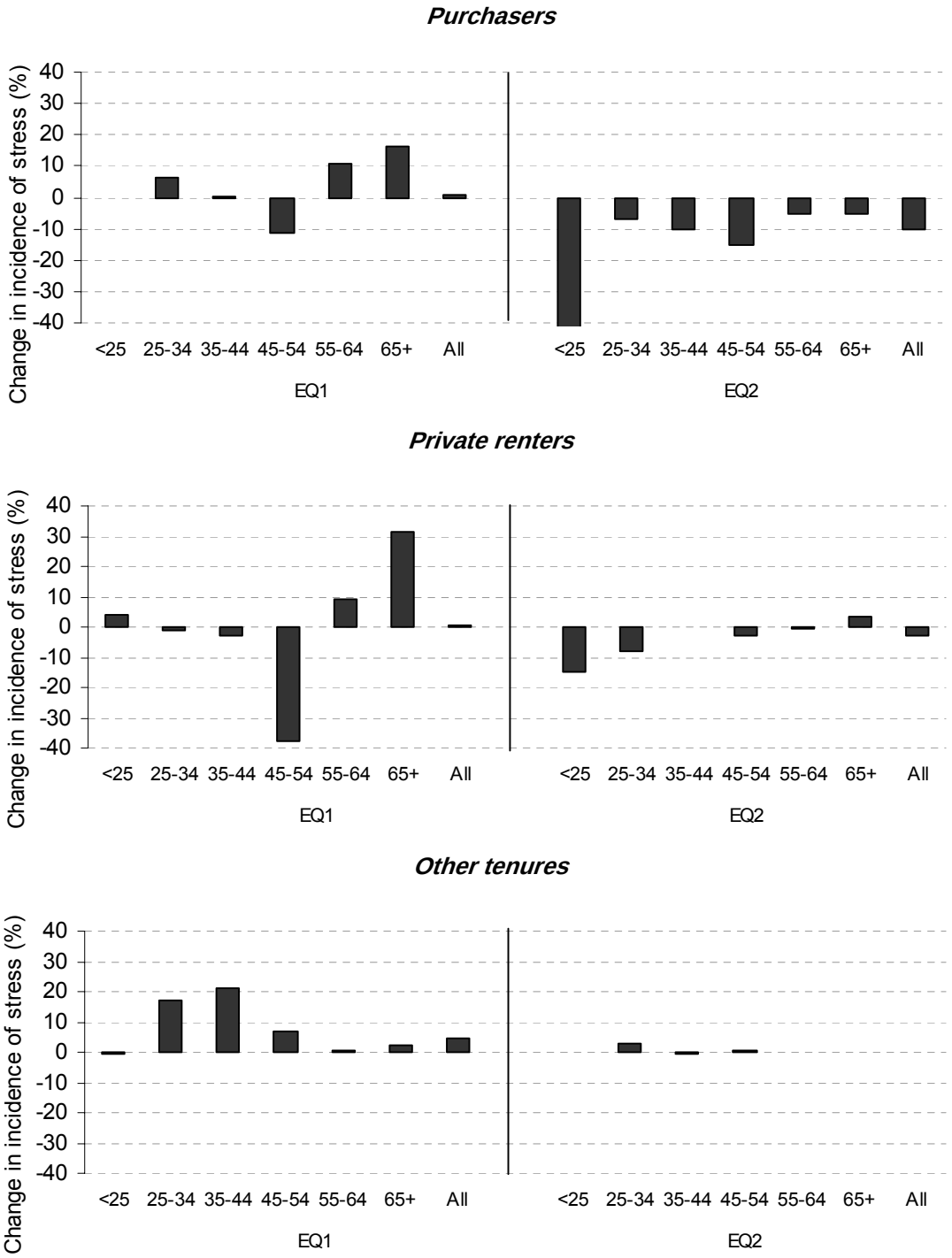
Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Figure 3.2: Change in housing stress by tenure and age, 1995-96 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Figure 3.3: Change in incidence of housing stress by tenure and age for households in lowest two equivalent disposable income quintiles: 1995-96 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Figure 3.2 suggests that some of the increased incidence of housing stress for older households might be attributable to the increased stress they faced in the private rental market. This is consistent with the general pattern of housing costs by age since home owners tend to have declining costs over time as they pay off their mortgages. An increase in the incidence of housing stress is less likely amongst older home owners because of their relatively low reliance on costs that are affected by changes in the economy in general or housing markets in particular.

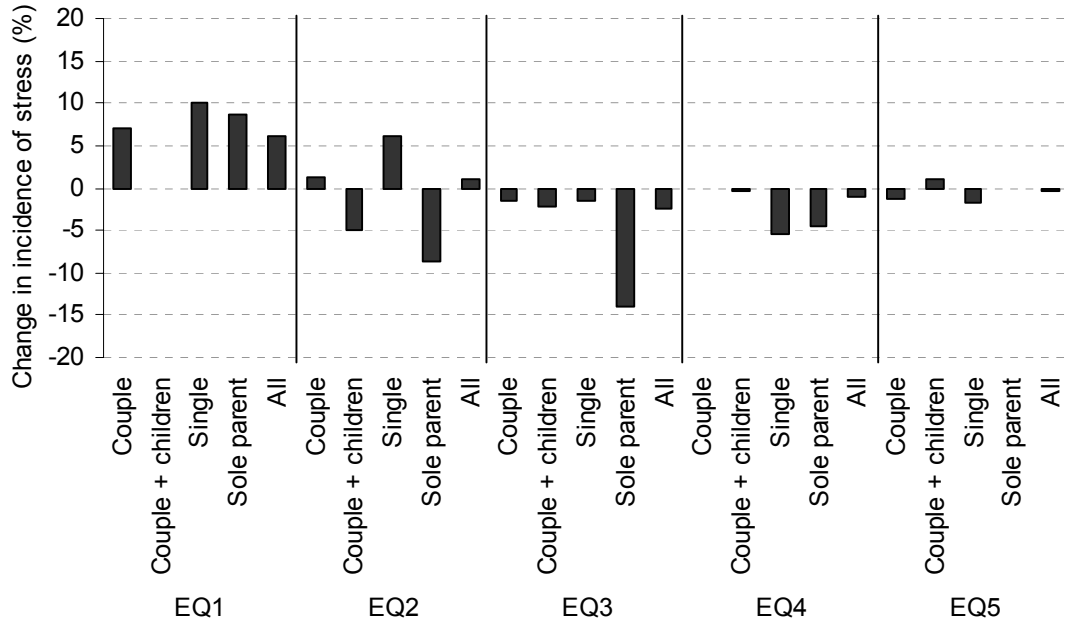
Figure 3.3 reinforces this supposition by showing that the increases in stress for older households in the lowest income quintile were highest for those households in private rental. However, there was a significant increase in the incidence of stress for older purchasing households in this first income quintile. This is consistent with established older households increasing their mortgage debt and facing an unexpected change in household income after doing so. It is also consistent with using mortgage finance to lower taxable income (such as occurs with negative gearing) and with misreporting of household income for those in the lowest income quintile (as suggested by ABS as a rationale for discarding data from the lowest income decile in some of their published results).

Results for those in the second income quintile are less dramatic. For the lower income households in this income quintile, increases in the incidence of housing stress were positive only for older households in private rental and for younger households who were either outright owners or public tenants.

3.2 Changes in stress by income, household type and tenure

The charts in this section follow the same structure as in the section above but focus on the interactions between income, tenure and household type rather than age. The conclusion drawn from the analysis in Chapter 2 that changes in the incidence of housing stress when disaggregated by household type were less significant than when disaggregated by age is reinforced by the results illustrated in Figure 3.4 to Figure 3.6 below. These data have been charted with the same axes as employed in Figure 3.1 to Figure 3.3 in order to facilitate a direct comparison with the equivalent results disaggregated by age. Data for the group and other households have not been included in the charts because of the small numbers in the surveys. However, they have been included in the totals.

Figure 3.4: Change in incidence of housing stress by equivalent disposable income quintile and household type: 1995-96 to 2002-03



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

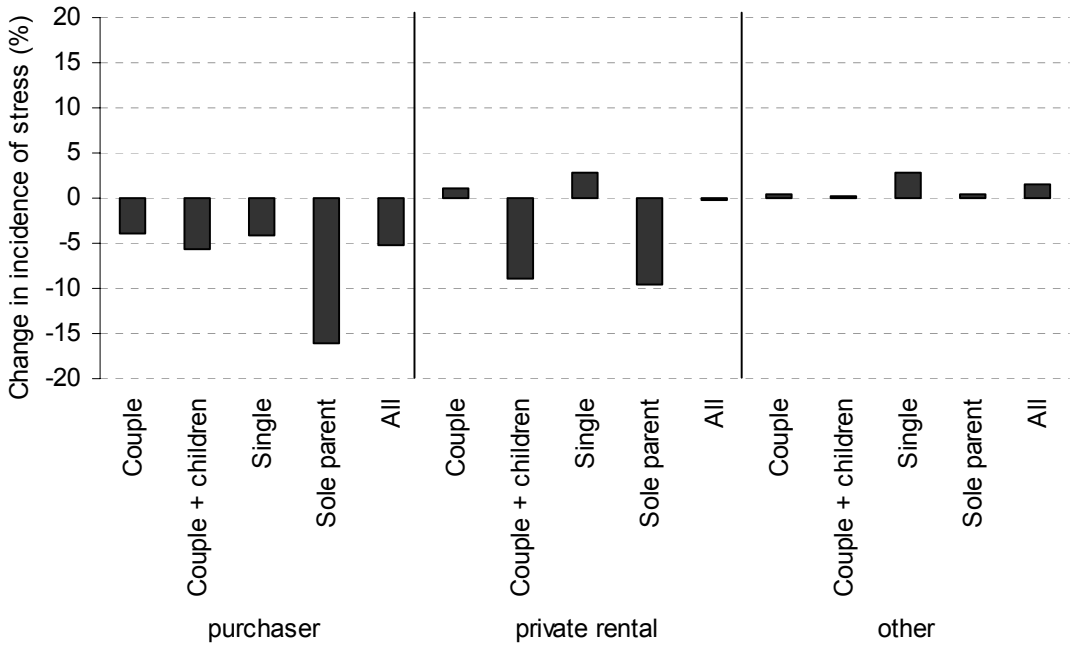
Whilst relatively less significant than the age specific results, the data in Figure 3.4 do show that there are considerably greater variations in housing stress at a disaggregated level than observed at the highly aggregated level.

The results in Figure 3.4 also show that the increase in stress for households in the lowest equivalised disposable income quintile held for all household types other than couples with children. The largest increases were for single person households who were also the only household type in the second income quintile to experience an increase in housing stress.

A cautionary note needs to be added here. The measure of housing stress employed in this study is based on a 30 per cent of gross household income rule. As discussed in earlier reports (for example, Gabriel et al, 2005 and Yates and Gabriel, 2006), this is a crude measure which is useful for presenting a broad brush picture and for indicating trends. However, it does not take into account differences that different household types have in capacities to pay for their housing after they have met their non-housing needs. For example, the reduction in the incidence of stress amongst low income couple households with children does not necessarily signal they, therefore, can meet their non-housing needs.

Figure 3.5 shows that the reduction in the incidence of stress experienced by households with children arose both because of a reduction in the incidence of stress in the two high stress tenures: that is, for purchasers and those in private rental. On the other hand, the only single person households who experienced a reduction in the incidence of stress were those who were purchasers.

Figure 3.5: Change in housing stress by tenure and household type, 1995-96 to 2002-03

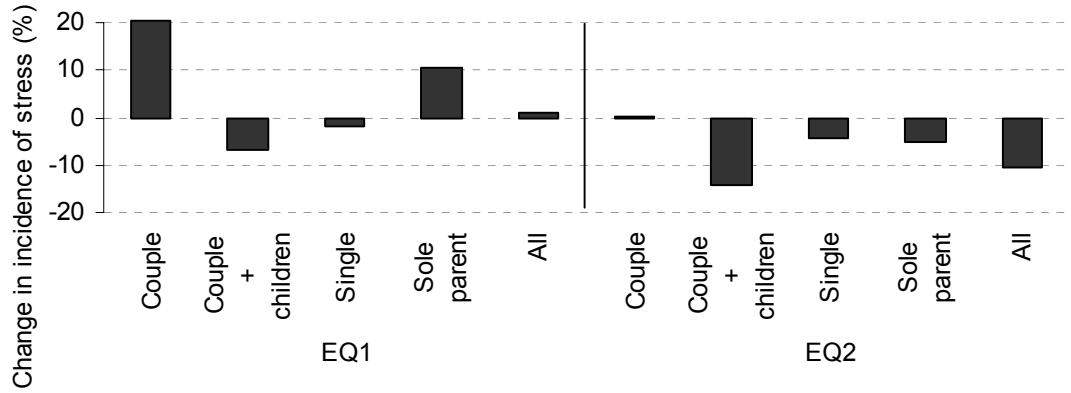


Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

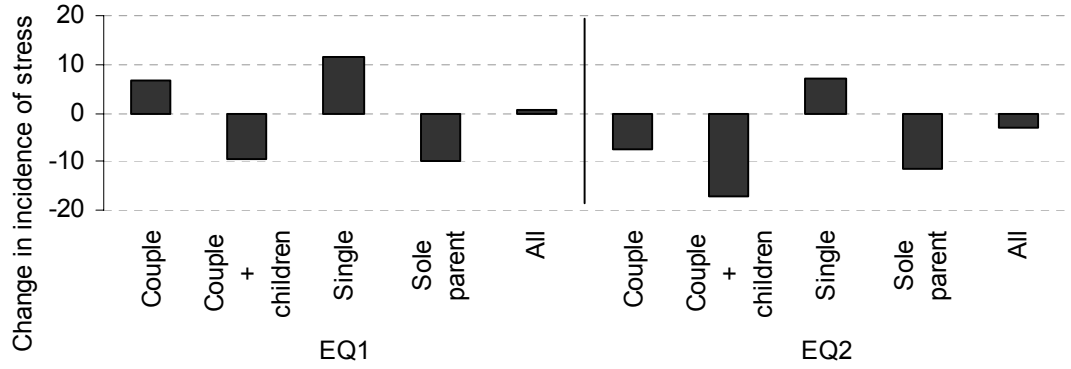
Figure 3.6 combines the results of the previous two charts to show that the reduction in the incidence of stress for lower income households with children arose both for purchaser households and for household in private rental.

Figure 3.6: Change in incidence of housing stress by tenure and household type for households in lowest two equivalent disposable income quintiles: 1995-96 to 2002-03

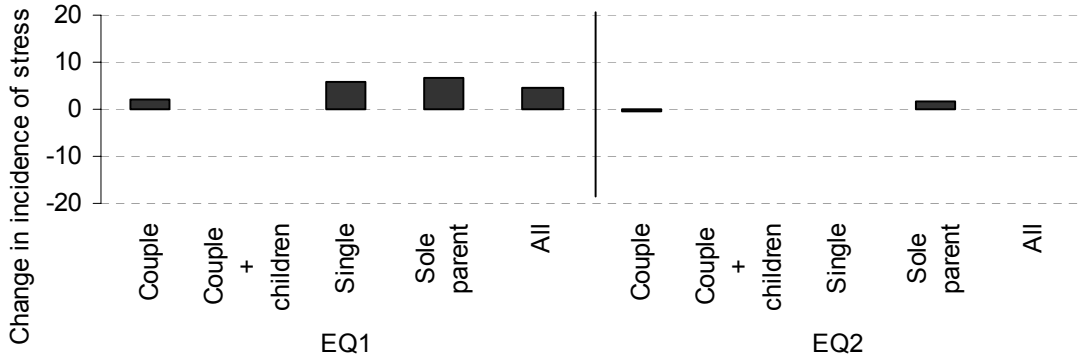
Purchasers



Private renters



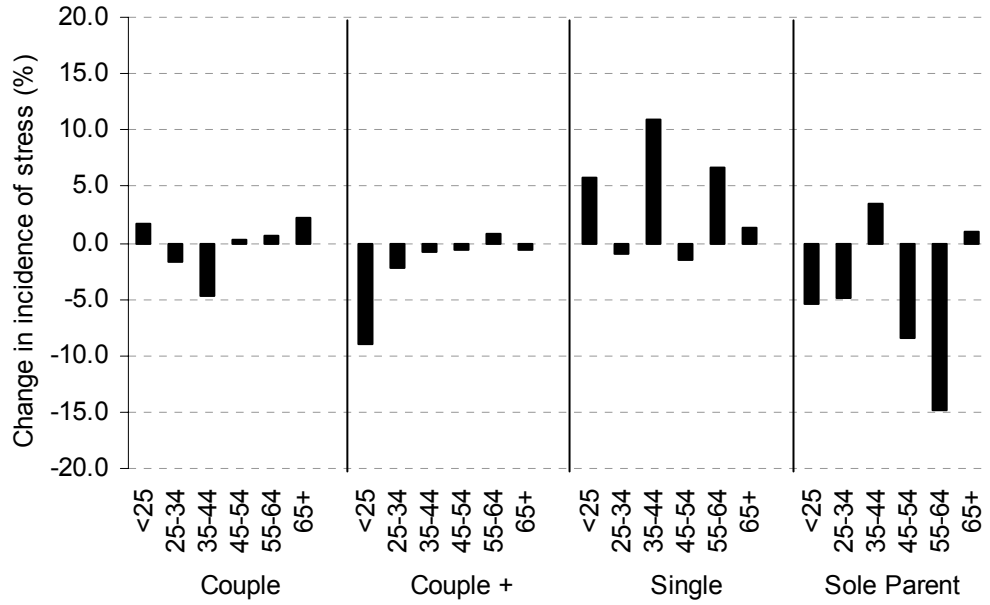
Other tenures



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Figure 3.7, which provides a breakdown of the change in the incidence of housing stress by household type and age, shows that this reduction in housing stress for households with children was greatest for young couples and for older sole parents. It also shows a reduction in the incidence of stress for middle aged couples but an increase in the incidence of stress for older couples without children and for young, middle aged and older single person households.

Figure 3.7: Change in incidence of housing stress by household type and age, 1995-96 to 2002-03.



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

The results presented in this chapter so far highlight the conclusions drawn at the end of the previous chapter. Income and tenure are the two key factors contributing most to the likelihood that a particular sub-group experienced an increase in housing stress between 1995-96 and 2002-03.

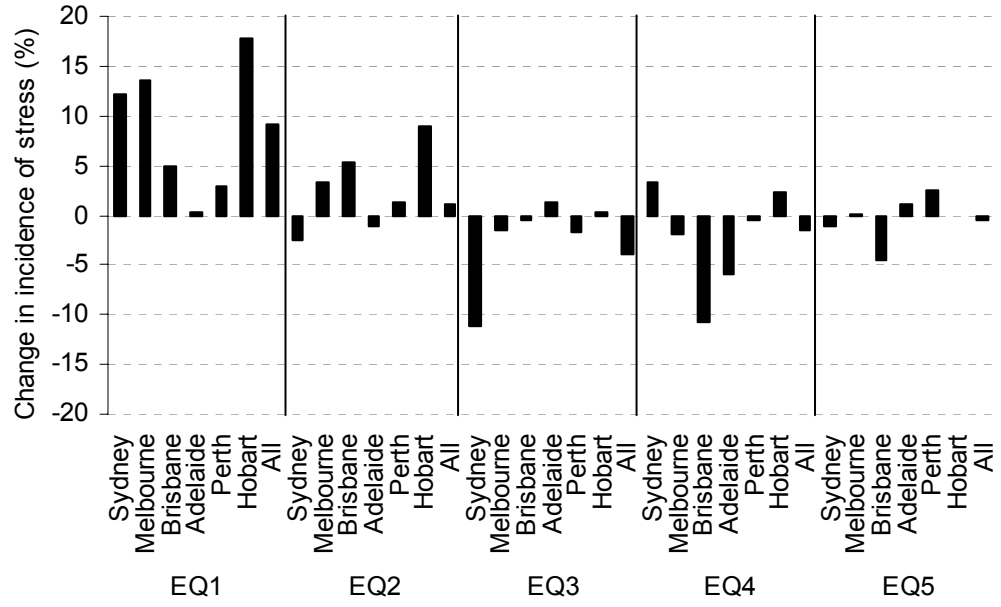
3.3 Changes in stress by income and location

The final set of results to be presented in this chapter show the differential changes in the incidence of housing stress by equivalised disposable income quintile and location. These are presented in Figure 3.8. The relatively large number of categories embodied in a state by capital city and rest of state spatial disaggregation means that the number of observations in the survey for many of the regions is too small to provide a greater level of disaggregation.

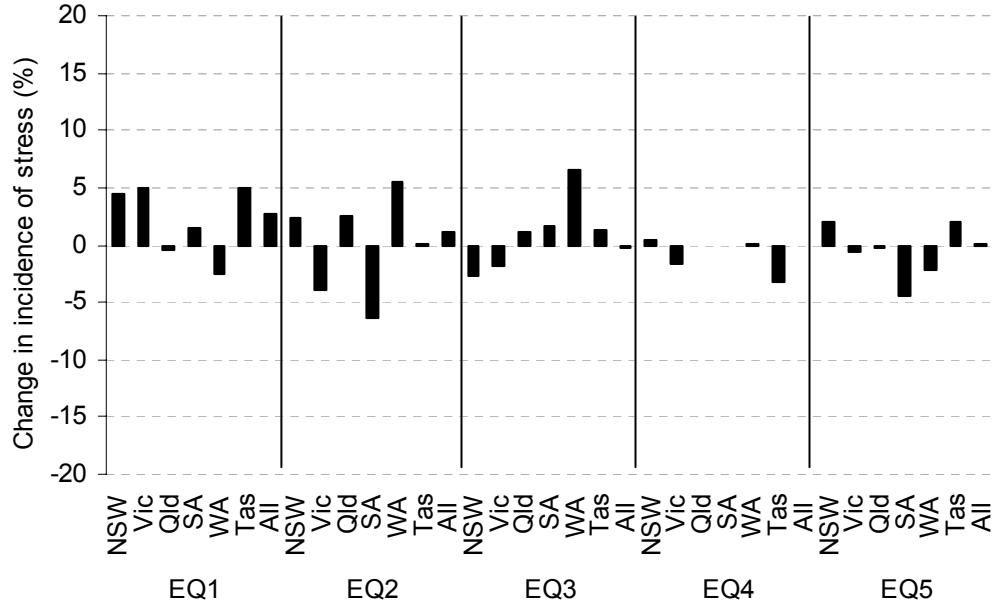
Again, these serve to reinforce the results obtained from the simpler analyses undertaken in Chapter 2.

Figure 3.8: Change in incidence of stress by income and location, 1995-96 to 2002-03

Capital cities



Rest of State



Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

In broad terms, the largest increases in the incidence of stress between 1995-96 and 2002-03 occurred for lower income households living Sydney and Melbourne with lower increases in Brisbane and Perth. The anomalous result for Hobart (an increase in the incidence of stress despite Hobart's relatively lower housing costs) was commented upon in the previous chapter.

For lower income households, however, an increased incidence of stress was not just a capital city phenomenon. Lower, but systematic increases occurred outside of the capital cities in most states.

The more detailed data that underpin the charts presented above are provided in the Appendix to this report. The following chapter presents a summary of the net effect of changes in the incidence and changes in the proportions of households in each of the categories presented in the tables in Chapter 2 and Chapter 3. It formalises the conclusion above: namely, that the apparent stability of the proportion of households with high housing cost ratios at an Australia wide level arises because offsetting effects cancel each other out.

4 SUMMARY AND CONCLUSIONS

The results presented in the previous chapters showed that the stability of the proportion of all households in Australia spending at least 30 per cent of their income in meeting their housing costs suggested that this result arose because increases for one group were offset by decreases for a different group. Use of shift-share analysis provides a means of formalising this conclusion. Decomposition analysis provides a means of providing an assessment of the relative importance of changes in incidence and changes in the different household groups (who have different experiences of housing stress). Both are based on comparing observed outcomes with hypothetical outcomes: that is, outcomes that would have been observed if some but not all of the changes had taken place.

4.1 Shift-share and decomposition analysis

The impact of the changes in incidence for different household types and the changes in the relative importance of those household types over the time period considered by this study can be examined by a shift-share analysis. This shows what the aggregate proportion of households spending at least 30 per cent of their income in meeting their housing costs would have been had there been no change in the relative importance of each household according to their socio-demographic and tenure composition. In other words, it takes the observed incidence of housing stress for each household in 2002-03 but applies this to the relative share of households as it was in 1995-96. Conversely, it shows what the changes to the aggregate ratio would have been in light of socio-demographic and tenure changes had there been no change in the incidence of stress within each category. In this case, it takes the observed incidence of housing stress for each household in 1995-96 and applies it to the relative share of households in 2002-03. The rationale for shift share analysis lies in the fact that the aggregate proportion of households with high housing cost ratios is made up of the incidence of stress experienced by different groups weighted by the importance of each group. The effect of shift share analysis is to separate out the effects of changes in the incidence of stress for each group and the changes in the importance of that group (that is, to the weights used to generate the aggregate result).

The results of a shift-share analysis for each of the variables used to disaggregate the incidence results for 1995-96 and 2002-03 is shown in Table 4.1 below.

Table 4.1: Shift-share analysis of incidence of housing stress

	Aggregate incidence	
	%	%
	1995-96 shares 1995-96 incidence	2002-03 shares 2002-03 incidence
observed results	14.9	15.5
	1995-96 shares	2002-03 shares
hypothetical results	2002-03 incidence	1995-96 incidence
univariate analysis		
equivalent disposable income quintile	15.5	14.9
tenure	14.1	16.7
age	15.7	14.6
household type	15.1	15.6
location	15.5	14.9
*multivariate analysis**	13.4	16.5

* excludes location from variables included in univariate analysis.

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

The first row in Table 4.1 shows the observed proportions illustrated at the start of this report (in Figure 1.1). It was an attempt to explain the apparent stability of this aggregate ratio that motivated the analysis reported in this paper.

The second set of rows shows the results of employing the results of the univariate disaggregation analysis to determine what would have been the aggregate incidence of stress if there had been no what are called endowment effects (that is, no change in the proportions of households in each of the income, tenure, age, household type and location categories examined in the earlier chapters of this report). An overview of this was originally presented in Chapter 2 in Table 2.1 to Table 2.5. The first column shows what the aggregate ratio would have been in 2002-03 if household proportions had remained at their 1995-96 values. The results of this column will be used for the decomposition undertaken below.

These results suggest that the relatively small increase in the aggregate housing cost ratio from 14.9 per cent in 1995-96 to 15.5 per cent in 2002-03 arises from income, age and location specific incidences of stress. Changes in the incidence of stress for different household types are inadequate to explain all of the change and the tenure specific changes in the incidence of stress would have resulted in a decreased in the aggregate housing ratio. As concluded in Chapter 2, the stability of the aggregate ratio arises from offsetting effects in the incidence of stress.

The results in the second column highlight the contribution to changes in the aggregate housing cost ratio made by changes in the distribution of households between 1995-96 and 2002-03 according to their socio-demographic and tenure characteristics. The results disaggregated by income are unchanged because, by definition, income quintiles are based on 20 per cent of all households. The changing demographic and tenure structure within each income quintile, however, does have an effect on the aggregate ratio because of differences in their respective incidences of stress.

The results suggest that changes both in the proportion of purchasers and private renters with their relatively high incidence of stress and in household structure would

have resulted in an increase in the aggregate proportion of households with high housing cost ratios above that observed had there been no change in the tenure or household specific incidence of stress. On the other hand, the ageing of the population would have contributed to a small decline in the aggregate housing cost ratio as older households generally exhibit a lower incidence of stress than younger households. A relatively stable spatial distribution of households over the period has meant that the location variable has little impact.

As above, these results reinforce the conclusions signalled earlier: the stability of the aggregate proportion of households with high housing cost ratios can be attributed to offsetting effects at a disaggregate level; in this case in the distribution of households by tenure, age and household type. Had there been no changes in these distributions, the aggregate proportion of households with high housing cost ratios would have been higher.

The final row in Table 4.1 shows the combined effect results for the multivariate disaggregation analysis presented in the previous chapter (in Table A. 1) and reinforces these conclusions. At an aggregate level, if there had been no change between 1995-95 and 2002-03 in the proportions of households disaggregated by income, tenure, age and household type, the disaggregated changes in the incidence of stress would have resulted in a decrease in the proportion of households with high housing cost ratios from 14.9 in 1995-96 to 13.4 per cent in 2002-03. If there had been no change in the disaggregated incidence of stress, the changes in the proportions of households disaggregated by income, tenure, age and household type would have resulted in an increase in the proportions with a high housing cost ratio from 14.9 in 1995-96 to 16.5 per cent in 2002-03.

The final set of results for the analysis of the stability of the aggregate housing cost ratio undertaken in this report is presented in Table 4.2. This table decomposes the results presented in column 1 of Table 4.1 above. The results in column 2 report what is called the endowment effect, obtained by subtracting the hypothetical result in column 1 of Table 4.1 from the observed result for 2002-03.

Table 4.2: Decomposition of shift-share results

	Aggregate incidence	Endowment effect	Incidence effect
	%	%	%
observed results			
1995-96	14.9		
2002-03	15.5		
hypothetical results for 2002-03 with 1995-96 shares			
univariate analysis			
equivalent disposable income quintile	15.5	0.0	0.6
tenure	14.1	1.4	-0.8
age	15.7	-0.2	0.8
household type	15.1	0.4	0.2
location	15.5	0.0	0.6
*multivariate analysis**	13.4	2.1	-1.5

* excludes location from variables included in univariate analysis.

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

This decomposition shows what would have been the effect on the aggregate housing cost ratio had there been no change in the incidence of stress at the disaggregated level. In other words, at the univariate level of analysis it shows the impact of the changes in income, tenure, age, household type and location. At the multivariate level, it shows the combined effect of all these changes. What is left shows the "true" incidence effect. This is measured by the difference between the hypothetical result in column 1 and the observed result for 1995-96. It is reported in column 2.[14]

The zero endowment effect for disaggregation by equivalised disposable income occurs by definition. Income quintiles are defined so that 20 per cent of households are in each quintile, thus ensuring there can be no change in the proportion of households in each income quintile. Any change in the aggregate incidence is attributable solely to a change in the incidence of stress within each income quintile.

The 1.4 percentage point endowment effect for tenure shows that much of the (relatively small) increase in the aggregate incidence of housing stress between 1995-06 and 2002-03 can be attributed to the increase in the proportion of households who are purchasers or private renters. As shown in earlier chapters, these households have a much higher incidence of housing stress than households in other tenures. The negative impact of the change in the incidence of stress by tenure for these households (particularly for purchasers as noted earlier) partially offsets the impact of tenure change.

The results for household type reinforce each other. Marginally more of the change over the period is attributable to changing household types than it is to a change in the incidence of stress for each specific household type but the latter has a compounding effect.

The results for age work in the opposite direction to those for tenure. The age-specific increase in the incidence of stress (shown in the final column) is ameliorated by a decrease in the endowment effect arising from more households in older age groups where the age specific incidence of housing stress is lower than for younger households.

Those for location are similar to those for income. They indicate no endowment effect. In other words, none of the change in the aggregate incidence of stress is explained by re-location of households to or from regions where housing costs relative to household income are such that there is a high or low incidence of housing stress. When location is used as an explanatory variable, the small change which is observed is explained by an increase in the incidence of stress in the regions employed in the analysis.

Overall, the univariate results show the complex way in which there are offsetting effects. Within each category, endowment effects can be offset by incidence effects. One example of this occurs with the tenure results. The endowment effect is positive; the incidence effect is negative. This indicates that the increase in the proportion of households in the tenures where the incidence of stress is high (such as private rental) is partially offset by a decrease in the incidence of stress in the high stress tenures (home purchase and private rental). Across categories, effects for one

[14] Using the notation employed in footnote 10, for column 1, this disaggregation gives $S_{02} - S_{95} = (\sum s_{02}p_{02} - \sum s_{95}.p_{95}) = (\sum s_{02}p_{02} - \sum s_{02}p_{95}) + (\sum s_{02}.p_{95} - \sum s_{95}.p_{95})$. The first term in this expression is the change in incidence between 2002-03 and 1995-96, the second term gives the endowment effect; and the third term gives the incidence effect. A similar expression can be derived by holding endowments constant at their 2002-03 values (using the hypothetical data presented in the second column of Table 4.1).

category are offset by opposing effects for another category. An example of this occurs with the age and tenure results.

The most straightforward example of offsetting effects occurs for the results disaggregated by income quintile where increases in the incidence of stress for lower income households are offset by decreases for higher income households.

The result for the multivariate analysis, which takes into account the interactions between the variables when disaggregated by income, tenure, age and household type, shows the relative importance of changes in both household structure and incidence. For the two years considered (1995-96 and 2002-03), changes in endowments contributed to a 2.1 percentage point increase to the aggregate housing cost ratio. This is more than double the variation in the observed ratio over the period from 1994-95 to 2003-04. However, for the same two years, this increase due to the combined endowment effect was offset by a decrease of 1.5 percentage points in the incidence of stress, again greater than the variation in the observed ratio over the period from 1994-95 to 2003-04.

In other words, both endowment and incidence effects are relatively significant at the disaggregate level, but their impact is disguised by the aggregation process. The explanation of the stability of the aggregate proportion of households with high housing cost ratios lies in the often considerable changes within each of the categories considered. The overall ratio has remained constant because, within each category examined, increases in the incidence of stress for one group of households have been offset by decreases in the incidence of stress for a different group of households.

These offsetting effects were seen in Figure 2.1 and Figure 2.3 in Chapter 2 and, with more detailed disaggregation, Figure 3.1 to Figure 3.7 in Chapter 3.

4.2 Conclusions

Several observations can be drawn from the results presented in this report.

- The proportion of households spending at least 30 per cent of their income in meeting their housing costs remained relatively stable from 1994-95 to 2003-04, varying from a low of 14.6 per cent in 1996-97 to a high of 15.7 per cent in 2003-04.
- The stability of this ratio hides considerable variation in the incidence of housing stress at a disaggregate level.
- Between 1995-96 and 2002-03, the proportion of households in the bottom 40 per cent of the equivalised disposable income distribution who spent at least 30 per cent of their income in meeting their housing costs increased by 3.6 percentage points from 24.6 per cent to 28.2 per cent. Over the same period, the proportion of households in the top 60 per cent of the equivalised disposable income distribution who spent at least 30 per cent of their income in meeting their housing costs decreased by 1.3 percentage points from 8.4 per cent to 7.1 per cent.
- Whilst the incidence of housing stress is higher for those in private rental than in other tenures, the ratio of private renters paying at least 30 per cent has remained relatively stable. However, at 31.3 per cent in 2002-03, this ratio is almost three times that of the ratio for households in other tenures.
- Increases in the incidence of housing stress have been highest amongst low income households in the capital cities and have not been limited to regions where stress was initially highest.

- → Disaggregation of housing stress data which takes into account the interactions between the key variables (income, tenure, age, household type and location), shows there was considerable variation in the changes in the incidence of stress between 1995-96 and 2002-03 for different household types.

These observations reinforce concerns with the housing affordability outcomes for lower income households. The likelihood that such households will be in housing stress is not only high but also has increased over the past decade.

The measure of housing stress employed in this study is based on a 30 per cent of gross household income rule. As discussed in Yates and Gabriel (2006), this is a crude measure which is useful for presenting a broad brush picture and for indicating trends. However, it does not take into account differences that different household types in the lowest two quintiles of the equivalised disposable income distribution have in their capacities to pay for housing after they have met their non-housing needs.

These differences highlight the conclusions about the need to take into account the specific characteristics of those in stress (such as household structure) in order to ensure policies intended to relieve this stress are effectively targeted.

One final point needs to be made. The focus in this study has been on the factors that have contributed to a relatively stable proportion of households paying a high proportion of their income in meeting their housing costs. However, this focus should not detract from many of the significant results presented in the tables in Chapters 2 and 3. These show an incidence of housing stress which, for many household types, is well above the Australia wide average of 15 per cent. The incidence of stress for the 0.4 per cent of all households who are low income (quintile 1), older (aged 65+), single person households in private rental, for example, had increased to 55.7 per cent by 2002-03. The incidence of stress for the 0.4 per cent of all households who were low income, younger (25-34 years old) single person households in private rental was 100 per cent in 2002-03.

The incidence of stress for the 4.1 per cent of all households who were private renters and in the first quintile of the equivalised disposable household income distribution had increased to 78.7 per cent by 2002-03. For the 4.3 per cent of all households who were private renters and in the second quintile of the equivalised disposable household income distribution, the incidence of housing stress was 54.8 per cent in 2002-03. These outcomes indicate that, regardless of what has happened or is happening to an aggregate affordability ratio, the housing system in Australia is failing certain groups of households. The most obvious of these are lower income households and particularly lower income households in the private rental market.

The results suggest that an explanation of why the incidence of stress for some households is so much higher than it is for other households might be more important than explaining why the aggregate ratio is stable. This broader picture will be provided in the final report for National Research Venture 3.

REFERENCES

Australian Bureau of Statistics (2006), *Housing Occupancy and Costs, Australia, 2003-04*, ABS Cat No. 4130.0.55.001

Australian Bureau of Statistics (2006), *Household Income and Income Distribution, Australia, 2003-04*, ABS Cat No. 6523.0

Australian Bureau of Statistics (2005), *Housing Occupancy and Costs, Australia, 2002-03*, ABS Cat No. 4130.0.55.001

Australian Bureau of Statistics (2005), Survey of Income and Housing - Basic and Expanded Confidentialised Unit Record Files: Technical Paper, Australia 2002-03 (Reissue), ABS Cat No. 6541.0

Australian Bureau of Statistics (2005), Survey of Income and Housing - Basic and Expanded Confidentialised Unit Record Files: Technical Paper, Australia 1995-96 (Reissue), ABS Cat No. 6541.0

Australian Bureau of Statistics (2003), *Household Income and Income Distribution, Australia, 2000-01*, ABS Cat No. 6523.0

Australian Bureau of Statistics (2003), Feature article: Revised Household Income Distribution Statistics, *Australian Economic Indicators*, June 2003, Cat. No. 1350.0, pp3-15

Australian Bureau of Statistics (2002), Feature article: Upgrading Household Income Distribution Statistics, *Australian Economic Indicators*, April 2002, Cat. No. 1350.0, pp3-8

Ellis, L., Lawson, J. and Roberts-Thomson, L. (2003) "Housing Leverage in Australia" Research Discussion Paper 2003-09, Reserve Bank of Australia, http://www.rba.gov.au

Demographia (2007) 3rd Annual Demographia International Housing Affordability Survey: 2007, http://www.demographia.com/

Gabriel, M., Jacobs, K., Arthurson, K, Burke, T. and Yates, J. (2005) *Conceptualising and Measuring the Housing Affordability Problem*, Research Paper 1 for National Research Venture 3: Housing Affordability for Lower Income Australians, Melbourne: Australian Housing and Urban Research Institute, http://www.ahuri.edu.au/nrv/nrv3/

Productivity Commission (PC) (2004) *First Home Ownership*, Report no. 28, Melbourne: Productivity Commission, http://www.pc.gov.au

Reserve Bank of Australia (RBA) (2006) *Financial Stability Review*, September 2006, http://www.rba.gov.au/PublicationsAndResearch/

Reserve Bank of Australia (RBA) (2005) *Financial Stability Review*, March 2005, http://www.rba.gov.au/PublicationsAndResearch/

Reserve Bank of Australia (RBA) (2003) *Submission to Productivity Commission Inquiry on First Home Ownership*, RBA Occasional Paper No. 16, November 2003, http://www.rba.gov.au/PublicationsAndResearch/

Yates, J. and Gabriel, M. (2006) *Housing affordability in Australia*, Research Paper 3 for National Research Venture 3: Housing Affordability for Lower Income Australians, Melbourne, http://www.ahuri.edu.au/nrv/nrv3/

APPENDIX A: DETAILED RESULTS FOR LOWER INCOME HOUSEHOLDS

The more detailed data that underpin the charts presented in chapter 3 are summarised in Table A1 and Table A2 below. Detailed data in Table A1 are reported only for the first two equivalised disposable household income quintiles. Table A2 provides summary data for all income quintiles. Data for group and other households have been deleted from the results presented in Table A1 but were included in the decomposition calculations presented in chapter 4.

The first two columns in these tables indicate the relative importance of the different categories reported in Australia in 1995-96 and in 2002-03 (that is, the relative importance of each household classified by income, tenure, age and household type in terms of all households in Australia). The second set of columns indicates the incidence of housing stress experienced by each of these households in 1995-86 and in 2002-03. The final column indicates the change in the incidence of stress between 1995-96 and 2002-03. As cautioned earlier, care must be taken in interpreting this change in incidence data as, in many cases, the numbers involved in the respective samples are small. Because of the problem of small sample sizes, location has not been included in the disaggregated data presented in the tables below or in the decomposition results presented in chapter 4.[15]

The results presented in the final column of each table in this section highlight the conclusion drawn from the simpler disaggregation presented in chapter 2. The stability of the aggregate ratio of households spending at least 30 per cent of their income in meeting their housing costs is an artefact of the aggregation process. In other words, it has arisen because increases for one particular group of households have been offset by decreases for a different group of households. At a disaggregate level, on the other hand, there is no such stability: the proportions of households with high housing cost ratios have varied significantly over the period.

[15] As a rough rule of thumb, each observation represents 1,000 households. With around 7m households in Australia, any result reported for < 0.3 per cent of all households is based on a sample size of less than 20 and consequently is potentially unreliable. In the case studies highlighted in what follows, examples have been taken only from cases where the proportion of households with the defined characteristics represented at least 0.3 per cent of all households in both 1995-96 and 2002-03.

Table A1: Proportions, incidence and change in incidence by key characteristics, 1995-96 to 2002-03

Purchaser

Quintile	Age	Household type	proportions 1995-96	proportions 2002-03	incidence 1995-96	incidence 2002-03	change in incidence
			%	%	%	%	%
EQ1	<25	Couple	0.0	0.0	0.0	100.0	100.0
		Couple + children	0.0	0.0	100.0	100.0	0.0
		Single	0.0	0.0	100.0	0.0	-100.0
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age <25		0.0	0.0	100.0	100.0	0.0
	25-34	Couple	0.0	0.0	0.0	100.0	100.0
		Couple + children	0.5	0.4	77.2	78.0	0.8
		Single	0.2	0.1	100.0	100.0	0.0
		Sole parent	0.1	0.0	50.9	100.0	49.1
	Total age 25-34		0.8	0.5	77.9	84.2	6.3
	35-44	Couple	0.1	0.0	43.1	73.5	30.4
		Couple + children	0.7	0.7	76.0	66.6	-9.4
		Single	0.1	0.2	83.4	100.0	16.6
		Sole parent	0.2	0.1	69.2	76.5	7.3
	Total age 35-44		1.1	1.1	73.7	74.1	0.5
	45-54	Couple	0.1	0.1	83.2	63.4	-19.8
		Couple + children	0.2	0.3	82.5	73.6	-8.9
		Single	0.0	0.2	100.0	85.6	-14.4
		Sole parent	0.0	0.1	100.0	71.4	-28.6
	Total age 45-54		0.3	0.7	85.1	74.0	-11.1
	55-64	Couple	0.1	0.2	60.5	77.2	16.7
		Couple + children	0.0	0.0	56.4	0.0	-56.4
		Single	0.1	0.1	67.8	75.7	7.9
		Sole parent	0.0	0.0	0.0	65.1	65.1
	Total age 55-64		0.2	0.4	62.1	72.8	10.7
	65+	Couple	0.1	0.1	20.1	44.9	24.8
		Couple + children	0.0	0.0	0.0	0.0	0.0
		Single	0.0	0.1	0.0	7.1	7.1
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age 65+		0.2	0.2	16.1	32.4	16.3
Total purchasers in quintile 1			2.6	2.9	72.2	73.3	1.0
EQ2	<25	Couple	0.0	0.0	0.0	50.0	50.0
		Couple + children	0.0	0.0	100.0	0.0	-100.0
		Single	0.0	0.0	100.0	0.0	-100.0
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age <25		0.0	0.1	100.0	26.3	-73.7
	25-34	Couple	0.0	0.1	100.0	44.5	-55.5
		Couple + children	0.8	0.8	55.3	46.7	-8.6
		Single	0.0	0.0	0.0	100.0	100.0
		Sole parent	0.0	0.1	32.3	84.3	52.0
	Total age 25-34		0.9	1.0	56.7	49.7	-7.0
	35-44	Couple	0.0	0.0	50.9	24.2	-26.7
		Couple + children	1.2	1.4	39.3	27.1	-12.3
		Single	0.1	0.1	58.5	81.4	22.9
		Sole parent	0.2	0.2	36.3	20.6	-15.7
	Total age 35-44		1.5	1.8	40.0	29.8	-10.1
	45-54	Couple	0.1	0.1	60.5	49.4	-11.1
		Couple + children	0.4	0.5	35.1	18.4	-16.7
		Single	0.0	0.0	100.0	62.2	-37.8
		Sole parent	0.0	0.2	0.0	19.9	19.9
	Total age 45-54		0.5	0.9	40.3	24.9	-15.4
	55-64	Couple	0.1	0.1	34.4	20.9	-13.4
		Couple + children	0.0	0.1	0.0	23.3	23.3
		Single	0.1	0.0	37.1	48.2	11.1
		Sole parent	0.0	0.0	100.0	0.0	-100.0
	Total age 55-64		0.2	0.3	33.7	28.3	-5.4
	65+	Couple	0.2	0.0	6.2	0.0	-6.2
		Couple + children	0.0	0.0	0.0	0.0	0.0
		Single	0.0	0.1	31.2	12.7	-18.4
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age 65+		0.2	0.2	11.2	5.7	-5.5
Total purchasers in quintile 2			3.4	4.2	42.9	32.4	-10.4

Private rental

			proportions		incidence		change in incidence
Quintile	Age	Household type	1995-96	2002-03	1995-96	2002-03	
			%	%	%	%	%
EQ1	<25	Couple	0.0	0.1	65.2	95.0	29.8
		Couple + children	0.1	0.1	51.9	82.0	30.1
		Single	0.2	0.2	100.0	91.3	-8.7
		Sole parent	0.0	0.1	100.0	77.1	-22.9
	Total age <25		0.6	0.6	84.0	87.9	4.0
	25-34	Couple	0.0	0.1	100.0	67.8	-32.2
		Couple + children	0.4	0.3	72.8	64.6	-8.2
		Single	0.3	0.4	90.3	100.0	9.7
		Sole parent	0.2	0.3	81.0	69.2	-11.8
	Total age 25-34		0.9	1.1	81.0	80.0	-1.1
	35-44	Couple	0.1	0.0	37.0	59.8	22.8
		Couple + children	0.3	0.3	93.2	78.2	-15.0
		Single	0.2	0.4	100.0	90.8	-9.2
		Sole parent	0.2	0.3	85.6	87.2	1.6
	Total age 35-44		0.8	1.1	88.1	85.0	-3.1
	45-54	Couple	0.1	0.1	100.0	89.3	-10.7
		Couple + children	0.1	0.1	96.0	34.4	-61.5
		Single	0.2	0.2	100.0	62.8	-37.2
		Sole parent	0.1	0.0	88.8	25.7	-63.1
	Total age 45-54		0.5	0.4	97.9	60.2	-37.7
	55-64	Couple	0.0	0.0	100.0	81.9	-18.1
		Couple + children	0.0	0.0	100.0	100.0	0.0
		Single	0.2	0.3	67.9	83.9	15.9
		Sole parent	0.0	0.0	100.0	100.0	0.0
	Total age 55-64		0.2	0.4	76.7	86.0	9.2
	65+	Couple	0.0	0.0	0.0	28.0	28.0
		Couple + children	0.0	0.0	40.8	0.0	-40.8
		Single	0.4	0.4	23.8	58.2	34.4
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age 65+		0.5	0.4	24.1	55.7	31.7
Total in private rent in quintile 1			3.5	4.1	78.0	78.7	0.7
EQ2	<25	Couple	0.1	0.1	80.4	65.6	-14.9
		Couple + children	0.1	0.1	45.2	10.8	-34.4
		Single	0.1	0.1	48.9	46.8	-2.1
		Sole parent	0.1	0.2	84.2	67.6	-16.7
	Total age <25		0.4	0.6	68.7	53.6	-15.1
	25-34	Couple	0.1	0.2	75.1	52.2	-22.9
		Couple + children	0.6	0.5	41.6	12.6	-29.0
		Single	0.2	0.2	60.2	88.2	28.0
		Sole parent	0.4	0.4	75.0	58.6	-16.4
	Total age 25-34		1.5	1.4	55.7	47.7	-8.0
	35-44	Couple	0.0	0.1	67.6	37.4	-30.2
		Couple + children	0.3	0.5	38.4	23.1	-15.3
		Single	0.2	0.1	87.7	91.8	4.0
		Sole parent	0.2	0.5	36.2	60.8	24.7
	Total age 35-44		0.9	1.2	46.2	46.2	-0.1
	45-54	Couple	0.1	0.1	61.0	57.2	-3.8
		Couple + children	0.1	0.2	27.8	33.1	5.3
		Single	0.2	0.2	66.4	98.9	32.4
		Sole parent	0.1	0.2	83.8	31.0	-52.8
	Total age 45-54		0.5	0.7	56.6	53.4	-3.1
	55-64	Couple	0.1	0.1	77.0	49.3	-27.7
		Couple + children	0.0	0.0	30.0	71.8	41.8
		Single	0.1	0.3	100.0	86.1	-13.9
		Sole parent	0.0	0.0	0.0	66.4	66.4
	Total age 55-64		0.3	0.5	74.5	74.0	-0.4
	65+	Couple	0.2	0.2	54.1	72.2	18.1
		Couple + children	0.0	0.0	0.0	41.5	41.5
		Single	0.5	0.5	74.2	73.5	-0.7
		Sole parent	0.0	0.0	0.0	8.4	8.4
	Total age 65+		0.7	0.8	65.4	68.7	3.3
Total in private rent in quintile 2			4.3	5.2	57.9	54.8	-3.1

Other tenures

Quintile	Age	Household type	proportions 1995-96	proportions 2002-03	incidence 1995-96	incidence 2002-03	change in incidence
			%	%	%	%	%
EQ1	<25	Couple	0.0	0.0	73.0	0.0	-73.0
		Couple + children	0.0	0.0	35.6	0.0	-35.6
		Single	0.2	0.1	26.7	24.9	-1.8
		Sole parent	0.1	0.1	0.0	12.8	12.8
	Total age <25		0.4	0.3	21.3	20.7	-0.6
	25-34	Couple	0.1	0.0	23.9	0.0	-23.9
		Couple + children	0.3	0.2	3.9	18.7	14.8
		Single	0.2	0.2	20.3	61.2	40.9
		Sole parent	0.5	0.3	10.0	12.8	2.8
	Total age 25-34		1.1	0.7	10.4	27.7	17.3
	35-44	Couple	0.1	0.0	0.0	70.8	70.8
		Couple + children	0.6	0.3	3.6	7.4	3.8
		Single	0.4	0.4	12.9	47.5	34.6
		Sole parent	0.4	0.3	5.2	17.5	12.3
	Total age 35-44		1.5	1.0	6.2	27.6	21.3
	45-54	Couple	0.3	0.2	22.6	26.5	3.9
		Couple + children	0.4	0.3	13.5	8.8	-4.6
		Single	0.6	0.8	10.0	26.2	16.2
		Sole parent	0.2	0.2	9.8	7.7	-2.1
	Total age 45-54		1.6	1.6	12.8	19.8	7.0
	55-64	Couple	1.1	1.3	17.9	14.1	-3.8
		Couple + children	0.2	0.2	10.6	0.0	-10.6
		Single	1.3	1.3	10.4	14.6	4.2
		Sole parent	0.0	0.1	0.0	32.8	32.8
	Total age 55-64		2.7	2.9	13.0	13.6	0.6
	65+	Couple	2.1	2.2	3.5	9.3	5.7
		Couple + children	0.1	0.1	7.8	0.0	-7.8
		Single	4.3	4.1	6.0	6.2	0.2
		Sole parent	0.0	0.1	0.0	5.5	5.5
	Total age 65+		6.6	6.5	5.2	7.4	2.2
Total in other tenures in quintile 1			13.9	13.0	8.5	13.3	4.8
EQ2	<25	Couple	0.0	0.0	0.0	0.0	0.0
		Couple + children	0.1	0.0	0.0	0.0	0.0
		Single	0.0	0.0	0.0	0.0	0.0
		Sole parent	0.0	0.0	0.0	0.0	0.0
	Total age <25		0.1	0.1	0.0	0.0	0.0
	25-34	Couple	0.0	0.0	0.0	0.0	0.0
		Couple + children	0.7	0.3	0.0	5.3	5.3
		Single	0.0	0.0	0.0	0.0	0.0
		Sole parent	0.2	0.2	0.0	0.0	0.0
	Total age 25-34		1.0	0.6	0.0	2.6	2.6
	35-44	Couple	0.0	0.1	0.0	0.0	0.0
		Couple + children	1.1	0.6	2.9	2.6	-0.3
		Single	0.1	0.1	0.0	0.0	0.0
		Sole parent	0.3	0.3	0.0	0.0	0.0
	Total age 35-44		1.5	1.1	2.1	1.3	-0.7
	45-54	Couple	0.2	0.2	0.0	0.0	0.0
		Couple + children	0.6	0.5	4.6	2.3	-2.3
		Single	0.2	0.1	0.0	0.0	0.0
		Sole parent	0.1	0.2	0.0	8.2	8.2
	Total age 45-54		1.3	1.1	2.1	2.7	0.6
	55-64	Couple	1.1	1.1	0.0	0.0	0.0
		Couple + children	0.3	0.3	0.0	0.0	0.0
		Single	0.4	0.3	0.0	0.0	0.0
		Sole parent	0.0	0.1	0.0	0.0	0.0
	Total age 55-64		2.1	1.9	0.0	0.0	0.0
	65+	Couple	3.3	3.0	0.3	0.0	-0.3
		Couple + children	0.2	0.3	0.0	0.0	0.0
		Single	2.2	2.2	0.0	0.0	0.0
		Sole parent	0.0	0.2	0.0	0.0	0.0
	Total age 65+		6.3	6.0	0.2	0.0	-0.2
Total in other tenures in quintile 2			12.3	10.7	0.5	0.6	0.0

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

An example of the lack of stability in the disaggregated housing cost ratios can be seen in privately renting households with incomes in the lowest quintile of the equivalised disposable income distribution. The results for private renters presented in Table A1 show that the relatively small 0.7 percentage point increase in the

proportion of households with high housing costs at an Australia wide level is derived, inter alia, from increases as large as 34.4 percentage points for single person households aged 65 years or more in private rental and decreases as large as 15.0 percentage points for couples with children in the 35-44 year old age bracket in private rental.

The results presented in Table A1 are given only for households in the lowest two equivalised income quintiles. Table A2 provides data for all income quintiles disaggregated only by tenure (given that income and tenure were shown to be the key characteristics that contributed to the greatest changes in the incidence of households with high housing cost ratios).

Table A2: Proportions, incidence and change in incidence by income and tenure, 1995-96 to 2002-03

		proportions		incidence		change in
		1995-96	2002-03	1995-96	2002-03	incidence
		%	%	%	%	%
EQ1	purchaser	13.9	13.0	72.2	73.3	1.0
	private rental	2.6	2.9	78.0	78.7	0.7
	other tenures	3.5	4.1	8.5	13.3	4.8
Total in quintile 1		20.1	20.0	29.1	35.3	6.2
EQ2	purchaser	12.3	10.7	42.9	32.4	-10.4
	private rental	3.4	4.2	57.9	54.8	-3.1
	other tenures	4.3	5.2	0.5	0.6	0.0
Total in quintile 2		19.9	20.1	20.0	21.2	1.1
EQ3	purchaser	9.5	7.8	26.1	17.7	-8.4
	private rental	6.1	7.5	22.9	17.6	-5.3
	other tenures	4.4	4.6	0.4	0.1	-0.3
Total in quintile 3		20.0	19.9	13.2	10.8	-2.4
EQ4	purchaser	8.1	6.5	15.9	10.2	-5.6
	private rental	7.6	8.8	6.2	7.6	1.5
	other tenures	4.3	4.8	0.2	0.0	-0.2
Total in quintile 4		20.0	20.1	7.4	6.3	-1.1
EQ5	purchaser	7.2	5.6	9.8	7.7	-2.1
	private rental	8.3	9.6	1.7	1.9	0.3
	other tenures	4.4	4.7	0.2	0.0	-0.2
Total in quintile 5		20.0	20.0	4.5	4.2	-0.4
All households		100.0	100.0	14.9	15.5	0.7

Source: Confidentialised unit record files, 1995-96 and 2002-03 Surveys of Income and Housing

Again it highlights the key conclusions drawn from the results presented in this and the previous chapter. The stability in the aggregate proportion of households with high housing costs arises because of the aggregation process. Increases in the incidence for one group of households either are offset by decreases for other groups or are ameliorated by changes in the importance of those groups experiencing the largest changes.

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