Measuring housing stress at small area levels: How much do definitions matter?

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Abstract

In recent months, there has been enormous interest in housing stress. However, there is no consensus on its definition. Many studies have used the rule that housing stress is defined as spending more than 30 per cent of household income on housing costs – but should this be disposable income or gross income? What are the implications of limiting the definition of housing stress to households in the bottom 40 per cent of the income distribution? How are the results affected if we omit the 10 per cent of the population with the lowest household incomes?

This paper examines six different variants of a housing stress measure developed by considering three rules, ‘30 only’ (more than 30 per cent of the household’s income is being spent on housing costs), ‘30/40’ (more than 30 per cent of the household’s income is being spent on housing cost and the household is in the bottom 40 per cent of Australian incomes), and ‘30/10-40’ (more than 30 per cent of the household’s income is being spent on housing costs and the household earns between 10 and 40 per cent of Australian incomes) and two types of income, disposable and gross. These different definitions can have a large impact on the prevalence rates and number of households in housing stress. While some studies have looked at the national effect of such different definitions, this is the first study to look at the effect of these different definitions on the spatial distribution of housing stress.

This paper uses the latest ABS 2005-06 Survey of Income and Housing to produce up-to-date estimates of housing stress at the national level, using the various alternative definitions outlined above. In addition, housing stress is estimated at a small area level for New South Wales, Victoria, Queensland and the ACT by applying NATSEM’s spatial microsimulation modelling techniques to the 2002-03 and 2003-04 Surveys of Income and Housing. Graphs of individual SLA values are then shown for the ACT, which was selected because there were only 89 valid SLA’s in the ACT (so the graphs were not crowded); and because the ACT has a range of areas (from rich to poor), so a range of values could be graphed. Detailed graphs are available for each other State from the authors. This paper compares and contrasts the spatial results from each of these different methods.

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General caveat

NATSEM research findings are generally based on estimated characteristics of the population. Such estimates are usually derived from the application of microsimulation modelling techniques to microdata based on sample surveys.

These estimates may be different from the actual characteristics of the population because of sampling and nonsampling errors in the microdata and because of the assumptions underlying the modelling techniques.

The microdata do not contain any information that enables identification of the individuals or families to which they refer.
1 Introduction

This paper presents the most recent estimates of housing stress at national and state/territory level and analyses the comparative effects of various definitions on estimates of housing stress rates at national and small area levels.

This study is inspired by the recent widespread discussion on housing stress in Australia. Housing stress has become an important economic challenge for families and a salient public policy challenge for the government (Tanton et. al., 2008). However, there is no general consensus about the method of measuring this important public policy concept. A commonly used method of measuring housing stress defines a household or a family to be in housing stress if it spends more than 30 per cent of its income on housing costs - but should this be disposable income or gross income? What are the implications of limiting the definition of housing stress to households in the bottom 40 per cent of the income distribution? How are the results affected if we exclude the 10 per cent of the population with the lowest household incomes?

These measurement issues have become a matter of serious debate, not only among academic researchers but also among policy makers. For example, in April 2008, the Reserve Bank Governor expressed the view that the popular measure of housing stress which is only based on the 30 per cent rule without taking account of the income distribution is misleading (The Australian 2008). This clearly suggests that there is a need for a detailed analysis of the implications of choosing one or the other measures of housing stress. This paper aims to address this need.

This paper is divided into six sections. Section 2 reviews common variants of the ratio measures. Data and methods are described in Section 3. Section 4 presents the direct estimates of housing stress derived from the 2005-06 Survey of Income and Housing (SIH). Section 5 examines the spatial estimates for Statistical Local Areas of four states/territories – New South Wales, Victoria, Queensland and Australian Capital Territory. Finally, the paper concludes by discussing the findings of the study in Section 6.

2 Measures in previous Australian studies

A number of different definitions and criteria have been used in estimating housing stress in Australia. The most common method appears to be the one that defines a
household or a family to be in housing stress if it spends more than 30 per cent of its income on housing costs and also belongs to the bottom 40 per cent of the income distribution. This approach is referred to in short as the ‘30/40’ rule. This definition was used in the early 1990s by the National Housing Strategy (1992, p. 13) to estimate income units in housing stress in Australia. This is based on the assumption that those whose incomes place them above the 40 per cent cut-off can meet market rates of housing costs within the limits of 30 per cent of spending. It may also be that many such higher income households or families choose to spend more than 30 per cent of their income on housing to live in a higher standard dwelling or to speed up the mortgage payment. Some studies have applied this approach to estimate families in housing stress (Harding et al. 2004), while others have used it to calculate households in housing stress (ABS 2002). The most recent application of this rule was in figures used by the Australian Prime Minister and subsequently published by the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA 2008).

Another common variant of housing stress measurement defines a household to be in housing stress if it spends more than 30 per cent of its income on housing. That is, the relative income (so the income compared to all other Australians) of the household is not taken into account in this definition, only the absolute income is considered when assessing the 30 per cent rule. This method is known as the ‘30-only’ rule. The most recent application of this method can be found in Tanton et al. (2008), who found that 22.5 per cent of Australian households were in housing stress in 2005-06 as they were spending more than 30 per cent of their household income on housing. This rule was used in this report as the study’s focus was comparing those paying more than 30 per cent of their income on housing costs and those paying less than 10 per cent of their income; that is, it was looking at “housing stress” and “housing relax”, so the full income distribution was used.

A less common variant, which is used primarily by the Australian Bureau of Statistics (ABS), limits the definition of housing stress to those households that are paying more than 30 per cent of their income on housing and belong to the bottom 10 to 40 per cent of the income distribution. This method can be referred as the ‘30/10-40’ rule. The reason for dropping the bottom 10 per cent of the income distribution is concern that the reported incomes of the households in the bottom 10 per cent of the income distribution do not always accurately reflect their living standards and their inclusion in the definition may overestimate housing stress (ABS 2005).

As an example, in a 2005 report titled Housing Occupancy and Costs, Australia, 2002-03, the ABS (2005) applied the ‘30/10-40’ rule to calculate level and trends in housing stress. Using gross income as the base, it was estimated that 5.5 per cent of households were in housing stress in 2002-03. Although the housing cost to income
ratio was based on gross income, the 40 per cent income rule was based on equivalised disposable income. In a previous publication, *Measuring Australia’s Progress 2002*, the ABS used the ‘30/40’ variant and calculated housing stress on the basis of the proportion of disposable income spent to meet housing costs. Using this method, housing stress was estimated to be around 11 per cent between 1995 and 1998 (ABS 2002). This was almost double the level estimated by applying the ‘30/10-40’ rule to gross income (ABS 2005).

From the above research, it can be seen that not only are there different definitions in terms of the income cut-off (none, 40 per cent, 10 to 40 per cent), but that researchers have also used two different base incomes. While some researchers use gross income, others use disposable (after-income-tax) income to calculate housing stress. The choice seems to be driven largely by the nature of data. For example, the Census data only provide gross income and any estimates based on these data are thus constrained to use gross income. Randolph and Holloway (2002) used gross income to examine housing stress among low income households in Sydney. They used the 1996 Census data and the 1999 Australian Housing Survey. Further, some researchers, for example, ABS (2005), have used gross income as the base for identifying those paying more than 30 per cent but then disposable income for determining the 40 per cent income cut-off.

It can be seen from this review of the literature that there are many different options in calculating housing stress. In this paper, we compare six major options and examine their impact on housing stress rates using national and small area estimates. The next section defines the variants of housing stress examined in this paper, lists the data sources, and describes the methodology applied to estimate these indicators.

3 Data and method

3.1 Definitions

This study examines three definitions of housing stress.

1. ‘30-only rule’. This is the most basic of the ratio measures of housing stress. According to this rule, a household is defined to be in housing stress if it spends more than 30 per cent of its disposable or gross income on housing costs.

2. ‘30/40 rule’. This is a narrower variant of the ‘30-only rule’. In this rule, a household is said to be in housing stress if it spends more than 30 per cent of its disposable or gross income on housing costs and the household also belongs to the bottom 40 per cent of the equivalised disposable income distribution.
3. ‘30/10-40 rule’. This approach goes one step further to exclude the bottom 10 per cent of the income distribution. A household is defined as being in housing stress if it spends more than 30 per cent of its disposable or gross income on housing and falls in the bottom 10 to 40 per cent of the equivalised disposable income distribution.

In all the definitions, households with negative and nil incomes have been removed from the analysis. A small number of households have reported nil or negative incomes in the ABS surveys. These are often excluded from any analysis related to income distribution and financial well-being, as research from the ABS has shown that the expenditure of many of these households is similar to that of households earning much more, so these incomes are considered an unreliable measure of a household’s standard of living (ABS 2005).

Two types of income, gross and disposable, are considered as the base to calculate the housing cost to income ratio (the 30 per cent rule). Gross income is the income from all sources before deducting tax and the Medicare levy. Disposable income is the income that remains to a household after deducting estimated personal income tax and the Medicare levy from gross income.

Researchers use ‘equivalised’ income measures to take account of the number of adults and children that each household’s income has to support, so as to put households of differing composition on a more equal footing when assessing who is well-off and who is not. To calculate equivalised disposable income, which is used for the income distribution criteria (the 40 and 10-40 rules), the income of a household is first equivalised using the modified-OECD equivalence scale, which assigns a weight of 1 point to the first adult, 0.5 to each of the remaining adults aged 15 years or over, and 0.3 points to each of the dependent children under 15 years in the household. Using this factor, the household income is standardised, so all households have an income expressed relative to that of a single person household. Once equivalised disposable household income has been calculated, all households are then ranked by these incomes from lowest to highest, and the people in a household are then put into 10 equal groups (deciles) in order to identify people with household incomes in the bottom 40 per cent of the income distribution. Thus each income decile is a ‘person-weighted’ decile and we have an equal number of people (not households) in each decile.

Housing costs are defined here as the regular expenses of a household in providing for their accommodation. The data on housing costs refer to the payments related to the respondent’s usual place of residence (ABS 2007, p. 22). Housing costs include rents for renters, general and water rates payments for owners — and, in the case of owners with mortgages, includes mortgage repayments for secured or unsecured loans taken primarily for housing purposes (including, for example, to build, or to
alter or add to the current dwelling). It does not include repayments on loans for cars, overseas holidays, and so on, which are collected separately in the survey.

### 3.2 Data

The data used for the national estimates are from the 2005-06 Survey of Income and Housing (SIH). This is the latest income survey available from the ABS. This data set contains information on 9961 households, comprising 51 households with negative or nil income and 9910 households with positive income. The direct national level estimates of housing stress presented in Section 4 are based on the 9910 households. Some of our results are produced at a state/territory level, and it is important to note that the Confidentialised Unit Record File of the SIH combines the Australian Capital Territory and the Northern Territory, so as to retain data confidentiality. As these two territories have very different demographic and income profiles, it is very difficult to interpret results produced from the combined SIH data. Thus, our estimates of housing stress in the Australian Capital Territory/Northern Territory should be used only to examine the sensitivity of these results to different measures of housing stress, not to draw conclusions about actual rates of housing stress in either territory.

The small area estimates are calculated by NATSEM using its spatial microsimulation techniques, outlined below (Chin and Harding, 2007). This component used a synthetic household data set created by combining the 2002-03 and 2003-04 Surveys of Income and Housing and the 2001 Census of Population and Housing. This model is termed SPATIALMSM07a. The base unit of spatial analysis is the Statistical Local Area (SLA).

### 3.3 Spatial microsimulation

The estimates of housing stress at Statistical Local Area (SLA) level are derived using the spatial microsimulation techniques developed at NATSEM (Chin et al, 2005). Spatial microsimulation is a process of creating synthetic unit records representative of a small area for which no direct estimates can be derived from national sample surveys. This method has been described and validated to be appropriate for small area estimation of housing stress in a number of NATSEM’s previous publications (Taylor et al. 2004; Chin and Harding 2006a, b; Phillips et al. 2006). Briefly, this method creates synthetic micro-data by benchmarking survey data to a geographically disaggregated census profile for each of the small areas being studied. This process is referred to as ‘reweighting’, as it involves assigning new weights to the unit records of the survey data to create synthetic microdata that mirrors as accurately as possible the actual population in the small area. This process
involves a complex process of benchmarking the survey data to the census profiles using a set of common characteristics.

The estimates in this study are based on spatial microdata created by combining the 2002-03 Survey of Income and Housing and the 2003-04 Survey of Income and Housing Confidentialised Unit Record Files. These survey data have had any financial data deflated to 2001, so that the financial data can be benchmarked to 2001 financial data from the 2001 Census. The population characteristics do not need deflating, as the benchmarking adjusts the weights to the 2001 values.

For some areas, the reweighting method cannot find a combination of weights that satisfies all of the Census benchmarks. This usually happens in low population areas or areas that are quite different to the average area, like industrial estates or commercial areas. When the reweighting method cannot satisfy all benchmarks to an appropriate standard, the area is said to have not converged, and any data calculated for this area are unreliable. Areas that did not converge are not presented in our analysis (but, in any event, account for an extremely low proportion of the total population).

4 Housing stress in 2005-06: direct estimates

Figure 1 shows that, at the national and state level, housing stress prevalence rates are lower when calculated with gross income than disposable income. In 2005-06, just over 22 per cent of households were spending more than 30 per cent of their disposable income on housing. This figure dropped by about one-fourth, to 17 per cent, when the calculation was based on gross income. For the other two definitions, there are smaller gaps in prevalence rates arising from the type of income used. For example, under the ‘30/40’ rule, the housing stress rate stands at about 12 per cent if we choose disposable income as the base, and at about 11 per cent if it is based on gross income. If we go further to exclude the poorest 10 per cent of households (‘30/10-40’ rule), housing stress is estimated at about seven per cent with disposable income and about six per cent with gross income. At the national level, the gap in the estimates of housing stress arising from choice of income is the narrowest under the ‘30/40’ rule. This pattern holds true across all the states and territories.

Figure 1 shows that the estimated proportion of households in housing stress drops substantially as we narrow down the definition. Nationally, with disposable income as the base, the move from the 30-only rule to the 30/40 rule means the housing stress rate drops by nearly half, from above 22 per cent to less than 12 per cent. It drops again by more than a third, to just above seven per cent, when we exclude the lowest income decile. In the case of gross income based measures, the magnitude of
the decline is slightly sharper going from the 30/40 to the 30/10-40 rule than for the 30-only to the 30/40 rule.

Another important insight from these results, as summarised in Table 1, is that the ranking of states/territories in terms of housing stress rates varies with the measure used. Under the basic 30-only rule and disposable income, the housing stress rate is the highest in New South Wales followed by Queensland and Victoria and the lowest in Tasmania. But with gross income, though New South Wales remains the state with the highest rates of housing stress, Victoria climbs to the second highest rank, pushing Queensland down to the third position; and the Northern Territory and Australian Capital Territory are placed in the bottom as Tasmania climbs to the second lowest position.

This ranking changes again under the other measurement approaches. Using the ‘30/40’ rule and disposable as well as gross income, Victoria appears to have the highest level of housing stress, followed by Queensland and New South Wales. The last position is occupied by the Northern Territory and Australian Capital Territory. Under the narrowest ‘30/10-40’ definition, Victoria remains the most stressed state, followed by New South Wales and Queensland, with the Northern Territory/Australian Capital Territory again ranking as the regions with the lowest rates of housing stress.
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Figure 1 Percentage of households in housing stress according to various definitions, by states or territories, Australia, 2005-06

![Graph showing percentage of households in housing stress according to various definitions.](image)

Source: 2005-06 Survey of Income and Housing confidentialised unit record file; authors’ calculations.

Table 1 Ranking (1 to 7) of States/Territories from the highest to the lowest rates of housing stress under various definitions, 2005-06

<table>
<thead>
<tr>
<th></th>
<th>Disposable income</th>
<th>Gross income</th>
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<tr>
<td></td>
<td>30-only</td>
<td>30/40</td>
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<tr>
<td>NSW</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Qld</td>
<td>2</td>
<td>2</td>
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<td>Vic</td>
<td>3</td>
<td>1</td>
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<tr>
<td>WA</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>NT/ACT</td>
<td>5</td>
<td>7</td>
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<tr>
<td>SA</td>
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<td>6</td>
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<tr>
<td>Tas</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: ABS Survey of Income and Housing Costs 2005-06; authors’ calculations based on housing stress rates. Same rank is assigned for States/Territories that have equal rates.

Figure 2 presents housing stress prevalence rates across tenure types. Among outright home owners, the rate is very low, around one per cent, irrespective of whether it is based on disposable or gross income. It is worth noting that the housing stress rate approaches nil for outright home owners when the poorest 10 per cent of the households are excluded from the definition. Similarly, prevalence of housing stress drops to a very low level, around one per cent, among public renters if the poorest 10 per cent of households are excluded. Otherwise, as many as one in ten renters in public housing can be defined to be in housing stress under either of the
other two rules. This does suggest that the 30/10-40 rule is excluding low income households, such as public housing tenants, that should be counted as being in housing stress.

Among home purchasers (owners with mortgages), under the 30-only rule, substantially different housing stress rates are obtained using disposable income (38%) compared to gross income (26%). Both figures drop remarkably, by more than one-half to two-thirds, when the measurement is confined to the bottom 40 per cent of the income distribution. It could be argued that this suggests that many of these purchasers who appear in housing stress when the full income distribution is used are higher income households who are either voluntarily paying more into their housing loan, or are choosing to live in more expensive housing (either closer to the CBD or larger houses), so they are not being forced to pay more than 30 per cent of their income on their mortgage; for some of this group, it is a lifestyle choice. An alternative interpretation might be that such households were not in housing stress when they first took on their mortgages, but that a succession of interest rate increases have now pushed them into a more vulnerable position.

For private renters, the choice of benchmark as well as income type makes a difference. Under the first rule, housing stress is 36 per cent with disposable income as the base and 26 per cent with gross income — a gap of 10 percentage points. This is a large difference, although not as large as the difference for purchasers. Gaps in prevalence rates with disposable and gross incomes were much smaller under the ‘30/40’ rule (27 per cent compared to 24 per cent) as well as under the ‘30/10-40’ rule (17 per cent compared to 14 per cent).

It is interesting to note that the ranking of housing stress by tenure type varies across the different definitions of housing stress. Under the ‘30-only’ rule and disposable income, home purchasers appear to be the most stressed group, slightly ahead of private renters. But once the definition is narrowed by excluding households above the second quintile of the income distribution, private renters stand out as the highest stress group, well above the purchasers. The exclusion of the poorest 10 per cent of households does not change the relative rankings, though it drastically diminishes the housing stress rate among public renters.

Overall, the choice of the definition of housing stress has a greater impact on the estimates of housing stress than the type of income used as the base.
5 Small area estimates at SLA level

This section presents small area estimates of housing stress for Statistical Local Areas (SLAs) for New South Wales, Victoria, Queensland and the Australian Capital Territory. These estimates refer to the year 2003 and are generated by using NATSEM’s spatial microsimulation techniques. The estimates are based on the 2002-03 and 2003-04 Surveys of Income and Housing and the 2001 Census. The spatial microsimulation model used is SPATIALMSM07a.

Only convergent SLAs\(^1\) and those with at least 50 estimated households are included in this analysis. On this basis, the number of SLAs included is 89 from the Australian Capital Territory (ACT), 196 from New South Wales (NSW), 445 from Queensland and 194 from Victoria.

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\(^1\) See the section on spatial microsimulation for a definition of non converging SLAs.
5.1 Comparison across quintiles of SLAs

Figure 3 presents median housing stress rates within housing stress quintiles. SLAs are ranked into quintiles (five groups) on the basis of the estimated percentage of households in housing stress within each SLA. The first quintile (Q1) represents the highest stress SLAs and the last quintile (Q5) consists of the lowest stress SLAs. Within each quintile, the median housing stress rate is calculated and graphed in Figure 3.

The 30-only rule with disposable income gives the highest rates of housing stress — while using gross income reduces the number of people in housing stress, and the 30/10-40 rule gives the lowest rates of housing stress. Housing stress rates vary considerably among SLAs, under all the definitions considered. Looking at the median rates, it is evident that housing stress rates based on gross income are slightly lower than those based on disposable income. Differences arising from the change of housing stress definition are larger than those arising from income type (gross vs disposable).

In the 20 per cent of highest stress SLAs, median housing stress is two to three times higher than in the 20 per cent of lowest stress SLAs. For example, under the 30/40 rule and using disposable income, the median housing stress rate is 10 per cent in the most stressed quintile of SLAs compared to 5 per cent in the least stressed quintile of SLAs in the ACT. Corresponding figures for NSW are 15 per cent for the most stressed quintile and 7 per cent for the least stressed quintile of SLAs. These figures are 18 and 7 per cent for Queensland and 13 and 7 per cent for Victoria.
Figure 3 Estimated median housing stress rates according to various definitions, within quintiles of SLAs ranked by housing stress level, 2003

Notes: Q1 to Q5 refer to quintiles of SLAs ranked by level of housing stress. They are not income quintiles. 
Source: SPATIALMSM07a applied to ABS 2002/03 and 2003/04 Survey of Income and Housing

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5.2 Comparison across individual SLAs

This section looks at the estimates of housing stress for each SLA in the ACT, and compares the different definitions. Note that while we only show results for the ACT here as the ACT has the least number of SLA’s — and hence gives the least crowded graph — the results for the other three states included in our modelling are similar. Results for each state are available from the authors on request.

Looking at Figure 4, each SLA is represented by a vertical line; and the estimates of housing stress based on the different definitions are marked on the vertical line with different markers. The highest marker is the R30-only rule, while the lowest is always the R30/10-40 rule. Note that the graphs say nothing about the variability of the data, as all the SLAs are ordered using the Disposable R30/40 rule.

One of the interesting points to note about this graph is that, in all the SLAs, the pattern is the same. The R30 only rule always gives the highest rates of housing stress; with the R30/40 rule next, and the R30/10-40 always giving the lowest housing stress rates. The difference between gross and disposable income is not great for the 30/40 rule and the 30/10-40 rule.

Under the ‘30/40’ rule and with disposable income as the base, housing stress rates range between just below five per cent to around 10 per cent. Housing stress rates under this rule but using gross income are not much lower. With the 30-only rule and disposable income, housing stress rates are above 10 per cent, and are up to 40 per cent in one area. Under the narrowest definition of the ‘30/10-40’ rule, housing stress rates are all below five per cent. The gap in the housing stress rates between the ‘30/40’ and ‘30/10-40’ rules widens as we move from less stressed to more stressed SLAs.
Figure 4 Estimated percentage of all households in housing stress according to various definitions, ACT, 2003

Note: SLAs are ordered by housing stress rates under ‘30/40’ rule and disposable income.
Source: SPATIALMSM07a applied to ABS 2002/03 and 2003/04 Survey of Income and Housing.
5.2.1 Purchasers (Owners with a mortgage)

Figure 5 shows the same graph for purchasers. It can be seen that housing stress is much higher for purchasers, up to 65 per cent in one area, using the 30 only rule. There were two areas with very high housing stress rates using the 30/40 and 30/10-40 rule (nearly 30 per cent of people in housing stress), but the rates of housing stress using the 30/40 rule were between about 2 per cent and 10 per cent.

One interesting point is that the gap between ‘30-only’ and ‘30/40’ is very wide, whereas housing stress rates using the ‘30/40’ and ‘30/10-40’ rules are quite close to each other.

Figure 5 Estimated percentage of purchaser households in housing stress according to various definitions, ACT, 2003

Note: SLAs are ordered by housing stress rates under the ‘30/40’ rule and disposable income measure.
Source: SPATIALMSM07a applied to ABS 2002/03 and 2003/04 Survey of Income and Housing.
5.2.2 Private renters

Figure 6 shows the same graph for private renters. It can be seen that for private renters, the housing stress rates for the ‘30-only’ definition and the ‘30/10-40’ definition are more or less equidistant from ‘30/40’ definition. This is quite different to purchasers, where the 30 only rule was much higher than the 30/40 and 30/10-40 rules.

The rates based on disposable and gross income are also very close to each other under the ‘30/40’ and ‘30/10-40’ rules across the individual SLAs. However, for the ‘30-only’ rule, the rates based on disposable and gross income are not so close, with the former being higher than the latter.

Figure 6  Estimated percentage of privately rented households in housing stress according to various definitions, ACT, 2003

Note: SLAs are ordered by housing stress rates under the ‘30/40’ rule and disposable income measure. Source: SPATIALMSM07a applied to ABS 2002/03 and 2003/04 Survey of Income and Housing.
5.2.3 Public renters

Figure 7 shows this result for public renters. Publicly rented households exhibit a slightly different pattern compared to that of purchasers and private renters. With some exceptions at the extremes of housing stress, the housing stress rates under the ‘30-only’ rule are much closer to those under the ‘30/40’ rule. Excluding the poorest 10 per cent of households brings the housing stress rates substantially down, with the rates deviating gradually from those under ‘30/40’ rule as we move towards more stressed SLAs.

We expect that the reason for the similarity between the 30-only rule and the 30/40 rule for public renters is because there is already an income criterion for public renters to receive public housing, so we would expect the vast majority of public renters to be low income households, thus satisfying the 40 per cent criteria in the 30/40 rule. Interestingly, the 30/10-40 rule reduces the housing stress levels to less than 5 per cent in many SLAs, again confirming that excluding the bottom 10 percent of incomes is bringing the 30/10-40 rate artificially down, and that some low income people who are in housing stress are being excluded by the 30/10-40 rule.

Figure 7 Estimated percentage of publicly rented households in housing stress according to various definitions, ACT, 2003

Note: SLAs are ordered by housing stress rates under ‘30/40’ rule and disposable income.
Source: SPATIALMSM07a applied to ABS 2002/03 and 2003/04 Survey of Income and Housing.
6 Conclusions

This study was inspired by the observation that there is no common practice with regard to choice of income type and income thresholds in measuring housing stress. Some studies have used gross income while the others have preferred disposable income. There are varying practices with regards to setting income thresholds. Some studies look at all households irrespective of their income level, some tend to consider only the households that are in the bottom 40 per cent of income distribution, and others argue for excluding the households in the bottom 10 per cent of the income distribution.

We have found that there is not much difference between using gross and disposable income when we apply the 30/40 or the 30/10-40 definition of housing stress; however, there is a notable difference when applying the 30 only definition. This is an interesting result, as it suggests the ‘30 only’ definition is more susceptible to the choice of type of income than are the other definitions. This may be due to larger differences between disposable and gross income at the higher rather than lower end of the income distribution, due to the progressive nature of the Australian tax system.

The other issue we found with the ‘30 only’ definition was that it showed a very high proportion of purchasers in housing stress. We expect this would be due to some purchasers paying more than 30 per cent of their income on the loan voluntarily, by either choosing a more expensive house (so larger or closer to the CBD), knowing they can afford higher repayments; or paying more to pay off the loan earlier. Alternatively, it may be due to some purchaser households being pushed beyond the 30 per cent threshold by the increases in interest rates. When the low income criteria is added, the proportion of purchasers in housing stress drops from 35 per cent (using disposable income) to about 12 per cent.

We also found that the 30/10-40 definition excluded many public housing tenants from housing stress. This was a major concern for us, and the national housing stress rate for public housing tenants dropped from nearly 10 per cent using the 30/40 definition to 1 per cent using the 30/10-40 definition. This was a significant decline, and so we would not recommend the use of the 30/10-40 definition of housing stress, as we believe it excludes too many public renters who are suffering housing stress.
Overall, the figure we found most suitable for measuring housing stress was the 30/40 rule. This was only affected slightly by the use of disposable or gross income — and did not produce extraordinarily high or low housing stress rates for any of the sub-groups we looked at. We found the 30 only rule produced very high rates for purchasers, while the 30/40-10 rule produced very low rates for public housing tenants.

Further, there are solid conceptual reasons for using the 30/40 rule. In terms of using gross or disposable income, this study has found that there is little difference between housing stress rates calculated using the 30/40 rule using either measure. If the 30 rule was being used, then more thought would need to be given to whether to use gross or disposable income, as this choice of income type has a much greater effect on housing stress rates using the 30 only rule. Most poverty researchers would always prefer a measure of disposable household income where it is available, simply because it represents the amount a household has left to spend on housing after tax and household size are taken into account, and thus better captures standards of living for households than a measure of gross income. The ABS makes the point that ‘disposable income better represents the economic resources available to meet the needs of households’ (ABS 2007, p. 3).

This study has contributed to the discussion on housing stress in Australia in two ways. First, it has presented up-to-date national and small area estimates of housing stress. Second, it has conducted a much needed comparative analysis on the implications of the choice of definitions on small area estimates of housing stress. It thus extends the previous literature on measurement of housing stress that only looked at the broader geographic level (Landt and Bray 1997; Gabriel et al. 2005; Yates and Gabriel 2006).

With regard to possible future directions for research, the measure used in this analysis is constructed by setting the ratio of income to housing cost at 30 per cent. This threshold has been criticised as arbitrary (Yates and Gabriel 2006, p. 32). In fact, there is no compelling reason to set this benchmark at 30 per cent. Yet this has become a standard practice and likely to continue unless a convincing alternative measure is developed.

The same threshold has been used for all groups such as tenure types and locations. Future work could look at whether it is necessary to set different benchmarks for different tenure types. This may be an issue for groups of SLAs that belong to remarkably different geographic locations such as inner metropolitan areas and sparsely settled regional areas.

This study does not take into account the expenses of transportation, nor does it consider the standard of the dwellings in which households are located, or issues of
overcrowding. These may be important issues. For households in peripheral suburbs, housing costs may be slightly lower than in city centres, but a substantial amount of household income may be expended in commuting to work. Future research may look into the possibilities of adjusting housing cost by taking account of the transportation cost.
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