BETTER THAN AVERAGE(S): MOVING BEYOND SIMPLE MEDIANs AND INCOME RATIOS TO EXPLORE HOUSING AFFORDABILITY IN METROPOLITAN MELBOURNE

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INTRODUCTION

The measurement of affordability is important to understanding who has housing affordability issues; the spatial variation of these issues; and the extent of the problem in the community. This understanding is essential to ensuring that policies can effectively address the issue of housing affordability. Opinions on housing affordability are also widely reported on in the media. Therefore how we measure affordability is of critical importance so that policy decisions can be based on evidence rather than conjecture. Although housing affordability has commonly been measured as a simple ratio of income to housing costs, this paper presents an argument for the use of a different measure of housing affordability – the residual income measure - that is not commonly used in Australia. The residual income measure is based on the amount leftover from a household’s income (the residual income) once all other necessary household expenditures are accounted for. This measure varies for different household types. Measuring housing affordability using this “new” method produces a different picture of housing affordability for home purchases than when using traditional ratio methods. This has implications for our understanding of what is happening in the housing market, the housing industry and implications for creating effective policy to tackle the issue of housing affordability.

This paper begins by describing ratio measures of affordability and their limitations. It then outlines the rationale for the residual income measure of affordability, and the methodology used to operationalize this measure using two affordability indicators developed by (insert text) to investigate housing affordability for home purchasers. Two sets of results comparing housing affordability for home purchase in Melbourne using the ratio and residual income methods are then reviewed. The first looks at the maximum affordable housing costs (mortgage repayments) for different incomes. The second determines the maximum affordable dwelling price for each income range (measure one) and thirdly household income required to purchase or rent a property at the median price for any given area is examined (measure two). Key differences between household types and incomes are highlighted.

THE RATIO MEASURE OF AFFORDABILITY

History

Housing affordability is broadly defined as the cost of housing in relation to income. Housing affordability is about having housing costs in relation to income which leave households with sufficient income to meet other basic needs such as food, clothing, and medical care. Historically, housing affordability has commonly been measured using a simple ratio of income rules such as 30 per cent of household income whereby if a household is spending more than 30 per cent of their income on housing they are experiencing “housing stress” and therefore affordability issues. In Australia the 30 percent threshold has been commonly used since 1991, when the then Deputy Prime Minister Brian Howe’s National Housing Strategy (NHS) introduced housing stress as a new indicator of high housing costs. The ‘30/40’ rule put forward by the NHS limits the definition of housing stress to households in the bottom 40 per cent of the income distribution. This approach to housing stress has since been widely used in academic and policy circles. Prior to this the Henderson Poverty Report in 1977 developed, as part of their Henderson Poverty Line, the idea of After-Housing Poverty, but the NHS rejected the after-housing poverty approach as too complicated.

The rationale for the commonly used 30 per cent limit on housing costs is not clear but in most other jurisdictions, notably those in the North America and Europe, a 25 per cent threshold is used and this includes utility costs (Burke 2010). The 25 per cent threshold seems to have its origins in mortgage lending practices in the 1920s and is arguably inappropriate for low income households as it was originally intended to be applied to middle and high income households (Burke, 2010). In broader circles the 30 per cent rule is now often applied to all households and not only those on low to moderate incomes. Most measures of
housing affordability in Australia use a ratio of incomes and housing costs. Another commonly accepted measure of home purchase affordability is the ratio of average or median household incomes to median house prices. Such a measure was used in work done by Swinburne Institute for Social Research for the Department of Premier and Cabinet in 2006.

**Disadvantages**

The main problem with income to price ratio measures of affordability, including variations on the 30-40 rule, is that what they tell us about housing affordability does not appear to accord with reality. These measures suggest that home purchase is generally unaffordable for all but the wealthiest households and has been for some time. But home purchase data seems to show that: first home buyers are still entering the market; these homebuyers are only marginally older and wealthier than in previous periods; and mortgage default levels remain at very low levels. A weakness of the simple percentage of income ratio approach is that it ignores the different needs of different households of different sizes. A family with several children will have much higher living expenses than a single person household. Thus, for the same income, the larger household may not be able to afford 30 per cent of its income for its housing whereas the single household might comfortably afford significantly more than 30 per cent. Similarly for two households with children with different income levels, each would have the same living expenses (based on a budget standard), but could afford to spend different amounts on their housing. Income to price ratio measures cannot take the costs of different household types into account, and treats them as if their non-housing costs are identical.

**THE RESIDUAL INCOME METHOD OF AFFORDABILITY**

**Rationale**

An alternative to the ratio approach described above is the residual income method. In 2010 the (insert text) to develop a residual method of affordability for Victoria. Unlike ratio measures, which are premised on a largely arbitrary ratio of housing costs to income, this method is premised on the idea that the amount a household can afford for housing is the amount left over from a household’s income (the residual income) once all other necessary household expenditures are accounted for and that this varies for different household types. While this method is not new in academic circles (Stone, 2006, AHURI 2011) it has not been applied widely in Australia.

**Methodology**

The major difficulty with applying the residual method is determining these necessary household expenditures. This is called a ‘budget standard’. The budget standards used in the model developed for the (insert text) are based on budget standards developed by the University of New South Wales Social Policy Research Centre (SPRC). SPRC was commissioned in October 1995 by the Commonwealth Department of Social Security to develop a set of indicative budget standards for Australia. This task had not been attempted on this scale before in Australia and has not been updated since 1998 (Saunders et al). SPRC developed two budget standards: a low cost and a modest but adequate budget standard. The low cost standard represents a level of living which may require frugal and careful management of resources but would still allow social and economic participation consistent with community standards. The modest but adequate standard attempts to describe the situation of a household whose living standard falls somewhere around the median standard of living experienced within the Australian community as a whole. It is important to note that the low cost budget standard is quite different than the more well known Henderson Poverty Line. The Henderson Poverty Line has a number of well known inadequacies, not least of which is that it is a measure set in 1966 at the then basic wage plus child endowment for a single earner couple with two dependent children, using equivalence scales derived from a 1954 study in New York City.

Taking the budget standards developed by the SPRC and updating it to account for inflation by using the consumer price index, Swinburne University developed tables of housing costs for four key household types: single persons, couples with out children, single parent households with one child and couples with two children. As a result of this work, we can now estimate the amount of income required by each of these household types to pay for the necessities of life according to a ‘modest but adequate’ or a ‘low cost but acceptable’ budget standard, and thus their residual income available for affordable housing. DPCD have focussed on using the modest budget standard as it represents a higher living standard that is well above the
poverty line. The method used in the residual model is to simply inflate the budgets by the consumer price index though there is no reason why more sophisticated methods could not be used such as those used by the Australian Bureau of Statistics in their recent development of Living Cost Indexes (ABS, 2009). For every gross income level (in this model in $1,000 increments of annual income above $30,000) and selected households, tax payments and income support payments are calculated to arrive at a net income. From this net income budget standard expenditures are deducted to arrive at the amount available for housing expenditures at every income level.

In order to operationalise the residual income model three different indicators have been used which were developed in 2004/2005 by a working group between (insert text) and (insert text) to measure housing affordability.

1. **Measure 1: Income ladder of supply affordability** divides the four different household groups into specific household income ranges and determines the maximum affordable dwelling price or rent level for each income range.
2. **Measure 2: Threshold income** estimates the income required to purchase or rent a property at the median price (or a certain percentage of the median price) for any given area.
3. **Measure 3: Supply side affordability** analyses the availability of residential stock within different price or rent segments.

These measures can be applied to both rental and purchase possibilities across all income levels however in this paper we have only investigated home purchasers and the first two measures. In this paper Valuer General data has been used for house/unit prices (used in the threshold and supply side indicators) which is the most comprehensive data for Victoria available. The data is the compilation of Notices of Acquisitions which are required by law to be completed by every purchaser within one month of the acquisition of any realestate in Victoria.

Data used for incomes was a special purchase of income data deciles by household type from the ABS Survey of Income and Housing (SIH) data. All maps in this report are from 2010 data. The following parameters have been used in the model for the purpose of this paper:

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<th>Table 1: Parameters applied</th>
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<td>Income geography</td>
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<td>Loan term</td>
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<td>Deposit</td>
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<td>Additional housing costs p/a</td>
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<td>Legal Fees</td>
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**Limitations**

Disadvantages of the residual income method itself rather than the data are that Budget standards are in themselves normative and it is difficult and expensive to update them to take into account changing standards (e.g. the budget standard used here does not include mobile phones or internet connections. Are these required for someone to fully participate in society remains a value judgement.

Advantages of the residual income method is that it does allow the data to be broken down into household types and policies are often targeted at different household types ie family tax benefits, sole parent benefits. As the data reveals more about the particular income brackets and households that are experiencing housing difficulty than the standard ratio method of 30% of income we can start to start to examine housing affordability using case examples such as the incomes of a third year police officer or teacher, a university graduate five years out of university or a service sector worker. The residual method potentially allows us to set realistic price points for ‘affordable’ housing projects.
RESULTS

Maximum affordable mortgage payments

This section describes differences in the maximum mortgage costs affordable to different income levels, using the ratio and residual income methods. Using a residual income measure of housing affordability reveals that some households can afford more in housing costs than is suggested by the 30-40 ratio rule or other income to price ratio measures.

For example using the 30/40 ratio rule, a single person household with average full-time adult earnings of around $60,000 per annum could only afford around $300 per week in housing costs (see figure 1 below). In contrast, the residual method suggests that this household can afford to pay around $600 per week and maintain a modest budget standard, in other words, a living standard falling somewhere around the median standard of living.

Figure 1: Comparison of the residual method and the ratio 30-40 rule for single person household: Maximum affordable mortgage repayments

![Graph showing comparison of residual method and ratio 30-40 rule for single person household](image)

Source: Stone, M, Burke T, Ralston, T. (2011) pg 50

This finding accords with what we know from reality, that moderate income single person households can afford to enter the home purchase market and maintain a decent standard of living. These results also concur with an AHURI study into low income home ownership that seems to be showing that single people are increasingly dominating the low income home purchase market at the expense of households with children (Hulse, K, Burke T, et al 2010). This can be explained by the residual income model because it is sensitive to household types in a way that other models of housing affordability are not.

While the residual income measure of housing affordability reveals that single person households can afford more in housing costs than is suggested by using the 30 per cent rule, at least on annual incomes above $30,000 per annum, the picture is more complex for 2 person households with children. Figure 2 shows that on the "modest but adequate" budget standard a couple with 2 children can afford to pay less for housing costs than if the 30 per cent rule of household income applied if their household income was below $75,000 per annum. When comparing the residual income between households is compared, in this case single person households and couple with two children on an income of $65,000 per annum, the couple with two children can only afford to pay around $300 per week in housing costs whereas a single household on this income could pay around $700.
These findings are also reflected in a recent study by Taylor (2011) who used HILDA longitudinal data to look at the quantum of households in Victoria experiencing housing stress using different measures. Figure 3 shows how many more home purchasers in Victoria would be classified in “housing stress” in the first quartile of the equivalised income distribution using the residual method compared to the ratio measure. It is notable that the ratio method seems to underestimate the number of households in “housing stress” in the lower income bands, and to overestimate the numbers of higher income earners in housing stress. By contrast the residual measure tends to be biased toward lower income groups. Taylor (2011) also investigated the number of households in persistent housing stress using HILDA data. Persistent housing stress refers to households in stress in two waves of HILDA data, two years apart. The study found that the bulk of home purchasers in persistent housing stress in Victoria, when using the residual method, are couple families with children.

Figure 3 Number of Home Purchasers in Housing Stress (Ratio and Residual Income Measures) by Equivalised Household Income Quartiles, Victorian Households, HILDA Wave 9

Source: Stone, M, Burke T, Ralston, T.(2011) pg 51

Source: Taylor, 2011, based on HILDA
Figure 4 Home purchasers in persistent housing stress by household type

Source: Taylor, 2011, based on HILDA

Measure One: Supply side affordability in Melbourne

This section applies the maximum affordable repayments measures to the sales of homes in Melbourne, to identify the amount of stock that would be affordable. Figure 5 shows that for lower income couples with two children, there remain very few affordable houses being sold in metropolitan Melbourne. While their income of $66,500 p.a. on the 3rd decile allows them to look at higher priced properties compared singles on the 3rd decile, their affordable purchase limit of $180,700 meant there were very few houses available for purchase. The ratio measure presents a similar spatial distribution to that above where there are few options for those at the 3rd decile. At the fourth decile using the residual method some more options become available, (see figure 6). However for the most part couples with 2 children using the residual method are still locked out of most of inner and middle Melbourne. In the outer Growth Areas there are some more affordable purchase opportunities.

If we look at the more commonly used ratio measure at the 4th decile to compare with the residual method (see figure 7) it paints a more optimistic picture of affordability for couples with children than the residual income method. This method suggests that there are more options available in middle and even some inner LGA’s for these household types on this particular income range because it does not take into account the higher costs of these households.

Once we look at median income households with children (Figure 8) using the residual method once again, we can see that all of the Growth Areas and much of outer Melbourne are affordable. Even some middle LGAs present a number of affordable purchase opportunities for these households.
Figure 5 Proportion of houses sold in 2010 that are affordable ($180,700) for a couple with 2 children on an income of $66,500 (3rd Decile).

Figure 6 Proportion of houses sold in 2010 that are affordable ($327, 300) for a couple with 2 children on an income of $82,900 (4th Decile)
Figure 7 Proportion of houses sold in 2010 that are affordable ($311,000) for a couple with 2 children using the ratio method of affordability on an income of $82,500 (4th decile)

Figure 8 Proportion of houses sold in 2010 that are affordable ($503,400) for a couple with 2 children on an income of $102,600 (5th Decile)
Figure 9 Proportion of units sold in 2010 that are affordable ($193,200) for a single person on an income of $41,500 (6th Decile)

Figure 10 Proportion of houses sold in 2010 that are affordable ($417,000) for a single person household on an income of $65,800 (8th decile)
Figure 9 shows that even at the 6th decile and looking at units rather than houses there are very few options that are affordable for lone person households due to the lower income ranges of these households. This is because single person households have much lower income ranges that couple households. However once we look at an income at the 8th decile which is roughly $65,800 per annum (see figure 10) comparable with the 3rd decile for families with 2 children ($66,500) there are far more options available for lone person households than for couple families with children (compare with figure 5) on that income.

**Measure Two: Income Thresholds**

Measure two looks at the income different households would need to be making to afford the average (median) priced house or flat in an area. Figure 10 shows once again that lone person households have more options at the lower end of the income scale. Although very low income sole person households are limited to the outer growth areas of Metropolitan Melbourne.

Using measure 2 for couples with 2 children shows that until they reach a household income greater than $80,000 these households would be unable to purchase a median house anywhere in Metropolitan Melbourne. This is not to say that they couldn’t purchase a house at the 25th percentile or perhaps a suitable apartment or townhouse which may cost less than the median house.

**Figure 11 Income required to purchase a Median house for a single person household**
Figure 11 Income required to purchase a Median house for a couple with 2 children

DISCUSSION AND CONCLUSIONS

There appears to be some evidence that using the ratio method overestimates the number of absolute people experiencing housing affordability issues. However the ratio method also seems to mask the fact that households in the very low income brackets, particularly low income couples with children households are experiencing housing affordability issues. When investigating income data of the different households it becomes apparent that households with children have a much higher income range than sole parents, lone households and even couples without children. Whether this is a factor of couples with children being older and more established in their careers and thus earning more, or whether they need to have the higher income to afford to have the children has not been investigated here. If we look at couples with two children households, it would be correct to assume that they have higher living costs than couples with no children. However it would not necessarily follow that for all families with two children, housing is less affordable. The reason for this relates to the higher range of incomes for this particular household type and when we consider this along with impacts of the Family Tax Benefits, their relative purchasing power offsets their higher living costs to some extent except for very low income households.

Income data from the ABS Survey of Income and Housing highlights that for all single households, incomes remain very low compared to couple and couple with children households. In fact a single person household on sixth decile income was earning $41,500 in mid 2010. While the single person household has significantly lower living expenses than couples and couples with children, for those on a 6th decile income this only gives them purchasing power of $193,200, meaning there were very few options for purchasing even a flat or apartment in Melbourne in 2010.

One of the most difficult aspects of modelling affordability using either the residual or the ratio approach is obtaining access to reliable income data. There are a range of sources such as Census incomes, Average Weekly Earning, taxation data, but all have problems in providing precise data that enables the type of analysis being undertaken here. In particular income data for single households is very low throughout the whole range, seeming to indicate that some single household would have almost no home purchase options.
From analysis of the income data it is clear that many single households are people on statutory incomes (eg Centrelink benefits) or much older households (pensioners and retirees) who are unlikely to be in a position to be entering into the home purchase market. However analysis of other data shows that there are also many single person households purchasing and in home ownership. The 2006 Census showed that in Melbourne there were around 39.4 per cent of all single households who fully owned their home and 20.1 per cent of single person households who were purchasing. This indicated that a significant proportion of household are either unlikely to have affordability problems or their ability to purchase is greater than SIH income data suggests. It is likely that the income data from the SIH is dominated by single person households who would not actually be in a position to purchase housing. Statutory income recipients (eg Centrelink and pension payments) and older single person households often have very low incomes but have access to other forms of housing such as public and supported private rental and for older household they may own the home they live in. We have not yet found a solution to this data problem, but as better data becomes available we will look to improve this analysis.

Another difficulty with modelling affordability using the available data is that the Valuer General data used in this instance tells us nothing about the size and condition of a house and therefore the appropriateness of a house for a particular household type. Even in the same condition and same suburb, a four bedroom home would be expected to sell for more than a two bedroom home. However the two bedroom home may not be adequate to house a large family, so while it may be affordable, it is not appropriate for their needs. Furthermore for a family with school aged children if there are no schools located in or near where there is affordable housing stock then these would also be deemed not suitable. Similarly the affordability says nothing specific of the condition of the dwelling, whether new, renovated or run-down. Although the local true price differences will reflect some of that difference. Thus these new measures of affordability are not able to be a direct identifier of affordable and appropriate housing; rather they clearly indicate areas where affordable or unaffordable housing is located for different households.

This analysis is focussed on home purchases and will be supplemented by analysis of rental data using the same residual income model once the data becomes available. In fact it is in the rental market where most of households at risk of high levels of housing stress are located. In Victoria, detailed data on rental tenancies is held by the Residential Tenancies Bond Authority (RTBA). The Housing and Community Building (HCB) Division of the Department of Human Services, accesses this data and produces a quarterly Rental Report, which includes some affordability analysis of the rental market. At the time of writing of this report, DPCD has been liaising with HCB who are in the process of developing a similar residual income based affordability measure for the rental market.

Affordability is a spatial issue as the maps in this report demonstrate and the location of the dwelling itself may impact on both the non-housing costs and the potential income of the household. In large urban areas, cheaper housing located on the fringes of the city may be cheaper, but this price advantage may be eroded by higher transportation costs and limited access to higher order, better paid employment. As every household’s specific circumstances will vary, another approach to analysing affordability might include consideration of weighting the data by a distance factor on non-housing costs and household income.

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