

Affordability or Availability: Developing housing market monitors

This paper takes an applied geographical approach to consider the development of a monitoring indicator to add context and relevance to one facet of the housing affordability debate, the availability of homes to first time purchasers. In doing so it differentiates between widely used assessments of affordability (an individual's ability to purchase product – in this case housing – in the market, and within their means) and the concept of availability, in the sense of the open market's ability to provide properties at accessible price points. Using Census derived incomes data and New South Wales Valuer General's sales data the paper evidences issues of geographical variability within these data across the Sydney Metropolitan Area in order to assess the impact of house price increase on the function of the market to provide available housing, specifically for first time purchasers. It concludes with a discussion on why availability assessments, or similar approaches, may constitute a more appropriate means of communicating such issues in the current policy environment.

Since the turn of the millennium the vast majority of Anglo-centric housing markets have been witness to unprecedented levels of house price growth. This has manifested itself in increasing concerns about households' abilities to purchase properties. This situation is widely regarded as one of affordability – in so much as markets can be assessed by different metrics and adjudged to be affordable or unaffordable to varying cohorts of purchasers – it is nevertheless the case that affordable properties still exist even within unaffordable markets. For this reason such a terminology is slightly misleading. This paper suggests that a more spatially nuanced assessment can be made of different market trajectories if the open market's ability to supply available properties at different price points is analysed instead.

This paper attempts to quantify the scale of the availability gap within the Sydney Metropolitan area. First, an initial analysis of localised house price trajectories is compared against different cohorts' ability to purchase (assessed using standard mortgage calculation techniques). This baseline – the actual numbers of 'purchasable' properties observed from within recorded open market sales data - is in turn compared to analysis on the potential size of the first time buyer market in order to assess the relative gap between the two. The aim of this analysis is to generate overall numbers of potentially priced out households disaggregated by spatial variation across the city. This, in turn, can be seen as a logical step towards the development of targeted policy interventions that are relative to the proportional scale of the problem.

8.5 is just a number

While numerous methods exist to capture the extent of the housing affordability issue, some headline techniques tend to over simplify matters by taking either a holistic (whole market) view point or negating variations in local situations.

For example, the Demographia International Housing Affordability Survey (2008) approach considers large spatial regions (cities or city regions) in order to judge 'affordability'. While this approach is, understandably, broad brush in technique (due in part to the data collection exercise which needs to be undertaken to gather internationally comparable information) its final output negates consideration of the variation within the markets being considered. The ability to handle this variation is imperative as it stands to reason that there will be present relatively affordable, and conversely less affordable, sub-markets within the system as a whole.

Coupled with this issue of spatial variance is the issue of assessment. The Demographia approach of calculating the ratio of the population's median income to median sales price produces a value that, while comparable and eye catching ("Sydney's Median Multiplier rose from 6.5 in 2005 to 8.5 in 2006"), is essentially meaningless when considering the relative scale of affordability issues (i.e. the numbers of households who are priced out of the market, or even by how much). This said median house price ratio assessments remain one of the most common methodologies, and can be nuanced by applying more diverse income profiles (see Wood and Stoakes (2006)) in order to begin to capture potential variations within more local situations.

In order to begin to consider actual issues of affordability more reflective methods can be applied. These include various high level affordability indices; although unlike the median multiplier approaches these can be tailored to the monitoring of differing purchaser's potential to afford property. In the Australian context this has led to the retention of the 30/40 affordability rule (Gabriel et al, 2005).

Such indices can be used to conceptualise the trajectory of the ratio over time, though as Yates points out, purchaser activity and the plethora of newer home loan products on the market (such as 30 year loans and 100 per cent mortgages) mean that the ratio that these indices provide are perhaps not as reflective of the market position as they could be. Coupled with this, and similar to the median income assessments, these approaches implicitly cannot represent localised variation in affordability.

Various applications of mortgage and rental stress analysis (Randolph and Holloway (2002), for example) utilise Census or large scale survey data to address the spatial distribution and relative scales of affordability issues. While these approaches delve beneath the overall headline figures and provide valid snapshots of the relative positional (i.e. inter censal) changes in housing market functionality they are unable to shed any light on the actual volume of households unable to enter into home ownership (by the nature of the analysis, which considers households already in owner occupation).

Work from the UK (Bramley and Karley, 2005; Wilcox, 2003 and Holmans, 2000) attempts to capture the overall numbers of households priced out of the open market for the purposes of policy development and funding targeting. Unlike in Australia there is at present limited localised information collected on household incomes, so much of the literature begins with methodologies to capture and model this essential component. Bramley, for example, uses modelled income derived from national survey material. This

essentially means that the affordability analysis has to be deployed at a relatively high spatial level (normally no lower than the UK's Local Government geography¹) and so, as noted by several of the authors, implicitly negates more localised variations:

“The most appropriate geographical unit should be approximate to local housing market areas. Although local authorities (LAs) are not ideal units from this view point...” (Bramley and Karley, 2005, page: 694)

The collection of specific household income variables within the Australian quintennial Census means that, to a large extent, this issue is not a barrier to more localised analysis. This said, while it would be tempting to utilise very localised household income profiles it is more realistic to consider the distribution of these at a broader geographical hierarchy. The main reason for this is that “housing search areas” (Palm, 1978) tend to encompass numerous different locations within the same sub-region, so in utilising the Statistical Sub District (SSD) geography as the basis for the incomes, a proxy for such search patterns can be applied. Further to this, since the aim of this methodology is to consider availability of affordable properties, the search area incomes need to reflect the localised position while still affording wider search geographies.

This is a powerful technique to analyse overall numbers of those households who may be suffering difficulties due to excessive housing costs but it does not provide the ability to analyse the numbers of potential households “priced out”. This said, the housing stress methodology provides an indicative numeric of those households who have chosen to purchase above the parameters utilised for the availability analysis outlined in this paper.

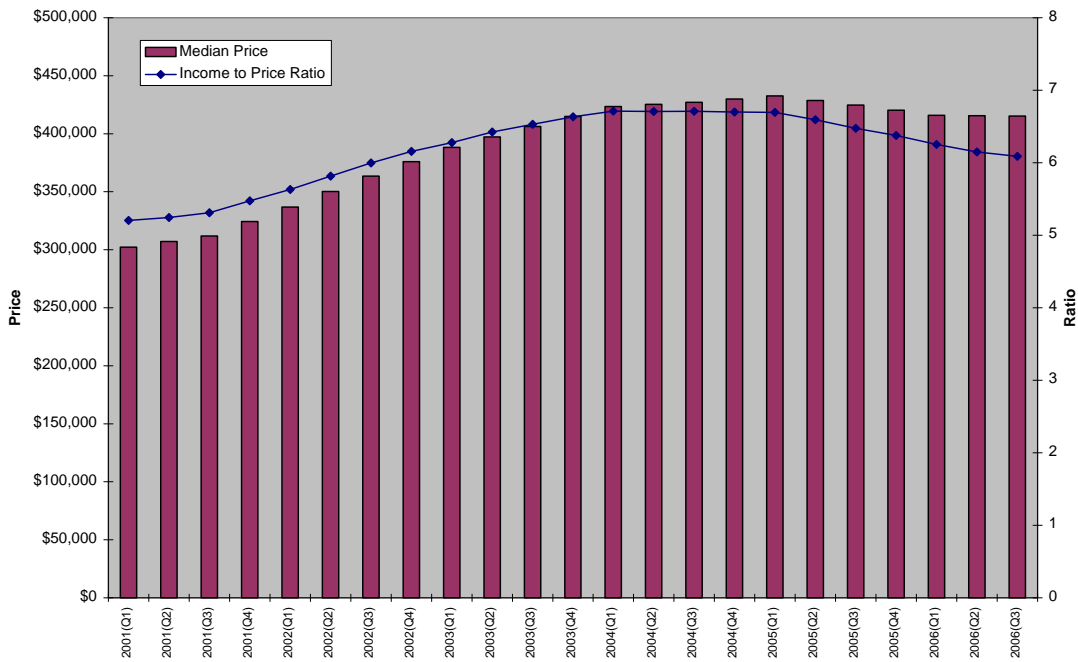
Finally, as the analysis of Yates et al. (2006) demonstrates, those owner occupiers in considerable housing stress (or indeed ‘crisis’) are mainly clustered in the lower income brackets. The variability of household income trajectories across Sydney will also need to be explored.

Background Analysis

The relative increases in house prices across the Sydney metropolitan area are well known. Even the crudest methods of analysis, such as median income to house price ratios demonstrate that overall property affordability has decreased from a ratio of 5.2 in 2001 to 6.1 by the end of 2006 (although this ratio has in fact declined slightly from the high point in mid 2004 of 6.7). Figure 1 demonstrates the overall trajectory of median house prices and the relative income ratio; it is notable that, on the whole, it isn't properties per se that are becoming more affordable but instead it is household incomes that have increased and thus narrowed the overall gap.

¹ Local Government Areas in England range from population sizes as low as 10,000 in rural locations through to over a million (Birmingham) with the average size of 560,000 skewed by the densely populated LGAs in central London.

Figure 1: Median Price compared to Income to price ratio 2001-2006



Source: NSW Valuer General Sales and ABS Census.

However, the focus on the trajectory of median prices across the city obscures the fact that both price and household income vary considerably.

The following takes the widely used “40 / 30” (ABS, Yates, et al) methodological technique to identify housing crisis and applies it to an analysis of observed housing sales and observed household incomes in order to test the capacity of the open market to make affordable properties available across the Sydney metropolitan area.

The assessment of availability is similar to that utilised by the Reserve Bank of Australia (RBA) assessment of first time buyer capacity (see Richards (2008)), although it was developed independently. At the centre of this assessment is the rule that no more than 30 per cent of household expenditure should be taken by direct housing costs (not including heat, light and fuel). Under current market conditions this level of direct housing cost could be criticised as being too low, indeed those household purchasing for the first time may well choose to sacrifice more of their income in the initial period in order to secure home ownership in the longer term

Valuer General sales records for the 6 month period around the 2001 and 2006² Census were initially assessed against the Sydney wide 40th Percentile up rated by a mortgage

² As noted, Sydney’s Market has actually risen and fallen slightly during the period between the Census - such a downturn will have been beneficial to the overall availability of housing, although it should be noted that the falls registered post 2004 were well off the previous rises.

multiplier³ in order to ascertain open market derived affordability. Tables 1 and 2 illustrate the 2001 and 2006 levels of total availability of affordable properties across the Sydney metropolitan area gauged by the city level prevailing household income.

Table 1: 2001 Market Availability – Sydney wide income

	Non Strata %	Strata %	Grand Total %
Affordable	29.47	34.89	31.81
Not Affordable	70.53	65.11	68.19
Grand Total	100.00	100.00	100.00

Table 2: 2006 Market Availability – Sydney wide income

	Non Strata %	Strata %	Grand Total %
Affordable	9.01	21.00	14.13
Not Affordable	90.99	79.00	85.87
Grand Total	100.00	100.00	100.00

The overall trajectory of the market is thus a 70 per cent decline in the availability of affordable non-strata properties and a 40 per cent decline in the availability of affordable strata properties, equating to a 56 per cent decline in overall market availability.

Tables 3 and 4 consider the decline in the availability of affordable properties by Statistical Sub District. It is evident that the greatest percentage decrease in availability happened within the Central Northern Sydney area. It should be noted that even in 2001 only six per cent of the market was accessible for the average Sydney household.

It is in the outer west where the greatest numerical decline in availability has hit the hardest with the overall proportion of the market dropping from over two-thirds of the volume of sales in 2001 to a third by 2006 (Table 3).

³ The observed household income is passed through a standard mortgage multiplier assuming a 10 per cent deposit, a 30 year mortgage term and the prevailing SVR (6.8 per cent in 2001, 7.5 per cent in 2006). This value is then calculated as a percentage of the household's monthly income, if this value is <30% of the income the property was judged to be affordable.

Table 3: Spatial decline in availability of the affordable market

SSD	Affordable (2001) %	Affordable (2006) %	% Change
Central Northern Sydney	6	2	-65
Fairfield-Liverpool	60	24	-61
Outer Western Sydney	78	34	-56
Blacktown	66	29	-56
Sydney Total	32	14	-56
Canterbury-Bankstown	41	19	-53
Outer South Western Sydney	76	38	-50
Central Western Sydney	42	21	-49
Lower Northern Sydney	12	6	-47
St George-Sutherland	22	13	-40
Northern Beaches	8	5	-38
Inner Sydney	18	12	-35
Eastern Suburbs	7	4	-35
Inner Western Sydney	14	9	-34

If Strata properties (this includes apartments, town houses and similar non-detached properties) are considered as being indicative of cheaper component of the market, then the decline is not quite as marked as seen in the market as a whole. Although, as Table 4 illustrates, in the Outer Western and South Western Suburbs this component of the market has declined from being almost universally available (98 per cent of all sales) to excluding around 20 per cent of potential purchasers.

Table 4: Spatial decline in the availability of Strata properties

SSD	Affordable (2001) %	Affordable (2006) %	% Change
Lower Northern Sydney	18	10	-42
Sydney Total	35	21	-40
Central Northern Sydney	13	8	-39
Fairfield-Liverpool	94	58	-38
Blacktown	84	55	-35
Northern Beaches	14	9	-34
St George-Sutherland	37	25	-33
Inner Sydney	25	17	-32
Central Western Sydney	61	42	-32
Canterbury-Bankstown	74	54	-28
Inner Western Sydney	20	15	-25
Eastern Suburbs	8	7	-22
Outer Western Sydney	98	80	-19
Outer South Western Sydney	98	86	-13

The previous tables have demonstrated the spatial variability of the house price trajectories across Sydney; however it should also be noted that income levels are also highly variant.

Table 5 details income profiles of an indicative cohort of first time purchasers; young couples aged between 25 and 34 with at least one dependant child.

The table is broken down by Statistical Sub Divisions (SSD) and demonstrates this variability in household incomes also translates into variability in income increases during the period 2001 to 2006 for First Time Purchaser (FTP).

Table 5: Change in income of the indicative 40th percentile FTP cohort

SSD	Weekly Household Income 2001	Weekly Household Income 2006	5 Year Change %
Inner Sydney	\$1,327	\$1,832	27.6
Eastern Suburbs	\$1,601	\$2,143	25.3
St George-Sutherland	\$1,289	\$1,561	17.4
Canterbury-Bankstown	\$912	\$1,055	13.6
Fairfield-Liverpool	\$972	\$1,131	14.1
Outer South Western Sydney	\$1,100	\$1,341	18.0
Inner Western Sydney	\$1,322	\$1,619	18.3
Central Western Sydney	\$988	\$1,134	12.9
Outer Western Sydney	\$1,128	\$1,389	18.8
Blacktown	\$1,100	\$1,317	16.5
Lower Northern Sydney	\$1,648	\$2,226	26.0
Central Northern Sydney	\$1,580	\$1,948	18.9
Northern Beaches	\$1,527	\$1,941	21.3
Gosford-Wyong	\$1,027	\$1,268	19.0
Sydney	\$1,165	\$1,418	17.8

During the period 2001-2006 the Consumer Price Index (CPI) increased by 14.7 per cent. The CPI is widely utilised to project income increases into the future. As demonstrated in Table 5, FTP household incomes in three of the SSD locations increased by less than CPI during the period (those marked in bold). This is important as the CPI reflects the price changes across a wide range of goods and services that household's purchase. A failure in incomes to match this rate of increase means that the day to day living costs become disproportionately more expensive. Cognisant of this fact, Tables 6 and 7 utilise the affordability methodology deployed previously, but apply the variation of household incomes across Sydney to illustrate more localised availability issues.

Table 6: 2001 Availability – handling income variance

	Non Strata	Strata	Grand Total
Affordable	23.86%	46.55%	33.63%
Not Affordable	76.14%	53.45%	66.37%
Grand Total	100.00%	100.00%	100.00%

Table 7: 2006 Availability – handling income variance

	Non Strata	Strata	Grand Total
Affordable	4.56%	30.15%	15.49%
Not Affordable	95.44%	69.85%	84.51%
Grand Total	100.00%	100.00%	100.00%

The overall trajectory produced by handling income variation remains as an overall decline of some 56 per cent. However, availability of non-strata properties falls by 80 per cent and strata by 36 per cent. This change is due to the differential income and price trajectories across Sydney during the period, especially within the market component comprising strata properties in the Inner Sydney locations. This coupled with the further disjuncture between incomes in the outer west and typical non-strata prices serves to tilt the issue of available affordable properties further out into the suburbs.

To illustrate this further, Table 8 takes the percentage of the open market sales assessed as affordable using the household income variance and compares 2001 against 2006. Table 8 demonstrates that over this five year period the majority of the housing market in Western Sydney saw reduction in sales available to first time purchasers of between 70 per cent to 90 per cent. The hardest hit locations were around Fairfield-Liverpool which saw accessibility fall from just over a third of all open market sales in 2001 to just over three per cent in 2006.

Table 8: Percentage of open market sales available – income variance handled

SSD	Affordable (2001)	Affordable (2006)	% Change
Fairfield-Liverpool	34%	3%	-91
Canterbury-Bankstown	25%	5%	-80
Central Western Sydney	29%	7%	-76
Blacktown	52%	15%	-71
Outer Western Sydney	68%	20%	-71
Outer South Western Sydney	68%	22%	-68
Central Northern Sydney	28%	11%	-61
Sydney Total	34%	15%	-56
Inner Western Sydney	28%	14%	-50
St George-Sutherland	30%	17%	-43
Inner Sydney	30%	23%	-23
Lower Northern Sydney	31%	24%	-23
Northern Beaches	19%	15%	-21
Eastern Suburbs	18%	16%	-11

Table 9 takes the same process, but concentrating on Strata properties only. Under this assessment it is apparent that the overall percentage change is not as marked as seen in the overall market and the overall volume of open market provision of these forms of properties has decreased dramatically in the west of Sydney (Fairfield-Liverpool and Canterbury-Bankstown in particular).

The case of the Eastern Suburbs is particularly interesting. Essentially, despite being a defacto 'expensive' market, the purchasing power of the first time purchasers remained the same across the time period. In other words, the market would appear to be responding in a manner that retains accessibility for this cohort, and thus, it could be suggested, this market's longer term function.

Table 9: Percentage of open market sales available – income variance handled (Strata only)

SSD	Affordable (2001)	Affordable (2006)	% Change
Fairfield-Liverpool	73%	12%	-84
Canterbury-Bankstown	55%	14%	-75
Central Western Sydney	47%	15%	-68
Blacktown	72%	37%	-49
Inner Western Sydney	42%	23%	-45
Outer Western Sydney	96%	59%	-39
Sydney Total	47%	30%	-36
Central Northern Sydney	65%	42%	-35
St George-Sutherland	51%	33%	-35
Outer South Western Sydney	97%	70%	-28
Inner Sydney	40%	33%	-18
Lower Northern Sydney	46%	38%	-17
Northern Beaches	38%	32%	-16
Eastern Suburbs	24%	24%	0

Table 10 takes the available affordable Strata properties and considers their price points in relation to the localised income distribution. Essentially this provides an indicative manner by which to assess the form of price distribution needed to allow open market accessibility for the overall cohort on the 40th percentile income.

Table 10: Derived price point range for available Strata sales compared to observed average sales price (2006)

SSD	Minimum	Maximum	Average Sales Price
Blacktown	\$212,000	\$270,000	\$307,389
Canterbury-Bankstown	\$211,000	\$232,000	\$320,050
Central Northern Sydney	\$220,000	\$401,000	\$495,892
Central Western Sydney	\$212,000	\$248,500	\$327,807
Eastern Suburbs	\$211,000	\$393,000	\$668,859
Fairfield-Liverpool	\$212,000	\$231,000	\$308,888
Inner Sydney	\$211,000	\$363,000	\$591,456
Inner Western Sydney	\$212,000	\$333,000	\$505,653
Lower Northern Sydney	\$215,000	\$406,000	\$541,740
Northern Beaches	\$220,000	\$380,000	\$515,465
Outer South Western Sydney	\$214,000	\$265,000	\$265,273
Outer Western Sydney	\$212,000	\$277,000	\$277,074
St George-Sutherland	\$211,000	\$317,507	\$388,276
Sydney	\$211,000	\$406,000	\$496,308

In deploying this approach the potential level of market correction can be captured and the price point(s) to which the market would have to provide in order to achieve greater levels of purchaser activity can be quantified. This is not to say that market mechanisms will ever realign property provision to match these bench marks, rather this can be seen as the basis from which policies can begin to be developed in order to generate a supply of available properties tailored to the current market's inability to provide.

Throughout the previous example the purchasing cohort is assumed to be a young couple with one dependent child. This definition might be criticised as being a little too traditionalistic in light of substantial analysis (such as Vipond et al. (1998)) which demonstrates that the large majority of the immediate FTP cohort is changing towards single purchasers stemming from the rental sector. The following section compares the indicative availability for household incomes for the 40th Percentile of a single person household currently in Private Rental.

Differing housing careers

Using headline income ratios it would appear that the single person private rental cohort is actually more affluent than the young family cohort:

- The income to house price ratio for Young Families (those in couple, aged between 25 and 34 with at least one dependent child) rose from 4.9 to 5.8 (peaking at 6.37) between 2001 and 2006;
- The ratio of Single Person Households in Private Rental increased from 7.23 to 8.46 (peaking at 9.33), although this cohort implicitly contains very low earning households (and this draws down the overall median value). If the fourth decile (covering 60 per cent of the total cohort) of private rental household income is taken as a proxy for households who are more likely to try and access owner occupation the ratio increases from 4.79 to 5.61 (peaking at 6.18).

Table 11: Decline in available open market capacity 2001-2006

Cohort	% Strata Sales available in 2001	% Non Strata Sales available in 2001	% Strata Sales available in 2006	% Non Strata Sales available in 2006
Young Family	32	1	28	6
Rental	21	6	24	4

Table 11 further illustrates the impact of housing affordability as it considers the absolute number of properties that these cohorts could have afforded. At the level of the entire Sydney Market it is interesting to note that this analysis indicates that the single person household in private rental has actually seen an increase in the percentage of the Strata market available to them, supporting the marginally lesser income to house price ratio identified previously (comparing the Young Family ratio in 2006 to the single person in private rental ratio in 2006).

Further to this, the sales data does not record the form of strata property (i.e. whether it is an apartment or a town house, etc.). It is notable that the Young Family cohort has witnessed the greatest decline in overall property availability during the period.

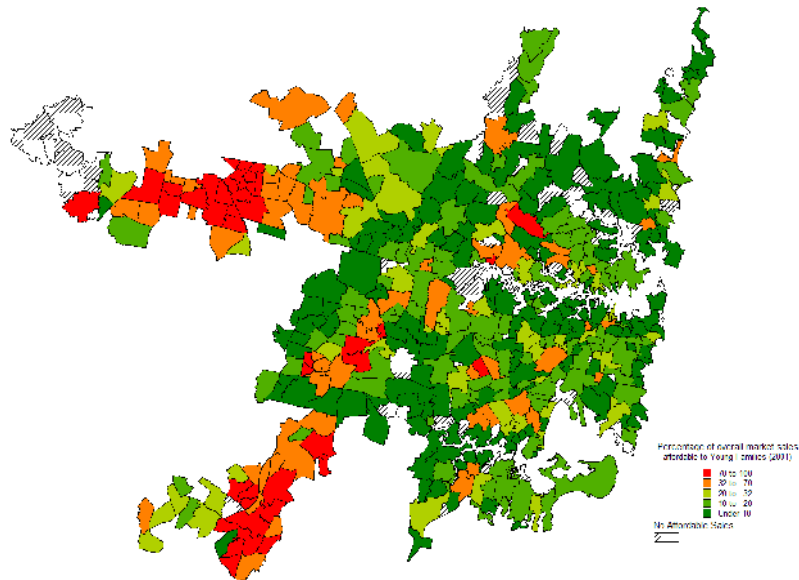
One potential reason for this is that the Young Family cohort has actually witnessed a proportional decrease in their incomes from 2001 to 2006 in comparison to the single person in private rental. Referring back to Table 5, across Sydney as a whole the Young Family cohort income rose by 17.5 per cent, in comparison the single renter received an increase of 19.3 per cent, almost two per cent greater. This, in itself, is an interesting finding as it begins to suggest that single households, especially those who might be entering owner-occupation are in fact more affluent in terms of actual take home pay (and probably have more disposable income as well). There isn't space to analyse this further, but it potentially highlights the need for more research into the changing financial position of young families.

Spatial impact of changing availability

As identified previously the available market for young families varied considerably across Sydney. The following section provides a mapping exercise considering the changing spatial nature of the available market.

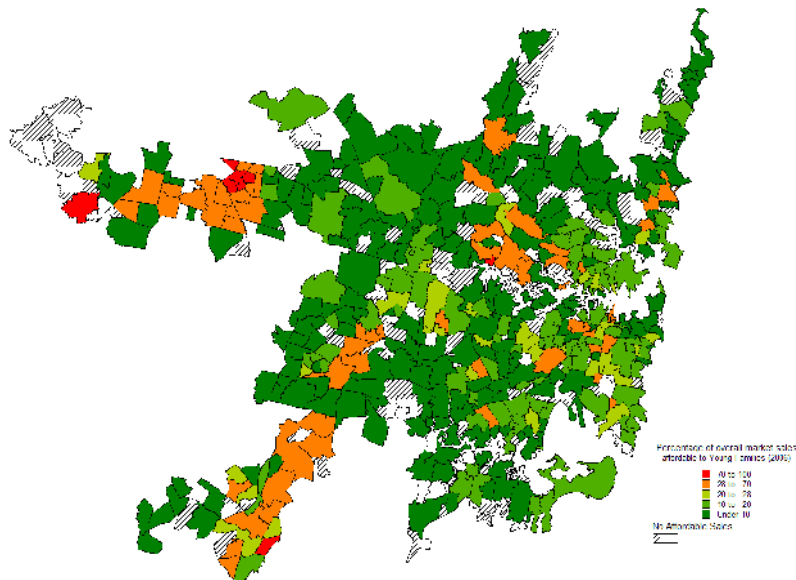
Figures 2 and 3 draw the level of availability down to the suburb level to illustrate the further the existence of pockets of continuing availability within the less affordable SSDs. It is evident that the actual achievable position within the inner city has, on the whole, remained relatively static, i.e. the total numbers of affordable properties generated by the market has remained proportionally the same. It is in locations within the outer suburbs (and especially further west) where the proportional decline of available affordable properties has been the greatest.

Figure 2: Percentage of total open market sales available to young family cohort (2001)



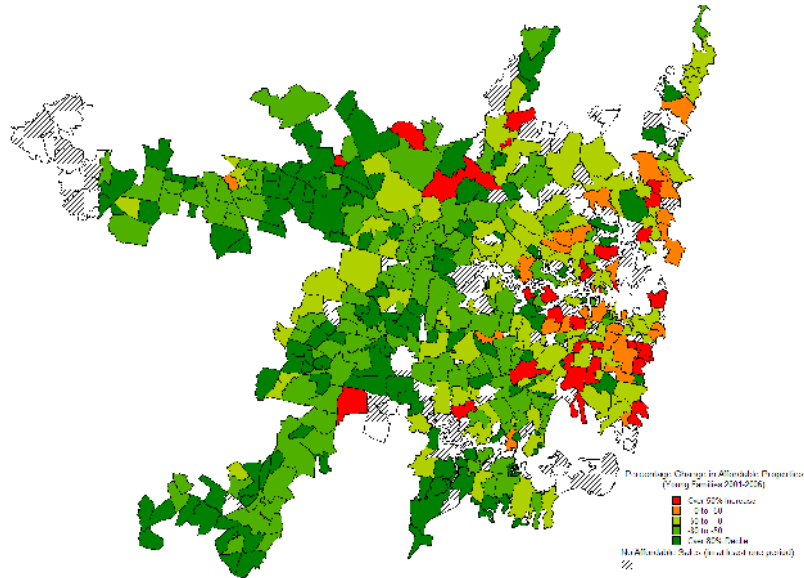
Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Figure 3: Percentage of total open market sales available to young family cohort (2006)



Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Figure 4: Percentage change in overall numbers of properties available to young family cohort (2001-2006)



Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Figure 4 confirms this decline in the availability of affordable properties (as a percentage of overall market activity) in the outer west. Aside from 3 suburbs that go against the trend, the vast majority of suburbs registered between a 50 per cent to 80 per cent decline in the number of properties that the young family cohort could have (affordably) been able to purchase. It should be noted that this methodology presents an ‘optimum’ position and doesn’t reflect actual activity (i.e. households opting for higher mortgage multipliers, or spending more than 30 per cent of their income on housing costs).

While there has been an overall increase in the numbers of available properties in the Eastern Suburbs and in parts of the North Shore, it should be noted that there are potentially two key factors driving this expansion. The first is the relative increases in the household income of younger families against the trajectory of house prices. The second is the form of the available properties; table 2 indicated that there has been an overall decrease in the affordability of Strata properties, whereas table 12 indicates that it is these forms of properties which are driving the observed increase in affordability.

Table 12: Percentage change in available strata properties

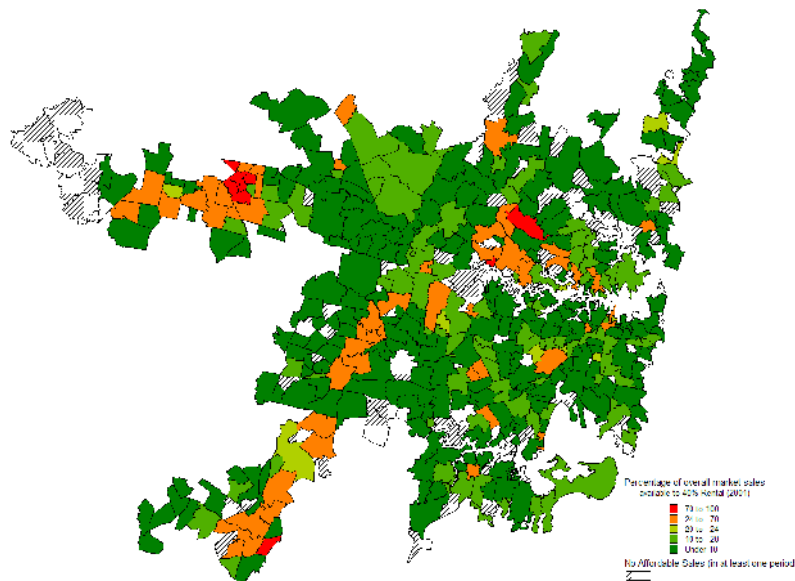
SSD	2001-2006 Change ⁴
Northern Beaches	+5%
Lower Northern Sydney	+4%
Inner Sydney	+15%
Eastern Suburbs	+8%

⁴ As percentage of overall numbers of Strata sales

The Valuer General data does not provide information on the form that these properties take, however a review of the sales prices (ranging from \$200,000 through to \$600,000) would indicate that, on the whole, these properties are more likely than not to be smaller (one or two bed) apartments.

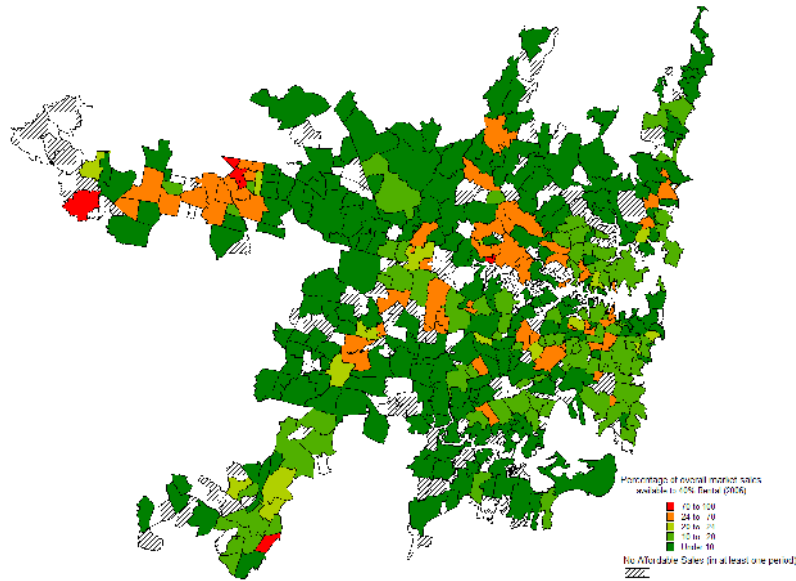
Figures 5 through 7 consider the spatial change in availability for the Single Person rental cohort. Comparing Figure 4 to Figure 7 produces an intriguing result; while it may seem counter-intuitive, the single rental cohort actually saw a relative improvement in the proportion of the market sales that were available. These households are defacto single earners, compared to the young families with the potential to be dual earners, and it is evident that, especially through the Eastern and Inner Western Suburbs, they are attracting incomes that are able to leverage more market accessibility. Referring back to Table 11 (the relative growth of the Single Person Renters capacity to access the Strata market) adds context to this finding. Essentially this relative growth in property availability would appear to be driven by the development of the strata-market in the Inner Sydney locations.

Figure 5:
Percentage of open market sales available to Single Person Private Rental Households (2001)



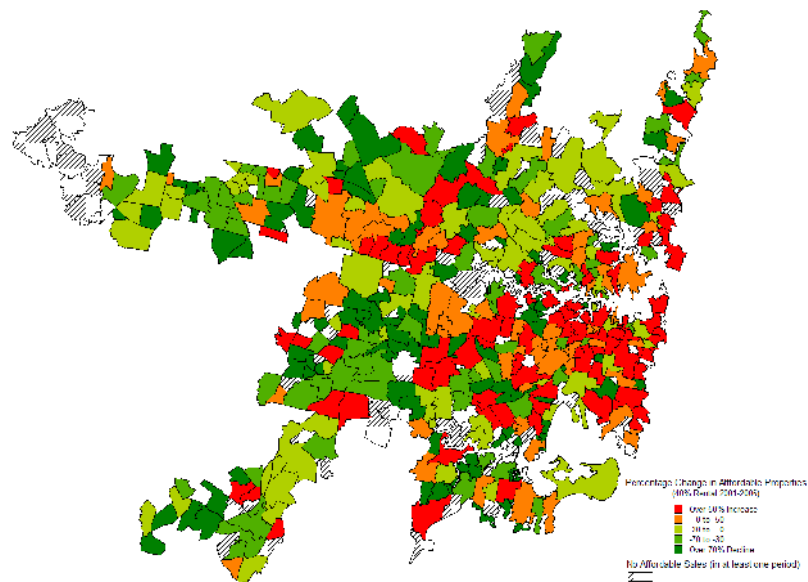
Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Figure 6:
Percentage of open market sales available to Single Person Private Rental Households (2006).



Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Figure 7:
Percentage change in numbers of open market properties available to Single Person Private Rental Households 2001-2006



Source: Sales Price - NSW Valuer General Sales (Suburb Geography) Incomes - ABS Census (SSD Geography).

Discussion

The bulk of this paper has been concerned with the development, deployment and analysis of different first time purchaser availability models in the Sydney context. It can also be used to identify and discuss a secondary issue. As noted at the outset, many existing affordability models and reporting mechanisms utilise a national, or in some cases international, geographical perspective. Such approaches necessarily obscure more localised situations within their assessments. For example such models may report that Sydney is one of the world's most expensive markets within which the Eastern Suburbs contain some of the most expensive locations.

As demonstrated, the application of more localised income levels allows a different picture to be developed. This not to say that higher level geographical approaches are without merit; but simply to recognise there is too much 'noise' associated with trying to capture the local in the national picture and as these assessments move up the geographical hierarchy the findings are drawn closer to the median⁵. Coupled with this, the treatment of first time purchasers as specifically profiled cohorts produces considerably different results.

While the analysis can be criticised as being overtly deterministic (a first time purchaser might neither be a renter, or indeed a young family), it is never-the-less an important differentiation to make. In itself this underlines the criticism of the application of the median household income from the start of this paper although it also highlights treatment of First Time Purchaser cohorts as having the same requirements. A Single Person in Private Rental may well have different property requirements than a Young Family.

This paper suggests that such approaches in the future need to be local (sub State level) in nature. Localised monitoring and analysis tools benefit substantially from local knowledge in terms of being able to interoperate and communicate findings; something that is nigh on impossible to translate a national me of monitoring or assessment. Conversely, localised assessment techniques may not be applicable at the regional or national level (or may be so methodologically complex and time consuming as not to be of any use).

For example, nationally proscribed policies (such as First Home Owner Grant) respond to one simple stimuli (declining numbers of purchasers) with a simple single policy (a one off payment of \$7,000) under the assumption that this would provide the necessary incentive. Such policies fail to recognise more fundamental, but never-the-less interrelated, issues at the sub-regional level; one size does not fit all.

Returning to Table 5 (income trajectories of Young Families), it is evident that at least part of the decline in availability of properties in Sydney's Central and South West is implicitly linked to the relative decline in household incomes. In such locations the applicability of a grant as a policy response could be seen a questionable; raising access in the first instance only for the ability to finance subsequent loan repayments to be later eroded.

⁵ This is a long standing criticism of amalgamated spatial analysis; see Robinson W.S (1950) and Openshaw (1984)

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In order to tackle issues of both affordability and accessibility there is a need to develop a suite of techniques, both in terms analytical and policy response, which utilise the wealth of data present in the Australian context. Such approaches need to be deliberately spatial and 'noisy' in their understanding and also explicitly informed by local actors (local government employees, for example) in order to understand and respond and develop more deliberately nuanced approaches.

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