Affordability and Housing Market Areas

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An important aspect of local housing market area (HMA) is the degree of local housing market affordability. There are a number of different approaches to measuring affordability. Affordability measures range from ratios, such as average price to average earnings and lower quartile earnings to lower quartile house price to the use of residual incomes after housing costs. These approaches have been fully reviewed by Whitehead et al (2009) for NHPAU and it is not our intention here to replicate their analysis but to highlight the key issues for this research.

It explores the way in which affordability measurement is currently approached in practice. The review concludes by addressing whether different measures of local affordability might be used as an additional means of exploring housing market area geographies. It is suggested that, given the problems inherent in measuring affordability including those imposed by data constraints, it is unlikely that measures of this type will be sufficiently robust at local levels to offer a useful basis for geographic analysis.

Measuring Affordability

There is an extensive literature that debates the basis for defining households with affordability problems and the means by which affordability should be measured (Hancock, 1993; Hulchanski, 1995; Chaplin and Freeman, 1999; Stone, 2006). The starting point for affordability analysis requires a normative judgement about the costs of provision of an 'acceptable' standard of housing and the income that needs to be left over for other basic non-housing requirements. There are two broad types of affordability measures used: one is based on the ratio of housing costs to income and the other on the residual income remaining after meeting housing costs. The former allows the researcher to identify the proportion of income that should not be exceeded when paying for a home of adequate size and quality. The latter is tied to an assessment of whether the income left over after paying for a decent home is sufficient to allow a 'reasonable' standard of living.

As we note below, the use of ratios dominates practice in the UK. Critics suggest that this type of indicator suffers from the fact that, for those on low incomes, an acceptable ratio (where, for example, one third of income is spent on housing) may obscure the fact that the residual income is well below acceptable poverty thresholds (Grigsby and Rosenburg, 1975). Despite this criticism, however, the use of ratios has tended to be adopted in the interests of simplicity and because the data requirements are a little less onerous. Nevertheless as we show below they have become more sophisticated.

Affordability Measurement in Practice

The ratio of average house prices to average earnings is the simplest ratio and there are now long time series for this ratio at national and regional levels. Such a ratio takes no account of interest rates and mortgage repayments and so has only limited applicability as a measure of affordability. An extension of this approach, undertaken by NHPAU (2007) is based the ratio of the lowest quartile of house prices to lowest quartile of earnings for each local authority in England.

More in depth and systematic studies on affordability examining local differences have been undertaken by Bramley and Karley (2005) for England, Bramley et al (2006) for Scotland, Wilcox (2006) for Britain, and Wilcox and Bramley (2010) for England. Unlike the affordability measures above they are not based on (the distribution of) the incomes of the population as a whole. Bramley et al (2006) estimate affordability in a series of steps. First, income distributions for under 35 year olds are estimated in each local authority area. Second, the lower quartile point in the local housing 'market' is calculated as a feasible threshold of access. Finally the percentage of these households able to buy a house at this threshold is estimated on the basis that they could borrow 3.5 times their income with an allowance for family wealth providing help with the deposit.

The approach taken by Wilcox (2006) is similar in that it too focuses on the earnings of young people seeking to buy a home but it targets smaller housing rather than the lowest price housing. The study also first estimates traditional average house price to average earnings ratios for each local authority area for these groups purchasing these house types. Specifically the ratio is constructed based on a mean price for an equal mix of two and three bedroomed houses and estimates of the average incomes of working households aged 20 to 39 years. The second stage of the analysis by Wilcox (2006) mirrors the Bramley research by estimating the proportion of working households in each area unable to buy a local lower quartile house price of two or three bedroom housing. The analysis assumes a maximum mortgage of 3.75 times income for single earner households (adjustments are made for two earners) and an 18 per cent deposit.

The most recent affordability study by Wilcox and Bramley (2010) for England repeats this approach but focuses only on households under-40 years of age, distinguishing between all such households seeking a two bedroomed home, working households similarly looking for two bedroomed accommodation, and families requiring a three bedroomed home. Affordability is modelled at local authority level across England using estimated income distributions and house price thresholds. House prices were taken as the mid-point between the 10% decile and 25% quartile price for a two and a three bedroom property in each area. The affordability criterion used is 25 per cent of gross income. Assuming a 95 per cent mortgage on a 25 year repayment basis, at an interest rate of 7.44 per cent, a combined annual payment, including the repayment element, can be calculated. From this, a threshold gross income level required to just afford to buy a threshold price level dwelling is derived, ignoring any wealth or access to the 5% deposit.

Such studies become necessary because housing affordability targets became important in the post-Barker era. These targets represented a key mechanism used in attempts to locate market information at the heart of the evidence base used in planning for housing. An affordability model was commissioned by CLG as a key analytical tool to underpin the response to the Barker Review proposals (see Meen et al, 2005). This model was instrumental in determining the target of reaching 240,000 new homes per annum that was included in the 2007 Comprehensive Spending Review (HM Government, 2007). A similar model with comparable outputs has recently been developed for the Scottish Government (Leishman et al, 2008). The broad structure of the CLG model is summarised in the figure below.
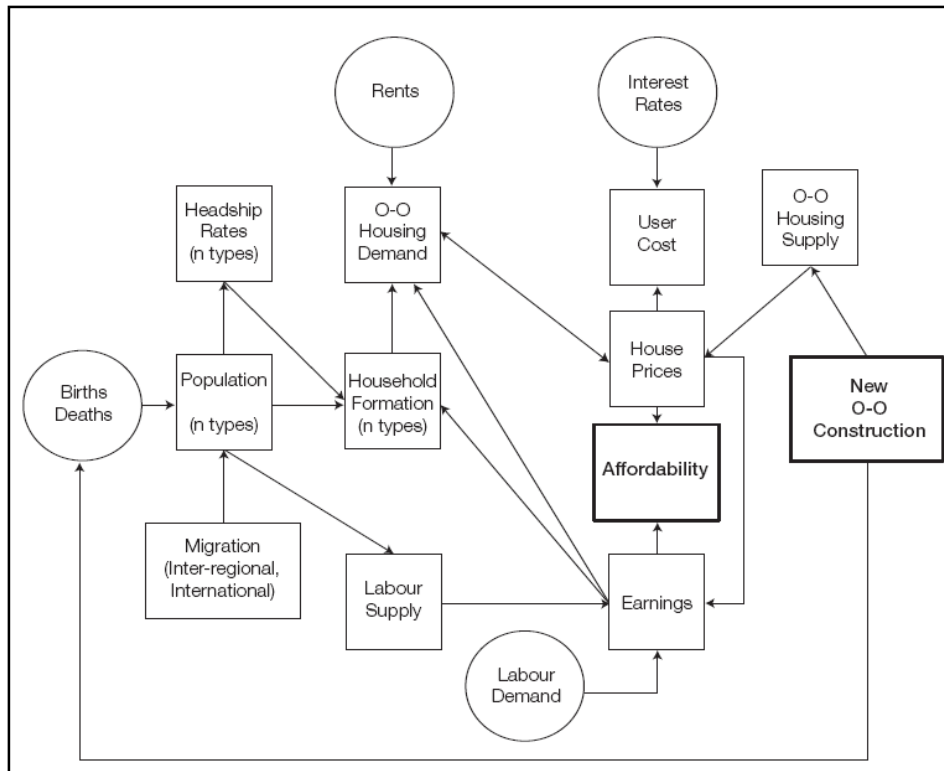
Source: Meen et al (2005).

The model works on the basis that prices are determined by the interaction between demand and supply. Housing demand reflects demographic changes (including the effects of migration), earnings (and labour market conditions), interest rates and the relative attractiveness of other tenures (measured by rents). Supply is generated in the construction sector. By matching estimates of household formation that are sensitive to economic change and the number of new homes, it is possible to model the likely effects on housing affordability. The central affordability indicator applied is the ratio of lower quartile house prices to lower quartile earnings. This methodology allows the translation of affordability assumptions in to regional targets for new housing supply.

The central indicator used in this model appeared in other policy contexts. For instance, it is was used as the previous Government's headline affordability indicator in monitoring the delivery of public sector agreement targets on improving the balance between housing supply and demand. CLG also advocated that this measure should be employed at a variety of spatial scales. Advice on how local authorities and regional planning bodies might compute key housing market indicators proposed an affordability measure again based on the ratio of lower quartile price (constructed from Land Registry data) to lower quartile earnings (based on the Annual Survey of Hours and Earnings) (CLG, 2007). It suggested that the indicator be analysed in absolute terms and/or against benchmarks including the historic average ratio, the regional average and an alternative measure based on the ratio of median house prices to median earnings.

Perhaps significantly there has been no clear rationale for the selection of this apparently arbitrary threshold. There has been little overt discussion of the limitations of the measure used, such as the weaknesses of the price measures on which the ratio is based, or the

problems with its construction. Wilcox and Bramley (2010) for example take issue with the guidance arguing that affordability assessments based on 25% quartile house prices overstate the actual barriers to households accessing owner occupied dwellings, and hence considering the 10% decile.

Affordability Measures and HMA Geographies

The attraction of employing an affordability indicator as those described above is that it relates price change to wider market demand and economic conditions. Affordability measures generally make a link between a normative judgement about the cost of the provision of some form of 'adequate' housing and the minimum 'residual' income required for other basic non-housing requirements. In practice, however, data constraints mean that the construction of robust affordability indicators is problematic. The studies reviewed above are apparently sophisticated but there are problems of applying them to localised geographies. The reliance on surveys to provide incomes/earnings data means that they are most reliable at high levels of spatial aggregation.

The most significant constraint to extending the approaches described to local HMAs is the absence of reliable local incomes/earnings data that limits the extent to which small spatial building blocks can be used. The studies above use local authority areas as the basic unit of analysis. CLG live table 577 gives the ratio of median house price to median income by local authority district based on earnings data from the Annual survey of Hours and Earnings (ASHE). This is the same data set that the Meen model uses for lower quartile earnings. Beneath local authority level the sparsity of income data limits substantially the sophistication of affordability measures. The Labour Force Survey provides information on individual earnings and the smallest geographical unit is a local authority.. The Survey of English Housing also provides individual income data but is based on a smaller sampling base than the other two samples.

Wilcox and Bramley (2010) use a multi-stage procedure to estimate average incomes and the distribution of incomes based on the Family Resources Survey (FRS) as part of their local affordability estimates. Key determinants of income variation - occupations, earnings, economic activity levels, household composition, age, tenure, housing characteristics - are then used in conjunction with locally available data to predict income patterns for all local authorities in England. The resulting local income estimates cannot be presented with formal confidence intervals and the smaller the local area and subgroup of households the greater the uncertainty.

To extend these affordability ratios down to HMAs that are not defined by local authority boundaries will import measurement and data problems. It will require interpolation of income data to ward level by reference to socio-economic characteristics data from the Census that may be out of date. Commercially produced incomes data in this way, such as CACI and Axiom, are arguably too unreliable at the local level to help solve this problem. One potential way forward in this direction lies in exploring the potential of the ONS synthetic average incomes estimates available at the medium Super Output Area level.

This focus on deriving these more localised ratios neglects the wider dimensions of affordability, especially at the local level. Affordability is not just about access to home ownership but the nature and types of housing available generally and to specific groups of households in particular areas. It can be begin to be seen in terms of the distribution of house prices, the prices of individual property types for which there is a relatively rich database from the Land Registry that can be broken down to postcode areas facilitating use at HMA level. One way forward to avoid the income data impasse is to take certain household types defined by socio-economic-demographic characteristics and assess their affordable options by the interface with the Land Registry data. This approach has been applied for example by the Halifax for key workers such as teachers or nurses on national pay scales (eg Halifax, 2009) . The potential for this data is now shown by reference to the North West.

There are 12 *Framework HMAs* impinging on the North West within which there are nested 56 *Local HMAs* as set out in Table 1 (which includes 5 *Local HMAs* beyond the region). Three towns in rural HMAs – Barrow-in-Furness, Carlisle Kendal and Penrith are *Framework* and *Local HMAs* and are shown in bold in the table. It is useful to remember that *Local HMAs* represent the housing market from the perspective of individual households and the level of affordability within them is important determinant of the opportunities available. The analysis below first examines average house prices across the *Framework HMAs* of the region, and then focuses on the *Local HMAs* within the Liverpool and Manchester *Framework HMAs*. The analysis considers the affordability in these HMAs from the perspective of a teacher in her/his 20s as an illustration.

Table 1 Structure of Framework and Local HMAs encompassing the North West region.

Framework HMA	Local HMA
Barrow-in-Furness	**Barrow-in-Furness**
Blackburn&Burnley	Accrington
Blackburn&Burnley	Blackburn
Blackburn&Burnley	Burnley
Blackburn&Burnley	Nelson
Carlisle	**Carlisle**
Chester & Birkenhead	Birkenhead
Chester & Birkenhead	Chester
Chester & Birkenhead	EllesmerePort
Chester & Birkenhead	Flint
Chester & Birkenhead	Mold
Chester & Birkenhead	Wallasey
Chester & Birkenhead	Wrexham
Kendal	**Kendal**
Lancaster	Lancaster
Lancaster	Morecambe
Liverpool	Bootle
Liverpool	Huyton
Liverpool	Kirkby
Liverpool	Leigh
Liverpool	Liverpool(South)
Liverpool	Liverpool(North)
Liverpool	Northwich
Liverpool	Runcorn
Liverpool	St.Helens(North)
Liverpool	St.Helens(South)
Liverpool	Skelmersdale
Liverpool	Southport
Liverpool	Warrington
Liverpool	Widnes
Liverpool	Wigan
Manchester	Ashton under Lyne
Manchester	Bury
Manchester	Buxton
Manchester	Hyde
Manchester	Bolton North
Manchester	Bolton South
Manchester	Macclesfield
Manchester	Manchester
Manchester	Middleton
Manchester	Oldham East
Manchester	Oldham West
Manchester	Rochdale
Manchester	Rossendale
Manchester	Salford
Manchester	Stockport
Penrith	**Penrith**
Preston&Blackpool	Blackpool
Preston&Blackpool	Chorley
Preston&Blackpool	Lytham St Annes
Preston&Blackpool	Preston
Stoke-on-Trent	Congleton
Stoke-on-Trent	Crewe
Stoke-on-Trent	Leek
Stoke-on-Trent	Newcastle-under-Lyme
Stoke-on-Trent	Stafford
Stoke-on-Trent	Stoke-on-Trent(North)
Stoke-on-Trent	Stoke-on-Trent(South)
Workington&Whitehaven	Whitehaven
Workington&Whitehaven	Workington

Table 2 Median House Prices by House Type in each Framework HMA encompassing the North West 2005

Framework HMA	Median Detached House Price £	Median Semi-Detached House Price £	Median Terraced House Price £	Median Flat Price £
Barrow-in-Furness	190,000	125,000	68,000	75,000
Blackburn&Burnley	185,000	118,000	56,000	92,975
Carlisle	199,000	117,000	85,000	88,750
Chester& Birkenhead	248,625	145,000	95,000	119,950
Kendal	285,000	186,000	158,725	135,000
Lancaster	230,000	135,000	101,000	92,000
Liverpool	210,000	128,500	81,500	120,000
Manchester	240,000	139,000	88,000	127,000
Penrith	250,000	170,000	142,000	110,000
Preston&Blackpool	215,995	131,000	93,425	112,000
Stoke-on-Trent	200,000	118,000	81,000	108,200
Workington&Whitehaven	190,000	100,000	74,575	85,500

Table 2 provides an overview of the relative prices of different house types across the Framework HMAs of the North West. The Kendal HMA has the highest average prices with Blackburn and Burnley the lowest. The variation in median detached house prices between these HMAs is the order of 1 to 1.5 but for terraced houses it is nearly double emphasising differences in local market house price structures. Different price structures exist in all HMAs reflecting local market conditions and are a useful starting point to consider local affordability issues. Table 3 translates these figures into a simple affordability measure for a young teacher – the ratio of median house (type) price to a teacher's salary in the mid-20s, taken to be approximately £26k. In the major city HMAs a terraced house is just over three times such a salary, in some relatively low demand areas this ratio falls to below three but in the high priced areas around the Lake District it is over five.

The logic of the tiered HMA structure is that long term planning can be undertaken by reference to *Framework HMAs* but in the short term the affordability problems of households are best seen from the perspective of *Local HMAs*. The significance of the local agenda is demonstrated by the analysis below of variations between *Local HMAs* within the Liverpool and Manchester *Framework HMAs*. In the Manchester Framework HMA the local HMA of Macclesfield has the highest median price for a detached house but Buxton (followed closely by Stockport) has the highest median price for a terraced house. There are subtle differences in the relativities all Local HMA median house price type profiles, for example Bolton South has the lowest median price for detached and semi-detached house types but the HMAs with the lowest median price for terraced houses and flats are Oldham West and Middleton respectively.

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Table 3 Ratio of Median House Price to Teacher's Salary in Mid-20s (approx £26k) in each Framework HMA by House Type 2005

Framework HMA	Detached House	Semi-Detached House	Terraced House	Flat
Barrow-in-Furness	7.3	4.8	2.6	2.9
Blackburn&Burnley	7.1	4.5	2.2	3.6
Carlisle	7.7	4.5	3.3	3.4
Chester& Birkenhead	9.6	5.6	3.7	4.6
Kendal	11.0	7.2	6.1	5.2
Lancaster	8.8	5.2	3.9	3.5
Liverpool	8.1	4.9	3.1	4.6
Manchester	9.2	5.3	3.4	4.9
Penrith	9.6	6.5	5.5	4.2
Preston&Blackpool	8.3	5.0	3.6	4.3
Stoke-on-Trent	7.7	4.5	3.1	4.2
Workington&Whitehaven	7.3	3.8	2.9	3.3

Table 4 Median House Prices by House Type in each local HMA in the Manchester Framework HMA 2005

Local HMA	Median Detached House Price £	Median Semi-Detached House Price £	Median Terraced House Price £	Median Flat Price £
Ashton under Lyne	196950	115000	77000	119475
Bury	215000	135000	95000	106000
Buxton	249500	155000	125000	105750
Hyde	229950	137000	95000	109995
Bolton N	230000	135000	87500	113448
Bolton S	168500	107500	72000	92000
Macclesfield	295000	169950	115000	114000
Manchester	290000	159000	99000	140000
Middleton	185000	115500	78250	75000
Oldham E	186975	120000	73000	89725
Oldham W	235000	132000	63000	125000
Rochdale	200000	120000	80000	111225
Rossendale	200000	119000	75000	116600
Salford	200000	119999	80000	120538
Stockport	275000	159000	120000	120000

Table 5 gives the relative affordability of house types within the respective *Local HMAs* of Manchester. The range of median house price to income ratios for terraced houses is from 2.4 to 4.8 across the *Local HMAs*, less than for the North West *Framework HMAs* which is to 2.2 to 5.5, but still a substantial disparity. The range is less for semi-detached houses and flats but still of signifcance. While there are likely to be differences in character between

house types in different areas the results suggest limited spatial price arbitrage across the Manchester *Framework HMA*.

Table 5 Ratio of Median House Price to Teacher's Salary in Mid-20s (approx £26k) in each Local HMA by House Type within Manchester Framework HMA 2005

Local HMA	Detached House	Semi-Detached House	Terraced House	Flat
Ashton under Lyne	7.6	4.4	3.0	4.6
Bury	8.3	5.2	3.7	4.1
Buxton	9.6	6.0	4.8	4.1
Hyde	8.8	5.3	3.7	4.2
Bolton North	8.8	5.2	3.4	4.4
Bolton South	6.5	4.1	2.8	3.5
Macclesfield	11.3	6.5	4.4	4.4
Manchester	11.2	6.1	3.8	5.4
Middleton	7.1	4.4	3.0	2.9
Oldham East	7.2	4.6	2.8	3.5
Oldham West	9.0	5.1	2.4	4.8
Rochdale	7.7	4.6	3.1	4.3
Rossendale	7.7	4.6	2.9	4.5
Salford	7.7	4.6	3.1	4.6
Stockport	10.6	6.1	4.6	4.6

The equivalent analysis for the Liverpool *Framework HMA* based on the evidence presented in Tables 6 and 7 shows similar variations in the profiles of the *Local HMAs*. The range of median house price to income ratios for the different house types is narrower, although the difference between the lowest and highest median price of terraced houses in the *Local HMAs* is only slightly reduced, varying from 2.6 in Liverpool South to 4.8 in Southport.

Table 6 Median House Prices by House Type in each local HMA in the Liverpool Framework HMA 2005

Local HMA	Median Detached House Price £	Median Semi-Detached House Price £	Median Terraced House Price £	Median Flat Price £
Bootle	220000	147250	75000	115500
Huyton	198975	119000	86000	116835
Kirkby	175995	112000	80000	105950
Leigh	179998	113875	72000	102748
Liverpool S	185000	115000	68000	86000
Liverpool N	245995	150000	87000	140000
Northwich	200000	125000	100000	93000
Runcorn	200000	115000	78500	109000
St.Helens N	229250	135000	85000	111975
St.Helens S	182000	113750	79950	98000
Skelmersdale	210000	138000	84950	106000
Southport	250000	152000	124500	119999
Warrington	237575	133000	94000	119950
Widnes	229950	129950	83000	113050
Wigan	189950	119500	83000	110000

Table 7 Ratio of Median House Price to Teacher's Salary in Mid-20s (approx £26k) in each Local HMA by House Type within Liverpool Framework HMA 2005

Local HMA	Detached House	Semi-Detached House	Terraced House	Flat
Bootle	8.5	5.7	2.9	4.4
Huyton	7.7	4.6	3.3	4.5
Kirkby	6.8	4.3	3.1	4.1
Leigh	6.9	4.4	2.8	4.0
Liverpool(South)	7.1	4.4	2.6	3.3
Liverpool(North)	9.5	5.8	3.3	5.4
Northwich	7.7	4.8	3.8	3.6
Runcorn	7.7	4.4	3.0	4.2
St.Helens(North)	8.8	5.2	3.3	4.3
St.Helens(South)	7.0	4.4	3.1	3.8
Skelmersdale	8.1	5.3	3.3	4.1
Southport	9.6	5.8	4.8	4.6
Warrington	9.1	5.1	3.6	4.6
Widnes	8.8	5.0	3.2	4.3
Wigan	7.3	4.6	3.2	4.2

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