Annex 6.2 Worked example of containment-based housing market areas

Introduction

LHSA requires the identification of functional housing areas or housing market areas (HMAs) as a context for assessing changing consumer demands and expectations and to assist in understanding the potential impacts of housing development.

The approach to identifying HMAs implemented by many Structure Planners and when it existed by Scottish Homes, used Sasines house purchase data to identify self-containment. The Register of Sasines contains details of the origin or previous town of the house purchaser. It therefore gives details of house purchaser migration. This annexes sets out how the process of identifying HMAs based on containment works in practice. (Note one can also use commuting data for containment analysis. Migration indicators and commuting indicators may yield slightly different patterns, and judgement is then required, based on the currency of the data, the sample size and local knowledge).

In the real world no area is likely to be 100% self-contained and there is no hard and fast rule as to what constitutes self-containment. Many use 70 or 75 % self-containment on Sasines data as a benchmark. However, lower thresholds may well be appropriate according to the locality. What is critical is for the analysts to make explicit the reasons for using one benchmark in preference to another.

Step 1: Obtain required Sasines data

The first step is to identify the residential Sasines data available to the user. This could be for Scotland as a whole, a local authority area or some other geography. Ideally it should be for an area that allows the user to consider containment at a variety of geographical levels beyond the administrative boundary of their jurisdiction. This is because, as explained in chapter 4, functional housing markets rarely coincide with administrative boundaries.

Step 2: Load data on to a suitable software package

The next step is to load the data on to a spreadsheet or database package such as Access. When loading the data analysts should ensure that the addresses of the properties included in the dataset are suitably locationally referenced. The most common way to achieve this is to ensure, as far as possible, that each address has its relevant postcode. A range of address matching software packages is available to assist in this process.

Step 3: Import data into GIS

Although it is possible to interrogate the data in Access, it is much easier to define the geographical boundaries of the hypothesised HMA to be tested for self-containment using a GIS software package. The next step involves importing the data into GIS and ensuring that the Sasines dataset is `fixed in space'. This simply means attaching a grid reference to each property. This procedure will vary depending on the GIS package used. Again, there are software packages that will attach a grid reference to the property according to the postcode.

Step 4: Identify hypothesised housing market areas (HMA)

The most practical way of looking at containment is to base the starting point on local intuition and knowledge of an area. Sasines data holds details of origin only to the level of town or city. In practice, therefore, the smallest area for which containment can be tested meaningfully is the town. The size of the town can vary greatly from a small town like Melrose in the Borders to a city such as Glasgow. Within the constraints of the data, the hypothesised HMAs should be based around major settlements.

In urban areas it may be sensible to start with a large town or city such as Edinburgh. Using local knowledge judgements should be made as to where the boundary for the HMA might be. In Edinburgh, for instance, it is well known that a large proportion of the population of Midlothian work in Edinburgh. It is also known that sizeable towns in East and West Lothian with good transport links to Edinburgh tend to accommodate large numbers of commuters. Hypothesised HMA boundaries could therefore be identified to test the extent to which commuting flows are paralleled by housing market flows.

Step 5: Test hypothesised HMA against origin or destination-based self-containment

Having identified possible HMA boundaries, the next step is to measure the level of self-containment in these areas. This involves a number or actions and decisions. The first is to undertake a query to identify the Sasines records required for analysis of containment. This will probably be conducted through a `point in polygon' analysis (e.g. select all Sasines records within a local authority area or a group of census output areas). This generally requires the creation of a new bespoke boundary e.g. group of census output areas. A query can then be created to select all those Sasines records within that `polygon' or area.

In selecting the Sasines records, analysts have to decide whether to select all records for a particular year, or for a number of years. In most urban areas, one year may be sufficient. However, in rural areas or areas with low numbers of sales it may be necessary to select data over a two or three year period.

The query must include two fields. The first is the `destination town' - that is the location of the house purchased. The second is the `origin town' - that is the town where the purchaser previously resided. It is possible to include other fields for analysis, such as price. The result of this process will be a subset of the original Sasines dataset that was initially loaded.

Having created a subset of data, housing analysts must decide which definition of self-containment they are going to use. There are two basic ways of defining self-containment:

Origin Based Containment: This describes the situation where the majority of householders **buying** a house within an area have moved from somewhere else within that area ('originated in the area'). The base for calculating containment is the number buying in the area.

Destination Based Containment: This describes the situation where the majority of those people **selling** a house in an area move to elsewhere within that area. Self-containment is therefore measured in terms of the proportion of sellers in the HMA who remain local. The base for calculating containment is the number selling in the area.

In practice, it is easier to calculate origin-based self-containment than destination-based self-containment. This is because the subset of Sasines data created for the area under investigation will include the origin location (i.e. previous address) of all buyers. By contrast the Sasines dataset for the whole of Scotland will need to be interrogated to identify the destinations of all householders who previously resided in the area under investigation. It is for this reason that most HMAs have been defined on the basis of origin based self-containment.

The following Worked Example of Calculating Origin Based and Destination Based Self-Containment should make the difference between them clear:

Destination Town (Location of property Bought	Origin Town (Previous address of buyer)
Melrose	Melrose
Melrose	Melrose
Melrose	Melrose
Melrose	Melrose
Melrose	Hawick
Selkirk	Melrose
Aberdeen	Melrose
Hawick	Melrose
Kelso	Melrose
According to the above table: • 4 householders who bought properties in Melrose previously lived in Melrose. • 5 householders purchased property in Melrose. • 8 householders were previously resident in Melrose.	

The **origin-based measure** is those who moved house within the same HMA as a proportion of all those who purchase property in the HMA:

- 4/5 = 80 per cent.
- So Melrose is self-contained using the origin based measure.

The **destination based** measure is those who moved house within the same HMA as a proportion of all those who sold a house in the HMA:

- 4/8 = 50 per cent.
- So Melrose is not self-contained using the destination based measure.

Calculating Origin Based Containment: As suggested by the example above, it is important to sort the database according to the `destination town' field and the `origin town' field. A cursory glance at the data at this stage should help to identify the range of destinations in the area in question and the range of origins from which house purchasers have come. If desired these two fields can be placed into a spreadsheet to allow for speedier processing of the next steps.

Scan both the `destination town' field and `origin town' field and establish:

- The number of movers to the destination towns where the origin is also a town within the subset of Sasines records in question. In other words, count the number of records where the town in the `purchase origin' field matches any of the towns in the `town' field. Call this A.

- The total number of purchasers in the area. This will be the total number of records in the subset of Sasines records identified. Call this B.

- Calculated the origin based containment (X%) for this subset of Sasines records by using the following formula A/B*100 = X%. If X% is above 70 per cent then the proposed HMA can be regarded as self-contained. Where X% is between 65% and 70% analysts should see whether minor modifications in the geographical boundary would result in major changes in the degree of self-containment. If there is little change, it is probably safe to assume that the area is self-contained.

- Before using the HMA for analytical purposes it would be useful to consult with other interested parties about their views on the proposed HMA definition.

Step 6: Examining the existence of distinctive sub-areas

Whether or not the hypothesised HMA is self-contained, it is often useful to understand the containment at an individual town level (i.e. what proportion of moves are within the same towns). This can be done following the steps detailed above. If some towns are highly self-contained, it might for some purposes be said that they are HMAs in their own right or at least distinctive sub areas within the wider areas.

Step 7: Further refinement

On the basis of results within the hypothesised HMA; the containment within individual towns; and the flow or movement of households into and out of the area in general, it should now be possible to return to Step 4 and identify new areas for more refined analysis.