



## **A Note on Methods**

ARC Project DP0773388 The Demand for Higher  
Density Housing in Sydney and Melbourne  
Working Paper 3

City Futures Research Centre

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# A NOTE ON METHODS

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# How the project established who lives in flats, units and apartments and what they think of it

As outlined in Working Paper 1, evidence regarding the attributes of people living in higher density housing (flats, units and apartments) and their opinions on living in such housing, was collected using three distinct methods. This paper outlines the information that was collected or shaped using each method. Its purpose is to give a brief account about how each of these operations was conducted, the broad import of the research findings, and how and to what extent the outcomes of each method relate to the findings of the others. This is important to establish the robustness of the overall conclusions drawn from the project.

The objective of the research was to examine the expected social outcomes arising from high density living. These were identified as:

1. addressing changing housing needs and providing more housing choice and affordability;
2. improving access to jobs and services and increasing the use of public transport; and
3. improving social sustainability and cohesion through building up social and community capital within larger populations with more extensive personal and social contacts in comparison with areas of lower density.

On the basis of a literature review and lessons learnt from earlier studies, three sources of information were identified. These were:

1. a factor analysis of 2006 Census data designed to unpack the spatial and social structure of the higher density housing market in Sydney and Melbourne;
2. a survey of 1,597 households living in apartments were carried out by telephone by *Nielsen* and through a web- survey; and
3. in-depth and interactive interviews with 29 people who had been surveyed to further explore their experiences of apartment living.

It will be appreciated all these sources are concerned with apartment residents, and to this extent it is difficult to compare the results of the surveys and interviews with the experiences of those living in low-density suburbia. Further, the results depend on the 2006 Census and surveys conducted in 2008 and therefore reflect conditions only at those times.

This paper only deals with a generalised introduction to the methodology. The factor analysis will be further described and interpreted in a working paper presently in preparation.

## **Definitions**

The data on those living in higher-density dwellings was provided by ABS as special tabulations of those living in apartments. These included all those living in flats, units and apartments but excluded the Census category of villas, row or terrace houses, town-houses and semi-detached dwellings. The extracted data excluded all those in forms of social renting. This decision was made because one of the primary research questions concerned residents' choice of high-density developments, rather than direct allocation based on need.

### **1. Capturing the social profile of households living in apartments**

Twenty-eight socio-economic variables were derived from the ABS data, standardised and subjected to Principal Components (Factor) Analysis to establish the different kinds of people living in higher density dwellings. From this process five factor groupings were identified. Table 1 shows the variance explained by these in descending order.

Table 1: Variance explained by the five factors

| Factor Analysis Output | Eigenvalue | % of Variance | Cumulative % | Name                  |
|------------------------|------------|---------------|--------------|-----------------------|
| 1                      | 12.4       | 44            | 44           | Economically Engaged  |
| 2                      | 4.2        | 15            | 59           | 'Battlers'            |
| 3                      | 2.9        | 10            | 69           | Apartment Elite       |
| 4                      | 2.1        | 7             | 77           | Residentially Retired |
| 5                      | 1.4        | 5             | 83           | Achieving Education   |

The factor analysis generated five factors which explained 83% of the total variance within the high-density population. Each group has been given names to summarise their character. Table 1 presents the summary analysis for both Sydney and Melbourne. However, there are important differences between the two cities including a much higher value for those 'achieving education' in Melbourne and a much lower representation of the 'battler' group there than in Sydney (see Table 2).

Table 2: Predominant factor grouping based on primary factor profile (only) by city

| Factor Group          | Melbourne | Sydney |
|-----------------------|-----------|--------|
| Achieving education   | 30%       | 6%     |
| Residentially retired | 25%       | 10%    |
| Economically engaged  | 22%       | 24%    |
| Apartment elite       | 13%       | 23%    |
| Battlers              | 10%       | 38%    |

The results are not as clear-cut as they seem. Some households have characteristics that mean that they can be allocated to more than one factor grouping. Table 3 shows the percentage of the population that can be allocated to only one factor grouping, and the percentage that can be allocated to multiple factor groups. It shows there is considerable potential to miss-classify population-based housing 'submarkets' if only the primary dominant factor is utilised in the classification process.

Table 3: Percentage of population by intersecting factor (CD level)

| Intersection of factors    | % of total population |
|----------------------------|-----------------------|
| One factor only            | 61%                   |
| Two factors intersecting   | 22%                   |
| Three factors intersecting | 7%                    |
| Four factors intersecting  | 10%                   |

## 2. The household interviews

To provide data on attitudes and perceptions of high density living two surveys were deployed across Sydney and Melbourne. The first was a telephone survey targeting locations of high density developments and yielded 1,202 respondents. The second was a comparable web based survey, supported by press advertising, which yielded 420 respondents. Of these, 25 were either incomplete or were from tenants of social housing, and were excluded from the analysis producing a total population of 1,597.

In order to provide points of connection with the Census based factor analysis, key socio-economic questions in both the surveys were aligned to the Census collection schemas.

Each of the survey respondents was allocated to a factor grouping using an iterative process considering their age, employment status, household income, tenure and the presence of dependent children under the age of 15.

The methodology used in the surveys had to be changed. The original intention was to target the telephone survey of residents to selected case study areas followed by focus group discussions. However *Nielsen* indicated it was not possible to reliably identify telephone numbers specific to particular case study areas.

Out of the 1,597 surveys, 1009 (63%) could be aligned to factor 1. This factor grouping has the greatest geographical spread (statistical pervasiveness across the greatest number of CDs) which could have led to an oversampling of these groups as the telephone survey was directed towards key concentrations of high density developments. In order to constrain this, survey data is weighted by the city, zone (inner city, middle suburbs and outer suburbs) and tenure of the respondent's property. These weights were created from Census data and are applied so that the percentage outputs from the analysis are aligned with the Census reported distributions. Factor 2 could be aligned to 20% of survey responses, factor 3 to 13%, factor 4 to 11% and factor 5 to 11%. This sums to 118% as the 207 additional cases were incidences of multiple assignment in a manner reflecting the intersections of factor groupings discussed previously.

We had hoped to connect the factor analysis with the surveys so that the latter could be accepted as reasonably representative views of the factor groupings involved. This would raise the status of the survey results to a more authentic and credible level than is usually possible with such exercises. However, an analysis of the survey results using CHAID analysis of statistical relationships showed that there was no significant correlation between the factor groupings and the survey results. Further to this the CHAID analysis could not be used to identify significant regression coefficients even when single socio-economic variables (age, gender etc.) were applied.

There are several underlying reasons for this result:

- the shared experiences, concerning choice and processes by which the residents ended up in higher density housing.
- leading on from this, the level of (introduced) overlap in both the factor groupings and household interviews;
- inadequate sample size of the survey due to difficulties recruiting participants;
- the self-fulfilling nature of the surveys in that they are coloured by those currently living in apartments and so can be expected to reflect a positive view of conditions; and
- the spreading of interviews over the whole metropolitan area instead of being able to concentrate on different but distinctive concentrations of high-density housing as was originally intended.

There is an exquisite irony in this last point. There have already been a limited number of surveys of people living in high-density dwellings in restricted localities (e.g. Metropolis Research 2005 on inner city Melbourne, the Cities of Moreland and Darebin 2007, BIS Shrapnel 2006 on inner Sydney and BIS Shrapnel 2006 on Sydney Suburbs). However, these suffer from the randomness of responses; the difficulty in differentiating among the different kinds of households living in apartments; and how representative the results might be. The 1,215 surveys completed in the inner Melbourne by Metropolis Research (2005) exercise did identify the three main groups of people living in inner city apartments as young professionals (25%), 'empty nesters' (10-12%) and university students (10%) and was accordingly able to make some comment about the experiences, expectations and issues of these groups.

### **3. *In-depth interviews with apartment residents***

The initial research plan was to conduct 54 interactive and in-depth interviews from among the household survey respondents, selecting households from the different factor groupings in the inner, middle and outer zones of each city. Each interview would focus on one of the three 'social outcomes' identified at the beginning of this paper. It was only possible to conduct 29 of these interviews. However, they did cover all factor groupings; inner, middle and outer zones of the two cities; and each of the three topics.

These interviews provided valuable insights into the perceptions, expectations and experiences of households living in high-density housing. Issues and comments made in the surveys were followed up in the interviews and progressively developed and qualified to illuminate the accounts of particular individuals.

#### ***Comment***

Each of the three sources of information outlined has successfully provided its own insights about who lives in high-density housing in Sydney and Melbourne and their experiences of doing so. However, it has not been possible to connect these sources as effectively as was hoped in order to strengthen the conclusions.

The results presented from this research project in the forthcoming working papers can be seen as indicative of larger trends in the high density residential populations in the two cities. However, they should not be seen as definitive results and neither should they be constructed as representative of the entire high density population in either city.

The factor grouping analysis defines discrete a-spatial entities from the Census data and the spatial housing sub-markets resulting are the spatial expression of these discrete groups, acknowledging that these intersect to different degrees and in varying combinations across the cities. Location thus becomes an important issue, as well as built form.

The household surveys present valuable data on the views and experiences of high-density residents. The cross-tabulations between the replies are particularly helpful and are discussed at length in working papers. While these results cannot be connected with the factor analysis in the way that was hoped, they show the importance of differentiating among the populations living in high density housing, and in the importance of localities and their distinctive characteristics. Some of the results resonate more strongly than others, and there is now an obvious need to concentrate on analyses of carefully chosen case studies in different high density configurations in selected localities. It is essential that such localised studies be benchmarked against a full range of ownership and property types in that location and that the findings of those localised studies are of a comparative structure. This further research outlook would aid in devising local solutions to particular localities: assessing current conditions in the light of the further opportunities that might be present. This would be useful for the feasibility studies of developers, as well as the community aspirations of local councils. Hopefully it would also satisfy and qualify the ambitions of state authorities for more high density housing that is affordable, equitable, functional and of good design.