

Developing Spatial and Temporal Measures for Classifications

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'Adding Value to the Census'
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Outline

- Measuring Dissimilarity – Why new measures are needed.
- Neighbourhood effects on purchase behaviour
- Adjusting Measures to accommodate local economies
- Implied Segments within the Census
- Using Temporal methods to create ‘future’ segments

Similarity / Dissimilarity

- Current Measures
 - Percentages, Indices, Percentiles
 - Or, transformations of these measures
 - Distance Measures feeding Cluster Techniques
- Common Scale
 - What about geographical effects ?
 - How does locality affect the principles behind cluster based segmentation ?

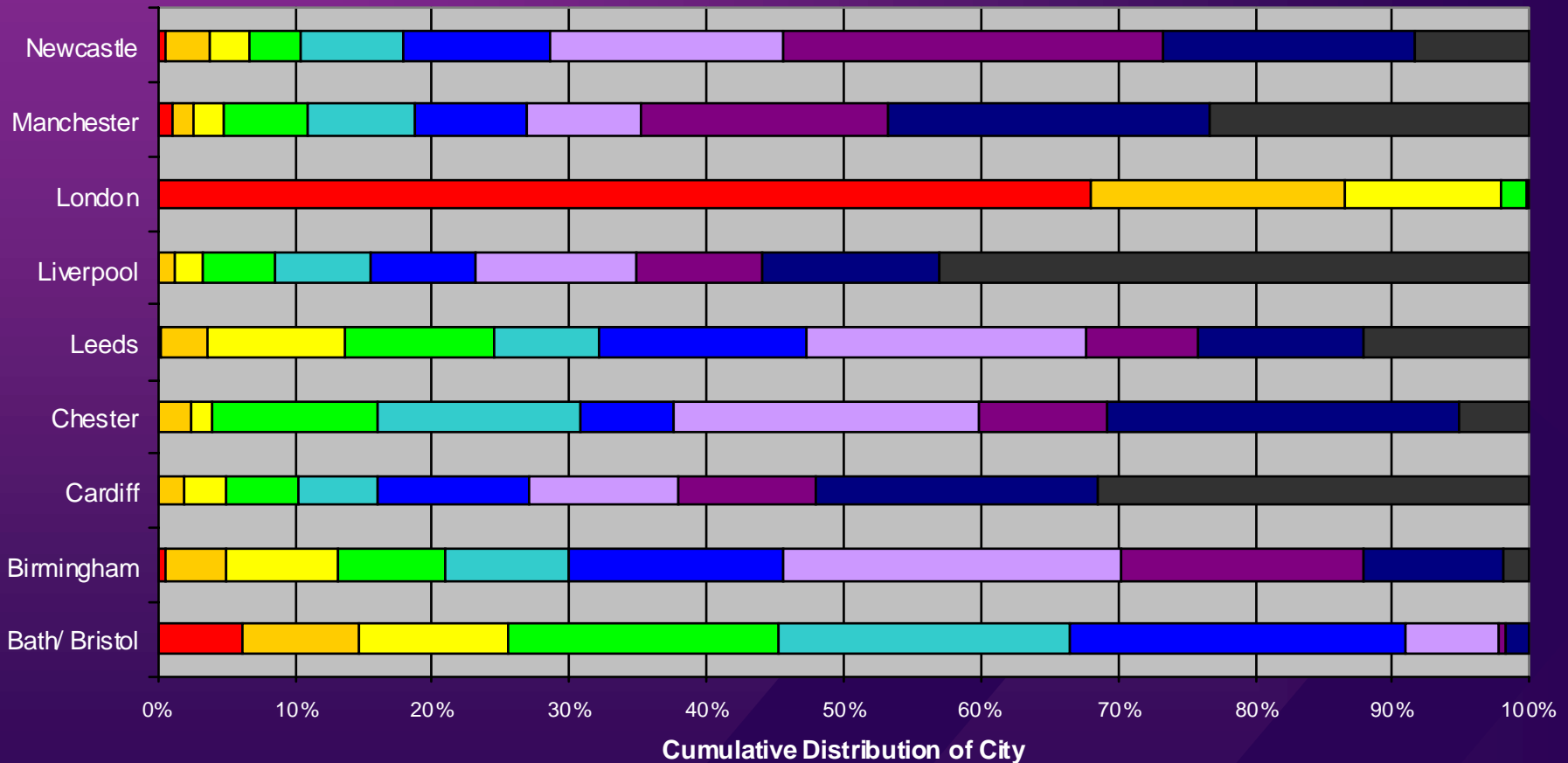
Similarity / Dissimilarity

- Distance
 - Assumed Linear
 - Transformations reduce the scale but crucially not the ranking
- London Effect
 - Income
 - House Prices
 - Occupation
 - Spending ???

Neighbourhood Effects

- Purchasing
 - Differentiation of behaviour
 - Needs / Spending power
 - Scale becomes important
- Market Proximity
 - Accessibility to needs
 - Purchase choice restrictions
 - Conditioned by London Effect ?

National Deciles of House Price



Affluence Ranking

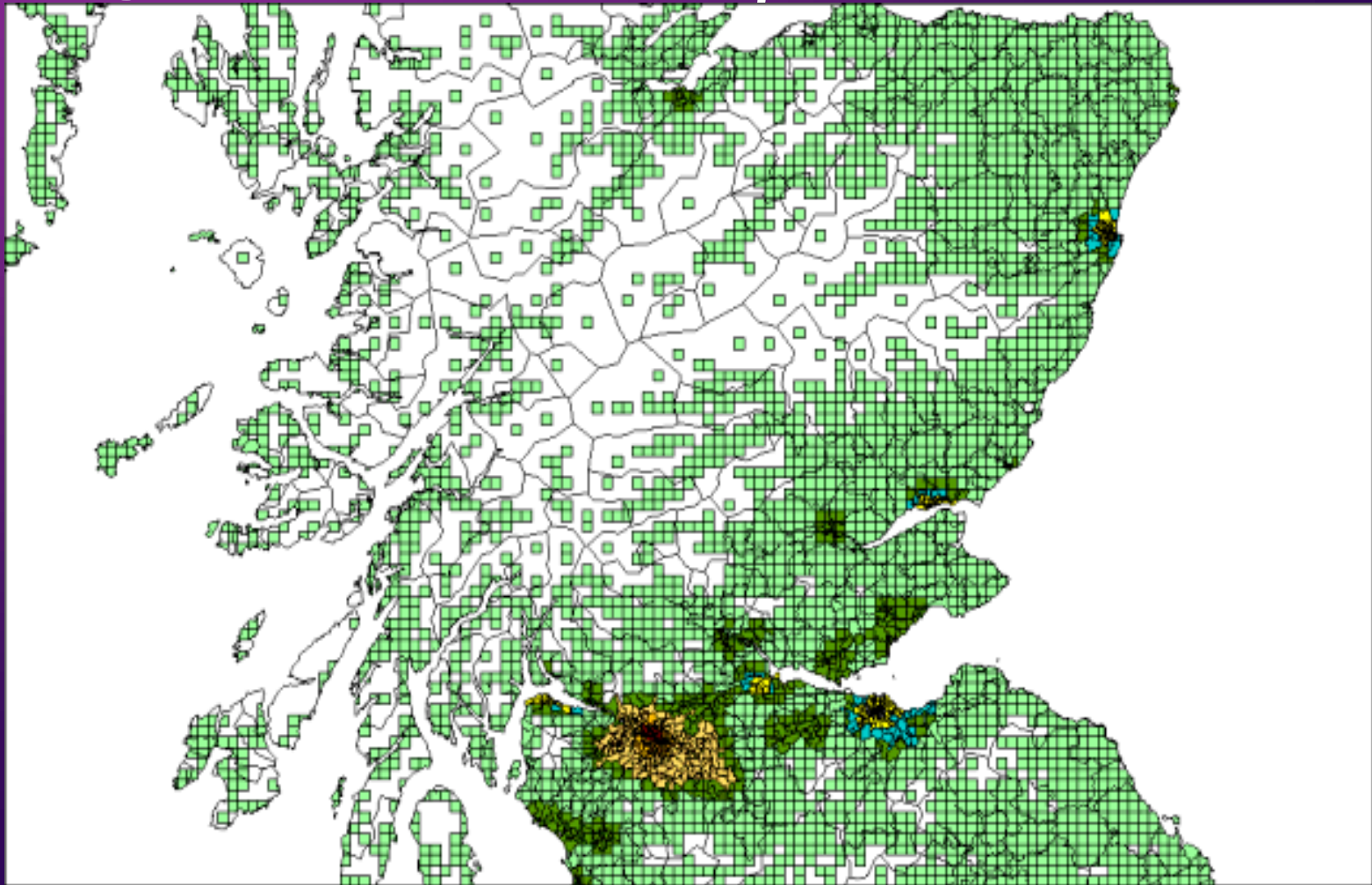
- House Price extremely scale dependant
 - Income has similar problem
- Local Context is key
 - Local Economies
 - Local Amenities
 - NeSS

Local Context

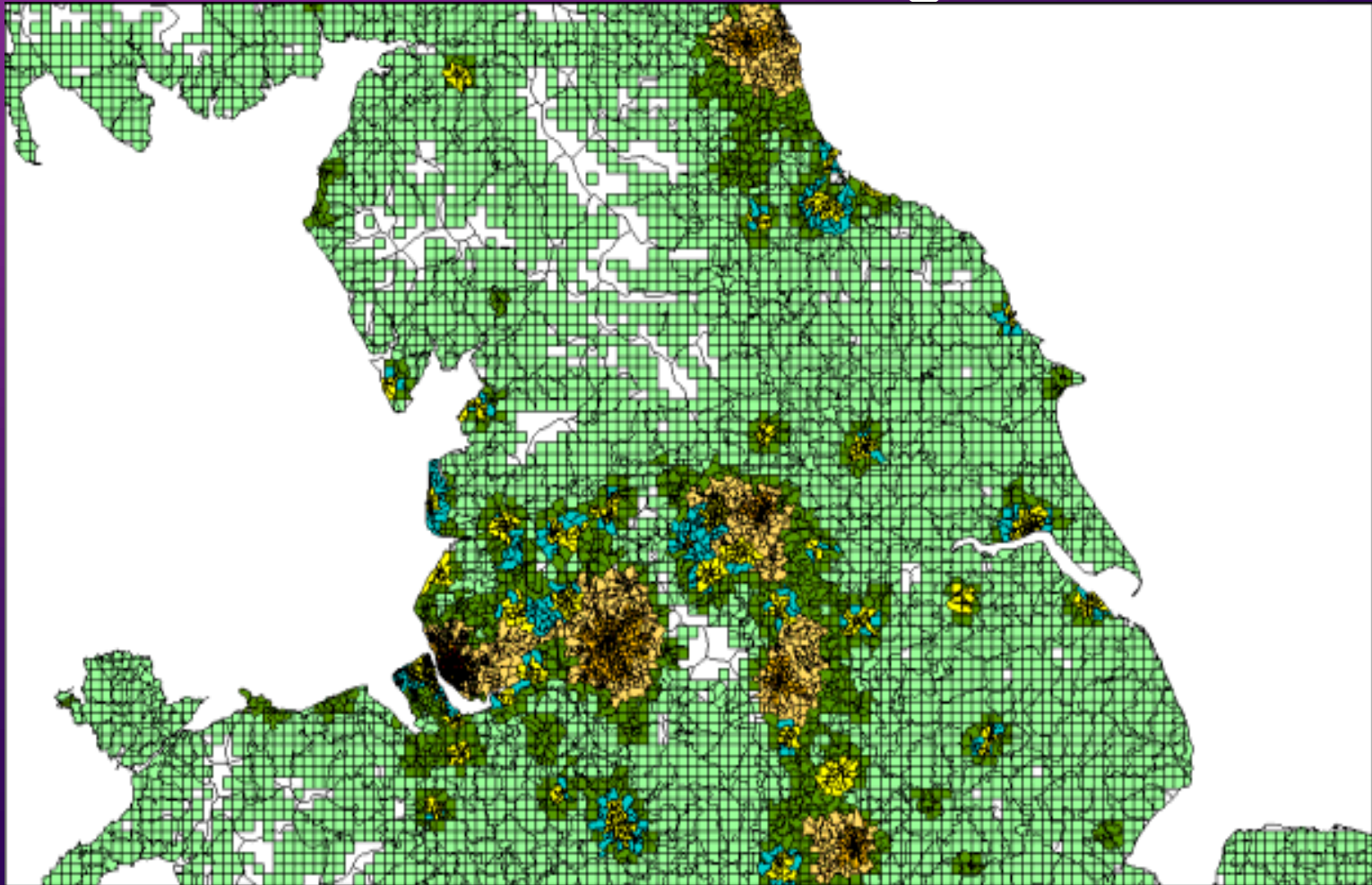
Hypothesis:

“ Although mobility is higher than ever before, families still seek to move up the social scale within their own communities.”

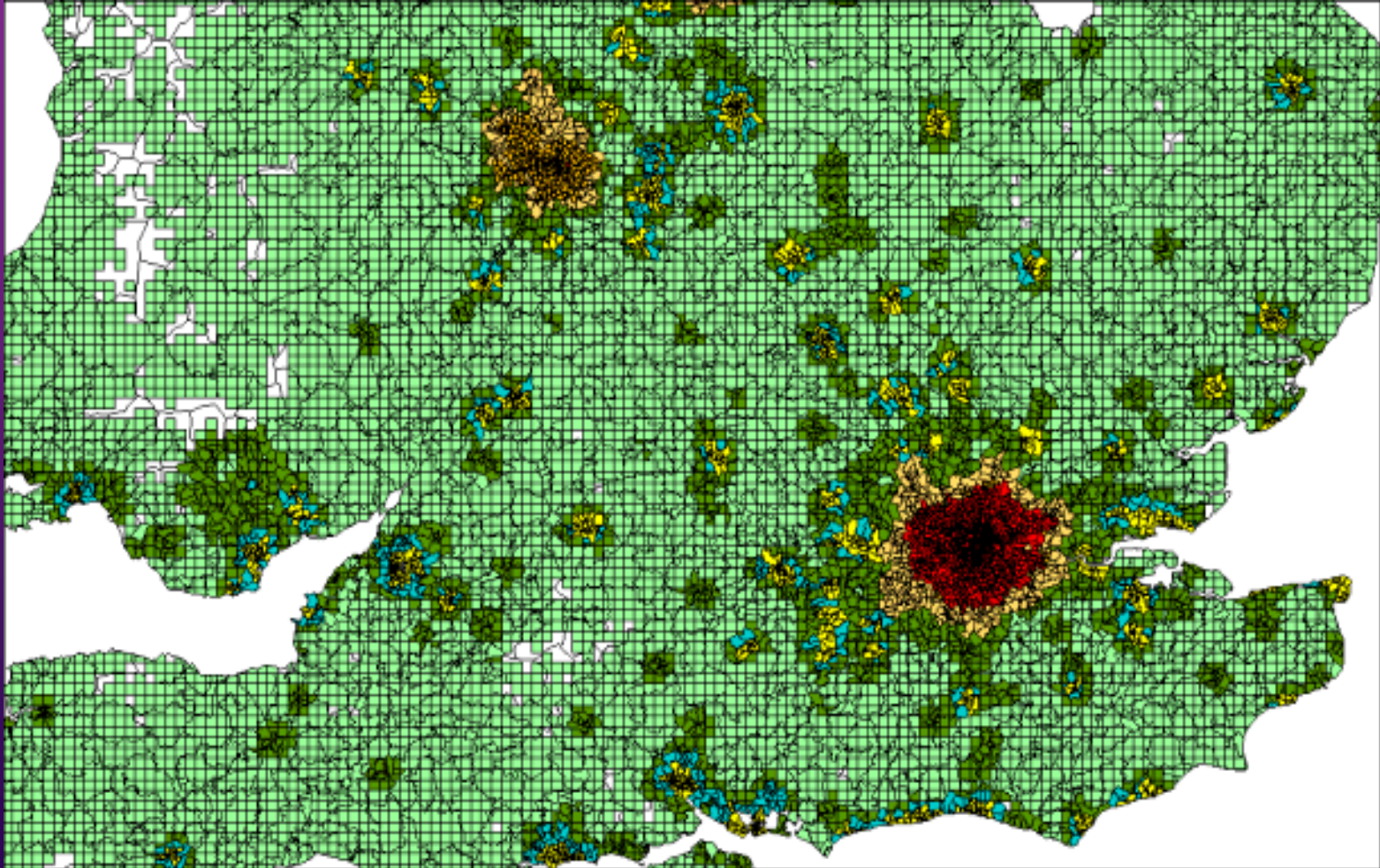
Scotland Zoning



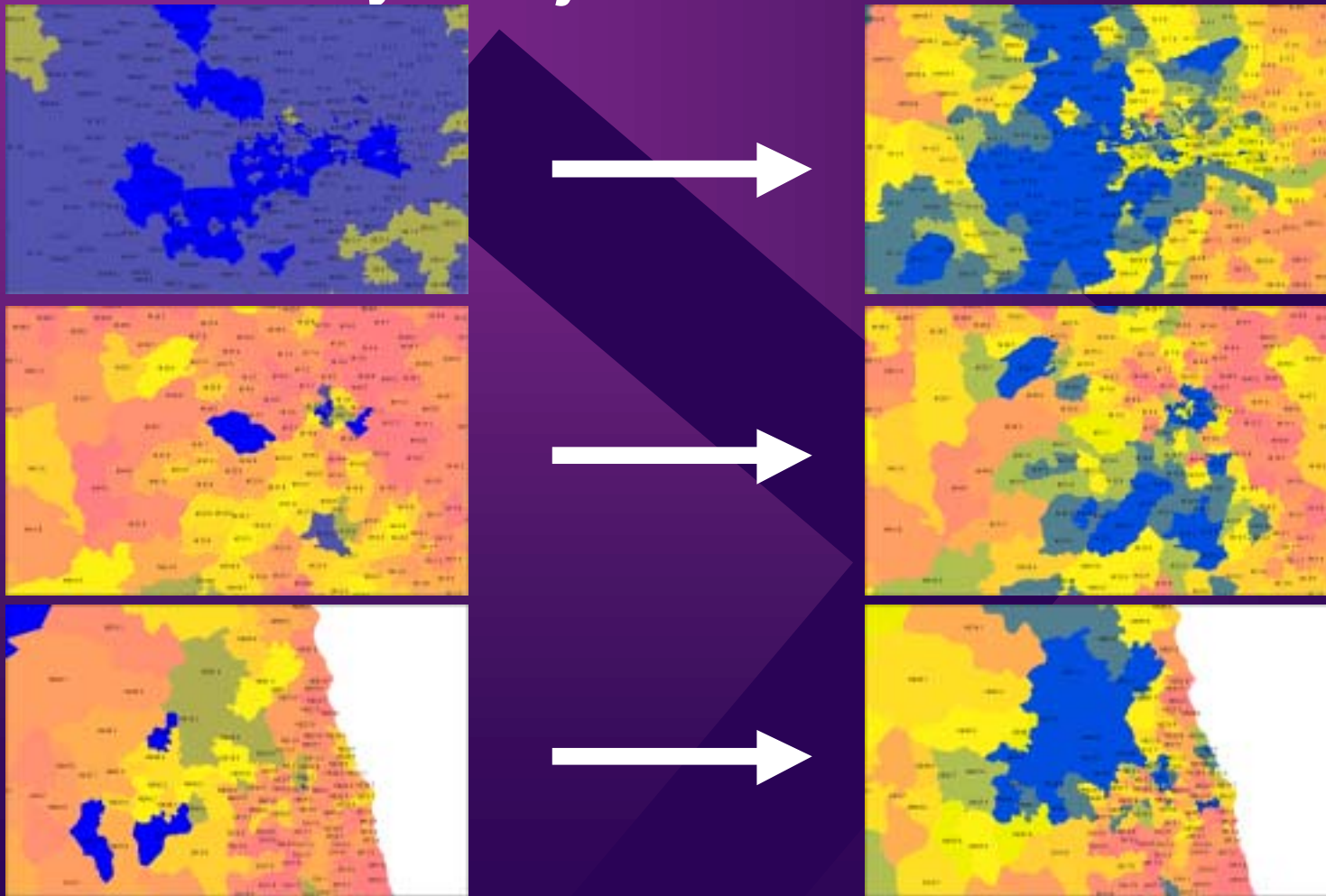
Central E&W Zoning



South East Zoning

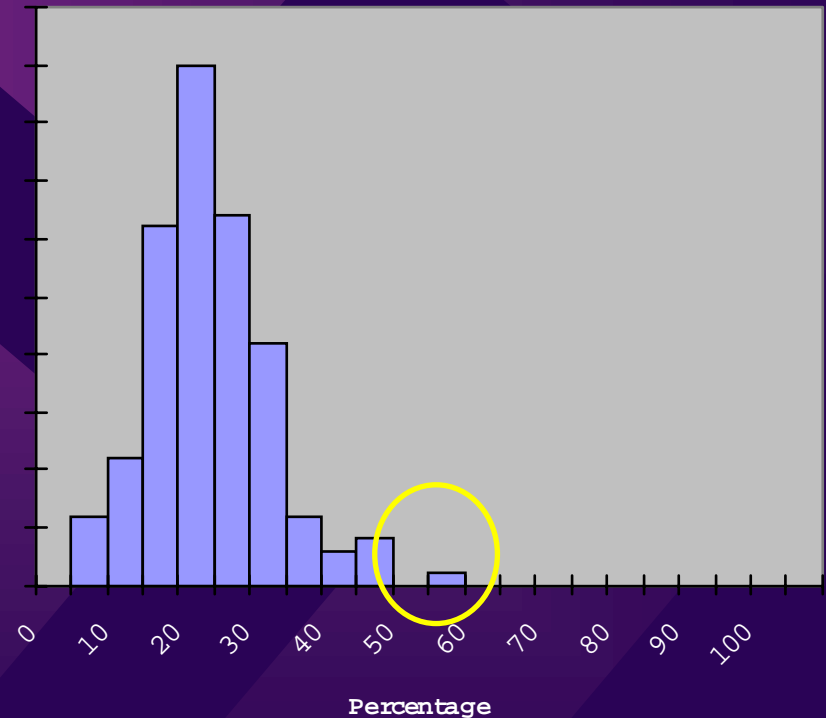


Locally Adjusted House Prices

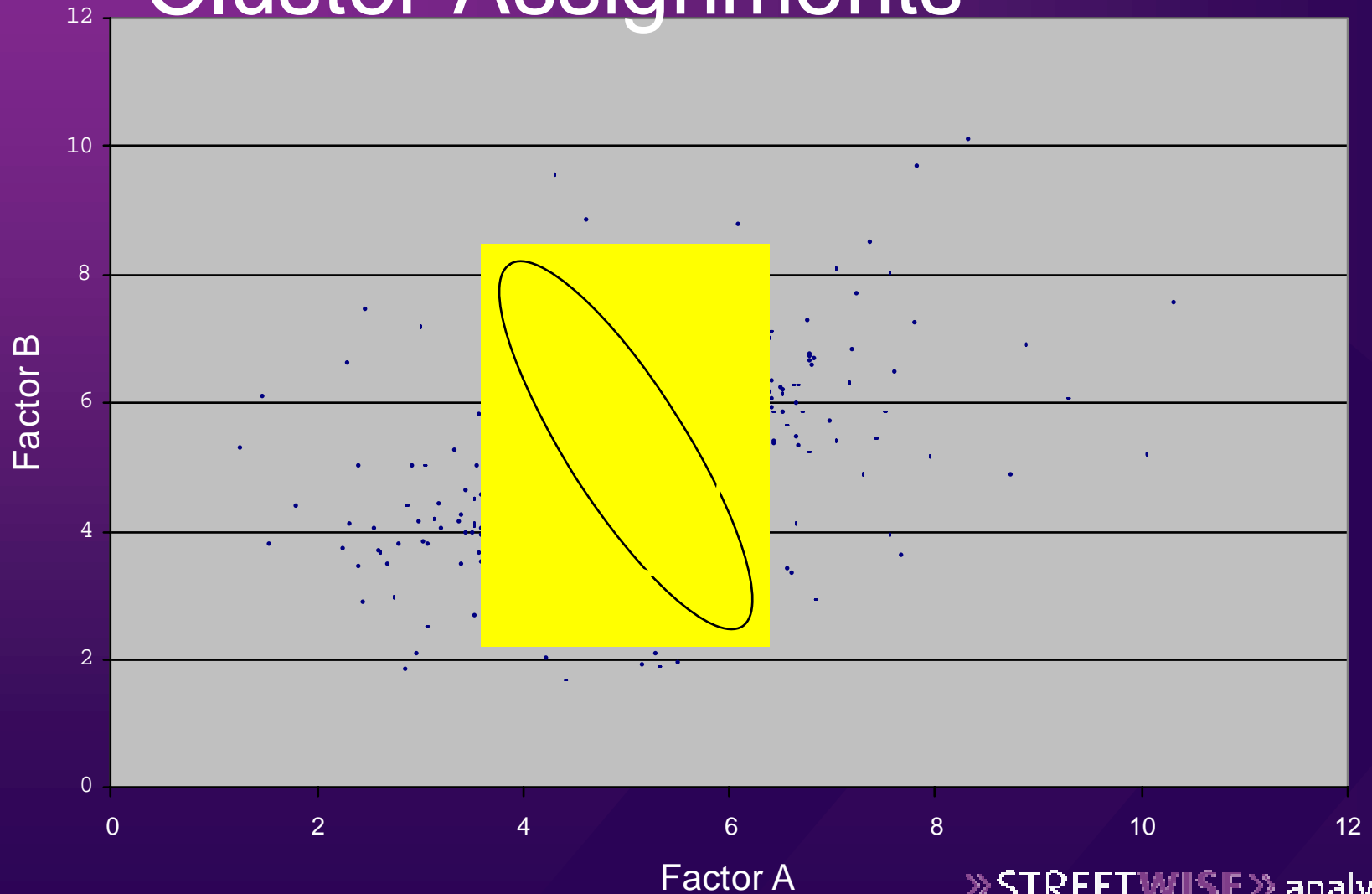


Professionals

- Distribution
 - 80 Areas
 - 90th Percentiles
- Non Flocking ?
 - Different rates



Cluster Assignments



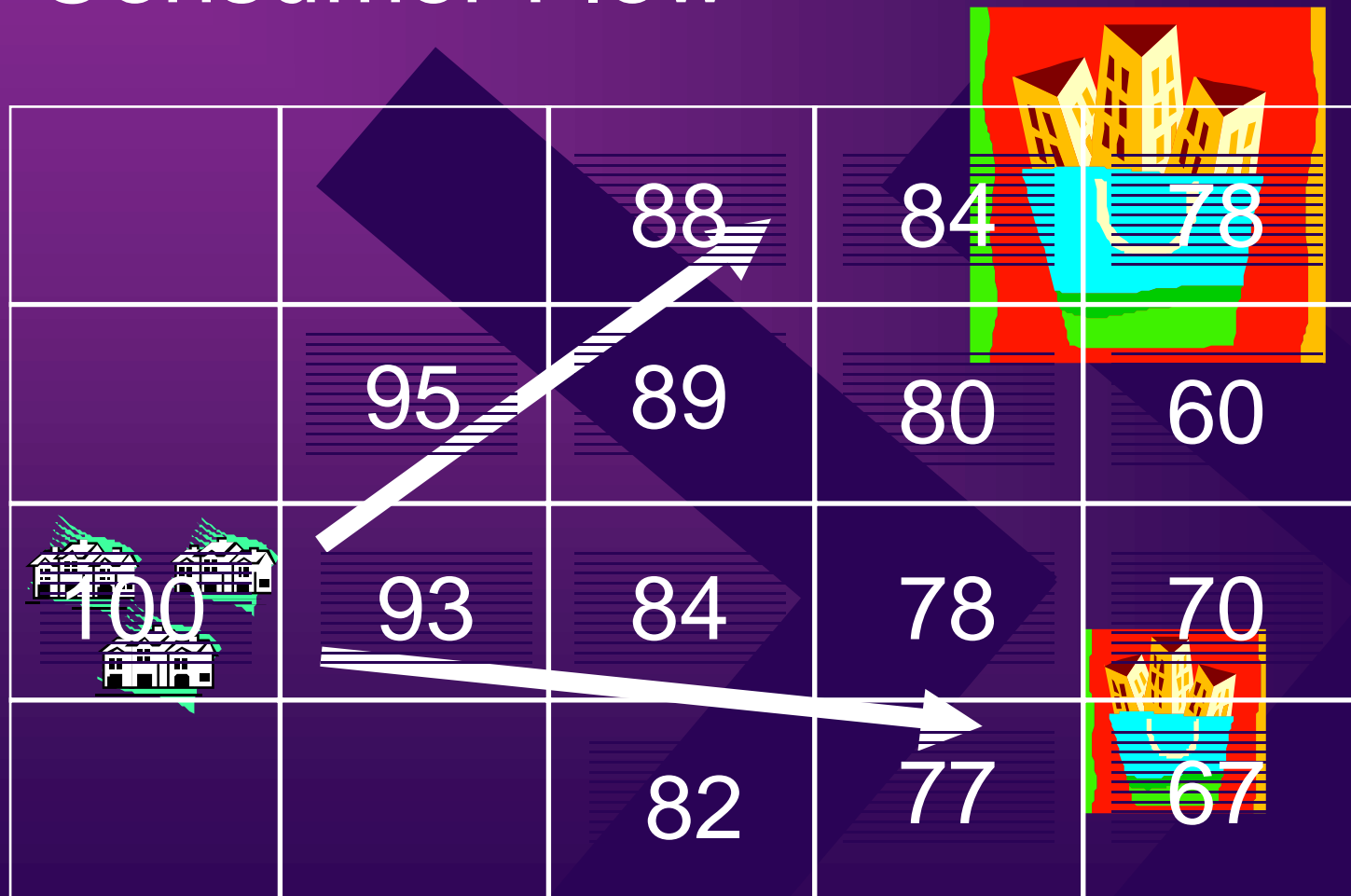
Utilising Local Context

- Cluster Analysis
 - Assist in the assignment stage
 - Ensure Geographic effects are visible
 - Understand Classification “View”
- Calibration
 - Easier to match to regional estimates
 - Maintains local variability

Location Stimuli

- Various Factors
 - Accessibility to Market
 - Land Features
 - Environmental Issues
- Careful use will benefit classifications
- Beware unstable behaviours

Consumer Flow



Temporal Events

- We know that areas will change slowly
 - Some changes will happen quicker than others
 - Age ?
 - Families ?
- Extra segments to be included
- What measures do have?

Likelihood to have children

2.6 Age-specific fertility rates and total fertility rates¹

Live births per 1,000 women

| | London | | | | | United Kingdom | | | | |
|-----------------------------|--------|------|------|------|------|----------------|------|------|------|------|
| | 1981 | 1991 | 1999 | 2000 | 2001 | 1981 | 1991 | 1999 | 2000 | 2001 |
| Age group | | | | | | | | | | |
| Under 20 ² | 29 | 29 | 28 | 28 | 26 | 28 | 33 | 31 | 29 | 28 |
| 20 to 24 | 83 | 69 | 57 | 56 | 59 | 107 | 89 | 72 | 69 | 68 |
| 25 to 29 | 114 | 97 | 96 | 89 | 73 | 130 | 120 | 98 | 94 | 92 |
| 30 to 34 | 80 | 96 | 102 | 102 | 94 | 70 | 87 | 89 | 88 | 88 |
| 35 to 39 | 31 | 47 | 53 | 55 | 59 | 22 | 32 | 40 | 41 | 41 |
| 40 and over ³ | 6 | 10 | 13 | 14 | 15 | 5 | 5 | 8 | 8 | 9 |
| Total Fertility Rate | 1.71 | 1.74 | 1.75 | 1.72 | 1.62 | 1.82 | 1.81 | 1.68 | 1.64 | 1.63 |

1 See Notes and Definitions.

2 Population base is women aged 15 to 19. Population figures for 2001 are based on the '2001 Census - provisional results from the Manchester matching exercise' published in November 2003

3 Population base is women aged 40 to 44.

Source: Office for National Statistics; General Register Office for Scotland; Northern Ireland Statistics and Research Agency

Modelling 'Future' Segments

- Number of Children Lower than expected
 - Propensity Model
 - Using Fertility by Age
 - Control Selections by Aggregated Forecasts
- Oldest Areas
 - Propensity Model
 - Use Mortality rates
- New segments

Summary

- Segmentation does not obey any rules
- Best solution is the one that works consistently under different conditions
- Geographic effects may be important
- No harm in looking beyond your data