Neighbourhood attractiveness redefined

The spatial dimension of the home environment

The second IWGAV seminar on automated methods of mass appraisal and market analysis

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Why is the private evaluation of the home environment (neighbourhood satisfaction) relevant to experts on house prices?

- CORDIS SP-7: “the use and value of (socio-economic and scientific) indicators in policymaking at macro and micro levels”. Applicability of property valuation methodology in this domain

- Social evaluations of the location quality:
  - social value (neighbourhood satisfaction) vs. monetary value (the area-effect in house prices)
  - attributes vs. brand/name of area
  - differences in spatial scale
Neighbourhood satisfaction, image and reputation

Objective attributes

Dwelling

Micro-neighbourhood

Macro-neighbourhood

Perceived attributes

Attributes of dwelling

Attributes of micro-neighbourhood

Attributes of macro-neighbourhood

Social evaluations

Dwelling satisfaction

Private evaluation of neighbourhood

Image (of section) of neighbourhood

Reputation of neighbourhood

Behaviour on housing market

Spatial dimension
Neighbourhood satisfaction, image and a little bit about reputation

Objective attributes
- Dwelling
- Micro-neighbourhood
- Macro-neighbourhood

Perceived attributes
- Attributes of dwelling
- Attributes of micro-neighbourhood
- Attributes of macro-neighbourhood

Social evaluations
- Dwelling satisfaction
- Private evaluation of neighbourhood
- Image (of section) of neighbourhood
- Reputation of neighbourhood

Spatial dimension

Behaviour on housing market
## Elements of neighbourhood satisfaction

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Category</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>46%</td>
<td>Social attributes</td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td>Facilities and services</td>
<td>18% Local shopping centre</td>
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<td></td>
<td></td>
<td>17% Park</td>
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<td></td>
<td></td>
<td>15% Health care facilities</td>
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<tr>
<td></td>
<td></td>
<td>15% Accessibility by public transport</td>
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<tr>
<td></td>
<td></td>
<td>8% Restaurants</td>
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<tr>
<td></td>
<td></td>
<td>7% Accessibility by car</td>
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<tr>
<td></td>
<td></td>
<td>7% Shops in CBD</td>
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<tr>
<td></td>
<td></td>
<td>5% Local employment</td>
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<tr>
<td></td>
<td></td>
<td>5% Theater, cinema</td>
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<tr>
<td></td>
<td></td>
<td>3% Museum, artgalleries</td>
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<tr>
<td>22%</td>
<td>Physical attributes</td>
<td>16% Physical state of housing block</td>
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<tr>
<td></td>
<td></td>
<td>6% Parking space</td>
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</tbody>
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Neighbourhood satisfaction and shared image

Bias A

“Hidden” attributes
“Visible” attributes

Shared image of area

Bias B

“Hidden” attributes
“Visible” attributes

Private Evaluation A

Private Evaluation B
Neighbourhood satisfaction and shared image

• Global spatial autocorrelation in NS is small, yet significant: Moran’s I = 0.32 (p=0.001)
  ⇒ Bias in NS is large, yet shared image does exist
• Global spatial autocorrelation maximized at r = 100 m or nearest neighbours = 4
  ⇒ Spatial dimension of shared image must be small as well
• Local spatial autocorrelation in NS is high-high in good neighbourhoods and low-low in bad ones
  ⇒ segmentation at low spatial levels
Local spatial autocorrelation (r=200)
Neighbourhood satisfaction and shared image

- Elements of NS have low spatial dimension; slightly larger for facilities and physical attributes than for social attributes
- Less spatial variation in facilities and physical attributes than in social attributes
- Less spatial association between facilities, physical attributes and NS than between social attributes and NS

⇒ Spatial variation in shared image mainly depends upon different evaluations of social attributes
Neighbourhood satisfaction and shared image

- Shared image (local average or spatial lag) explains one-half of moving intentions due to neighbourhood dissatisfaction; individual bias makes up for the other half.

- Shared image explains small portion of demand for rented dwellings; attributes of dwelling and house value (at the neighbourhood level) explain the remainder.
Residential satisfaction and image- and reputation-building

Objective attributes
- Dwelling
- Micro-neighbourhood
- Macro-neighbourhood

Perceived attributes
- Attributes of dwelling
- Attributes of micro-neighbourhood
- Attributes of macro-neighbourhood

Social evaluations
- Dwelling satisfaction
- Private evaluation of neighbourhood
- Image (of section) of neighbourhood
- Reputation of neighbourhood

Spatial dimension

Behaviour on housing market
So what about modelling house prices?

• Informational asymmetry: distinction between “visible” and “hidden” attributes in hedonic price equation:
  • “Visible” attributes (accessibility, physical attributes, services?) can be modelled by objective measures
    ⇒ Spatial lag of dwelling characteristic has real meaning; the area-effect of physical attributes
  • “Hidden” attributes (social attributes?) should preferably be modelled by cognitive measures
    ⇒ Shared image if information can be transmitted, reputation otherwise
So what about house prices?

- “Hidden” attributes dependent upon shared image:
  - Low spatial scale
  - Objective attributes can be an alternative to cognitive measures

- “Hidden” attributes dependent upon reputation:
  - High spatial scale
  - “Brand” or “name” instead of attributes: objective attributes are merely proxies for reputation