Creating an observational instrument
Presentation for GERN Summer School

Today

- Introduction of my PhD research
- Previous research on this topic
- Choices based on previous research
- Creating an observational instrument
- Conduction a pilot research
- Development into final instrument
- Conclusion
- Start data collection
Introduction of my PhD research

- PhD research Ugent
- Influence of environmental characteristics on target selection of burglars
  - Main research question:
    What is the influence of environmental characteristics on neighbourhood, street and house level on the target selection of burglars
- Observational research
  - 2514 houses
  - +/- 2200 street segments
  - 174 neighbourhoods
- GOAL: determining which stable environmental characteristics are a predictor for burglary
- BUT: first I need a reliable instrument

Research question

Is it possible to create an observational instrument based on existing literature to measure visible and stable neighbourhood, street and house characteristics?
Previous research

- Interview with offenders
- Photo confrontations
- Socio-demographic factors from databases
- Observational research

- Many different factors influence target selection

Choice (1)

- A burglar chooses a target when walking on the street, in his daily routine. He chooses an interesting neighbourhood, a street and a suitable house
- Therefore 3 levels
  - Neighbourhood
  - Street segment
  - House
**Choice (2)**

- A burglar chooses a target when walking on the street, in his daily routine. He LOOKS AROUND to find a target.
- Therefore only observable factors are included
  - Information from databases (income etc.) is not observable
  - Only visible, observable factors

**Choice (3)**

- Many factors a burglar takes into account are not observable at a later time, like the presence of light or the residents. These factors are not included in police data either.
- Consequence: you do not know how the situation was at the time of the burglary. There is no point in observing light or the number of locks in 2012 to determine why a house is burglarized in 2010.
- Therefore: Only stable factors
Creating an instrument

- Based on literature
  - Problem → there are many characteristics
- Starting point
  - Neighbourhood, street and house level
    - Some variables on multiple levels
  - Visible and observable
  - Stable, not variable
- More variables on a smaller level
  - Problem → no balance in the instrument over levels

What is included – neighbourhood

- Decay and disorder
- Signs of wealth
- Signs of maintenance
- Land use
- Type of housing
What is included – neighbourhood examples

<table>
<thead>
<tr>
<th>How many of the houses in the neighbourhood/street...</th>
<th>Home</th>
<th>Half</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>are well maintained</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>have maintained paintwork</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How often do you see... in the neighbourhood/street/house?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garbage/litter small</td>
</tr>
<tr>
<td>Garbage/litter large</td>
</tr>
<tr>
<td>Graffiti small</td>
</tr>
<tr>
<td>Graffiti large</td>
</tr>
<tr>
<td>Signs of vandalism</td>
</tr>
</tbody>
</table>

*For example, the lower and smaller, going up to 100 (garbage small and 10 below four vandalism).

<table>
<thead>
<tr>
<th>Is this service available in the neighborhood?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
</tr>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
<tr>
<td>Police station</td>
</tr>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
<tr>
<td>Hospital</td>
</tr>
<tr>
<td>☐ Yes</td>
</tr>
<tr>
<td>☐ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Land use in the neighborhood/street (4-As much residential as commercial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>----</td>
</tr>
</tbody>
</table>
| Only residential                                    Only commercial

What is included – street segment

- Type of street
- Number of connecting streets and footpaths
- Width of the street
- Presence of cover and fencing
- Parking facilities

As with neighbourhood
- Decay and disorder
- Signs of wealth
- Signs of maintenance
- Land use
- Type of housing
What is included – street segment examples

<table>
<thead>
<tr>
<th>Type of street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead end street</td>
</tr>
<tr>
<td>Cul-de-sac (dead end street with a circular ‘bag’ on the end)</td>
</tr>
<tr>
<td>Loosely cul-de-sac (footpaths provide access to the dead end street)</td>
</tr>
<tr>
<td>Grass street</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of connecting footpaths / alleys (not included the streets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How many of the houses in the street have high fencing (2.6 meter or higher)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes, low fencing (≤ 1.6 meter)</td>
</tr>
<tr>
<td>Yes, medium fencing (1.6 meter to 2 meter high)</td>
</tr>
<tr>
<td>Yes, high fencing (&gt; 2 meter high)</td>
</tr>
</tbody>
</table>

What is included - house

- Visibility (surveillance)
- Distance between the house and the road
- Visible security measures
- What is next to the house
- Type of house

As with neighbourhood and / or street
- Presence of cover and fencing
- Signs of maintenance
- Parking facilities
- Decay and disorder
- Signs of wealth
What is included – house examples

Visible security measures present (multiple answers possible)
- No
- Yes, alarm system
- Yes, security camera
- Yes, climber in security, sensors at windows or roof gutter
- Yes, sign of dog presence, namely ...
- Yes, other, namely ...

Type of dwelling
- Detached house
- Semi-detached house
- Row house
- High rise building
- Other, ...

Is the house a corner house
- Yes
- No

What is not included?

- Are there police controls
- Number of people in the street
- The type and number of locks
- Lighting in the house or on the street
- Distance to the house of the offender
### Start pilot research

- **Pilot I**
  - 8 observers
  - 2 locations - City and village
    - 3 observers city
    - 3 observers village
    - 2 observers both locations
  - 5 houses, 5 street segments, 2 neighbourhoods

- **Pilot II**
  - 3 observers
  - 2 locations - City and village
    - 3 observers both locations
  - 5 houses, 5 street segments, 2 neighbourhoods (same as Pilot I)
  - Instrument adapted based on Pilot I

### Problems pilot and adaptation instrument

In general a reliable instrument

- **Problems**
  - Very sensitive because of small numbers
  - Not all questions clear enough
  - Not all clarifications clear enough

- **Adaptations**
  - Some adaptations to questions or answer options
  - Mostly clarifying definitions
  - Some questions removed
Results neighbourhood (Alpha Pilot II)

- Maintenance and affluence clarified
  - Alpha .676 and higher
- Land use adapted
  - .733
- Problems measuring decay
  - Pilot I: adaptations to answer options
  - Pilot II: Improved results, but problems with one observer

Results decay neighbourhood

<table>
<thead>
<tr>
<th>Table 1: Reliability of decay on neighbourhood level</th>
<th>Pilot I</th>
<th>Pilot II</th>
<th>Pilot II – adapted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small garbage</td>
<td>.471</td>
<td>.955</td>
<td></td>
</tr>
<tr>
<td>Large garbage</td>
<td>.237</td>
<td>.735</td>
<td></td>
</tr>
<tr>
<td>Small graffiti</td>
<td>.925</td>
<td>.645</td>
<td>.806</td>
</tr>
<tr>
<td>Large graffiti</td>
<td>.600</td>
<td>.465</td>
<td>.706</td>
</tr>
<tr>
<td>Vandalism</td>
<td>.310</td>
<td>.875</td>
<td></td>
</tr>
<tr>
<td>Abandoned shops / buildings</td>
<td>.331</td>
<td>.680</td>
<td></td>
</tr>
</tbody>
</table>
Results street segment

- Small problems
- Maintenance and affluence adapted like neighbourhood
  - Alpha .731 and higher
- Decay → same problems and adaptations as neighbourhood
- Some adaptations to fencing
  - Alpha .742 or higher
- Distribution of front doors not reliable in both pilots
  - Removed from instrument
- Length of street segment scores between 50 and 150 meters
  - Must be measured digitally
- Important question clarified
  - What is a street segment is part of a square?

Results decay street segment

<table>
<thead>
<tr>
<th>Table 2: Reliability of decay on street level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Small garbage</td>
</tr>
<tr>
<td>Large garbage</td>
</tr>
<tr>
<td>Small graffiti</td>
</tr>
<tr>
<td>Large graffiti</td>
</tr>
<tr>
<td>Vandalism</td>
</tr>
<tr>
<td>Abandoned shops / buildings</td>
</tr>
</tbody>
</table>

¹: all scores but one are the same for all observers (1 observer scores differently on 1 observation)
Results house

- Maintenance of house and paintwork
  - Alpha .792 and .749
- What is located next to the house → corner house added
  - Alpha .975
- Decay low alpha (around .500)
  - Absolute numbers between 0 and 1
- Security measures added
  - All reliable above .750
- Territoriality questions (presence of flowers/welcome mat etc.) not reliable
  - Removed from instrument
- Important question clarified
  - What is fencing is right next to the whole house, but not in front of the house because it is right on the street? Answer option added. Alpha above .900.

Conclusion

Is it possible to create an observational instrument based on existing literature to measure visible and stable neighbourhood, street and house characteristics?

- Some problems measuring abstract variables
- Problems counting decay
- Taking your time is very important!
- Reliability is good after adaptations
- Instrument is reliable to measure environmental characteristics
Next step: start data collection

- Final instrument is approved
- Start data collection September 2012

- Expected problems
  - Influence of many observations in a short period
  - Time remains an important issue

Questions?