Road noise in the Netherlands

Estimating the willingness-to-pay for noise reduction

Research questions

- What are households willing to pay (or paying) for noise reduction?

- What are (affected) households willing to pay for a sound barrier wall

Social and academic context

- External costs of road noise
  - €17 billion annualy in Europe (CE Delft, 2011)
  - Missing market for tranquillity
- WTP for noise reduction
  - Noise abatement policy up to where: Marg. Benefit of Abatement = Marg. Cost of Abatement

Noise Depreciation Index

- Hedonic approach
  - Data: House prices (NVM), Neighborhood statistics (CBS), Roads/ramps (NWB), Noise-contourzones (PBL)
  - Semilog specification:
    - $\ln P = f(physical, locational, noise) + \varepsilon$
  - Issues:
    - Spatial autoregression (Theebe, 2004)
    - Validity of estimated noise-countourzones
    - Lack of novelty
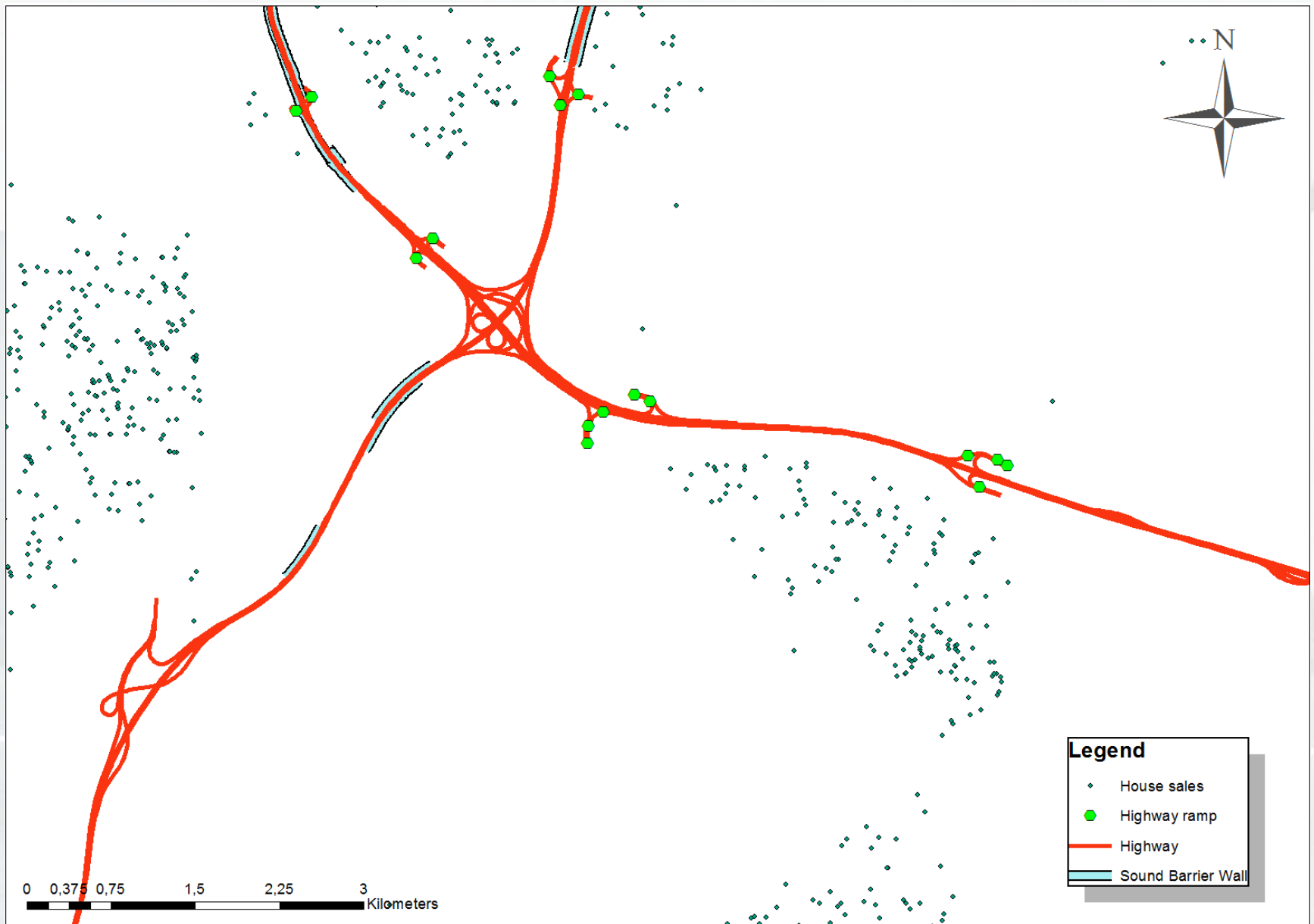   - Inadequate data formats/lack of GIS skills

Data on map

Legend

- House sales
- 🟢 Highway ramp

GB_AlleWegen_2008
<VALUE>

- ☐ < 40 dB
- 🟩 40 - 45
- 🟨 45 - 50
- 🟧 50 - 55
- 🟧 55 - 60
- 🟥 60 - 65
- 🟥 65 - 70
- ⬜ 70 - 75
- 🟦 75 - 80
- 🟦 > 80

0 0,375 0,75 1,5 2,25 3 Kilometers

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Sound barrier walls

- Hedonic approach: Repeat sales
  - Data: House prices (NVM), Neighborhood stats (CBS), Roads/ramps (NWB), Noise-barriers (GWV)
  - Repeat sales: Only houses that are sold both before and after sound barrier construction
  - Issues:
    - Lack of data: construction year of noise barriers
    - Why are noise barriers constructed? (location characteristics, possible confounders, IV approach?)

Data on map

Legend

· House sales

● Highway ramp

— Highway

— Sound Barrier Wall

0 0,375 0,75   1,5   2,25   3
Kilometers

Sound barriers in Poland