

SUPPLEMENTARY MATERIAL

S.1 – Analysis of spatial autocorrelation

Figure S.1: Moran's I scatterplot - Lund

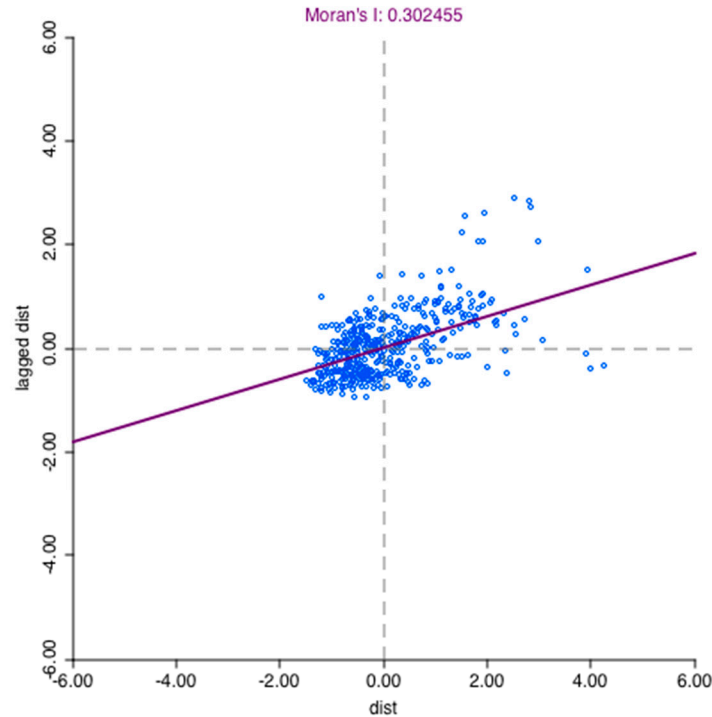
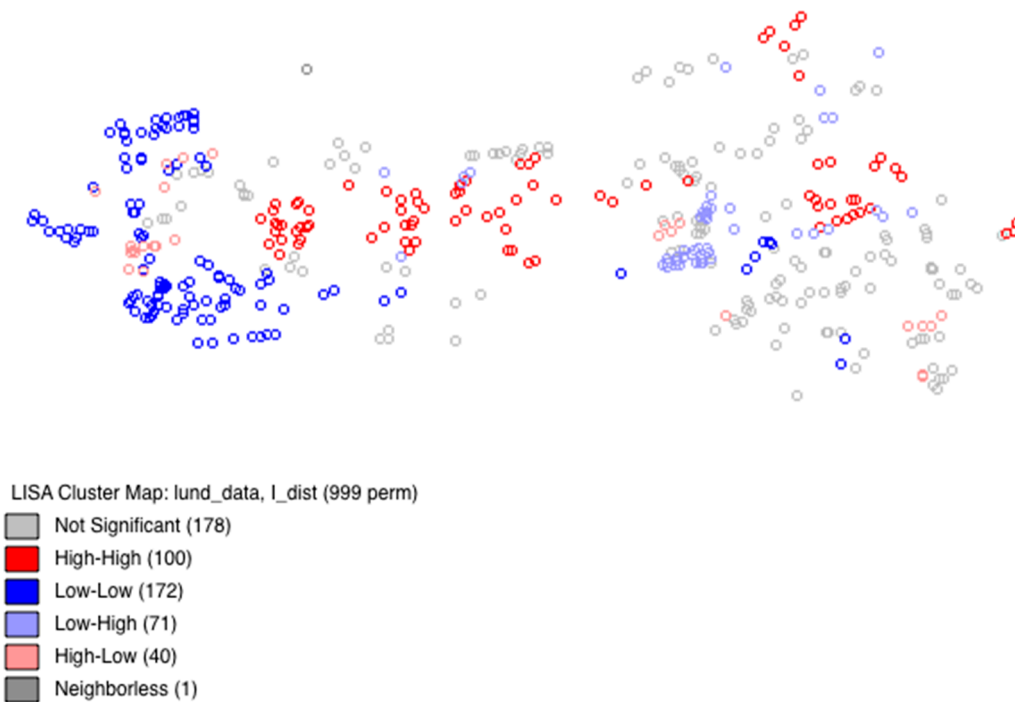


Figure S.2: Local Indicator of Spatial Association (LISA) cluster map - Lund



Note: LISA cluster map, signif. 5% (999 permutations). An high-high (low-low) cluster indicates a respondent with a high (low) distance value to bus stop surrounded by respondents with similar high (low) distances.

Figure S.3: Moran's I scatterplot - Helsingborg

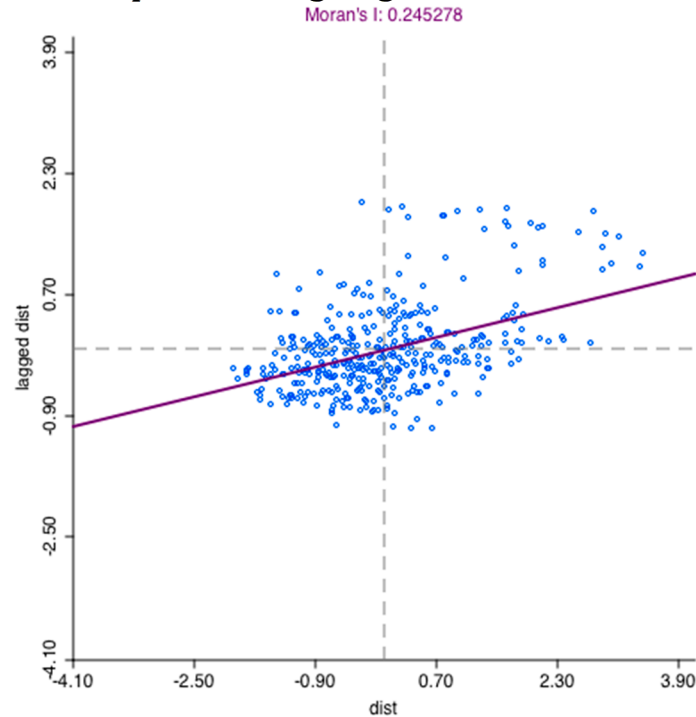
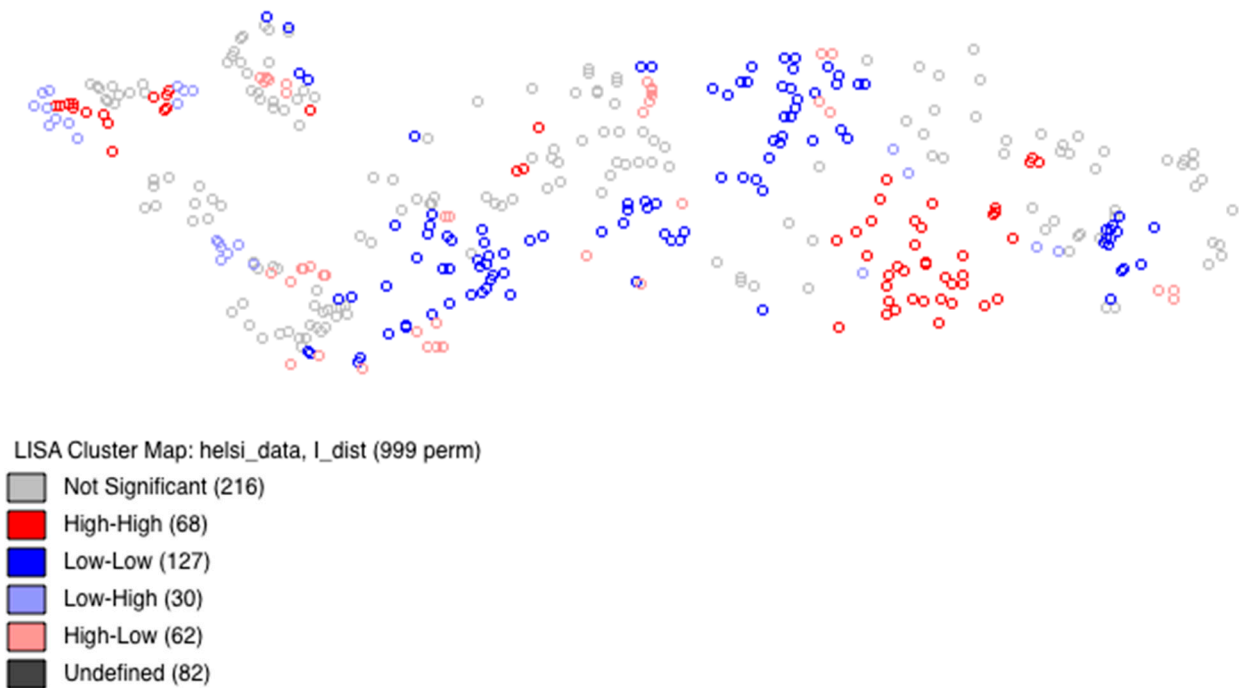


Figure S.4: Local Indicator of Spatial Association (LISA) cluster map - Helsingborg



Note: LISA cluster map, signif. 5% (999 permutations). An high-high (low-low) cluster indicates a respondent with a high (low) distance value to bus stop surrounded by respondents with similar high (low) distances.

Figure S.5: Moran's I scatterplot - Goeteborg

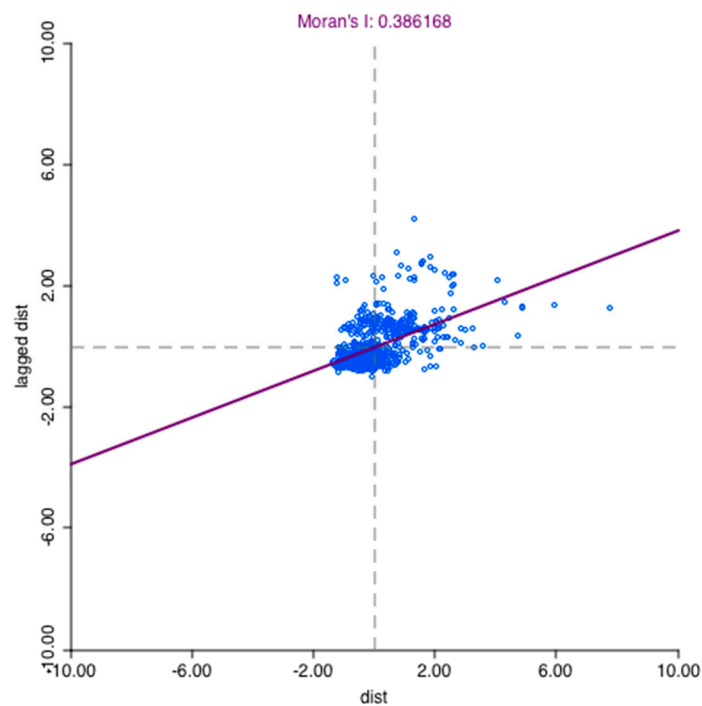
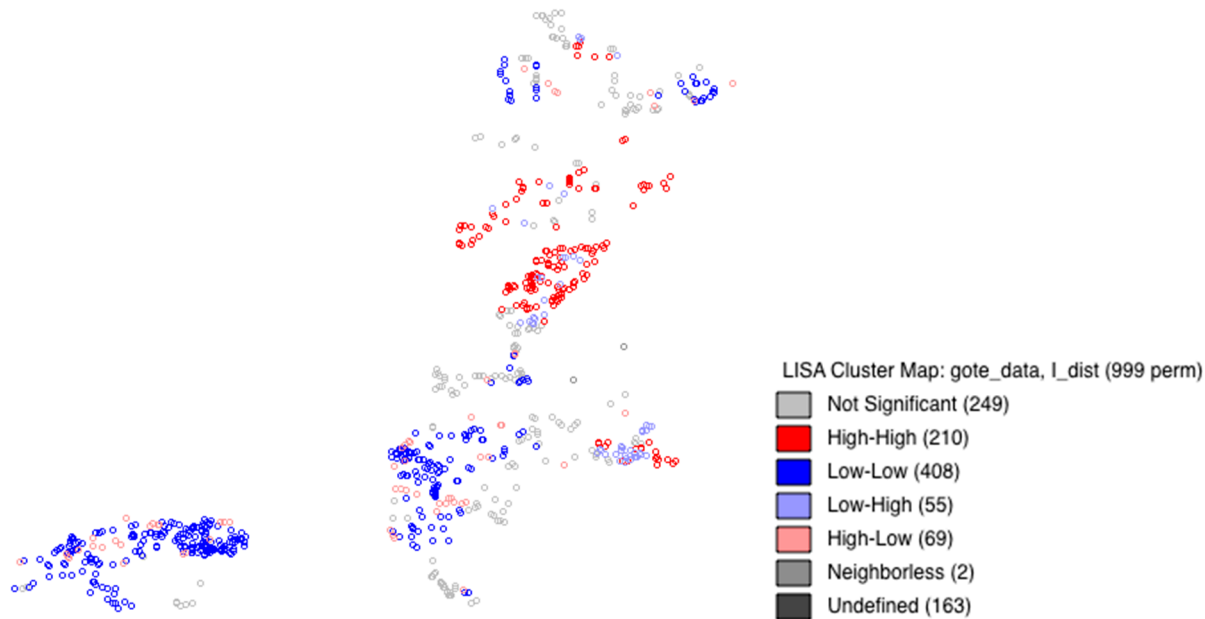


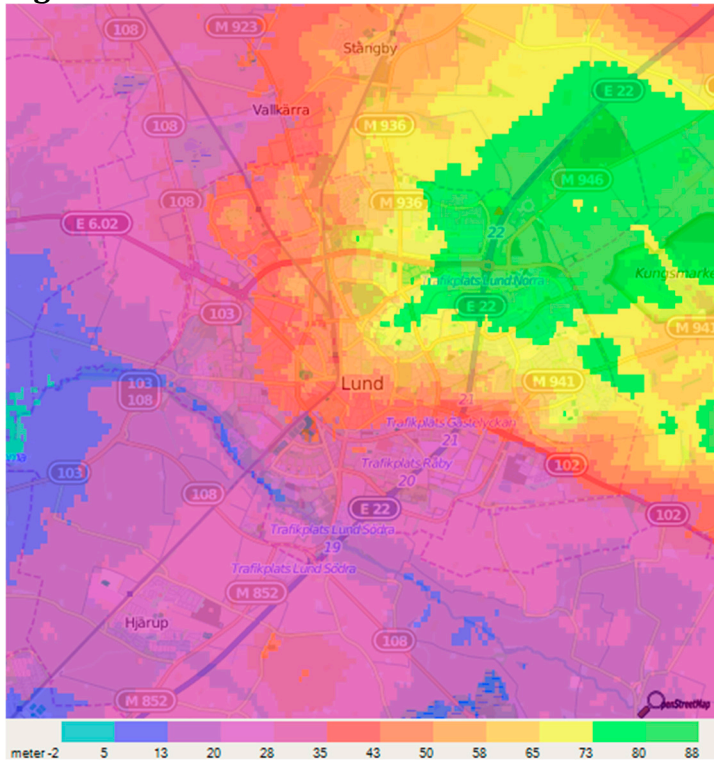
Figure S.6: Local Indicator of Spatial Association (LISA) cluster map - Goeteborg



Note: LISA cluster map, signif. 5% (999 permutations). An high-high (low-low) cluster indicates a respondent with a high (low) distance value to bus stop surrounded by respondents with similar high (low) distances.

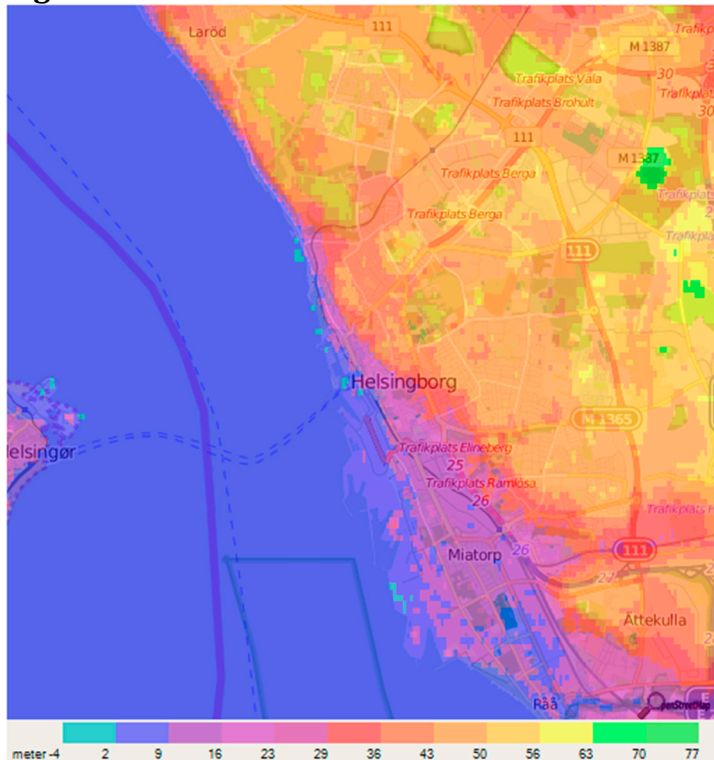
S.2 – Descriptive elevation maps

Figure S.7: Elevation visualization and basic elevation data - Lund



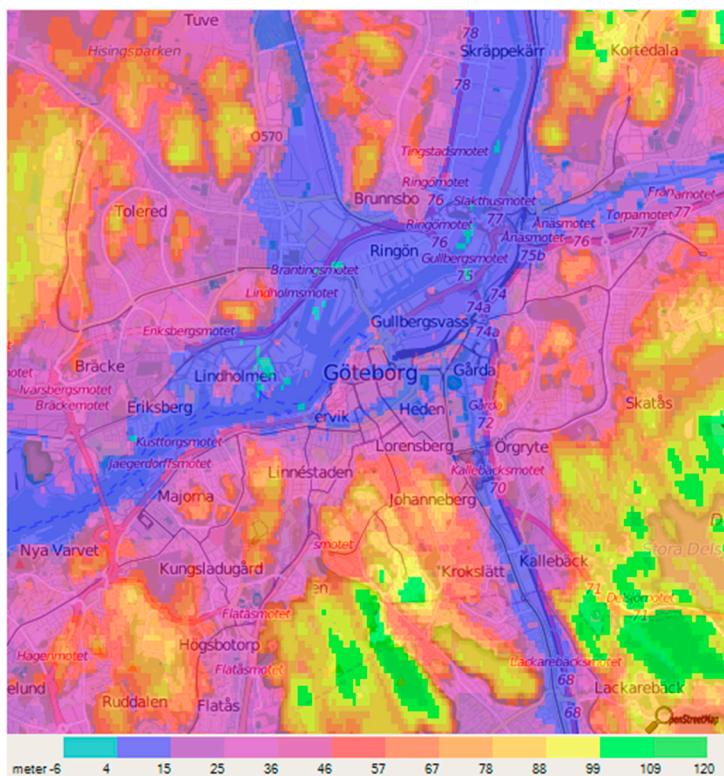
Minimum elevation: 9 m; Maximum elevation: 90 m; Average elevation: 43 m
(Source: FloodMap.net, OpenStreetMap contributors)

Figure S.8: Elevation visualization and basic elevation data - Helsingborg



Minimum elevation: -1 m; Maximum elevation: 108 m; Average elevation: 23 m
(Source: FloodMap.net, OpenStreetMap contributors)

Figure S.9: Elevation visualization and basic elevation data - Goeteborg

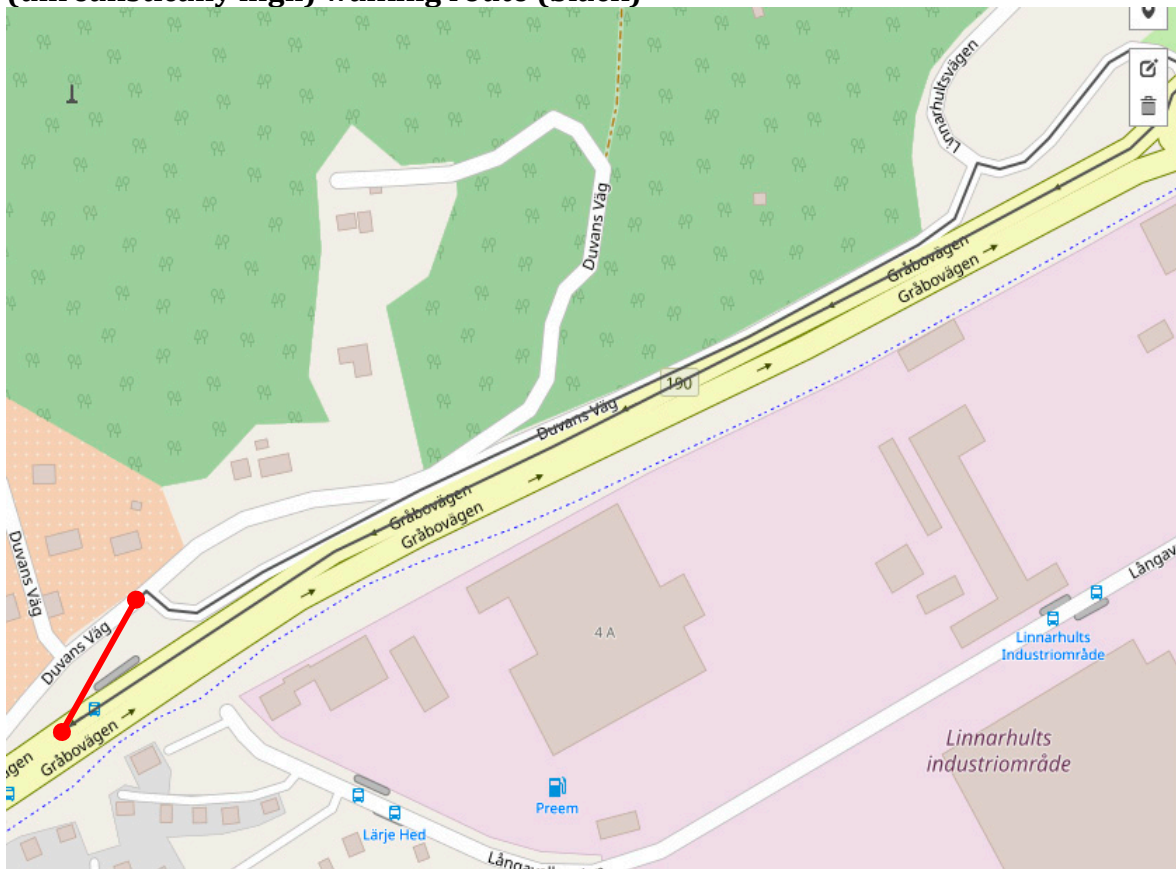


Minimum elevation: -2 m; Maximum elevation: 162 m; Average elevation: 46 m

(Source: FloodMap.net, OpenStreetMap contributors)

S.3 – Routing example

Figure S.10: Approximate straight line between home and bus stop (red) vs biased (unrealistically high) walking route (black)



Note: residential point is fictional for privacy

S.4 – Scheme of methods used in the article

Obtaining ethical clearance

- > Regional Ethical Review Board in Lund, Sweden
 - > Extension granted by Regional Ethical Board of Skåne

Selection of cities

- > Share of older population
- > Availability of mobility options

Participant selection

- > Random selection from population list
- > Inclusion criteria: age and residential location

Survey

- > Cross-sectional survey in the three cities
- > Mailed to target population: older citizens (aged 75 to 90)
- > Structured questionnaire
 - > Information on respondents
 - > Information on social activities and mobility
- > Data storage on secure physical memory device

Geographical data

- > Latitude-longitude coordinates of bus stops (source: municipalities and transport authorities)
- > Respondents' home addresses (source: survey)
- > Computation of walking distances
 - > Graphhopper Directions API (shortest walking distances)
- > Validation of walking distances
 - > Compute straight-line distances using OpenStreetMap data
 - > Compare with walking distances and identify discrepancies
 - > Replace routes with a bias of 350 meters or more with straight-line distances
 - > Reason: mitigate bias introduced by obstacles that prevent accurate walking distance calculation

Defining dependent variable

- > Based on perception of distance to closest bus stop:
 - > "Underestimated" (lived farther than estimated)
 - > "Correctly estimated"
 - > "Overestimated" (lived closer than reported)

Statistical analysis

- > Preliminary data cleaning and harmonization
- > Inspection for outliers and distribution
- > Construct and recode distance variables
- > Analysis of relationship between perception and explanatory variables (bivariate tests)
- > Investigate factors associated with underestimated or overestimated perceptions
 - > Multinomial logistic regression model

Spatial analyses

- > Mapping of respondents' distribution and bus stop locations
- > Kernel density estimations (KDE) of respondents' distribution
- > Test for spatial auto-correlation
 - > Moran's I measures of spatial autocorrelation
 - > Local Indicators of Spatial Association (LISA)