Valuation of Public Green Spaces

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Introduction
#### How and what are we measuring?

Hedonic Pricing Method

- Employs real estate prices to reveal individual preferences.

- Relies on the assumption that the market is in equilibrium.

- Measures house buyers expectation about utility.

- Coefficients are interpreted as implicit prices which serve as a proxy for willingness to pay.

Life Satisfaction Approach

- Uses survey data to estimate benefits of urban green space.

- Satisfaction with life is measured on a Likert-Scale (0-10), proxy for utility.

- Measures events that occured within a year.

- Willigness to pay for green space is derived by comparing utility of income and utility of green space.

Measuring Accessibility

Introduction
Comparison of Results
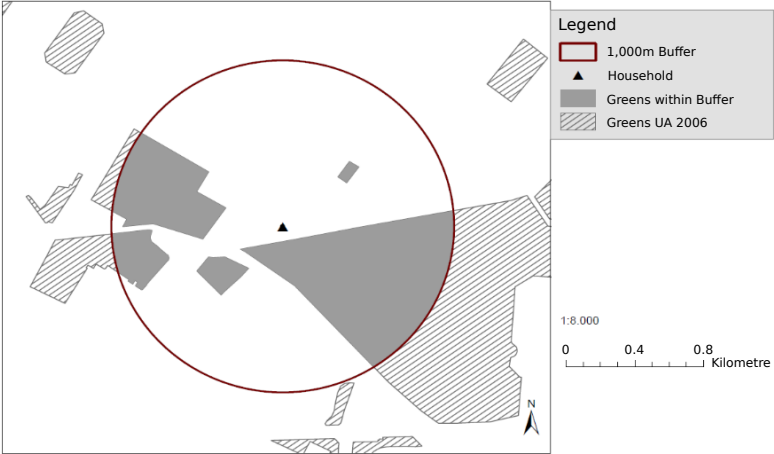
Hedonic Pricing Method

- Tends to underestimate value because of mobility and information costs.

- Relies on the assumption that the market is in equilibrium. A perfect match of supply and demand.

- Assumes also transparency: Buyers have to be aware of ecosystem services.

Life Satisfaction Approach

- Endogeneity problem: Individuals who benefit from green spaces are more likely to settle near green spaces (leads to overestimation).

- We can't identify the channel through which people benefit from green spaces.

- There is little variation in the outcome variable, except for extreme events like serious disease ...

Results
Comparison of Results

What is the true value?

- Estimation by LSA tends to produce higher values for green spaces than HPM.

- This is in line with the literature (see Frey et al. (2010)).

- In general, there arises the question if both approaches are substitutes or complementary (at least to some degree).

- Substitutes: Both approaches measure the same thing through different channels. Is one approach superior?

- Complements: Which values/benefits are not part of the HPM results and vice versa?

Discussion
Statistical Uncertainty

- All approaches rely on observational data. All shortcomings of observational studies may apply.

- The HPM suffers from violation of model assumptions, e.g. bundleing, preference homogeneity.

- The LSA has endogeneity issues, i.e. people who benefit from green space are more likely to settle near green spaces. If we don't observe preferences, we can't control for this.

- Effects are very small and sometimes close to statistical insignificance.

Discussion
Repeatability

- Both approaches allow for annual monitoring of development.

- SOEP participants are surveyed annually. House price data collection is enforced by law in Germany.

- The HPM shows very different results based on differing markets (locally and conceptually).

- There is even more maybe better data available to enhance studies, like normalized differenced vegetation indices (for green data).

- Data accessibility is an issue in general.

The End

Thank you for your attention!