

# Home is where the ethnic community is?

Scales of ethnic segregation in German cities

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Presentation for D4I Workshop, Bruxelles, November 27, 2018

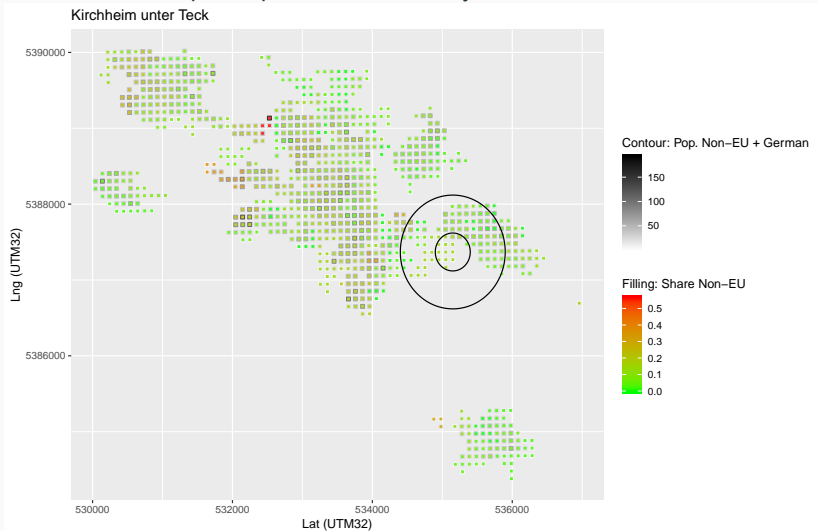
University of Bamberg; Bremen International Graduate school of Social Sciences

# Introduction and Research Questions

- "Segregation": Uneven distribution of population groups across space within cities
- Focus on segregation between Germans and non-EU27 nationals in German municipalities
- Two research aims
  - 1) Scale of ethnic segregation: Is segregation taking place between micro- or macro-environments?
  - 2) Explore ethnic segregation in small German cities (20,000 to 100,000 inhabitants)

# Method: Scales of segregation

Here I use the D4I data to compute *spatial* measures of segregation (Reardon and O'Sullivan, 2004): Researcher can specify the local environment of spatial points within a city: 500m and 1.500m radii.



# Spatial dissimilarity index

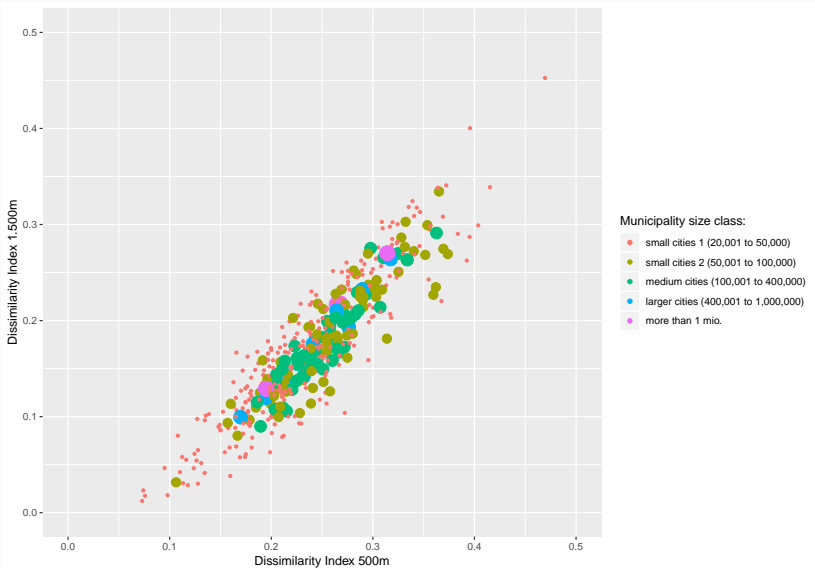
$$\tilde{D} = \sum_{m=1}^M \int_{p \in R} \frac{\tau_p}{2TI} |\tilde{\pi}_{pm} - \pi_m| dp.$$

”a measure of how different the composition of individuals’ *local environments* are, on average, from the composition of the population as a whole”

(Reardon and O’Sullivan, 2004, 140f, own emphasis)

- Calculate spatial dissimilarity index for each municipality
- Inclusion criteria:
  - above 5% non-EU
  - min. 50 grids (50x100m<sup>2</sup> of inhabited space)
  - min. 20,000 inhabitants

# Question 1) Scale of segregation

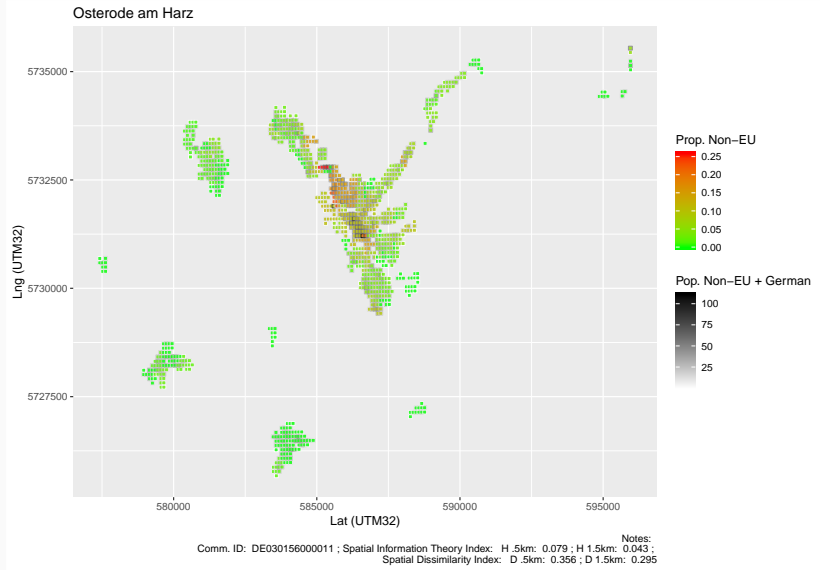


# What might be reasons behind segregation in small cities?

- For now, consider two factors:
  - Topography of the city in terms of scattered suburbs
  - The share of non-EU migrants within a context: No meaningful association with segregation index
- Planning a more systematic analysis

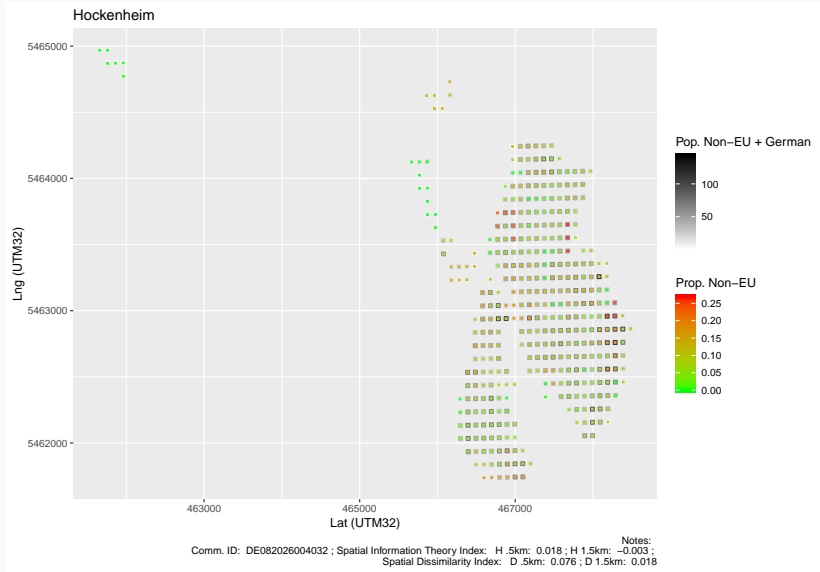
## Question 2) Segregation in small cities

### The role of scattered suburbs a)



## Question 2) Segregation in small cities

### The role of scattered suburbs b)





# Conclusions

- Useful to analyze both micro- and macro-segregation:
  - Though highly correlated
  - Some interesting departures: high micro segregation
  - Segregation on different scales, different explanations
- Further research and outlook:
  - More research on underlying mobility decisions
  - Cities might benefit from gathering data on street block level
  - Next step: predictors of segregation levels (e.g. average rent, economic situation)

## References

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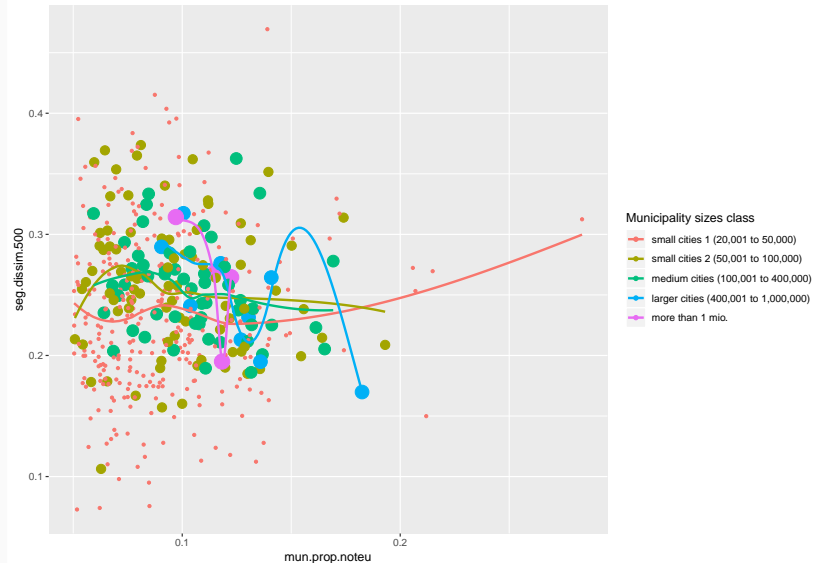
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**URL:** [https://www.armuts-und-reichtumsbericht.de/SharedDocs/Downloads/Service/Studien/abschlussbericht-sozialraeumliche-segregation.pdf?\\_\\_blob=publicationFile&v=3](https://www.armuts-und-reichtumsbericht.de/SharedDocs/Downloads/Service/Studien/abschlussbericht-sozialraeumliche-segregation.pdf?__blob=publicationFile&v=3)
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- Reardon, S. F. and O'Sullivan, D. (2004), 'Measures of Spatial Segregation', *Sociological Methodology* 34(1), 121–162.  
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# Appendix

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## Question 2) Segregation in small cities

The overall share of minorities does not have a meaningful association with segregation



## Prior research (e.g. Goebel and Hoppe, 2015; Helbig and Jähnen, 2018)

- Focus mainly on bigger cities
- Pre-defined (administrative) units
- Assumption: local environment that matters are these units

## Spatial dissimilarity index, full

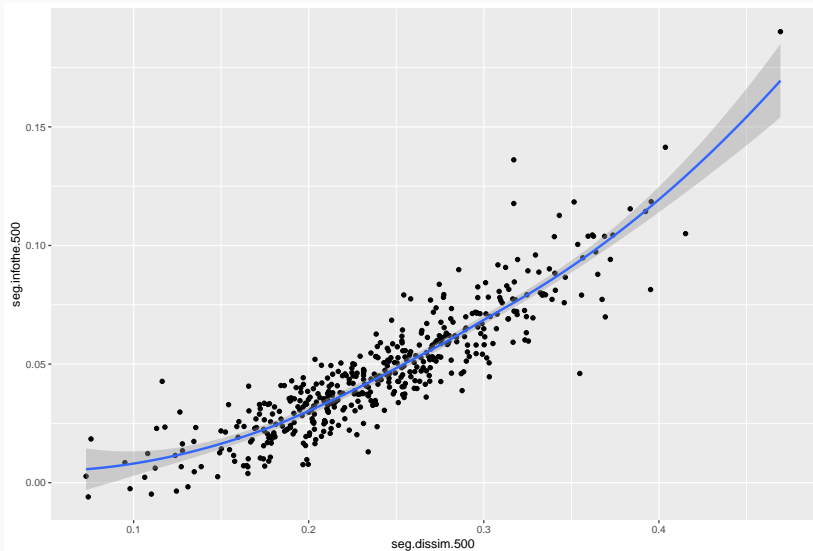
$$\tilde{D} = \sum_{m=1}^M \int_{p \in R} \frac{\tau_p}{2TI} |\tilde{\pi}_{pm} - \pi_m| dp.$$

where

$$I = \sum_{m=1}^M (\pi_m)(1 - \pi_m)$$

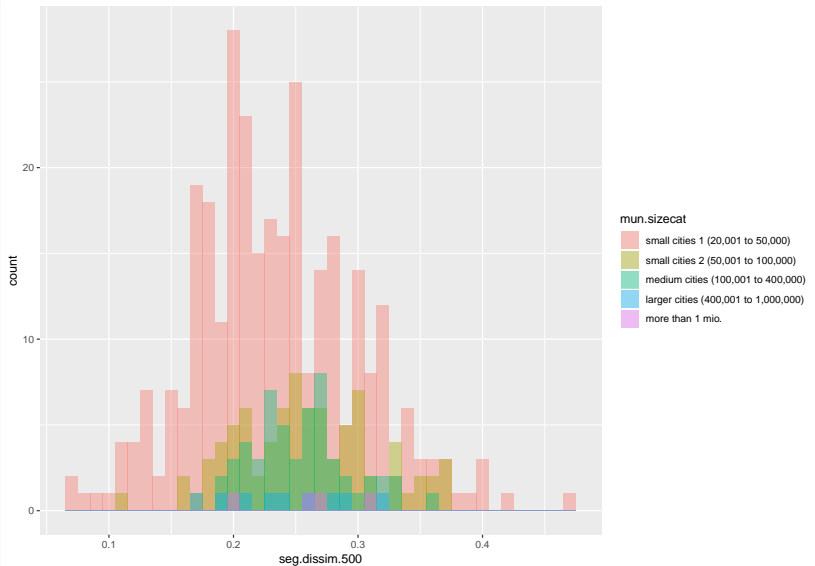
(Reardon and O'Sullivan, 2004)

# Association of spatial dissimilarity and information theory index



R-squared from LM: 0.794913487302978

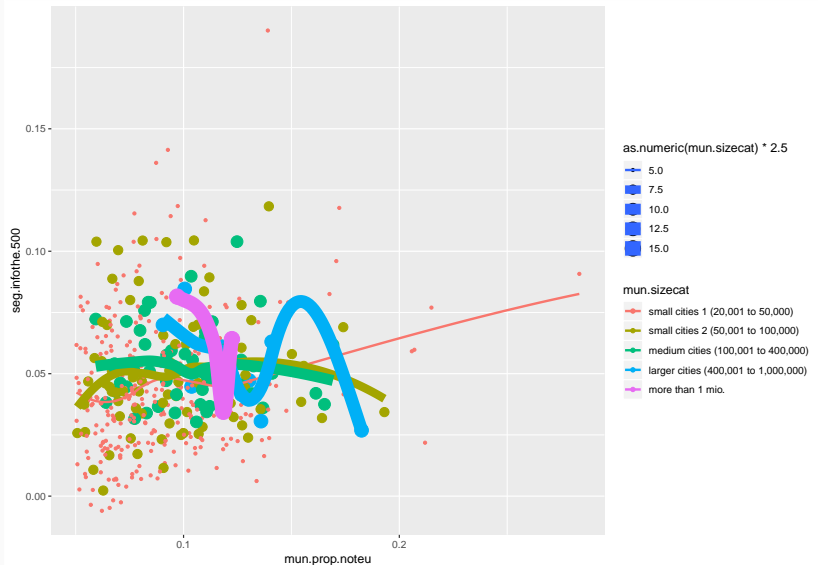
# Histogram 500m spatial dissimilarity index





# Share non-EU and information theory index 500m

percnoteu.pdf



# Information theory index formula

$$\tilde{E}_p = - \sum_{m=1}^M (\tilde{\pi}_{pm}) \log_M(\tilde{\pi}_{pm})$$

$$\tilde{H} = 1 - \frac{1}{TE} \int_{p \in R} \tau_p \tilde{E}_p dp$$

$$E = - \sum_{m=1}^M (\pi_m) \log_M(\pi_m)$$

(Reardon and O'Sullivan, 2004)

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