



Kassenärztliche  
Bundesvereinigung

Körperschaft des öffentlichen Rechts

# Regional Variation in Psychotherapy Techniques

Is Geography Destiny for Patients (and Practitioners)?

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The Wennberg International Collaborative Policy Conference 2015, Berlin

# Ambulatory Psychotherapy in Germany

Part of regular ambulatory care since 1999

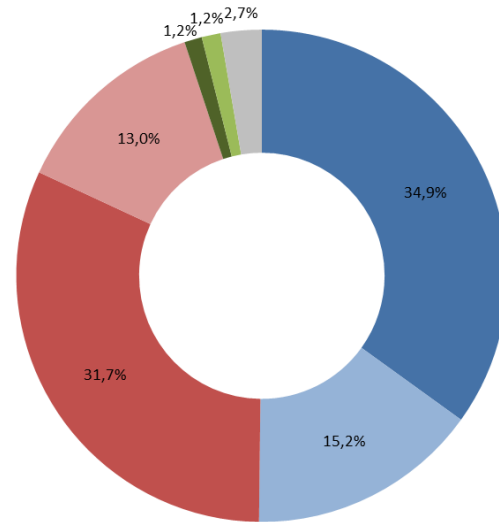
Regulated by Federal Joint Committee (*G-BA*)

- Techniques and methods
  - Behavioral therapy (*VT*), depth psychology (*TP*), psychoanalysis (*AP*)
- Allocation of therapy sessions
- Regulation of practice settlements

## Techniques

Different treatment philosophies, resulting in different numbers of sessions:

- VT: 25/45 – 60 – 80 hours
- TP: 25/50 – 80 – 100 hours
- AP: 120 – 180 – 300 hours



■ VT KZT ■ VT (KZT und) LZT ■ TP KZT ■ TP (KZT und) LZT ■ AP ■ AP und KZT TP ■ Sonstige

# Questions

1. Are psychotherapy techniques distributed differently across Germany?
2. If so, why?
3. Does regional specialization affect mental health care access?

# 1) Regional Specialization

## Approach

Analysis of billing data from the 17 Associations of Statutory Health Insurance Physicians (ASHIP, KV)

- Physician Specialization
- Available in fine granularity (ZIP-Code)
- **8289** ZIP-Code regions, psychotherapist present in **3934** (47%)
- **27.293** Psychotherapists<sup>1</sup> 2013
  - VT: 10.636 (38%)
  - TP: 9243 (34%)
  - AP: 2399 (9%)
  - AP and TP: 4341 (16%)
  - mixed: 674 (2%)

## Goal

Geographic clustering of technique specialization

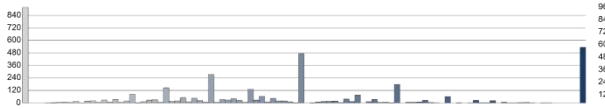
- Fine grained & statistically robust

# 1) Regional Specialization

## Standardized Mortality Ratios

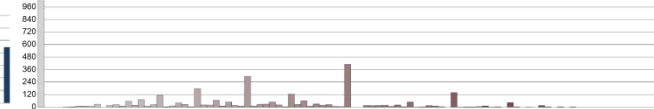
VT

Distribution



TP

Distribution

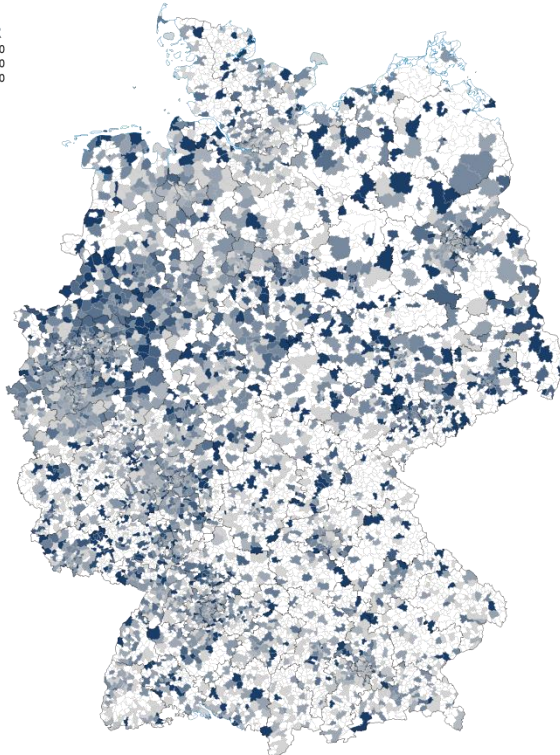


AP

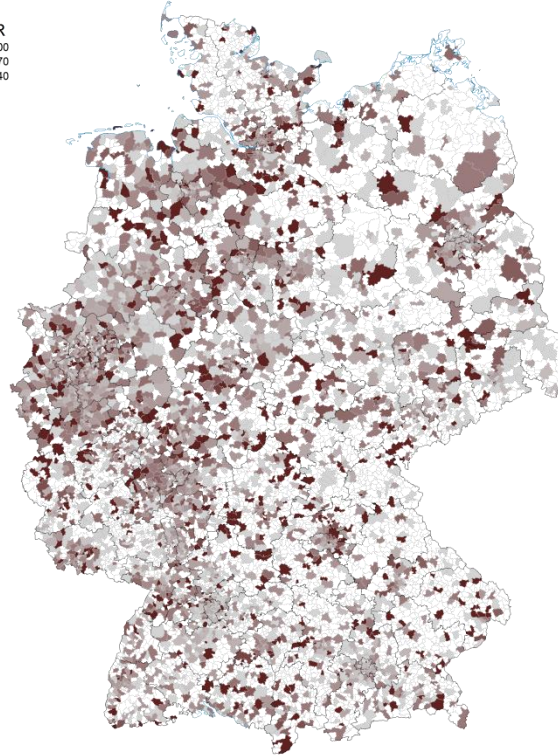
Distribution



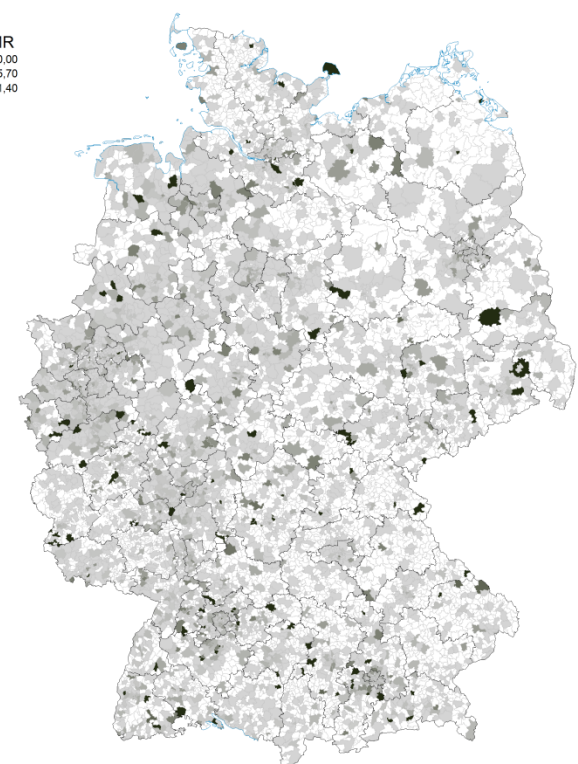
SMR  
0,00  
5,70  
11,40



SMR  
0,00  
5,70  
11,40



SMR  
0,00  
5,70  
11,40



# 1) Regional Specialization

## Geographic Clustering using R and Dcluster

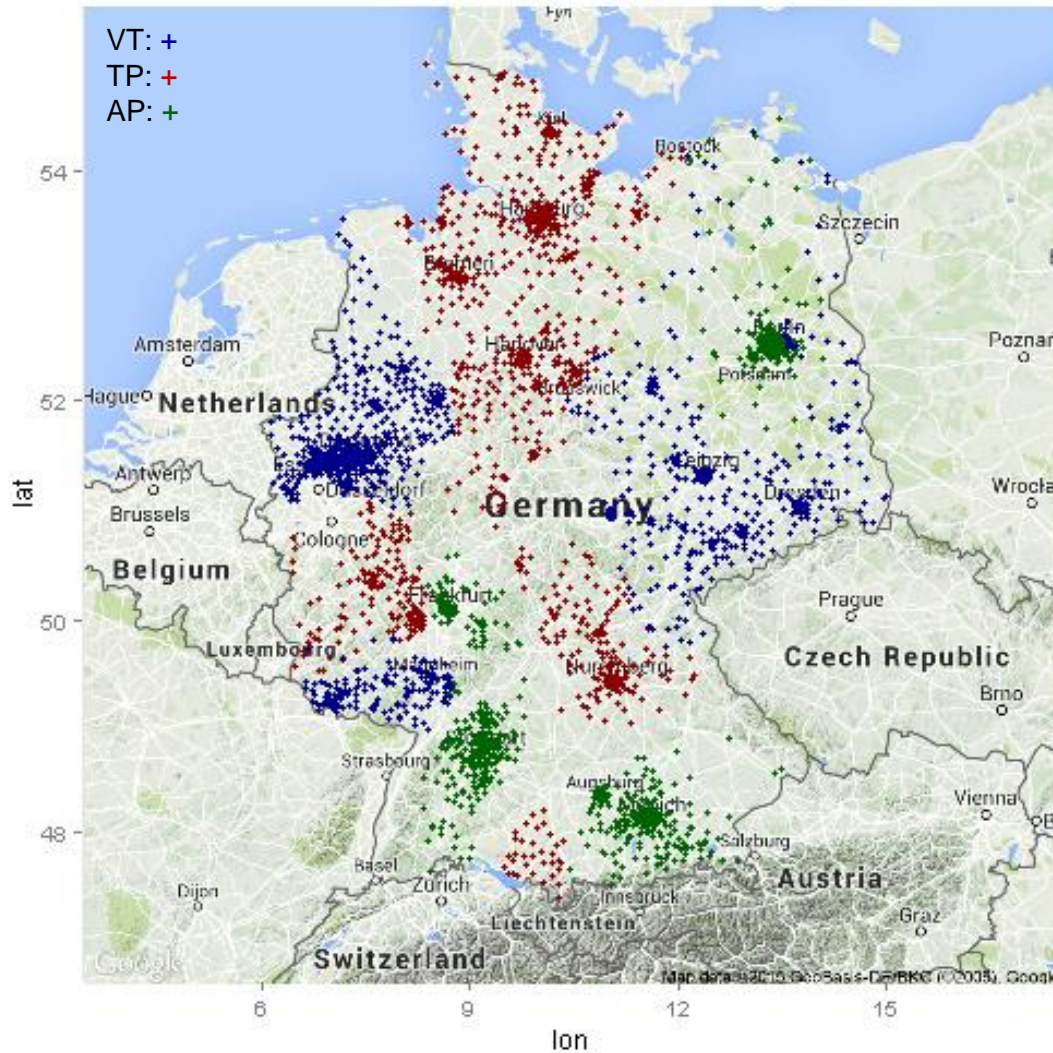
- Preserves geographic granularity, creates statistical reliability

Different cluster algorithms available, used here: Kulldorf & Nagarwalla (KN)<sup>1</sup>

- Approach:
  1. Calculate observed and expected values of psychotherapist specialties, as well as total number of psychotherapists in each ZIP-Code (population)
  2. Create a distance matrix of Great-Circle-distances between ZIP-Codes
  3. Take each ZIP-Code as possible cluster centroid, test for significance. Aggregate ZIP-Code-regions by distance if needed, until a) cluster is significant, or b) maximum proportion of population has been aggregated
- **Parameters:**  $\alpha$ , maximum proportion of population (+ number of iterations if bootstrapping is used)



# 1) Regional Specialization

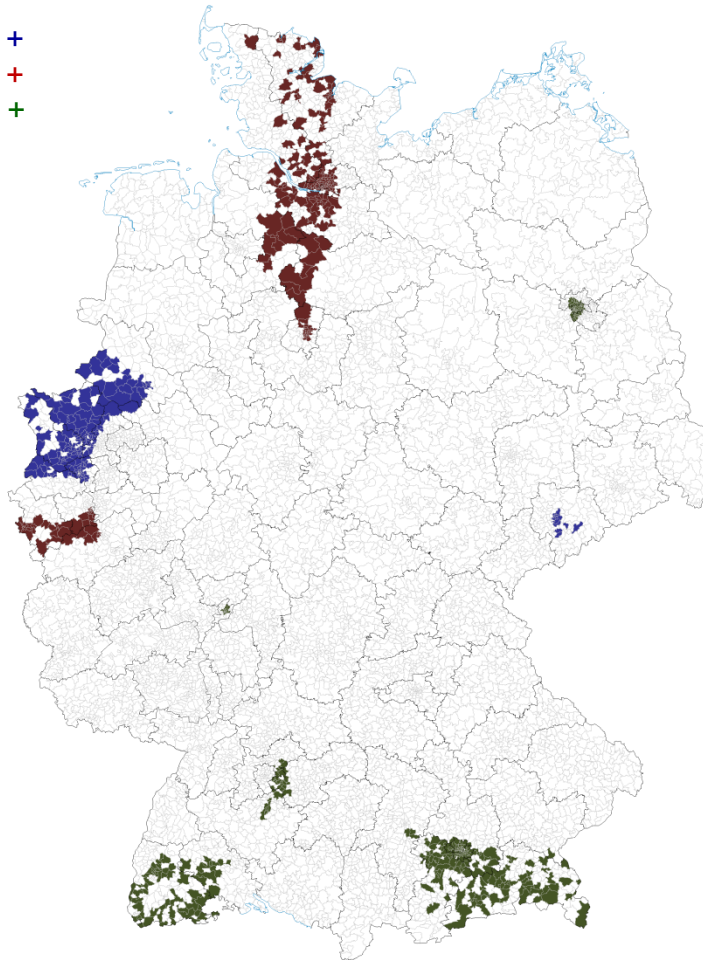


## Number of Clusters

VT: 1021 (166-351 regions)  
TP: 1021 (200-369 regions)  
AP: 876 (113-243 regions)

# 1) Regional Specialization

VT: +  
TP: +  
AP: +



**Number of ZIP-Codes with  
unique specialization**

VT: 193  
TP: 264  
AP: 388

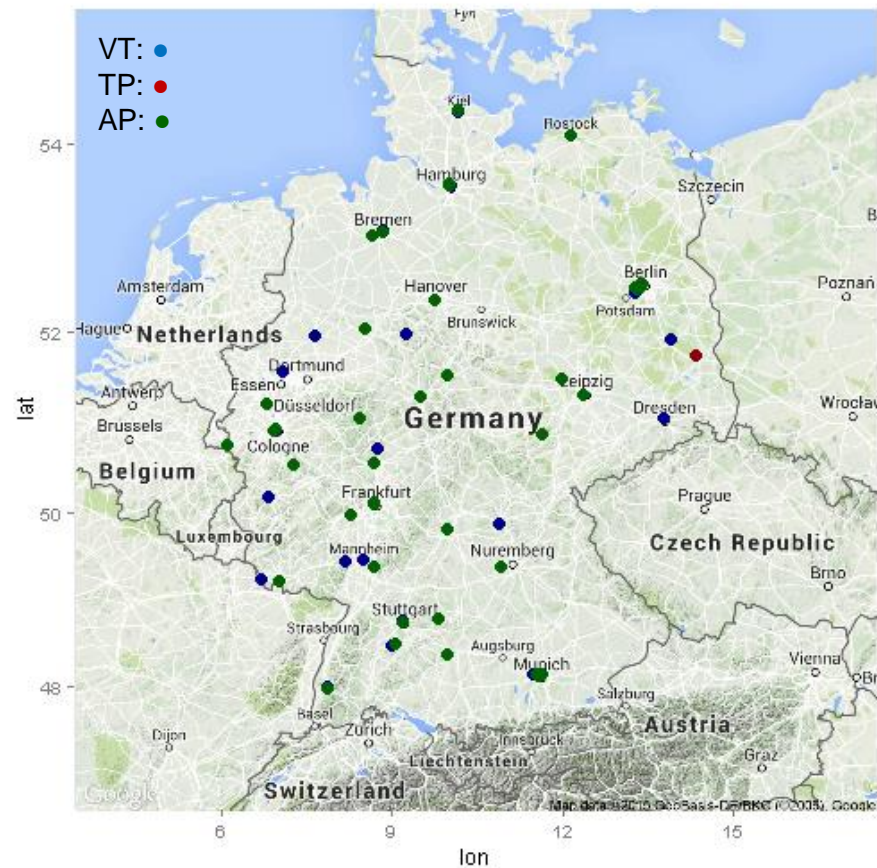


## 2) Causes for Specialization

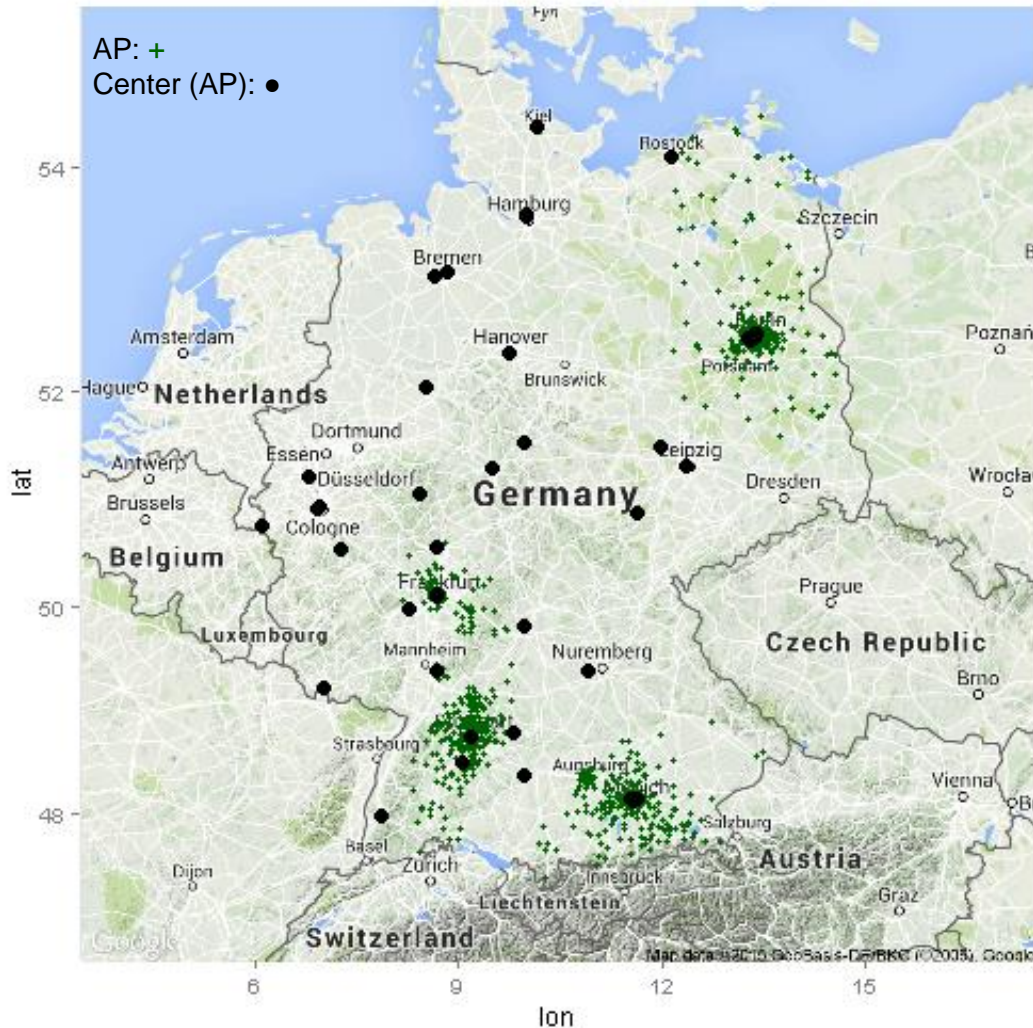
**Hypothesis:** Centers for psychotherapy education with a certain specialization determine later ambulatory care specialization

1998: **72** education centers

- VT: 48 (66%)
- TP: 1 (1%)
- AP: 23 (32%)



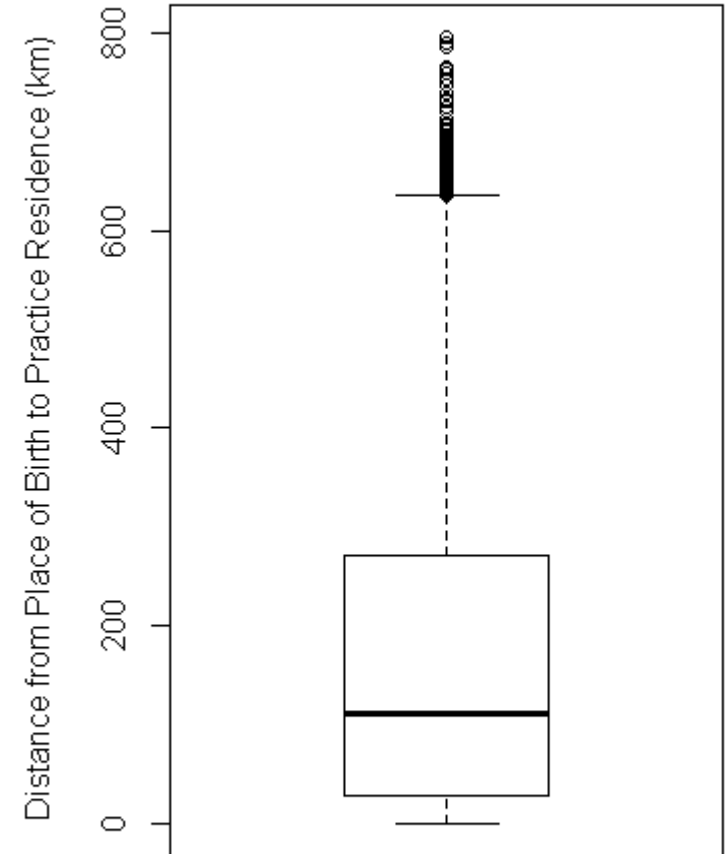
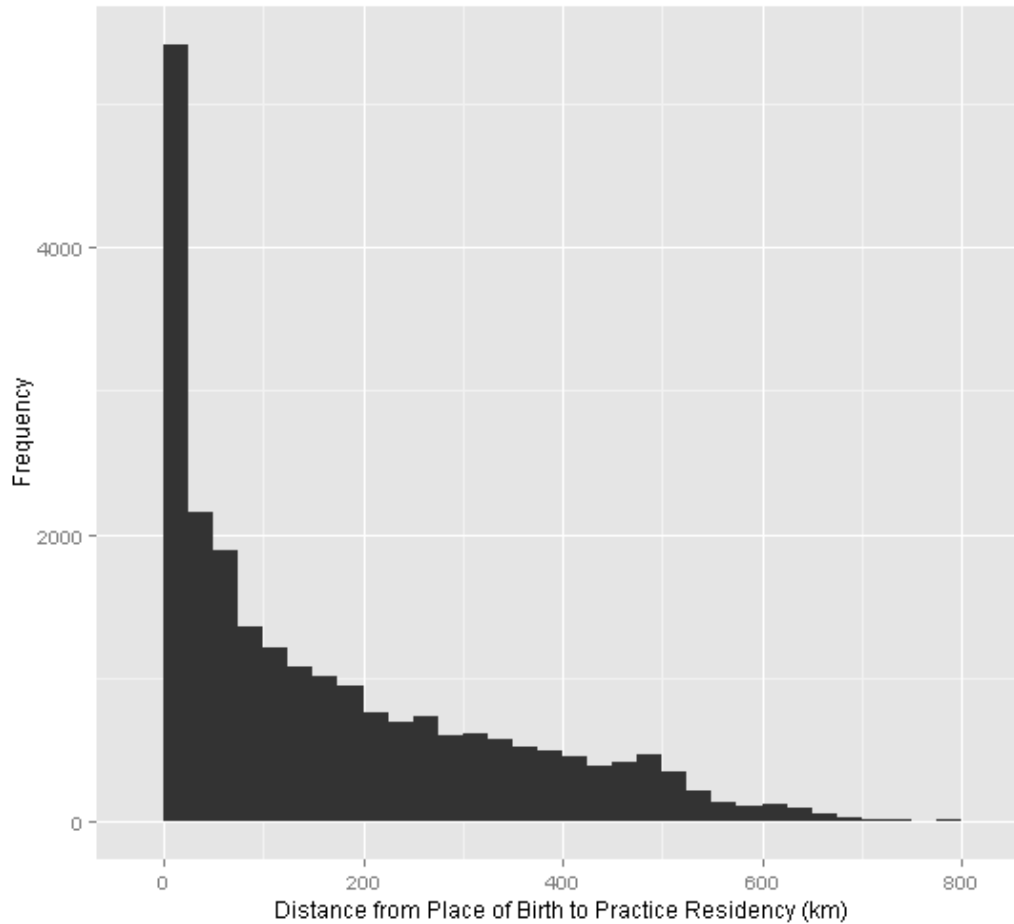
## 2) Causes for Specialization



- Cluster closer to center of corresponding specialization than to others

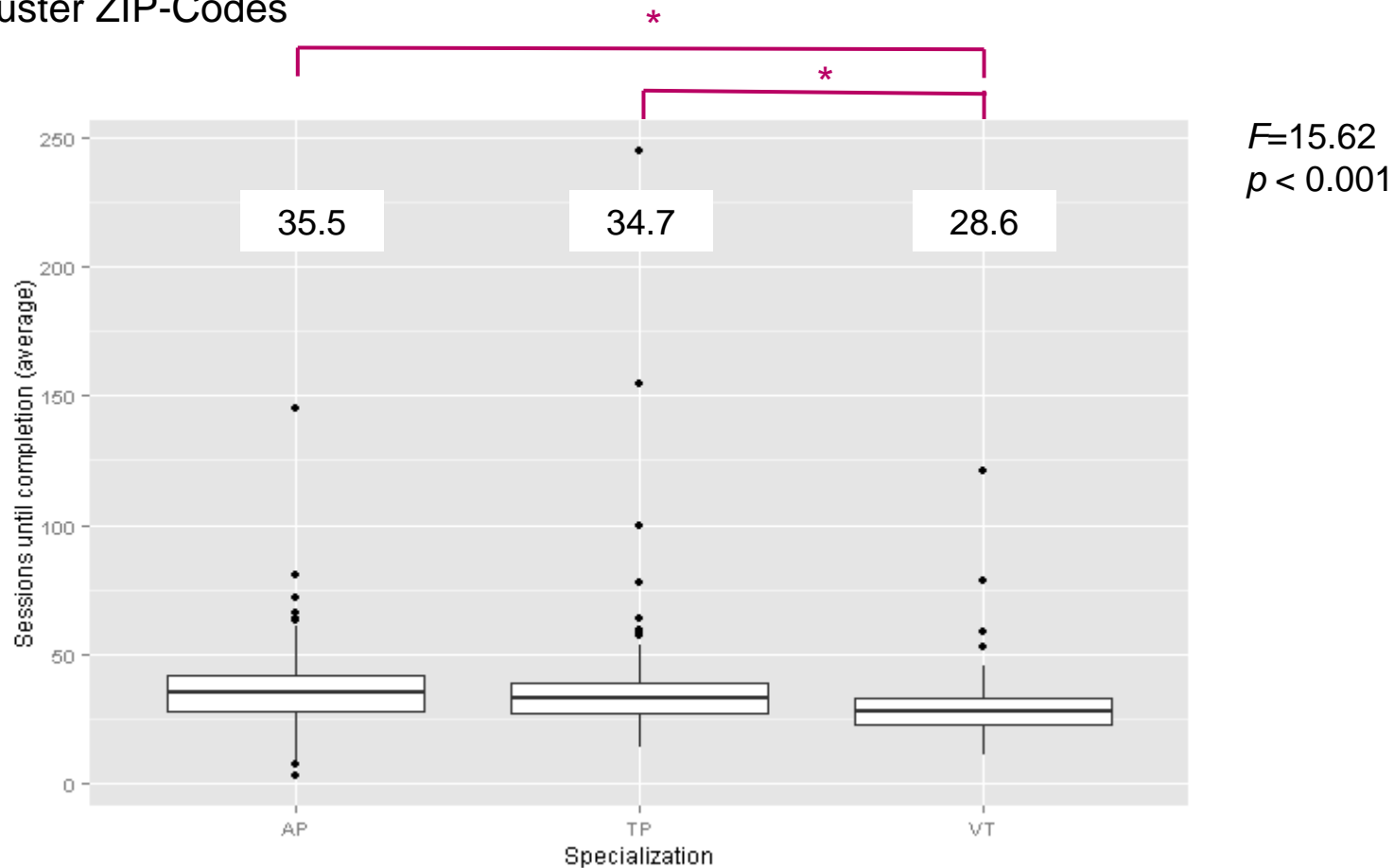
## 4) Causes for Specialization

### Migration Patterns



### 3) Effects

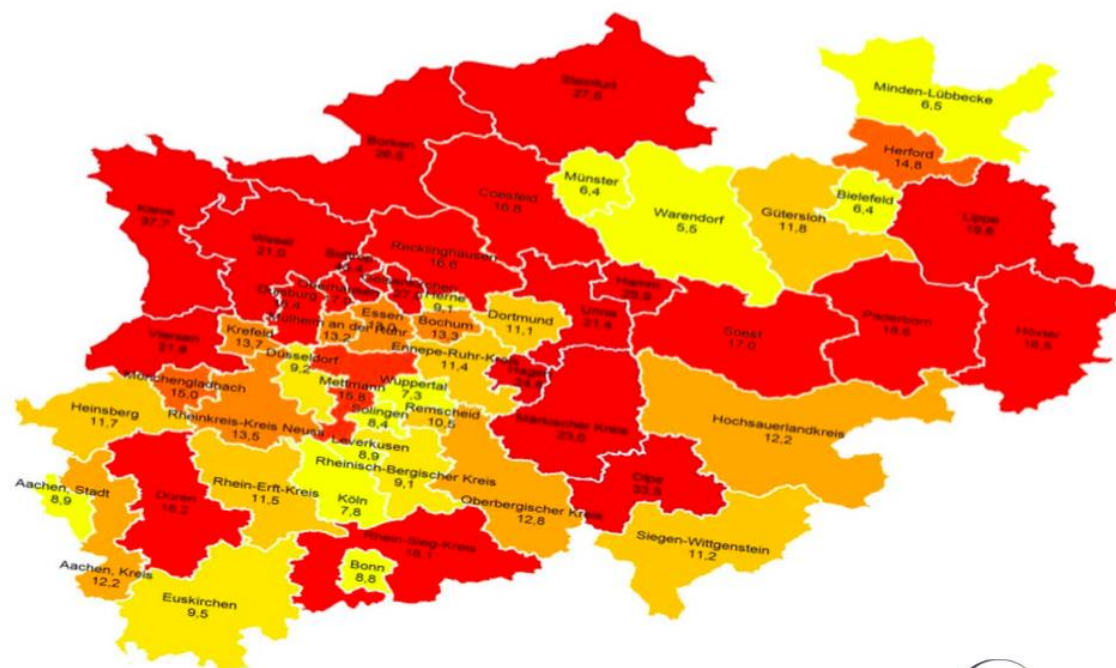
Average number of psychotherapy sessions until completion, compared among unique cluster ZIP-Codes



### 3) Effects

## Average waiting times for initial sessions (weeks)

Abbildung 11: Wartezeiten auf ein psychotherapeutisches Erstgespräch in Nordrhein-Westfalen (Mittelwerte in Wochen)



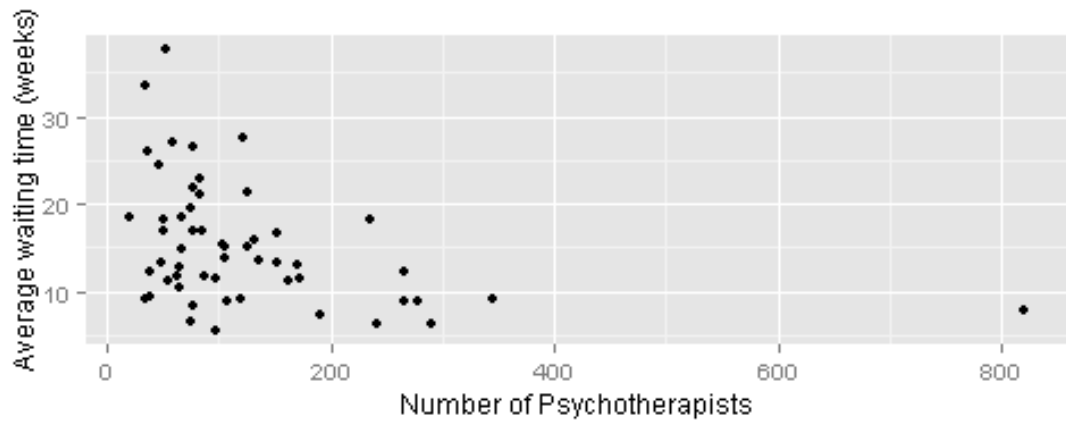
Quelle: BpTK, 2011



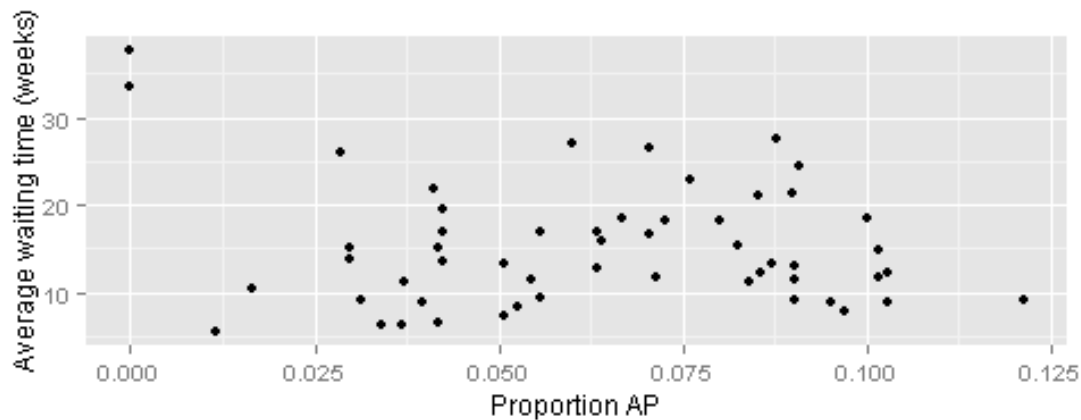


### 3) Effects

Waiting times correlate with number of psychotherapists in the region, but not with proportion of AP



$$R^2=0.13$$
$$p = 0.007$$



$$R^2=0.03$$
$$p = 0.258$$

# Summary

1. Geography is destiny for both, patients and physicians
  - Education centers' specializations create specializations in ambulatory psychotherapy
2. Effects on mental health care delivery, uncertain for access (hard factors)

## Limitations

- Waiting times for initial session limited to homogeneous region (VT)
- Regional psychotherapy demand needed as control – hard to deduce

## To Do

- In-depth analysis of Federal Physician Registry Data – migration patterns
  - Accounting for age trends and specialization differences

Soon more at <http://versorgungsatlas.de/>

## Literature and Sources

1. Multmeier, 2014: Ambulante psychotherapeutische Versorgung in Deutschland – eine Kohortenbetrachtung der KBV, Projekt Psychotherapie, 2, 2014, p. 12-22.
2. Gómez-Rubio, Ferrándiz & López, 2003 : Detecting Clusters of Diseases with R. Proceedings of the 3rd International Workshop on Distributed Statistical Computing (DSC 2003).
3. BPtK, 2011: BPtK-Studie zu Wartezeiten in der ambulanten psychotherapeutischen Versorgung. [http://www.bptk.de/uploads/media/110622\\_BPtK-Studie\\_Langfassung\\_Wartezeiten-in-der-Psychotherapie\\_01.pdf](http://www.bptk.de/uploads/media/110622_BPtK-Studie_Langfassung_Wartezeiten-in-der-Psychotherapie_01.pdf) (retrieved June 2nd, 2015)

# Questions?

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