



seit 1558

Gatekeepers in regional networks of innovators

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Structure of the talk

- 1 Introduction
- 2 Methodological approach
- 3 Gatekeepers
- 4 Development of Gatekeepers
- 5 Conclusions

Regional innovation systems and gatekeepers

Regional innovation systems

- Innovation as an interactive process
- Geographical proximity facilitates personal relationships
- Personal contact (\Rightarrow trust) allows for transfer of (tacit) knowledge

Local 'buzz' and global 'pipelines' (Storper & Venables 2004; Bathelt, Malmberg & Maskell 2004)

- Internal cohesion of a local network increases specific knowledge-stock
- BUT: risk of lock-in
- Successful actors generate novelty by combining local with external knowledge

'Gatekeepers' (Giuliani 2005)

- Actors that serve two functions for the regional innovation system: external knowledge sourcing and diffusion within the local system

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Research questions

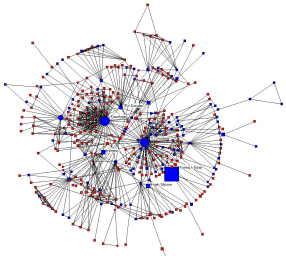
- Workable definition of gatekeepers
- Are there gatekeepers within all regions?
- How can gatekeepers be characterised (size, organisational type, absorptive capacity)?
- Relationship between openness of the system, internal density and innovative success

Methodology

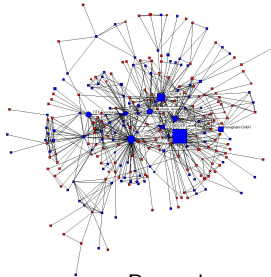
- **Social network analysis** to investigate networks of innovators
- German **patent data** between 1995 and 2001
- **Four regions**: Dresden, Jena, Halle and Rostock (Raumordnungsregionen)
- **Boundaries** of the networks: patents with **at least one inventor** located in the respective region
- **Linkages** between two innovators (patent applicants) if they
 - ... jointly apply for a patent ('co-operation') or if
 - ... the same inventor worked for both innovators on distinct patents ('scientist mobility')
- Innovators are **external** if they are themselves not located in the region (neither headquarters nor subsidiary)

Main components of networks

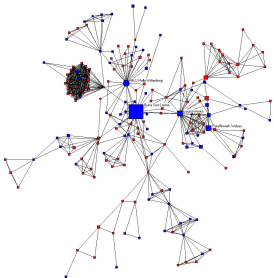
Dresden



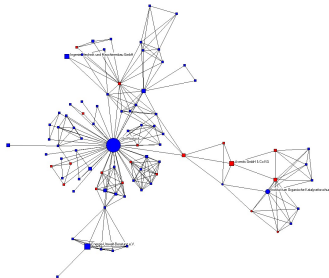
Jena



Halle



Rostock



Data description

	Dresden	Jena	Halle	Rostock
Patents	3720	2094	1385	618
Actors	1158	694	546	345
internal	51.8%	56.2%	48.2%	73.6%
Relations	5870	4430	3278	1690
within internal	21.5%	34.6%	17.9%	60.1%
between in- and external	48.4%	47.0%	40.9%	32.1%
within external	30.1%	18.4%	41.1%	7.8%

- Outward orientation in Dresden and Halle
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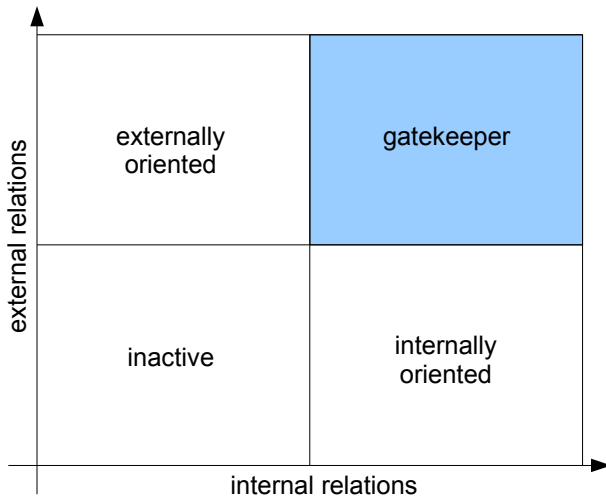
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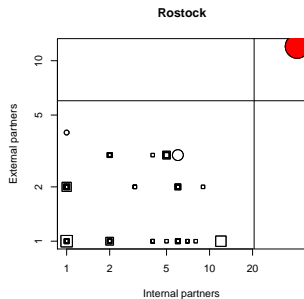
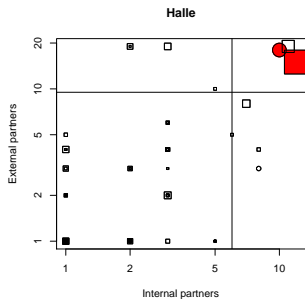
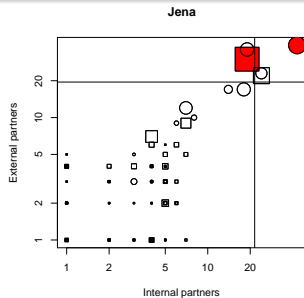
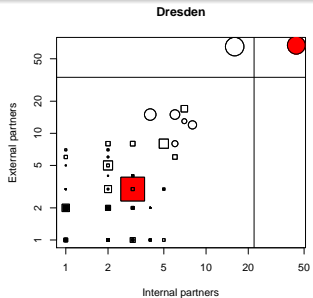
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Definition of gatekeepers



Gatekeepers (internal actors only)



Hypotheses

Hypothesis (size)

Positive correlation between size and the extent to which this actor serves the function of a gatekeeper

Hypothesis (absorptive capacity)

Absorptive capacity positively influences the probability of being a gatekeeper

Hypothesis (public research)

Public research organisations serve the functions of a gatekeeper to a higher degree than private actors.

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Characteristics of gatekeepers – OLS regression

Dependent variable: internal \times external partners (N = 1507)

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C	-7.32**	-12.92***	-11.86***	-1.97	1.62
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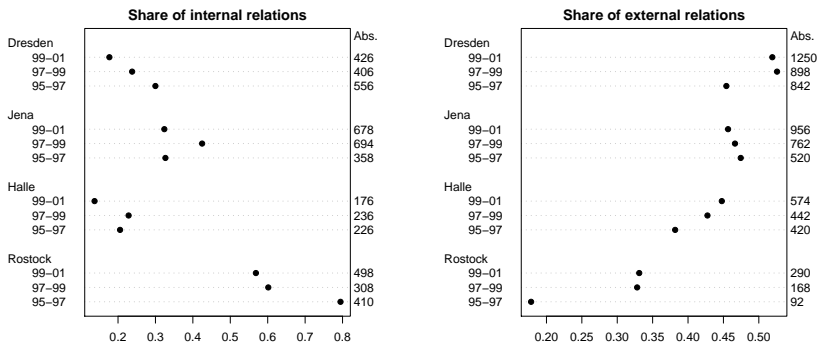
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- Similar results with TOBIT

Dynamic view – internal and external relations

- Whole period is divided into three subperiods to observe changes over time

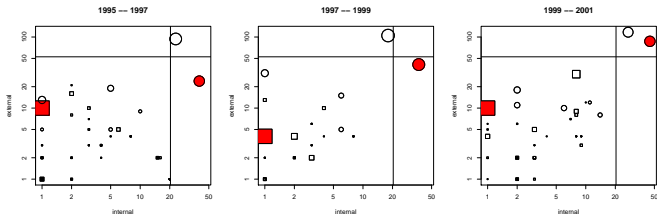
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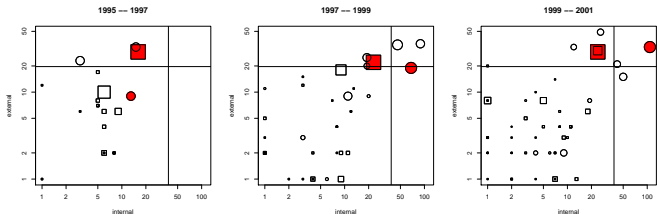


Gatekeepers in Dresden and Jena

Dresden

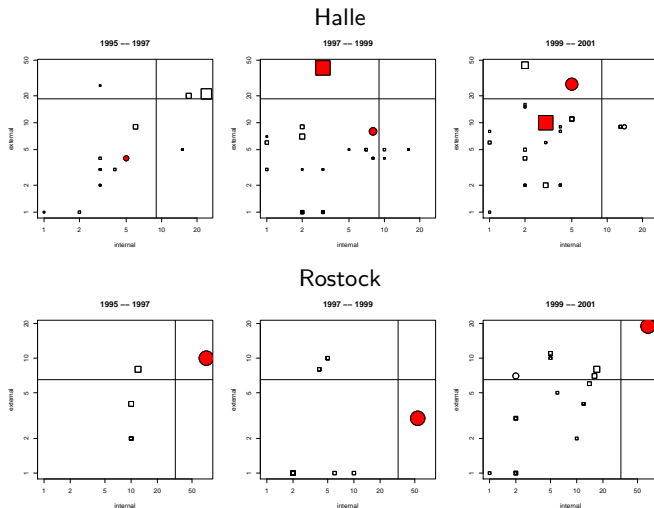


Jena



Note: number of relations; lines are means over maximum values for each period

Gatekeepers in Halle and Rostock



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- Local universities serve the function of a gatekeeper in all regions
- Sharp differences between regions with respect to internal density and external knowledge sourcing
- Different dynamics in regional systems
 - Rostock seems to develop into the 'right' direction
 - No development of internal density in Halle

Open questions

- Difficulties in defining 'gatekeepers'
 - Cut-off values
 - Benchmarks
 - Centrality measures for the internal position
- 'Quality' of external linkages
- *Optimal* mix of internal density and external linkages?

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