Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis
OUTLINE OF THE PRESENTATION

• The Question of Governance in Metropolitan Regions
• Design of the Comparative Case Study
• What is Social Network Analysis?
• Results
• Conclusions and Discussion
The Question of Governance in Metropolitan Regions

- mostly defined in relation with Government, which is a formal administrative structure
- Governance is more than that — it includes the voluntary sector, NGOs, private organizations, and intergovernmental (and multi-scalar) linkages
- two competing / different schemes: “centralized” and “decentralized”
  - German cities are more likely to have central governmental structures
  - US metropolitan areas are typically devoid of such monolithic central institutions
- It is an empirical question as to which system of governing is better: it is likely that there is no clear answer.
- The formal null hypothesis of this paper is that all types of measures (representations of metropolitan governance) will be identical for both metropolitan regions.
  - The formal null hypothesis is mostly rejected.
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Design of the Comparative Case Study

- To simplify matters, we have chosen to focus on the governance of a single issue: planning for adaptation to issues raised by climate change.

- Hamburg metropolitan region a “top down”

- South Florida region “bottom up” example

- Analyzing the two Networks with Social Network Analysis tools

- UCINET network analysis software is used to examine the pattern of interaction among stakeholders

- The software returns maps of the network and indicators of size, connectivity, and cluster.

  ➔ Each of these indicators tells us about different attributes of the governance structure.
### Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis

#### Why those Metropolitan Regions?

<table>
<thead>
<tr>
<th>Metropolitan Region Hamburg</th>
<th>Variable</th>
<th>South Florida MSA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population Size (2010, 2000)</td>
<td>5,564,635 / 5,007,564</td>
</tr>
<tr>
<td></td>
<td>Area Size</td>
<td>15,896 km²</td>
</tr>
<tr>
<td></td>
<td>Population Density (2010)</td>
<td>217 per km²</td>
</tr>
<tr>
<td></td>
<td>Per Capita Income (2008)</td>
<td>$26,500</td>
</tr>
<tr>
<td></td>
<td>Unemployment (2010)</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

**Similarity:** rough equivalencies in terms of
- location (on major water bodies)
- function (ports trying to become knowledge centers)
- administrative and political complexity (multiple jurisdictions)
- size (roughly equivalent)

**Difference:**
- how governance is organized

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Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis

The Projekt KLIMZUG - Nord

• KLIMZUG (Klimawandel in Regionen zukunftsfähig gestalten) is a funding initiative of the Bundesministerium für Bildung und Forschung (BMBF) it supports the preparation of plans or projects for adapting to climate change.

• This funding initiative supports to embed the awareness of the need for adaptation to climate change in our society.

• The BMBF is supporting seven model regions, from 2009 through 2014.

• The KLIMZURD-NORD project is one of the seven national pilot projects.

“Partners of KLIMZUG-NORD are going to research the consequences of climate changes to urban areas, agricultural sites and the tidal riverbed of the Elbe within the city of Hamburg. Taking into account research data, environmental planning, city law, and economic plans, a range of action plans are going to be recommended. The target entails a coordinated action plan for the city regions, including a master plan which reaches to the year 2050.”
The Southeast Florida Climate Change Compact

• The compact became official with the signing in January 2010.

• It gives the counties (Broward, Miami-Dade, Monroe and Palm Beach) a framework and structure for working together by developing a coordinated response to any proposed climate legislation policies, to dedicate staff time and resources towards the creation of a Southeast Florida Regional Climate Change Action Plan, which would include mitigation and adaptation strategies, and to meet annually in Regional Climate Summits to mark progress and identify emerging issues.

• The Draft Regional Climate Action Plan was released on December 9th, 2011.

• This plan is both a summary of work done and an update on what is still left to accomplish.
What is a Social Network Analysis?

- First of all, a metaphor has morphed into an “approach” and is approaching “paradigmatic” status.
- Social network analysis (SNA) is not new; the idea has been around for over a century.
- The key difference between SNA and traditional social science analysis is the focus of measurement.
- In SNA, the key attribute to be measured are “links” between actors (called nodes);
- In traditional social science analysis, the key attributes to be measured are aspects of the nodes (income, race, gender, etc.).
To encapsulate and capture the relationship of the actors, a matrix was used to map the connections.

- The matrix consists of n rows and m columns. The number of stakeholders determines the size of “n” and “m”.

- The matrix shows the relationship between the members of the project by using the number 1 to represent a connection and the number 0 to represent no connection.

Stakeholder B has a connection to stakeholder A and C, and thus has a “1” in its cell. Relationships between stakeholders and themselves are excluded.

<table>
<thead>
<tr>
<th>Example:</th>
<th>Stakeholder A</th>
<th>Stakeholder B</th>
<th>Stakeholder C</th>
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</thead>
<tbody>
<tr>
<td>Stakeholder A</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Stakeholder B</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Stakeholder C</td>
<td>0</td>
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Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis

## Results

<table>
<thead>
<tr>
<th>Institution</th>
<th>Clus Coef</th>
<th>nPairs</th>
<th>Clustering Coefficients</th>
<th>Institution</th>
<th>Clus Coef</th>
<th>nPairs</th>
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<tbody>
<tr>
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<td></td>
<td>City of Hamburg</td>
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<tr>
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<table>
<thead>
<tr>
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<th>Bonacich Power</th>
<th>Institution</th>
<th>Power</th>
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<td>3.856</td>
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<td>1.355</td>
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</tbody>
</table>

Southeast Florida Climate Change Compact

KLUM/D - Nord

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Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis

Results

**Shape** Results / Analysis

- The KLIMZUG - NORD network resembles a star. This result is due to the influence of both the coordinating stakeholder and the financing stakeholder that are connected to every member of the network.

- The shape of the Southeast Florida Regional Climate Change Compact network resembles a spider web with four big sub-webs connected through the main stakeholders – the individual counties. The four sub-groups represent the three technical work groups and the Broward County Climate Change Task Force. The shape shows that each group is a relatively self-contained entity.
Results

**Connectivity Results / Analysis**

SFRCCC network has 2,358 ties and KN network has 845 ties.

**Average distance** of the KN network is 1.848 compared to 1.713 for the SFRCCC network.

- average number of steps between individual stakeholders is shorter in South Florida than in Hamburg.

**Longest distance** between stakeholders is longer in South Florida than in Hamburg, 5 steps to 2 steps.

- South Florida network tends to be more local and not network wide
- visible in the visualization
- reinforces the notion that the sub groups are self-contained.
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**Density** Results / Analysis

- The **compactness coefficient** measures how “well” the network is connected.
- .622 for the SRFCCC network, .576 for the KN network. 
  - sub-groups in South Florida are more connected within
- The **density coefficient** measures how “solid” the network is.
- SFRCCC has a density coefficient of 29.44% compared to the KN network derived coefficient of 15.23%.
- This measure reinforces the visual graphic representation of the two planning networks.
Results

Cluster Results and Analysis

- UCINET returns both overall and weighted graph clustering coefficients.

- The weighted overall graph clustering coefficient shows a huge difference between the SFRCCC network coefficient of .767 and KN coefficient of .273.

- The overall graph, the KN clustering coefficient is .896 compared to .917 for SFRCCC, these are nearly identical. This value shows us the average of all the actors relating to the densities of their neighborhoods.
Comparing Metropolitan Governance in Germany and the US: A Social Network Analysis

Results

Centrality Results and Analysis

• The Bonacich Power coefficient measures the power of the actors.

• The idea is that stakeholders who have more ties than others may have a good position. But following Bonacich, a stakeholder does not have power through this, is the amount of connections but due to its position in its neighborhood.

• If your neighbors are dependent on you, that puts you in a powerful position.

⇒ the amount of connections is not as important as having the right connections.
Conclusions & Discussion

The shape and the institutionalization of a network is based on the genesis, the structure of stakeholders within a governance system, and the reasons why this network was implemented.

- Both networks validate the assumption that German metropolitan areas are more likely to have a centralized governmental structure whereas US metropolitan areas have more decentralized structures.

- The KLIMZUG-NORD project is a metropolitan-regional government project while the Southeast Florida Regional Climate Change Compact shows an example of a bottom-up approach.

- The networks confirm the idea that municipal governments play an important role in the governance of metropolitan area. The most connected and powerful stakeholders are “government players”.

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References


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• KLIMZUG KLIMAWANDEL IN REGIONEN (http://www.klimzug.de/de/109.php) [2012]


• SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT (http://www.southeastfloridaclimatecompact.org/) [2012]
Thank you, for your interest!