Understanding Barriers and Drivers for Urban Climate Adaptation

Paul Lehmann, Miriam Brenck, Oliver Gebhardt, Sven Schaller, Elisabeth Süßbauer

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OUTLINE

- Introduction
- Framework
- Empirical Approach
- Empirical Results
- Conclusion
WHY ARE CLIMATE IMPACTS PARTICULARLY CHALLENGING IN CITIES?

- High quantity and density of population
- High value of infrastructure investments
- Concentration of administrative, economic and social functions
- Urban-specific land use patterns (e.g., high degree of surface sealing)
- Strong urban-rural interlinkages (e.g., for food and water supply)

→ Urgent need for adaptation action
RESEARCH FOCUS

- Empirical findings for urban areas (e.g., Betsill/Bulkeley 2007, Hunt/Watkiss 2011):
  - Climate-related strategies and action still in their infancy
  - Strong focus on mitigation

- Research question:
  - What are barriers and drivers for planned adaptation in cities?

- Hampering or promoting characteristics of the different variables influencing planned adaptation

- Deliberative policy decisions to increase adaptive capacity
  (Parry et al. 2007)
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RELEVANT VARIABLES

- Natural and socio-economic conditions
- Actor-specific characteristics
- Institutions

Decision on planned adaptation in cities

- Information
- Incentives
- Resources

Similar to Moser/Ekstrom 2010, Reser/Swim 2011

Similar to Eisenack/Stecker 2011
DETERMINANTS OF ADAPTATION DECISIONS

Decision on planned adaptation in cities

- Information
  - CC impacts & vulnerability
  - Adaptation options
  - Costs and benefits of options

- Incentives

- Resources

Natural and socio-economic conditions
Actor-specific characteristics
Institutions

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DETERMINANTS OF ADAPTATION DECISIONS

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Decision on planned adaptation in cities

Incentives
- Benefit-cost ratio of adaptation
- Priority of adaptation
- Co-benefits with other policy goals

Resources

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DETERMINANTS OF ADAPTATION DECISIONS

Decision on planned adaptation in cities

Natural and socio-economic conditions
Actor-specific characteristics
Institutions

Information
Incentives

Resources
- Budget
- Personnel
- Technologies
- Staff expertise
- Time

Introduction
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DETERMINANTS OF ADAPTATION DECISIONS

Decision on planned adaptation in cities

Natural and socio-economic conditions
- characteristics of CC, natural environment
- Level of economic development, demography

Actor-specific characteristics

Information

Incentives

Resources

Introduction Framework Empirical Approach Empirical Results Conclusion
DETERMINANTS OF ADAPTATION DECISIONS

Decision on planned adaptation in cities

Natural and socio-economic conditions
- Information
- Incentives
- Resources

Actor-specific characteristics
- perceptions, preferences, experiences and knowledge ("mental models")

Institutions
DETERMINANTS OF ADAPTATION DECISIONS

Decision on planned adaptation in cities

Natural and socio-economic conditions
Actor-specific characteristics

Information
Incentives
Resources

Institutions
- Formal and informal rules guiding interactions
- Mainstreaming, participation, multi-level governance

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CASE STUDY CITIES

Selection criteria:
1. Function
2. Size
3. Population dynamics
4. Economic Development
5. Stage of adaptation planning

→ Deliberately heterogeneous sample

Lima (L)
1. National capital
2. Megacity
3. Fast growing
4. Developing economy
5. Planning initiated

Berlin (B)
1. National capital
2. Large city
3. Stable
4. Developed economy
5. Plan adopted

Santiago de Chile (S)
1. National capital
2. Large city
3. Growing
4. Emerging economy
5. Planning advanced

Sangerhausen (SGH)
1. Model city
2. Small town
3. Shrinking
4. Developed economy
5. Planning completed
INTERVIEWS

- Semi-structured interviews with experts from
  - Administration
  - Politics
  - NGOs
  - Science

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- Not representative, rather meant to provide anecdotal evidence, test the framework
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INCENTIVES

Natural/socio-economic conditions

- Irregular observability of climate impacts (L, SGH)
- Long time scales of impacts (L, SGH)
- High priority of other public concerns (L, S)

Drivers

- Co-benefits with other public concerns (B)

Actors’ characteristics

- Insufficient willingness to take responsibility (S)

- High personal priority of adaptation (L, B), e.g. due to NGO background (L)

Institutions

- Lacking political mandate for adaptation from higher administrative levels (S, SGH)
- Lacking coordination between urban and rural areas (L, S)
- Organizational routines (L, S, SGH)

- First legal requirements (L, B, SGH)
- Financial assistance programs contingent on adoption of climate policies (L, S, B, SGH)
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SUITABILITY OF FRAMEWORK

Framework useful to understand barriers and drivers for planned urban adaptation in quite heterogeneous contexts
IMPORTANT EMPIRICAL LESSONS

- Natural and socio-economic conditions usually constrain information, incentives and resources.
- Actor-specific characteristics are particularly decisive for the perception of information and individual willingness to take action.
- Several institutional issues:
  - Mainstreaming is insufficient in most cases.
  - Cross-sectoral coordination is a challenge.
  - Strong guidance from state and national levels is needed.
  - Participation is slowly gaining importance.
- Spatial and temporal fit of the natural conditions and the institutional arrangements is essential.
Thank you for your attention!
**Complexity of the climate system (L,S,B,SGH)**

- Lack of individual awareness (L,SGH)
- Lack of institutionalized information exchange at the city level (L,S)
- Lack of guidance from national organizations (L,S)
- Lack of institutional memory (L,S)

**Actors’ characteristics**

- High individual awareness, e.g. due to personal contact to scientists (B, SGH) or NGO background (L)

**Institutions**

- Departments and committees dedicated to information exchange at the city level (B)
- Information provision by State authorities (B,SGH)
RESOURCES

Barriers

- General budget constraints (L,S,B,SGH)
- High priority of other public concerns (L,S,SGH)

Drivers

Natural/socio-economic conditions

Actors’ characteristics

Institutions

- Poorly developed fiscal federalism (S)
- Overlapping competences of governance levels (L,S)
- Insufficient institutional embeddedness of adaptation (L,S,SGH)
- Coordination by environment department (L)

- Well-renowned coordinating unit (B)
- Financial support for adaptation planning (L,B,SGH)
- Participation of science (L,SGH), business (B)