

# SPATIAL ASPECTS IN ECONOMIC RESEARCH

## Cumulative Habilitation Thesis

by

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### Abstract

*Everything is related to everything else, but near things are more related than distant things. (Tobler n.d., page 236)*

Today, economies are interconnected systems, which vary in their scale of economic flows of goods, capital, and services, their movement of people, and their exchange of information and cultural norms. Spatial interconnectivity means that idiosyncratic shocks affecting a spatial unit directly or indirectly impact all the other units in the system, which are spatially connected. Recent improvements in data availability, such as easy access to remote sensing data, geospatial data, geo-coded census data, and developments in the statical and econometrical toolbox, allow integrating spatial properties in many economic research questions. This is a significant development. Including spatial properties and spatial interdependencies in the economic analysis allows in specific cases for a much more realistic and detailed analysis and policy suggestions.

The papers in this habilitation thesis address various spatial aspects in analyzing economic systems. The first part deals with spatial spillovers and spatial agglomeration in different economic research questions. In the first two papers in this subsection, I directly estimate the impact of spatial spillovers - first, at the national level between governments in complying with an international environmental agreement; second, at the subnational level in the development of institutions. In the third paper, I analyze

the spatial distribution of phosphorous pollution and discuss policy consequences. In the fourth paper, I analyze the impact of supply-side market structure in the context of spatial competition on the diffusion of solar-home systems in Bangladesh. The second part of this thesis covers different aspects of how environmental preferences shape patterns in international trade in natural resources. In this subsection in the first and second papers, I analyze the impact of international agreements, which set a specific sustainable product standard, on international trade in tropical timber and rough diamonds, respectively, for signatory countries as well as non-signatory countries. In the third paper in subsection 1.2, I analyze the impact of international trade in wildlife on the spread of zoonotic disease risk and determine the potential of an international trade agreement to manage zoonotic disease risk by controlling how often humans and animals come into contact during wildlife trade. Finally, the third part of this thesis addresses the local impacts of extreme weather events and the assessment of different adaptation measures. In the first paper in this part, I analyze the local impacts of adverse weather conditions on air traffic delays, which is an important question considering the increasing frequency and intensity of extreme weather events due to climate change in the future. In the second paper, I deal with the question of who should bear the costs of flood risk mitigation activities. In particular, I investigate the unintended consequences of public flood risk mitigation activities on individual uptake of flood insurance at the community level in the United States. And finally, in the third paper, I explore the role of the Fair Trade program on smallholders' adaptation to climate change impacts in the Global South.

## References

Tobler, W. R. (n.d.), 'A computer movie simulating urban growth in the detroit region', *Economic Geography* **46**.

Table 1: Overview of publications per research topic

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**Section 1: Space and spatial interaction in economic systems**

Zaman, R. and Borsky, S. (2021) The impact of supply structure on solar home system installations in rural off-grid areas, *Environmental Innovation and Societal Transitions*, 40: 625 - 644.

Borsky, S. and Kalkschmied, K. (2019) Corruption in Space: A closer look at the world's subnations, *European Journal of Political Economy*, 59: 400-422.

Parchomenko, A. and Borsky, S. (2018) Identifying phosphorus hot spots: A spatial analysis of the phosphorus balance as a result of manure application, *Journal of Environmental Management*, 214:137-148.

Borsky, S. and Raschky, P.A. (2015) Intergovernmental Interaction and Compliance With an International Environmental Agreement, *Journal of the Association of Environmental and Resource Economists*, 2(2):161-203.

**Section 2: International agreements and international trade in natural resources**

Borsky, S. and Leiter, A. (2021) International trade in rough diamonds and the Kimberley Process Certification Scheme, *World Development*, forthcoming.

Borsky, S., Hennighausen, H.B., Leiter-Scheiring, A. and Williges, K. (2020) CITES and the Zoonotic Disease Content in International Wildlife Trade, *Environmental and Resource Economics*, 76: 1001-1017.

Borsky, S., Leiter-Scheiring, A. and Pfaffermayr, M.(2018) Product Quality and Environmental Standards: The Effect of an International Environmental Agreement on Tropical Timber Trade, *World Economy*, 41(11): 3098-3129.

**Section 3: Climate variability, climate change and adaptation**

Borsky, S. and Hennighausen, H.B. (2021) Public flood risk mitigation and the homeowner's insurance demand response, *Land Economics*, forthcoming.

Borsky, S. and Unterberger, C. (2019) Bad Weather and Flight Delays: The Impact of Sudden and Slow Onset Weather, *Economics of Transportation*, 18: 10-26.

Borsky, S. and Spata, M. (2018) The Impact of Fair Trade on Smallholders' Capacity to Adapt to Climate Change, *Sustainable Development*, 26(4):379-398.

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