UNIVERSITÄT BAYREUTH

Economics VII: Chair of
Quantitative Economic History

Universität Bayreuth, 95440 Bayreuth; Germany

Bayreuth, 13.03.2023

Summer Term 2023

Data Science in Economic History: Spatial Analysis and Mapping

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Tuesdays, 16:15-17:45, S56

Course Summary

This Master course provides an overview of spatial analysis and mapping in R with applications in economic history. The first part of the course introduces students to the basic toolkit in geospatial research (as used in economics). We will discuss the handling of vector and raster data, the processing of spatial data, map making and a selection of more advanced topics. The second part of the course then applies the tools by replicating spatial analyses of research papers in economic history and long-run development.

General Information

The course will be taught in **English.**

Target Groups:

- Master's students in History and Economics, Economics and related degree programmes
- Advanced undergraduate students with a profound knowledge of econometrics and R

Prerequisite: Students should be familiar with basic econometric methods (esp. on causal inference). Prior exposure to R is recommended (although not strictly necessary) as we will not learn R from scratch.

Enrolment is restricted to 15 students. Please sign up for the course on campus online (first come, first serve). Registration opens on 15.03.2023 and closes on 14.04.2023.

We will make slides and papers available via e-learning.

Grading

- Two take-home problem sets: 20% (10% each)

  The two take-home problem sets, due on 16.05. and 20.06.2023, will ask you to apply methods taught in the course to real-world data using R.

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- Term paper (max. 5000 words): 80%

  In the term paper, due on 30.09.2023, we will ask you to analyze a pre-specified research question in R using the methods taught in the course. The task will involve both coding in R and the description and discussion of your results. Data will be provided by the lecturers.

Literature

The following two online textbooks cover much of the tools covered in this course:

- Robin Lovelace, Jakub Nowosad, Jannes Muenchow (2023). Geocomputation with R. 2nd edition. CRC Press. Available online: https://geocompr.robinlovelace.net/ (short: LNM)
- Taro Mieno (2022). R as GIS for Economists. Available online: https://tmieno2.github.io/R-as-GIS-for-Economists/ (short: GISEcon)

In addition, we will read and replicate selected journal articles, which we will make available on e-learning.

Preliminary Schedule

Date	Topic	Reading // Lab Activity	Lecturer
18.04.	Introduction: Spatial Data in Economic History	Michalopoulos, S. and E. Papaioannou. 2018. Spatial Patterns of Development: A Meso Approach. Annual Review of Economics, 10(1), 383–410.	SB
25.04.	Setting up your environment	Getting started with R, GitHub, Visual Studio	TÖ
02.05.	Handling vector data	LNM Ch. 2.2; GISEcon Ch. 2	SB
09.05.	Processing and manipulating vector data	LNM Ch. 3.2, 4.2, 5.2; GISEcon 3	SB
16.05.	Handling raster data	LNM Ch. 2.3; GISEcon Ch. 4	SB
23.05.	Processing and manipulating raster data	LNM Ch. 3.3, 4.3, 5.3; GISEcon Ch. 5	SB
30.05.	No lecture		
06.06.	Raster-vector interactions	LNM Ch. 6	RF
13.06.	Making maps with R	LNM Ch. 9	RF
20.06.	Application Session I	tba	RF
27.06.	Application Session II	tba	RF
04.07	Application Session III	tba	TÖ
11.07.	Application Session IV	tba	TÖ

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