**Historical Long-Term Macro Development**

**Abstract.**

This project aims at developing a quantitative-spatial dynamic model of long-term development to be applied to Europe in pre-industrial times. The model will allow to perform quantitative analysis of latent, unobserved, historical patterns and to perform counterfactual exercises.

**Program of Activities.**

The Assegnista (henceforth “research fellow”) will have to contribute building a spatial-quant theory to be applied to historical data. After setting the theory the research fellow will be required to collect and geo-reference data, both for digital and archival resources. This includes, in particular, information on natural resources and trade-patterns. Data collection requires familiarity with the relevant literature on European environmental history and a good reading of general European economic history, especially the history of urbanization, energy, and historical geography is key as well as familiarity with all the relevant existing databases. In a second step the project will analyze the interaction of the aforementioned geographic features and historical shocks with broad demographic macro-patterns, especially the impact on fertility and migration. A sound knowledge of demographic models and European population history is needed. The third step of the project requires assembling the collected data to calibrate a quantitative version of the spatial model. Knowledge of geographic general equilibrium models is required together with a sound understanding of spatial data analysis, spatial regression, and spatial simulation, including proficiency in GIS (geographic information systems). One of the key tasks will be the numerical solution of numerous quantitative spatial general equilibrium models. We thus require fluency in R and/or python, including knowledge in functional programming and parallel computing. Experience with algorithms for complex least cost path calculations such as the fast-marching method is a plus. Furthermore, we require experience with structural estimation procedures such as the simulated method of moments. Calibration of the model requires a good understanding of the recent literature in economic geography and urban economics.