Modeling Spatial Dependence: A Simulation-Based Comparison of Parametric and Semi-Parametric Approaches

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May 14, 2025

Abstract

This research aims to compare the performance of spatial regression models that rely on predefined weight matrices with that of semi-parametric regression models using spatial smoothers. The preliminary results show that the best preforming model is the Queens model as this is the model used to generate the data. The second best preforming model is the penalized tensor products. This shows that if there is no reasonable argument for picking the spatial weights matrix the penalized tensor products are a reasonable starting point for controlling for spatial variability.

Keywords: Spatial simulation, Spatial Regressions, GAMs, Tensor Products

Acknowledgements: This research was sponsored by the Mathematics department of the University of Puerto Rico, Mayaguez.