



THE UNIVERSITY OF CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

JEN-TSE KAO

Department of Statistics
The University of Chicago

Bayesian Spatial Quantile Regression: A Substudy of Tennessee
Ground-Level Ozone

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Jones 304, 5747 S. Ellis Avenue

ABSTRACT

We analyze ground-level ozone concentration in Tennessee during the summer in 1999 using Bayesian spatial quantile regression developed by Reich et al. (2011). We modify their primitive (full Bayesian) model by employing piecewise polynomial (B splines) as basis functions.

In the simulation study, we find that B-Splines slightly outperforms Bernstein polynomial when the prior for updating centering distributions are correctly specified. Bernstein polynomial performs better when the previous condition is violated. We provide possible explanations to this phenomenon in the context.

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