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## Special Issue on Spatial Econometrics: An Editorial Note

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**Abstract:** The present note is an introduction to this special issue of *The Review of Regional Studies*, which features a selection of papers that were originally presented at the 7th World Conference of the Spatial Econometrics Association. The conference took place in Washington, D.C. from July 10-12, 2013. This issue contains three papers, all empirical contributions.

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### 1. INTRODUCTION

The present issue of *The Review of Regional Studies* features a selection of papers that were originally presented at the 7<sup>th</sup> World Conference of the Spatial Econometrics Association. The conference took place in Washington, D.C. from July 10-12, 2013. The purpose of the conference was to bring together economists, regional and urban scientists, and geographers to discuss advancements and future challenges in spatial data analysis. This 7<sup>th</sup> edition of the Spatial Econometrics Association conference was organized with the support of the Regional Research Institute at West Virginia University. The Regional Research Institute has a long-standing reputation for its many contributions to regional and urban economics, as well as many other subfields such as the analysis of general equilibrium models, input-output analysis, and spatial economics, among others. We take this occasion to thank Randy Jackson, the Director of the Institute, for his support and generous contribution to the conference.

William H. Green (Stern School of Business at New York University) and Daniel McMillen (Department of Economics at the University of Illinois at Urbana-Champaign) delivered plenary speeches. As guest editors we thank them for their participation in the conference. Additionally, we thank all authors and referees for their contributions to this special issue. We also thank Mike Lahr and Mark L. Burkey for hosting this special issue in *The Review of Regional Studies*.

This issue contains three papers, all empirical contributions. Burnett and Zhao develop a spatial econometric model to forecast U.S. state-level emissions of carbon dioxide (CO<sub>2</sub>). They explore various specifications of spatial panel models both static and dynamic, and compare the out-of-sample forecast accuracy in terms of various statistical measures. The explanatory variables of the model include real gross domestic product (GDP) per capita, cooling- and heating-degree days (a measure that relates the temperature to the energy demand at the place of residence), and state-level prices of crude oil, natural gas, coal, and electricity. They consider

both an iterated, one-step-ahead forecast as well as an  $n$ -years-ahead forecast. Surprisingly, their main finding is that the pooled OLS model performs best among all the panel data models. Among the spatial models, the spatial autoregressive, random-effects model predicts CO<sub>2</sub> levels best.

Flores and Rodriguez-Oreggia apply a spatial regime model to evaluate spillover effects on homicides across Mexican municipalities. They model the spatial process associated with the increase in homicides in Mexican municipalities by using both Explanatory Spatial Data Analysis (ESDA) as well as spatial econometric methods. They account for spatial heterogeneity specifying a spatial regime model. Their results support the presence of spatial heterogeneity in homicide rates since the significance, magnitude and sign of the most relevant socioeconomic variables change dramatically by regime. As is generally done since LeSage and Pace (2009), they calculate both the direct and the indirect effects for their spatial models. For the direct effects, the historical level of homicides and the closeness to the U.S. border are the most significant variables for the regime identified by the presence of joint military operations (*operativos conjuntos*). For the indirect effects, the law enforcement variable and the proxy variable for informality both present a positive and significant spillover effect.

In the third paper, Chen and Haynes investigate the causality between regional economic performance and public surface transportation infrastructure, employing a spatial version of the Granger causality test. Surface transportation infrastructure (such as roads, rail, and transit) typically connects regions; therefore, it is reasonable to find the presence of spatial spillovers. Economic performance is measured in terms of the gross metropolitan product (GMP), employment, and personal income per capita. The spatial version of the Granger causality test implemented by Chen and Haynes examines the relationship between the three economic indicators above and public surface transportation. Because of the integration between vector auto-regression models and spatial econometrics models, the authors claim that the results achieved are richer. The study suggests that there is no causation between regional economic output and surface transportation infrastructure. Still, there is some evidence that the linkage between transportation infrastructure and employment may be bidirectional.

## REFERENCES

- LeSage, James and Kelley R. Pace. (2009) *Introduction to Spatial Econometrics*. CRC Press: Boca Raton, FL.