Political Science Research and Methods Vol 4, No. 1, 3–4 January 2016
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doi:10.1017/psrm.2015.69

Spatial Models of Politics*

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Although political scientists have used spatial statistical models in their research for only about ten years, their use has quickly advanced in terms of both the breadth of substantive areas in which researchers apply them and the sophistication with which they specify and interpret them. The collection of articles in this special edition are indicative of both of these trends. They provide a strong set of examples of how scholars can bring theories about spatial relationships across units into all of the major subfields of the discipline.

Most of the earliest applications of spatial statistical models occurred in studies of phenomena in international relations and comparative politics, where scholars theorized about how spatial relationships operate across international borders. It is thus not surprising to see that studies of spatial relationships across nations are well represented with in this volume. In "The Spatial Dimensions of State Fiscal Capacity: The Mechanisms of International Influence on Domestic Extractive Efforts," Cameron Thies, Olga Chyzh, and Mark David Nieman propose and test the influence of four different mechanisms that influence state fiscal capacities. Their empirical results provide support for coercion and learning mechanisms. In "Does Information Lead to Emulation? Spatial Dependence in Anti-Government Violence," Blake E. Garcia and Cameron Wimpy test their theory about how communications technology and geographic proximity shape the spread of anti-government violence across nations.

While information certainly seems to flow across geographic borders, we are starting to see evidence of spatial effects in other strategic settings. "You've Got Some Explaining to Do: The Influence of Economic Conditions and Spatial Competition on Party Strategy," by Laron K. Williams, Katsunori Seki, and Guy D. Whitten is an example of a relatively new trend in the application of spatial statistical models to political science—using these models to estimate the influence of relative locations of political parties in ideological space to model their strategic behavior.

In "Natural Experiments Based on Geography," Luke Keele and Rocío Titiunik demonstrate that spatial relationships can be used to clarify and test the identification assumptions of natural experiments based on geographic boundaries. Spatial relationships can also be used to improve our measures of important political variables. In "Measuring State and District Ideology with Spatial Realignment," James E. Monogan III and Jeff Gill show that spatial relationships can be used to leverage available information to create better measures of ideology.

Of course, no empirical study is ever immune from concerns about endogeneity. In "Addressing Endogeneity in Actor-Specific Network Measures," Frederick J. Boehmke, Olga Chyzh, and Cameron Thies demonstrate the utility of using instrumental variables to address possible endogeneity between actors' positions within international networks and outcomes of interest. While most spatial statistical models were originally developed for continuous

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https://doi.org/10.1017/psrm.2015.69 Published online by Cambridge University Press

dependent variables, many of our dependent variables of interest are more limited. In "Spatial- and Spatiotemporal-Autoregressive Probit Models of Interdependent Binary Outcomes," Robert J. Franzese Jr., Jude C. Hays, and Scott J. Cook present strategies for modeling dichotomous dependent variables with both temporal and spatial patterns of dependence.

At the heart of all studies using spatial statistical methods is "W," the matrix in which connectivity across units is expressed. In their paper named after this all-important matrix, Eric Neumayer and Thomas Plümper explore the always-critical relationship between specification choices and theory. They highlight pitfalls of some currently common practices and make suggestions about the way forward.

One commonality across all seven of the papers included in this collection is that they each discuss ample opportunities for future work. Spatial theories and statistical models are technically challenging, but they are certain to occupy a central role in every major subfield of political science research for years to come.

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