Department of Political Science Publications

6-1-2005

Event History Modeling: A Guide for Social Scientists. By Janet M. Box-Steffensmeier and Bradford S. Jones. New York: Cambridge University Press, 2004.

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Event History Modeling: A Guide for Social Scientists. By Janet M. Box-Steffensmeier and Bradford S. Jones. New York: Cambridge University Press, 2004. 232p. $65.00 cloth, $23.99 paper.

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The study of durations in political science has been on the rise over the last decade and a half. Their application spans major research questions in virtually every field, including the duration of parliamentary governments, international conflict, policy adoptions in the U.S. states, and issue emergence in campaigns. Testing theoretical arguments regarding these and other questions involving durations has led political scientists to learn about and rely upon statistical models for durations, often referred to as event history models. Perhaps more than models for other classes of data, learning about event history models, particularly

those for continuous-time data, presents a formidable task. This is partly due to the unique language of the models (e.g., terms like "spell," "failure," "frailty," and "hazard") that developed through their application in other disciplines, but also because of the new concerns that they involve. For example, how should one control for duration dependence? Is the proportional hazards assumption met?

For too long, political scientists seeking answers to these and related questions about duration analysis have had to rely on a handful of older (e.g., Paul D. Allison's *Event History Analysis,* 1984) or brief (e.g., Box-Steffensmeier and Jones's "Time Is of the Essence: Event History Models in Political Science," *American Journal of Political Science* 41 [1997]: 1414–61) treatments of this method within the field, or on short discussions in commonly used social science methodology books (e.g., J. Scott Long's *Regression Models for Categorical and Limited Dependent Variables,* 1997). Into this major gap steps Box-Steffensmeier and Jones's eagerly anticipated book, which provides a thorough and in-depth introduction to duration analysis for political scientists and for social scientists in general. This book will instantly become the go-to guide for most political scientists interested in event history analysis, and it should become a staple on syllabi for graduate methods courses for years to come.

Given the dearth of social science books on this topic, it is fortunate that *Event History Modeling* covers the topic as thoroughly as it does. The authors cover a broad range of important topics, employing a combination of mathematical detail and verbal discussion; important concepts are illustrated with examples using political science data that readers can download. The book is generally clear and should be accessible to analysts with a broad range of methodological skills, though the level of the book is most appropriate for readers who have taken a few methods courses—anyone with a basic understanding of probit or logit should be able to follow most of the mathematical discussion interspersed throughout the discussion.

Starting out with a brief introduction to the use of event history models in political science, the book then moves on to an introduction to the essential structure and mathematical terminology of event history models. The following three chapters lay out the basic continuous and discrete-time event history models. I found the presentation of the flexible Cox model to be particularly clear. While the authors advocate using the Cox models to control for duration dependence in most situations, they follow the presentation of the various models with a chapter devoted to the choice between competing controls for duration dependence.

The subsequent chapters delve into a variety of important topics, including model diagnostics, time-varying covariates, repeated events, and competing risks. All of these topics are increasingly prevalent in empirical studies

and should become even more so as political science moves forward in its adoption of event history analysis. Analysts familiar with the basics of event history models will find these chapters particularly valuable. In addition, there is also an appendix describing the various statistical packages available for estimating event history models.

While the strength of the book is that it covers so many topics, this has the consequence of making it a bit dense at times. While the authors do a commendable job of balancing math with discussion and explanation, more time could have been spent on discussion in a few areas, particularly in the first few chapters. Chapter 2 covers the mathematical presentation of the event history approach quite quickly, moving from densities through hazards, survivor functions, and censoring to a likelihood function in a few pages; the "nonstandard" (p. 17) discussion of censoring and truncation is a bit confusing and could be clearer if more fully explained. Spending a bit more time working through the basic duration models in Chapters 3 to 5 would be helpful, especially for readers seeking an introduction to event history techniques, as the major hurdle in learning event history analysis is mastering the basic terminology and functional forms; once this is accomplished, tackling the advanced techniques is generally less cumbersome.

Overall, later chapters do a better job of balancing equations with intuitions and providing extensive citations for readers interested in extended discussions. These chapters explain a variety of issues that are likely to arise in political science applications. In particular, the potential for repeated events raises important considerations about the risk set and the independence of multiple failures by the same unit. In this section, as in others, the authors make clear recommendations about the approaches that are likely to be appropriate for political scientists. Given the increasing importance of modeling this type of heterogeneity, however, I think many readers would have benefited from a more extended discussion of the alternative approaches.

While the authors' recommendations are generally appropriate and backed up with statistical arguments, the consequences of incorrect choices could be more clearly documented. They frequently illustrate competing models using political science data, but the resulting estimates often exhibit relatively minor differences. Perhaps they could have supplemented these examples with Monte Carlo analysis to more explicitly underscore their points. For example, readers interested in drawing substantive conclusions about duration dependence parameters must choose between the many competing parametric models that estimate duration dependence. As the authors note, though, choosing the wrong model can lead to incorrect inferences about the effect of substantive variables. A Monte Carlo analysis that illustrated and demonstrated the severity of incorrectly specifying duration dependence based

on a known data-generating process would have provided some context and offered visual evidence for these concerns.

These are mostly matters of taste and space constraints, however. In the end, Box-Steffensmeier and Jones have written an invaluable resource for political scientists interested in learning and expanding their knowledge of duration analysis. For a book on statistical methods, *Event History Modeling* is quite readable, and the authors do a commendable job of presenting a great variety of issues and making clear recommendations.