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## Political Science 867

### Event History

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Wednesday 1:30-3:30 Central

Web page: <http://psweb.sbs.ohio-state.edu/faculty/jbox/jboxstef.htm>

Threaded discussion list [here](#)

Stata Downloads: [Notes](#) [Slides](#)

#### Course Description:

Social science theories are increasingly focused on change processes and temporal data are becoming widely available. Yet the vast majority of empirical research focuses on static relationships, i.e., at one point in time, typically cross-sectional studies. Even when time series or panel data are analyzed, the temporal structure is often ignored and the data are treated as though they are cross-sections with some additional methodological complications involving autocorrelations. Event history methods are ideal for studying temporal change. They address not only whether an event occurred, but when the event occurred. For many research questions in social science, the timing or history of social change is at least as interesting as understanding the culminating event. Research designs incorporating “history” into the analysis promises greater analytical leverage than designs ignoring history, such as cross-sectional designs. Event history analysis is clearly longitudinal and involves the statistical examination of longitudinal data collected on a set of observations. While a wide variety of statistical models may be constructed for event history data, at the most basic level, all event history models have some common features.

The dependent variable measures the duration of time that units spend in a state before experiencing some event. Generally, a researcher knows when the observations enter the process, i.e., when the history begins, and when, and whether or not, the process ends (with the occurrence or nonoccurrence of some event). Analysts are typically interested in the relationship between the length of the observed duration and independent variables, or covariates, of theoretical interest. A statistical model can then be constructed to link the dependent variable to the covariates. Inferences can be made regarding the influence of the covariates on the length of the duration and occurrence (or nonoccurrence) of some event.

As scholars are beginning to recognize, these methods have many advantages and allow new questions to be addressed. Event history data are becoming more and more available in all areas of empirically oriented political science. Applications include the duration of peace, the duration of unemployment, the length of time a cabinet is in place, when a challenger enters a congressional race, the duration of congressional careers, when a policy is likely to be adopted by the states, or how long it takes to complete a dissertation. The course will investigate different models for different kinds of duration data, document the assumptions underlying these different models, and consider goodness-of-fit indices and diagnostic techniques, i.e., residual and specification analysis.

Software: a variety of software can be used for this course with varying advantages and disadvantages, which will be discussed in class. The options include Stata, S+, R, Limdep, and TDA (shrink wrapped with the Blossfeld and Rohwer text).

#### Texts:

Required:

Box-Steffensmeier, Jan and Bradford Jones. 2004. *Event History Modeling*. Cambridge University Press.

Recommended resources:

\* = strong recommendation

Daniel, Wayne W. 1999. *Biostatistics: A Foundation for Analysis in the Health Sciences*. New York: John

Wiley & Sons.

Blossfeld, Hans-Peter, Alfred Hamerle and Karl Ulrich Mayer. 1989. *Event History Analysis*. Hillsdale, NJ: Erlbaum.

\*\*Cleves, Mario, William W. Gould, and Roberto Gutierrez. 2002. *An Introduction to Survival Analysis Using Stata*. Stata Press.

\*Collett, D. *Modelling Survival Data in Medical Research*. 1994. New York: Chapman & Hall.

Box-Steffensmeier, Janet M., and Bradford S. Jones. 2004. *Timing and Political Change: Event History Modeling in Political Science*. Ann Arbor: University of Michigan Press.

Elandt-Johnson, Regina, and Norman Johnson. 1999. *Survival Models and Data Analysis*. New York: John Wiley & Sons.

Gourieroux, Christian and Alain Monfort. 1995. *Statistics and Econometric Models*, Vols. 1 and 2. New York: Cambridge University Press. Comprehensive reference for estimation theory (vol. 1) and inference (vol.2).

Greene, William H. 2002. *Econometric Analysis*, 5<sup>th</sup>. Ed. Upper Saddle River, NJ: Prentice Hall. A standard reference work.

\*Hosmer, David W., and Stanley Lemeshow. 1998. *Applied Survival Analysis: Regression Modeling of Time*. New York: John Wiley & Sons.

\*\*Hougaard, Philip. 2000. *Analysis of Multivariate Survival Data*. Springer-Verlag.

Kalbfleish and Prentice. 1980. *The Statistical Analysis of Failure Time Data*. New York: John Wiley & Sons.

King, Gary. 1989. *Unifying Political Methodology: The Likelihood Theory of Statistical Inference*. Ann Arbor: University of Michigan Press. Originally Published by Cambridge University Press. Excellent, accessible treatment of likelihood theory, with political science examples.

\*Klein, John P., and Marvin L. Moeschberger. 1997. *Statistics for Biology and Health*. New York: Springer-Verlag.

Le, Chap T. 1997. *Applied Survival Analysis*. New York: John Wiley & Sons.

Therneau, Terry and Patricia Grambsch. 2000. *Modeling Survival Data: Extending the Cox Model*. New York: Springer-Verlag

### Grading:

Grading will be based on class presentations of a recently published article or conference paper using event history. Permission and consultation with the instructor prior to choosing the article is required. 10%

Data analysis assignments (three total; 30% each -- [find here](#)). 90%

### Topic 1: Event History Models: Introduction and Overview

*Required:*

Chapter 1 & 2, Box-Steffensmeier & Jones

*Recommended:*

Box-Steffensmeier, Janet M. and Brad Jones. 1997. "Time is of the Essence: Event History Models in Political Science." *American Journal of Political Science* 41(October): 1414-1461.

Chung, Ching-Fan, Peter Schmidt, and Ann D. Witte. 1991. "Survival Analysis: A Survey." *Journal of Quantitative Criminology* 7(March):59-98.

Kiefer, Nicholas. 1988. "Economic Duration Data and Hazard Functions." *Journal of Economic Literature* 26:646-79.

King, Gary, James Alt, Michael Laver and Nancy Burns. 1990. "A Unified Model of Cabinet Dissolution in Parliamentary Democracies." *American Journal of Political Science* 34(4): 847-871.

[Lecture Notes](#)

### Topic 2: Parametric Models

*Required:*

## Chapter 3, Box-Steffensmeier and Jones

*Recommended:*

- Bennett, D. Scott. 1998. "Integrating and Testing Models of Rivalry Duration." *American Journal of Political Science* 42 (October).
- Bennett, D. Scott and Allan C. Stam. 1996. "The Duration of Interstate Wars, 1816-1985." *American Political Science Review* 90(June): 239-257.
- Bennett, D. Scott. 1997. "Measuring Rivalry Termination, 1816-1992." *Journal of Conflict Resolution* 41 (April).
- Bennett, D. Scott. 1997. "Testing Alternative Models of Alliance Duration, 1816-1984." *American Journal of Political Science* 41 (July): 846-78.
- Bergstrom, R. and P.-A. Edin. 1992. "Time Aggregation and the Distributional Shape of Unemployment Duration." *Journal of Applied Econometrics* 7(Jan-Mar): 5-30.
- Bueno de Mesquita, Bruce and Randolph M. Siverson. 1995. "War and the Survival of Political Leaders : A Comparative Study of Regime Types and Political Accountability." *American Political Science Review* 89(December): 841-855.
- Warwick, Paul V. 1992. "Rising Hazards: An Underlying Dynamic of Parliamentary Government." *American Journal of Political Science* 36 (November): 857-876.

[Lecture Notes](#)**Topic 3: Cox's Proportional Hazards Model***Required:*

Chapter 4, Box-Steffensmeier & Jones

*Recommended:*

- Bienen, Henry and Nicolas van de Walle. 1992. "A Proportional Hazard Model of Leadership Duration." *Journal of Politics* 54(August): 685-717.
- Box-Steffensmeier, Janet. 1996. "A Dynamic Analysis of the Role of War Chests in Campaign Strategy." *American Journal of Political Science* 40(May): 352-371.
- Box-Steffensmeier, Janet M., Laura W. Arnold and Christopher J. W. Zorn. 1997. "The Strategic Timing of Position Taking in Congress: A Study of the North American Free Trade Agreement." *American Political Science Review* 91(June): 324-338.
- Hammons, Christopher. 1999. "Was James Madison Wrong? Rethinking the American Preference for Short, Framework-Oriented Constitutions." *American Political Science Review* (December): 837.
- Katz, Jonathan N. and Brian R. Sala. 1996. "Careerism, Committee Assignments, and the Electoral Connection." *American Political Science Review* 90(March):21-33.
- Katz, Lawrence F., and Bruce D. Meyer. 1990. "Unemployment Insurance, Recall Expectations, and Unemployment Outcomes." *Quarterly Journal of Economics* 105(November):973-1002.
- McCarty, Nolan and Rose Razaghian. 1999. "Advice and Consent: Senate Responses to Executive Branch Nominations." *American Journal of Political Science* 43(October): 1122-1143.
- Piskulich, C. Michelle. 1993. "Toward a Comprehensive Model of Welfare Exits: the Case of AFDC." *American Journal of Political Science* 37(February): 165-185.
- Warwick, Paul. 1992. "Economic Trends and Government Survival in West European Parliamentary Democracies." *American Political Science Review* 86(December): 875-887.

[Lecture Notes](#)**Topic 4: Discrete Time Formulations***Required:*

## Chapters 5 &amp; 6 Box-Steffensmeier &amp; Jones

*Recommended:*

- Allison, Paul D. 1984. *Event History Models*. Sage Press.
- Berry, Frances Stokes and William D. Berry. 1990. "State Lottery Adoptions As Policy Innovations: An Event History Analysis." *American Political Science Review* 84(June): 395-415.
- Beck, Nathaniel, Jonathan N. Katz, and Richard Tucker. 1998. "Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable." *American Journal of Political Science* 42(October): 1260-88.
- Dassel, Kurt and Eric Reinhardt. 1999. "Domestic Strife and the Initiation of Violence at Home and Abroad." *American Journal of Political Science* 43(January).
- Gasiorowski, Mark J. 1995. "Economic Crisis and Political Regime Change: An Event History Analysis." *American Political Science Review* 89 (December): 882-897.
- Goertz, Gary and Paul F. Diehl. 1995. "The Initiation and Termination of Enduring Rivalries: The Impact of Political Shocks." *American Journal of Political Science* 39(February): 30-52.
- Grattet, Ryken, Valerie Jenness and Theodore R. Curry. 1998. "The Homogenization And Differentiation of Hate Crime Law in the United States, 1978-1995: Innovation and Diffusion in the Criminalization of Bigotry." *American Sociological Review* 63(April): 286-307.
- Long, J. Scott, Paul D. Allison and Robert McGinnis. 1993. "Rank Advancement in Academic Careers: Sex Differences and the Effects of Productivity" *American Sociological Review* 58(October): 703-722.
- Mintrom, Michael. 1997. "Policy Entrepreneurs and the Diffusion of Innovation." *American Journal of Political Science* 41(July): 738-770.
- Mooney, Christopher Z., and Mei-Hsien Lee. 1995. "Legislative Morality in the American States: The Case of Pre-Roe Abortion Reform." *American Journal of Political Science* 39 (August): 599-627.
- Werner, Suzanne. 1999. "The Precarious Nature of Peace: Resolving the Issues, Enforcing the Settlement, and Renegotiating the Terms." *American Journal of Political Science* 43 (July): 912-934.

**Topic 5: Model Selection***Required:*

Chapters 7 & 8, Box-Steffensmeier & Jones

*Recommended:*

- Beck, Nathaniel. "Modeling Space and Time: The Event History Approach." In *Research Strategies in the Social Sciences*, Elinor Scarbrough and Eric Tanenbaum, eds. Oxford: Oxford University Press. *Recommended:*
- Chapters 3, 4, and 5, Klein, John P., and Marvin L. Moeschberger. 1997. *Statistics for Biology and Health*. New York: Springer-Verlag.

**Topic 6: Model Selection, Assessment, Specification, & Diagnostic Methods***Required:*

Chapter 9, Box-Steffensmeier & Jones

*Recommended:*

- Box-Steffensmeier, Janet M., and Christopher J. W. Zorn. "Duration Models and Proportional Hazards in Political Science." *American Journal of Political Science*. 45(October): 951-67.
- Chapter 11, Klein, John P., and Marvin L. Moeschberger. 1997. *Statistics for Biology and Health*. New York: Springer-Verlag.
- Alt, James, and Gary King. 1994. "Transfers of Governmental Power: The Meaning of Time

- Dependence." *Comparative Political Studies* 27(2): 190-210.
- Beck, Nathaniel, and Simon Jackman. 1998. "Beyond Linearity by Default: Generalized Additive Models." *American Journal of Political Science* 42 (April).
- Bennett, D. Scott. 1999. "Parametric Models, Time-Dependence, and Time-Varying Data Revisited." *American Journal of Political Science* 43 (January).
- Box-Steffensmeier, Janet M., Dan Reiter, and Christopher J.W. Zorn. 2003. "Nonproportional Hazards and Event History Analysis in International Relations." *Journal of Conflict Resolution*.
- Clark, David H., and Robert A. Hart, Jr. 1998. "Controlling Duration Dependence in Conflict Analyses: A Replication and Extension of 'Regime Types and Status Quo Evaluations.'" *American Journal of Political Science* 42 (October).
- Warwick, Paul and Stephen T. Easton. 1992. "The Cabinet Stability Controversy: New Perspectives on a Classic Problem." *American Journal of Political Science* 36 (February): 122-146.
- Zorn, Christopher J.W. 2000. "Modeling Duration Dependence." *Political Analysis*.

### Topic 7: Heterogeneity and Multiple Events

*Required :*

Chapters 10 & 11, Box-Steffensmeier & Jones

*Recommended:*

- Box-Steffensmeier, Janet M., and Peter Radcliffe. 1996. "Split-Population Survival Models: An Application to the Timing of PAC Contributions." Presented at the 1996 Annual Meeting of the American Political Science Association, San Francisco.
- Box-Steffensmeier, Janet M., and Christopher J.W. Zorn. "Duration Models for Repeated Events." *The Journal of Politics*. 64 (November): 1069-94.
- Chung, Ching-Fan, Peter Schmidt, and Ann D. Witte. 1991. "Survival Analysis: A Survey." *Journal of Quantitative Criminology* 7(March):59-98.
- Diermeier, Daniel, and Randy T. Stevenson. 1999. "Cabinet Survival and Competing Risks." *American Journal of Political Science* (October).
- Hettinger, Virginia, and Christopher Zorn. 1999. "Signals, Models, and Congressional Overrides of the Supreme Court." Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago.
- Sy, Judy P., and Jeremy G. Taylor. 1999. "Estimation in a Cox Proportional Hazards Cure Model." Typescript. University of Michigan.
- Strang, David and Nancy Brandon Tuma. 1993. "Spatial and Temporal Heterogeneity in Diffusion." *American Journal of Sociology* 99(November): 614-639.

[Lecture Notes](#)