Advanced Maximum Likelihood Estimation
ICPSR 2015

Exercise Two

Introduction and Data

This is a relatively straightforward exercise, with a focus on proportional hazards. The data we'll use are a subset of those used in Jones and Branton's excellent (2005) paper on survival models in state politics research. Specifically, we'll consider an `event` defined as the initial adoption of legislation related to obscenity, of any time (e.g., restrictions on adult bookstores, etc.).* The duration of interest `time` is the number of years (beginning in 1991) before a state adopts obscenity-related legislation. The data are time-varying, and also include an identifier for each state and for the year. In addition, they include seven covariates:

- `womleg`: The percentage of the state's legislative chambers that are female.
- `collc`: The percentage of the state's adult population holding a college degree (bachelor's or higher).
- `fundam`: The percentage of the state's population who descrive themselves as "fundamentalist" Protestant Christians.
- `south`: Coded 1 for states in the former Confederacy, and 0 otherwise.
- `citideo`: The citizen's / mass ideology (liberalism) of the state that year.
- `legideo`: The legislative ideology (liberalism) of the state that year.
- `murderrate`: The annual murder rate in the state.

Assignment

Your assignment is straightforward: (a) fit one or more models of proportional hazards to these data, (b) assess the viability of the proportional hazards assumption imposed by those models, and (c) address any concerns with the assumption that might arise. In doing so, be sure to address the substantive implications of your findings and choices, including what any diagnostics could imply about the policy process under study, the possible roots / causes of those findings, and how any "fixes" change the substantive specification and interpretation of your models.

This assignment is due Tuesday, August 11 at 5:00 EDT. Exercises should be submitted electronically, *in PDF format*. In addition to your responses to the items above, please include all code used to fit models, conduct diagnostics, generate plots, and so forth.

*The entire dataset is available here in Stata format.