Advanced Maximum Likelihood Estimation ICPSR 2017

Exercise Two

Introduction and Data

This is a relatively straightforward exercise, with a focus on proportional hazards. The data we'll use are from Bennett's (1998) article on the durations of international rivalries.* The data – available in Stata and CSV formats – are time-varying (at five-year intervals), and contain a variable for the start (DurationStart) and end (Duration) of each five-year period, as well as an indicator (RivalryEnds) of whether (=1) or not (=0) the rivalry ended during that period. In addition, the data for this assignment include ten covariates, corresponding to Bennet's "Model A" (p. 1226):

- PolityChange
- OneOrBothDemocratic
- DemocracyGrowth
- CommonThreats
- Security
- IssueSalience
- CivilWarShock
- WorldWarShock
- TerritorialShock
- PowerShock

Review the article for details about each of these predictors.

Assignment

Your assignment is straightforward: (a) fit one or more (Cox) 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 Monday, August 14, 2017 at 5:00 EDT. Exercises should again 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.

^{*}I would encourage you to read the article; understanding his theories and operationalizations will make this exercise much easier.