MLE 2: Event History Analysis

Problem Set 1: Answer Key

Overview In this problem set, I want you to get some experience with various modeling issues.

Directions Please access the data and answer the questions/estimate the models that are given below. The data are available at:

`http://www.u.arizona.edu/~bsjones/eventhistory.html`

If you use `Stata`, the data set has already been `stset`. To help, here is some information on the data set:

Militarized Interventions Data

There are two versions of these data. One is called ICPSR_omi.dta and the other is called ICPSR_omi_spellsplit.dta. The second one is split at the failure times. The covariates are the same. The following are the variable definitions.

`pbal` is the relative capabilities index. Scores on this variable closer to 1 indicate a materials capabilities imbalance in favor of the intervenor state and scores closer to 0 indicate an imbalance in favor of the target state.

`idem` and `tdem` are the policy democracy scores for the intervenor state (idem) and the target state (tdem). The scores range from -10 (least democratic) to 10 (most democratic).

`ctg` is a dummy variable coded 1 if the two states share territorial contiguity (i.e. a border) and 0 if not.

Questions

1. Estimate a Cox model using the covariates from above on both data sets. Use the `exactp` option. Explain why the parameter estimates are identical, despite the fact that the second data set (spell-split data) has many more observations (10 points).

2. Using the spell-split data and a conditional logit estimator, what are the parameter estimates in a model using the same covariates as from above? (Note, use the covariate `RS` as the matching variable.) Explain why the results from this estimator are equivalent to the results you obtained in answer 1. (10 points)

3. Using the spell-split data, estimate a logit model using the covariates from above. Find a function for time that fits the data best. Which function do you prefer and why? (10 points)