Economics | Prospectus for Topics in Econometrics 478 | Fall, 2001
U. of Illinois | Duration and Event History Models | R. Koenker

This will be an informal seminar on duration models and event history analysis. Note that contrary to the timetable indication *it will not deal with Bayesian methods in econometrics!* There has been considerable recent technological progress in probability and statistics in this subject, and I believe it offers many exciting opportunities for empirical economics. To date most applications have focused on a limited range of labor and IO topics: duration of unemployment spells, and strikes, innovation and patents, and a few forays into high frequency financial data. It is my belief that many potentially rewarding applications have been impeded by the failure to absorb the recent developments in the probabilistic underpinnings of these models that have substantially expanded their domain of applicability. A good example of such applications is described in the attached email message that was circulated a few weeks ago by Wally Hendricks. More generally, recent advances enable us to unify the treatment of competing risk and multiple event models within a single framework.

The basic probabilistic apparatus of modern survival analysis involves counting process methods and associated martingale theory. I view the course as an opportunity to develop some expertise in a domain where the concepts are very concrete and tied to specific problems of data analysis. In addition to this theoretical component there will be a significant computational component, since – as always in such ventures – learning by doing is the most effective approach.

The course will be organized around readings and data analysis based on the following sources.* In addition to the readings and occasional data analytic exercises, students will be expected to write a 15-20 page paper on some aspect of the course material. Grades will be based primarily on these papers. The course will culminate in a mini-conference in which students will present their research papers.

Therneau, T. and P. Grambsch (2000) *Modeling Survival Data*, Springer.

Andersen, PK, O. Borgan, R. Gill and N. Keiding (1994). *Statistical Models based on counting processes*. Springer-Verlag, New York.

Blossfeld, H.P. and R. Rohwer (1995). *Techniques of event history modeling*, Erlbaum, Mahwah, NJ.

Fleming, Thomas R. and David P. Harrington (1991). *Counting Processes and Survival Analysis*, Wiley, p. 429.

Koenker R, and O. Geling (1999) "Reappraising Medfly longevity: A quantile regression survival analysis." preprint.

Koenker R. and Y. Bilias (1999) "Quantile regression for duration data: A reappraisal of the Pennsylvania reemployment bonus experiments, *Empirical Economics*, forthcoming.

*The last two references are a bit anomalous, but a subsidiary goal of the course will be to integrate recent developments in quantile regression into the duration framework.