A flexible hazard rate model for grouped duration data

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The model most commonly applied by empirical researchers for analyzing economic duration data is the the well-known Cox proportional hazards model. However, the proportional hazards assumption is often unwarranted and not supported by economic theory. Moreover, the Cox model is designed for continuous duration data, whereas economic duration data are often coarsely grouped into intervals.

To account for the grouped nature of the data, economists frequently employ discrete-time duration models such as the cloglog, logit, or probit model. However, the choice of distributional form for the binary response model is not innocuous in a duration context, and will have important implications for the effects of covariates on exit probabilities. In particular, the cloglog model including period-specific intercepts represents the exact grouped-duration analogue of the Cox model, whereas the probit model departs markedly from the proportional hazards assumption. Therefore, the use of a flexible parametric link-function will be discussed in this talk. The resulting model contains the cloglog and the logit model as special cases and can be deduced from the asymptotic threshold-excess distribution of the underlying continuous duration times.

This talk will lay out the specification of the proposed duration model and present simulation results on the performance of the model under various circumstances. Some empirical applications will also be discussed.