

Time Series, Latent Class Analysis, Statistical Modelling and Experimental Design

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Time series or longitudinal data are ubiquitous in econometrics as well as many other domains such as biomedical and environmental research and psychometrics, and analysis of these data present unique and far-reaching challenges in applied statistical research. Furthermore, these data may also contain latent (hidden) cohorts/groups, which – with the aid of the EM algorithm and associated methods – can be detected, thereby helping researchers to better understand their data and underlying phenomena. Although the fields of Finite Mixture Models and Trajectory Analysis in the context of longitudinal data analysis is relatively new, controversy exists as to how best to discern these patterns and data.

This talk focuses on the larger field of estimation and design of longitudinal data/studies, with an eye to trajectory analysis and finite mixture models in modelling nonlinear phenomena. We make connections to the linear and generalized linear cases - as well as highlighting important differences and relevant software packages.