

PhD program in Statistics

DSS Statistics Seminar

November 11, 2022, 12:00

In person Room 34 (CU002)

Webinar [https://uniroma1.zoom.us/j/86881977368?pwd=SWRFc](https://uniroma1.zoom.us/j/86881977368?pwd=SWRFcVFjMDZTa0lXZk05TE1zNm5adz09)

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On mixtures of linear quantile regressions for longitudinal and clustered data

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Quantile regression represents a well established technique for modelling data when the interest is on the effect of predictors on the conditional response quantiles. When responses are repeatedly collected over time, or when they are hierarchically nested, dependence needs to be properly considered.

A standard way of proceeding is based on including higher level unit-specific random coefficients in the model. The distribution of such coefficients may be either specified parametrically or left unspecified. In the last case, it can be estimated non parametrically by using a discrete distribution defined on G locations. This may approximate the distribution of time-constant and/or time-varying random coefficients, leading to a static, dynamic, or mixed-type mixture of linear quantile regression equations.

An EM algorithm and a block-bootstrap procedure are employed to derive parameter estimates and corresponding standard errors. Standard penalized likelihood criteria are used to identify the optimal number of mixture components.

This class of models is described by using a benchmark dataset and employing the functions in the newly developed `lqmix`  package.



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