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Combining models in longitudinal data analysis

Song Liu · Yuhong Yang

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Abstract Model selection uncertainty in longitudinal data analysis is often much more serious than that in simpler regression settings, which challenges the validity of drawing conclusions based on a single selected model when model selection uncertainty is high. We advocate the use of appropriate model selection diagnostics to formally assess the degree of uncertainty in variable/model selection as well as in estimating a quantity of interest. We propose a model combining method with its theoretical properties examined. Simulations and real data examples demonstrate its advantage over popular model selection methods.

Keywords Adaptive regression by mixing · Longitudinal data · Model combining · Model selection · Model selection diagnostics · Model selection uncertainty