Estimation and testing in simple linear random coefficient model with some covariance observations missing

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Abstract

In this talk, we deal with a simple linear random coefficients model (LRCM), in which we assume that some of the observations of the covariates may be missing. For several decades, estimation and prediction have been extensively studied in a variety of rather complex statistical models under the assumption of missing observations. However, much fewer results are available in such settings about statistical inference (hypotheses tests). Under rather specific simplifying assumptions, we extend and apply the distributional model for the missing covariates introduced by [1] in a linear fixed effects model. Our primary interest is to investigate properties of commonly used tests in the classic LRC models about the mean parameters, using maximum likelihood estimates obtained by the EM algorithm (see, e.g., [2]). The accuracy of p-values and adjusted power of tests were studied using a simple simulation study.

Keywords

Random coefficient model, Covariates missing at random, Approximate variance, Testing hypotheses.

References

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