

**ESTIMATING A PANEL DATA MODEL WITH STRUCTURAL CHANGE AND
PANEL HETEROGENEITY**

by

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ABSTRACT

The forward search algorithm and nonparametric bootstrap are used in the context of the backfitting algorithm to estimate a panel data model with structural change and panel heterogeneity. Simulated data with two covariates are used to illustrate the procedure. The method is comparable to time series cross section regression (estimated using generalized least squares) with respect to predictive ability in scenarios where there is actually no perturbation or when there is structural change in the data. The method, however, is superior when there is panel heterogeneity and both panel heterogeneity and structural change in the data. The proposed procedure yields robust covariate parameter estimates. Further, it yields efficient and reliable covariate parameter estimates which are comparable to the time series cross section regression estimated using generalized least squares when there are no real perturbations or when there is structural change in the data.