

# An Asymptotically Optimal Modification of the Panel LIML Estimation for Individual Heteroscedasticity \*

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December 19, 2010

## Abstract

We consider the estimation of coefficients of a dynamic panel structural equation in the simultaneous equation models. As a semi-parametric method, we introduce a class of modifications of the limited information maximum likelihood (LIML) estimator to improve its asymptotic properties as well as the small sample properties when we have individual heteroscedasticities. We shall show that an asymptotically optimal modification of the LIML estimator, which is called AOM-LIML, removes the asymptotic bias caused by the forward-filtering and improves the LIML and other estimation methods with individual heteroscedasticities.

## Keywords

Dynamic Panel Structural Equation, Individual Heteroscedasticity, AOM-LIML Estimation, Forward-filtering, Asymptotic Optimality.

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\*KA10-12-19. This is a preliminary manuscript.

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