

Efficient two-stage nonparametric instrumental variables estimation in fixed effects varying coefficient panel data models

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Abstract

This paper is concerned with the nonparametric estimation of a structural panel data varying coefficient model, where the individual heterogeneity is allowed to be correlated with some explanatory variables. This specification is rather frequent nowadays in many standard econometric applications such as the study of household consumption behavior or labor supply analysis. Therefore, it is of interest to have available estimators that, at the same time, keep a reasonable degree of flexibility and are robust to both endogeneity and fixed effects. Trying to satisfy these requirements, in this paper a nonparametric two-stage weighted least squares procedure is developed where instrumental variables techniques are used to deal with endogeneity, and differencing techniques are used to cope with fixed effects. Furthermore, to achieve efficiency, a minimum distance estimator is proposed. The feasibility and possible gains of this new procedure are shown by estimating a Life-cycle hypothesis panel data model and a Monte Carlo study is implemented.

Key Words: Structural equation models; Nonparametric regression analysis; Varying coefficient panel data models; fixed effects.

JEL code: C3, C33, C14

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