

Estimation of time-varying average treatment effects using panel data when unobserved fixed effects affect potential outcomes differently

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Abstract

This paper proposes a new approach to estimate the time-varying average treatment effect using panel data for controlling unobserved fixed effects. It allows unobserved fixed effects to affect potential outcomes for treated and untreated differently, which is a cause of heterogeneity of treatment effects among unobserved characteristics. Moreover, it allows treatment effects to be time-varying. The proposed approach exploits panel data with specific structure in which the treatment exposure expands to the entire population across time. I apply the proposed approach to an estimation of the effect of the introduction of electronic voting technology for the reduction of residual votes in Brazilian elections.

JEL classification: C21, C23

Keywords: Program evaluation, Panel data, Fixed effects, Average treatment effects

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