
SABER FALLAHPOUR, University of Windsor

Improved estimation in partially linear models with nonlinear time series errors

This paper is concerned with a partially linear regression model with serially correlated random errors which are unobservable and modelled by a random coefficient autoregressive process. We propose improved weighted semi-parametric least-square estimators for the parametric component using preliminary test and James–Stein estimation methodologies. The asymptotic properties (including asymptotic distribution bias and asymptotic distribution risk) of the proposed estimators is investigated. We show that these improved estimators perform well relative to the benchmark semi-parametric weighted least square estimators. Our simulation results strongly corroborate with our analytical results.