

Estimation and testing in the random coefficient dynamic panel data model

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We discuss nonparametric estimation of the distribution function $G(x)$ of the autoregressive coefficient $a \in (-1, 1)$ from a panel of N random-coefficient AR(1) data, each of length n , by the empirical distribution of lag 1 sample autocorrelations of individual AR(1) processes. Consistency and asymptotic normality of the empirical distribution function and a class of kernel density estimators is established under some regularity conditions on $G(x)$ as N and n increase to infinity. The Kolmogorov-Smirnov goodness-of-fit test for simple and composite hypotheses of Beta distributed a is discussed. A simulation study for goodness-of-fit testing compares the finite-sample performance of our nonparametric estimator to the performance of its parametric analogue discussed in [1]. This research is done jointly with Vytautė Pilipauskaitė, Anne Philippe and Donatas Surgailis.

References

- [1] Beran, J., Schützner, M., Ghosh, S. (2010). From short to long memory: Aggregation and estimation. *Computational Statistics and Data Analysis* **54**, 2432–2442.