

Empirical Likelihood Based Inference for Categorical Varying Coefficient Panel Data Model with Fixed Effects

Luis A. Arteaga-Molina *

Departamento de Economía, Universidad de Cantabria

Juan M. Rodríguez-Poo

Departamento de Economía, Universidad de Cantabria and IEE, University of Genève

July 15, 2016

Abstract

In this paper local empirical likelihood-based inference for non-parametric categorical varying coefficient panel data models with fixed effects is investigated. First, we show that the naive empirical likelihood ratio is asymptotically standard chi-squared. The ratio is self-scale invariant and the plug-in estimate of the limiting variance is not needed. As a by product, we propose also a empirical maximum likelihood estimator of the categorical varying coefficient model. We also obtain the asymptotic distribution of this estimator. Furthermore, a non parametric version of the Wilk's theorem is derived.

*The authors gratefully acknowledge financial support from the Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia/Spanish Ministry of Economy and Competitiveness. Ref. ECO2013-48326-C2-2-P. In addition, this work is part of the Research Project APIE 1/2015-17: "New methods for the empirical analysis of financial markets" of the Santander Financial Institute (SANFI) of UCEIF Foundation resolved by the University of Cantabria and funded with sponsorship from Banco Santander.