Philipp Ketz

http://www.econ.brown.edu/students/Philipp_Ketz Last updated: November 2014

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Education

Brown University, Providence, RI, USA
Ph.D., Economics (expected May 2015)
M.A., Economics, May 2011

Maastricht University, Maastricht, The Netherlands
M.Sc., Econometrics and Operations Research (with distinction), July 2009
B.Sc., Econometrics and Operations Research (with distinction), July 2008

References

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Prof. Eric Renault
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Brown University
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Personal Information

Date of Birth: 12/12/1984
Sex: Male
Citizenship: German

Research Interests

Econometric Theory
Applied Econometrics

Research Experience

Brown University
Research Assistant for Prof. Frank Kleibergen, Summers 2010-2012

Teaching Experience

Brown University
Econometrics I (undergraduate), Instructor, Spring 2014
Econometrics I (undergraduate), Teaching Assistant for Prof. Frank Kleibergen and Prof. Adam McCloskey, Fall 2011-Spring 2013
Econometric Methods (graduate), Teaching Assistant for Prof. Geert Dhaene, Spring 2011
Introduction to Econometrics (graduate), Teaching Assistant for Prof. Blaise Melly, Fall 2010

Professional Activities

Referee for *Review of Labour Economics and Industrial Relations*

Honors and Fellowships

Brown University
- Merit Dissertation Fellowship, Fall 2013
- Summer Research Fellowship, Summer 2013
- Graduate Teaching Award, 2012

Maastricht University
- Top 3% Award, 2009

Working Papers

Testing near or at the Boundary of the Parameter Space (Job Market Paper)

A Simple Solution to Invalid Inference in the Random Coefficients Logit Model

Work in Progress

Detailed Decomposition of Differences in Distribution (with Blaise Melly)

Testing Overidentifying Restrictions when the True Parameter is near or at the Boundary of the Parameter Space

Languages

German (native), English (fluent), French (fluent), Dutch (basic)

Abstracts

Testing near or at the Boundary of the Parameter Space (Job Market Paper)
Statistical inference about a scalar parameter is often performed using the two-sided t-test. In extremum problems, where the estimator satisfies the restrictions on the parameter space - such as the nonnegativity of a variance parameter -, the test suffers from size distortions when the true parameter vector is near or at the boundary of the parameter space. Nevertheless, the two-sided t-test continues to be used when estimates are found to be close to the boundary. This can be attributed to a lack of inference procedures that appropriately account for boundary effects on the asymptotic distribution of the estimator. To address this issue, we propose an estimator that is asymptotically normally distributed, even when the true parameter vector is near or at the boundary, and the objective function is not defined outside the parameter space. The novel estimator allows the implementation of several existing testing procedures and a new test based on the Conditional Likelihood Ratio statistic (CLR). Compared to the existing procedures, the new test is easy to implement and has good power properties. Moreover, it offers power advantages over the two-sided t-test, when the latter controls size. We also show the test to be admissible when inference is performed with respect to a scalar parameter. We apply the test to the random coefficients logit model using data on the European car market and find more evidence of heterogeneity in consumer preferences than suggested by the two-sided t-test.

A Simple Solution to Invalid Inference in the Random Coefficients Logit Model
In the random coefficients logit model, inference is typically based on the two-sided t-test, which relies on the asymptotic normality of the underlying estimator. In applications, however, estimates of standard deviations are often found to be small, indicating that the assumption that the true parameter vector lies in the interior of the parameter space is violated. Furthermore, the Jacobian of the moment condition is of reduced rank when the standard deviation of a random coefficient is equal to zero, as we show in this paper. Therefore, two assumptions underlying the asymptotic normality of the Generalized Method of Moments (GMM) estimator, commonly employed in practice, are frequently violated. We derive the nonstandard asymptotic distribution of the estimator and show that the two-sided t-test for testing hypotheses about the standard deviation can suffer from overrejection of up to 16.35% at a 5% nominal level, in case of a single random coefficient. In seeming contradiction, we also show that confidence intervals for standard deviations can be unreasonably wide. The proposed solution is to perform inference with respect to variances rather than standard deviations. Although the asymptotic distribution of the corresponding estimator is subject to boundary effects, inference based on the two-sided t-test is valid when the efficient weighting matrix is employed. We also recommend estimation to be performed with respect to variances, which brings about a gain in computational efficiency.