Accepted Manuscript

Jackknife empirical likelihood methods for Gini correlations and their equality testing

Yongli Sang, Xin Dang, Yichuan Zhao

PII: S0378-3758(18)30052-1
DOI: https://doi.org/10.1016/j.jspi.2018.05.004
Reference: JSPI 5649

To appear in: *Journal of Statistical Planning and Inference*

Received date : 11 August 2017
Revised date : 24 May 2018
Accepted date : 27 May 2018

Please cite this article as: Sang Y., Dang X., Zhao Y., Jackknife empirical likelihood methods for Gini correlations and their equality testing. *J. Statist. Plann. Inference* (2018), https://doi.org/10.1016/j.jspi.2018.05.004

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

*Manuscript
Click here to view linked References

Jackknife Empirical Likelihood Methods for Gini Correlations and their Equality Testing

Yongli Sang[a,*], Xin Dang[b], Yichuan Zhao[c]

[a] *Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, USA*
[b] *Department of Mathematics, University of Mississippi, University, MS 38677, USA*
[c] *Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, USA*

Abstract

The Gini correlation plays an important role in measuring dependence of random variables with heavy tailed distributions, whose properties are a mixture of Pearson's and Spearman's correlations. Due to the structure of this dependence measure, there are two Gini correlations between each pair of random variables, which are not equal in general. Both the Gini correlation and the equality of the two Gini correlations play important roles in Economics. In the literature, there are limited papers focusing on the inference of the Gini correlations and their equality testing. In this paper, we develop the jackknife empirical likelihood (JEL) approach for the single Gini correlation, for testing the equality of the two Gini correlations, and for the Gini correlations' differences of two independent samples. The standard limiting chi-square distributions of those jackknife empirical likelihood ratio statistics are established and used to construct confidence intervals, rejection regions, and to calculate p-values of the tests. Simulation studies show that our methods are competitive to existing methods in terms of coverage accuracy and shortness of confidence intervals, as well as in terms of power of the tests. The proposed methods are illustrated in an application on a real data set from UCI Machine Learning Repository.

Keywords: Jackknife empirical likelihood, Gini correlation, U-statistics, Wilks' theorem, Test
2010 MSC: 62G35, 62G20

*Corresponding author
Email address: yongli.sang@louisiana.edu (Yongli Sang)

Download English Version:

https://daneshyari.com/en/article/11020289

Download Persian Version:

https://daneshyari.com/article/11020289

Daneshyari.com