

Fixed-Width Confidence Interval for Gini Index

Bhargab Chattopadhyay
University of Texas at Dallas, Dallas, TX-75080, USA
E-mail: bhargab@utdallas.edu

Abstract

Economic inequality arises due to the inequality in the distribution of income and assets among individuals or groups within a society, or region or even between countries. For continuous evaluation of different economic policies taken by the government, computation of Gini index periodically for the whole country or state or region is very important. But not all countries can afford or do not collect data from households in a relatively large scale periodically.

In order to compute a confidence interval of Gini index for a particular country or a region at given time, there exist fixed-sample size methods. However, for achieving a level of accuracy of estimation within some pre-specified error bound i.e. for constructing a fixed-width confidence intervals for Gini Index, no fixed sample size methodology can be used. This problem falls in the domain of sequential methodology. To date there does not exist any multi-stage or sequential procedure for constructing fixed-width confidence intervals for Gini Index.

In this presentation, a fixed-width confidence interval estimation procedure of Gini index will be presented along with several asymptotic properties like convergence results on final sample size and also the coverage probability which are proved without any specific distributional assumption. This will be followed up with a simulation study.