J-divergence and its decomposition with complex sample surveys

Guilherme A. Pinheiro Jacob   Pedro Luis do Nascimento Silva

The study of income inequality has a long tradition in economic theory and has produced a variety of analysis tools. Recently, Rohde (2016) discussed the J- divergence, a subgroup decomposable inequality measure. To date, however, the J-divergence estimator and its precision were not studied under complex sampling designs. This paper fills this gap, presenting consistent weighted estimators for the J-divergence and its subgroup decomposition components, and using influence functions (Deville, 1999) to derive asymptotic the variance of such estimators as well as corresponding variance estimators. The resulting estimators are made available through an R package called *convey* (Pessoa, Damico and Jacob, 2021) that facilitates their application in survey practice.

Keywords: income inequality; subgroup decomposition; influence functions; complex surveys.