



CPS Paper

A Fuzzy Confidence Interval to test equality of means. Application based on the survey of Health, Ageing and Retirement in Europe (SHARE)

Author: PROF. DR. Laurent Donzé

Coauthors: Dr. Rédina Berkachy

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Brief Description

In the context of fuzzy data analysis, we recently developed the methodology to construct fuzzy confidence intervals by the so-called technique of the likelihood ratio.

In particular, the distribution of the likelihood ratio is estimated by a proper bootstrap algorithm.

Such intervals are suitable tools to test parameters, for example, the equality of means.

We briefly describe the method and recall the relative weight of the randomness vs fuzziness appearing in the process.

We intend to show the practicability of our approach with an empirical application with SHARE Data.

Abstract

In the context of fuzzy data analysis, we recently developed the methodology to construct fuzzy confidence intervals by the so-called technique of the likelihood ratio. In particular, the distribution of the likelihood ratio is estimated by a proper bootstrap algorithm, such that the randomly drawn observations will preserve the location and dispersion measures of the original fuzzy data set. Such intervals are suitable tools to test parameters. In particular, we show how to implement a hypothesis test for the equality of means of two groups, and we provide the decision rule. Our strategy will be to construct fuzzy confidence intervals for each parameter and then to analyse the overlapping existing between them. We describe the method of construction of these particular intervals briefly. We recall the relative weight of the randomness vs fuzziness appearing in the process. Then, we explain how to use these intervals to test the equality of means. The decision rule will help us to reject or not the null hypothesis. We intend to show the practicability of our approach with an empirical application based on the survey of Health, Ageing and Retirement in Europe (SHARE Data).