

# A new approach to measure divergence using STATIS. An application to Malapportionment

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## Abstract

This paper analyses the measure of Malapportionment. The most common method to analyse the discrepancy between the share of legislative seats and the share of the population for the constituencies is the Loosemore-Hanby index-based. But recently some other proposals have been presented: the max-min ratio, the Gini index and the  $\alpha$ -divergence.

The STATIS method is a data analysis technique that handles three-way class data as a set of matrices. A generalisation for the four-way multiblock method (STATIS-4) exists for studying the links between more than two sets of data tables.

In this paper, we consider the application of STATIS to measure malapportionment into a country or parliament. We compare the results with some other traditional measures to establish the benefits of this approach.

## Keywords

Exploratory analysis, Disproportionality measure, STATIS, Gini Index

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