ABSTRACT

PARSEC – An R package for Partial Orders in Socio-Economics

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Background: Partially ordered sets (posets) have been recently invoked as a set of tools to address evaluation problems in the socio-economic field, particularly for the measurement of material deprivation and well-being. The poset-based evaluation procedure allows for multidimensional ordinal data to be treated consistently and effectively, overcoming the conceptual and statistical limitations of more classical aggregative approaches. Moreover, it encompasses traditional counting approaches, setting a general framework for multidimensional evaluation. Its main drawback lies in the computational burden implied by its combinatorial nature.

Objectives: Suitable software implementations are needed to put the procedure to work.

Methods: The R package PARSEC has been developed. It implements partial order tools for multidimensional poverty evaluation with ordinal variables.
**Results:** The main goal of the package is to provide socio-economic scholars with an integrated set of functions for multidimensional poverty evaluation, based on ordinal information. The package is organized in four main parts. The first two comprise functions for data management and basic partial order analysis; the third and the fourth are devoted to evaluation and implement both the poset-based approach and a more classical counting procedure.

**Conclusions:** In this speech, we present the R package PARSEC, which implements the evaluation procedure, providing also basic functions for manipulating posets. The main features of the package will be illustrated, through real and simulated examples, so as to introduce both the evaluation methodology and the practical use of PARSEC functions at the same time. The package has been recently uploaded to CRAN and it is freely available.

**Main references**


