

Dear Editor,

Please consider the attached research paper “*Exploratory data structure comparisons: Three new visual tools based on Principal Component Analysis*” for publication in Mathematical Population Studies.

Data comparability is a recurring topic in statistics, e.g. when multi-center studies are conducted to compare populations across countries. There exist methods to investigate data comparability within the framework of statistical models, e.g. *differential item functioning* within *item response theory*. However, without assuming a statistical model, practitioners often report simple data summaries in the absense of a systematic framework for understanding and describing data structure differences. In the submitted paper, we propose three graphical tools that can be used in an exploratory comparison of the data structure of two multivariate datasets prior to the formulation of a statistical model. The tools are implemented in an R package publicly available on CRAN. The methodology is exemplified on 6 psychological well-being scores (derived from the *European Social Survey*) believed to be measuring the concept of *happiness*. Using the graphical tools we are able to visualize a difference between the measured conception of happiness in Denmark and Bulgaria, hence verifying the difficulty in transferring the concept of happiness across countries, as also found by other authors. On the other hand, the graphical tools also find that Denmark and Sweden have comparable data structures in accordance with the understanding of similarity within the Scandinavian countries.

We look forward to your reply.

Yours sincerely,

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