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Gravity: Estimation Methods for Gravity Models in R

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Software

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Summary

Gravity models are used to explain bilateral flows related to the sizes of bilateral partners, a measure of distance between them and other influences on interaction costs. The underlying idea is rather simple. The greater the masses of two bodies and the smaller the distance between them, the stronger their attraction. For a state-of-the-art exposition about cross-sectional data see Wölwer, Breßlein, and Burgard (2018).

gravity package provides a wrapper of different standard estimation methods that can be quite difficult to implement them in R (R Core Team 2018). By considering the descriptions and codes of these methods, users get a comprehensive and application-oriented access, see which method may be suitable for certain research questions or data types, and extend the code available for their specific research projects.

The functions included in this package are designed to be consistent with the Stata code used in Head and Mayer (2014). Beyond offering an **rstats** open alternative to gravity model estimation in Stata we also provide cross-system compatibility that eases reproducible research both for researchers and students.

The current version of this package relies heavily on `rlang` package (Henry and Wickham 2018) which provides tools to work with core language features of base R and the `tidyverse` package (Wickham 2017). As a result we provide fast model fitting computation, five to fifteen times faster computation compared to older package versions in our benchmarks, and we don't lose correct handling and consistency when facing rank-deficient model matrices that base R handles well.

References

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