Package: MAIVE (via r-universe)

June 7, 2026

Type Package

Title Meta Analysis Instrumental Variable Estimator

Encoding UTF-8

Version 0.0.2.11

RoxygenNote 7.3.2

Description Meta-analysis traditionally assigns more weight to studies with lower standard errors, assuming higher precision. However, in observational research, precision must be estimated and is vulnerable to manipulation, such as p-hacking, to achieve statistical significance. This can lead to spurious precision, invalidating inverse-variance weighting and bias-correction methods like funnel plots. Common methods for addressing publication bias, including selection models, often fail or exacerbate the problem. This package introduces an instrumental variable approach to limit bias caused by spurious precision in meta-analysis.

License MIT + file LICENSE

Depends R (>= 4.0.0)

Imports stats, utils, clubSandwich, metafor

Suggests testthat, knitr, rmarkdown

VignetteBuilder knitr

LazyData true

Repository https://meta-analysis-es.r-universe.dev

Date/Publication 2025-10-13 15:25:44 UTC

RemoteUrl https://github.com/meta-analysis-es/maive

RemoteRef HEAD

RemoteSha 60956c4a5a96655190ae92384cebfc2b055c03b6

Contents

`maive` *R code for MAIVE*

Description

R package for MAIVE: "Spurious Precision in Meta-Analysis of Observational Research" by Zuzana Irsova, Pedro Bom, Tomas Havranek, and Heiko Rachinger.

Usage

```
maive(dat, method, weight, instrument, studylevel, SE, AR, first_stage = 0L)
```

Arguments

`dat`	Data frame with columns bs, sebs, Ns, study_id (optional).
`method`	1 FAT-PET, 2 PEESE, 3 PET-PEESE, 4 EK.
`weight`	0 no weights, 1 standard weights, 2 adjusted weights.
`instrument`	1 yes, 0 no.
`studylevel`	Correlation at study level: 0 none, 1 fixed effects, 2 cluster.
`SE`	SE estimator: 0 CR0 (Huber–White), 1 CR1 (Standard empirical correction), 2 CR2 (Bias-reduced estimator), 3 wild bootstrap.
`AR`	Anderson Rubin corrected CI for weak instruments (only for unweighted MAIVE versions of PET, PEESE, PET-PEESE, not available for fixed effects): 0 no, 1 yes.
`first_stage`	First-stage specification for the variance model: 0 levels, 1 log.

Details

Data `dat` can be imported from an Excel file via: `dat <- read_excel("inputdata.xlsx")` or from a csv file via: `dat <- read.csv("inputdata.csv")` It should contain:

- Estimates: bs
- Standard errors: sebs
- Number of observations: Ns
- Optional: study_id

Default option for MAIVE: MAIVE-PET-PEESE, unweighted, instrumented, cluster SE, wild bootstrap, AR.

Value

- beta: MAIVE meta-estimate
- SE: MAIVE standard error
- F-test: heteroskedastic robust F-test of the first step instrumented SEs
- beta_standard: point estimate from the method chosen
- SE_standard: standard error from the method chosen
- Hausman: Hausman type test: comparison between MAIVE and standard version
- Chi2: 5
- SE_instrumented: instrumented standard errors
- AR_CI: Anderson-Rubin confidence interval for weak instruments
- pub bias p-value: p-value of test for publication bias / p-hacking based on instrumented FAT
- egger_coef: Egger Coefficient (PET estimate)
- egger_se: Egger Standard Error (PET standard error)
- egger_boot_ci: Confidence interval for the Egger coefficient using the selected resampling scheme
- egger_ar_ci: Anderson-Rubin confidence interval for the Egger coefficient (when available)
- is_quadratic_fit: Details on quadratic selection and slope behaviour
- boot_result: Boot result
- slope_coef: Slope coefficient

Index