

Package ‘metaVAR’

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Title Multivariate Meta-Analysis of Vector Autoregressive Model
Coefficients

Version 0.9.1

Description Estimates the mean vector and covariance matrix of the
multivariate meta-analysis of vector autoregressive model coefficients.

URL <https://github.com/jeksterslab/metaVAR>,
<https://jeksterslab.github.io/metaVAR/>

BugReports <https://github.com/jeksterslab/metaVAR/issues>

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Encoding UTF-8

Roxygen list(markdown = TRUE)

Depends R (>= 3.5.0), OpenMx

Imports numDeriv, Matrix

Suggests knitr, rmarkdown, testthat, simStateSpace

RoxygenNote 7.3.2

NeedsCompilation no

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coef.metavarmeta	<i>Estimated Parameter Method for an Object of Class metavarmeta</i>
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Description

Estimated Parameter Method for an Object of Class metavarmeta

Usage

```
## S3 method for class 'metavarmeta'
coef(object, ...)
```

Arguments

object	an object of class metavarmeta.
...	further arguments.

Value

Returns a vector of the mean estimated parameters.

Author(s)

Ivan Jacob Agaloos Pesigan

Meta	<i>Fit Multivariate Meta-Analysis</i>
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Description

This function estimates the mean and covariance matrix of a vector of coefficients using the estimated coefficients and sampling variance-covariance matrix from each individual.

Usage

```
Meta(y, v, mu_start = NULL, sigma_l_start = NULL, try = 1000, ncores = NULL)
```

Arguments

y	A list. Each element of the list is a numeric vector of estimated coefficients.
v	A list. Each element of the list is a sampling variance-covariance matrix of y.
mu_start	Numeric matrix. Matrix of starting values of mu.
sigma_l_start	Numeric matrix. Matrix of starting values of t(chol(sigma)).
try	Positive integer. Number of extra tries for OpenMx::mxTryHard() .
ncores	Positive integer. Number of cores to use.

Details

For $i = \{1, \dots, n\}$, the objective function used to estimate the mean $\boldsymbol{\mu}$ and covariance matrix $\boldsymbol{\Sigma}$ of the random coefficients \mathbf{y}_i is given by

$$\ell(\boldsymbol{\mu}, \boldsymbol{\Sigma} \mid \mathbf{y}_i, \mathbb{V}(\mathbf{y}_i)) = -\frac{1}{2} \left[q \log(2\pi) + \log(|\mathbb{V}(\mathbf{y}_i) - \boldsymbol{\Sigma}|) + (\mathbf{y}_i - \boldsymbol{\mu})' (\mathbb{V}(\mathbf{y}_i) - \boldsymbol{\Sigma})^{-1} (\mathbf{y}_i - \boldsymbol{\mu}) \right]$$

where q is the number of unique elements in $\boldsymbol{\mu}$ and $\boldsymbol{\Sigma}$, and $\mathbb{V}(\mathbf{y}_i)$ is the sampling variance-covariance matrix of \mathbf{y}_i .

Author(s)

Ivan Jacob Agaloos Pesigan

print.metavarmeta	<i>Print Method for Object of Class metavarmeta</i>
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Description

Print Method for Object of Class metavarmeta

Usage

```
## S3 method for class 'metavarmeta'
print(x, alpha = 0.05, digits = 4, ...)
```

Arguments

x	an object of class metavarmeta.
alpha	Numeric vector. Significance level α .
digits	Integer indicating the number of decimal places to display.
...	further arguments.

Author(s)

Ivan Jacob Agaloos Pesigan

summary.metavarmeta	<i>Summary Method for Object of Class metavarmeta</i>
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Description

Summary Method for Object of Class metavarmeta

Usage

```
## S3 method for class 'metavarmeta'
summary(object, alpha = 0.05, digits = 4, ...)
```

Arguments

object	an object of class metavarmeta.
alpha	Numeric vector. Significance level α .
digits	Integer indicating the number of decimal places to display.
...	further arguments.

Author(s)

Ivan Jacob Agaloos Pesigan

vcov.metavarmeta	<i>Variance-Covariance Matrix Method for an Object of Class metavarmeta</i>
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Description

Variance-Covariance Matrix Method for an Object of Class metavarmeta

Usage

```
## S3 method for class 'metavarmeta'
vcov(object, ...)
```

Arguments

object	an object of class metavarmeta.
...	further arguments.

Value

Returns the variance-covariance matrix of the estimated parameters.

Author(s)

Ivan Jacob Agaloos Pesigan

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