Package ‘stcov’

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Type Package

Title Stein's Covariance Estimator

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Description Estimates a covariance matrix using Stein's isotonized covariance estimator, or a related estimator suggested by Haff.

License GPL (>= 2)

Suggests testthat

RoxygenNote 5.0.1

NeedsCompilation no

Repository CRAN

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haff_cov *Stein/Haff's covariance estimator*

Description

Stein/Haff's covariance estimator

Usage

```
haff_cov(S, n)
```

Arguments

S	Sample covariance matrix
n	Number of observations

Value

Estimated covariance matrix

References

Haff, L. R. "The Variational Form of Certain Bayes Estimators." The Annals of Statistics 19, no. 3 (1991): 1163-1190.

Lin, S.P. and Perlman, M.D.. "A Monte Carlo comparison of four estimators of a covariance matrix." Multivariate Analysis 6 (1985): 411-429.

Stein, C. "Estimation of a covariance matrix". Rietz Lecture (1975).

Examples

```
p <- 5
n <- 10
S <- rWishart(1, n, diag(p))[,,1]
haff_cov(S, n)
```

haff_eig *Stein/Haff's ordered eigenvalue estimates*

Description

Stein/Haff's ordered eigenvalue estimates

Usage

```
haff_eig(l, n)
```

Arguments

`l`	Sample eigenvalues
`n`	Number of observations

Value

Estimated eigenvalues

Examples

```
p <- 5
n <- 10
S <- rWishart(1, n, diag(p))[,,1]
l <- eigen(S)$val
haff_eig(l, n)
```

`iso_cov` *Stein's isotonized covariance estimator*

Description

Stein's isotonized covariance estimator

Usage

```
iso_cov(S, n)
```

Arguments

`S`	Sample covariance matrix
`n`	Number of observations

Value

Estimated covariance matrix

Examples

```
p <- 5
n <- 10
S <- rWishart(1, n, diag(p))[,,1]
iso_cov(S, n)
```

iso_eig *Stein's isotonized eigenvalue estimates*

Description

Stein's isotonized eigenvalue estimates

Usage

```
iso_eig(l, n)
```

Arguments

l	Sample eigenvalues
n	Number of observations

Value

Estimated eigenvalues

Examples

```
p <- 5
n <- 10
S <- rWishart(1, n, diag(p))[,,1]
l <- eigen(S)$val
iso_eig(l, n)
```

stein_eig *Stein's raw (unisotonized) eigenvalue estimates*

Description

Stein's raw (unisotonized) eigenvalue estimates

Usage

```
stein_eig(l, n)
```

Arguments

l	Sample eigenvalues
n	Number of observations

Value

Estimated eigenvalues

Examples

```
p <- 5
n <- 10
S <- rWishart(1, n, diag(p))[,,1]
l <- eigen(S)$val
stein_eig(l, n)
```

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