

Package ‘MultiHorizonSPA’

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Type Package

Title Multi Horizon Superior Predictive Ability

Version 1.0.0

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Description Run the Multi Horizon Superior Predictive Ability test to compare the predictive performance of two distinct models when jointly considering all horizons of a forecast path.

Depends R (>= 3.5.0)

Imports matlab, stats

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

NeedsCompilation no

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LossDiff_aSPA

Example for aSPA

Description

A set of loss-differences for horizons $H=1,\dots,20$, that has aSPA, but not uSPA.

Usage

```
data(LossDiff_aSPA)
```

Format

A matrix $T \times H$. Each column is a loss-function for horizon $h=1,\dots,H$.

References

Quaedvlieg, Rogier. "Multi-horizon forecast comparison." *Journal of Business & Economic Statistics* 39.1 (2021): 40-53.

See Also

[Test_aSPA](#) to test for aSPA.

LossDiff_uSPA

Example for uSPA

Description

A set of loss-differences for horizons $H=1,\dots,20$, that has both aSPA and uSPA.

Usage

```
data(LossDiff_uSPA)
```

Format

A matrix $T \times H$. Each column is a loss-function for horizon $h=1,\dots,H$.

References

Quaedvlieg, Rogier. "Multi-horizon forecast comparison." *Journal of Business & Economic Statistics* 39.1 (2021): 40-53.

See Also

[Test_uSPA](#) to test for uSPA.

| | |
|-----------|---|
| Test_aSPA | <i>Test average Superior Predictive Ability</i> |
|-----------|---|

Description

Implements the test for average Superior Predictive Ability (aSPA) of Quaedvlieg (2021)

Usage

```
Test_aSPA(LossDiff, weights, L, B = 999)
```

Arguments

| | |
|----------|--|
| LossDiff | the T x H matrix forecast path loss differential |
| weights | the 1 x H vector of weights for the losses at different horizons. For instance <code>weights <- matlab::ones(1, 20)/20</code> |
| L | integer, the parameter for the moving block bootstrap |
| B | integer, the number of bootstrap iterations. Default 999 |

Value

A list containing two objects:

| | |
|-----------|-------------------------|
| "p_value" | the p-value for aSPA |
| "t_aSPA" | the statistics for aSPA |

Author(s)

Luca Barbaglia <https://lucabarbaglia.github.io/>

References

Quaedvlieg, Rogier. "Multi-horizon forecast comparison." *Journal of Business & Economic Statistics* 39.1 (2021): 40-53.

See Also

[Test_uSPA](#)

Examples

```
## Test for aSPA and uSPA
data(LossDiff_aSPA)
weights <- matlab::ones(1, 20)/20
Test_aSPA(LossDiff=LossDiff_aSPA, weights=weights, L=3, B=10)
```

Test_uSPA

Test uniform Superior Predictive Ability

Description

Implements the test for uniform Superior Predictive Ability (uSPA) of Quaadvlieg (2021)

Usage

```
Test_uSPA(LossDiff, L, B = 999)
```

Arguments

| | |
|----------|--|
| LossDiff | the T x H matrix forecast path loss differential |
| L | the parameter for the moving block bootstrap |
| B | integer, the number of bootstrap iterations. Default 999 |

Value

A list containing two objects:

| | |
|-----------|-------------------------|
| "p_value" | the p-value for uSPA |
| "t_uSPA" | the statistics for uSPA |

Author(s)

Luca Barbaglia <https://lucabarbaglia.github.io/>

References

Quaadvlieg, Rogier. "Multi-horizon forecast comparison." *Journal of Business & Economic Statistics* 39.1 (2021): 40-53.

See Also

[Test_aSPA](#)

Examples

```
## Test for uSPA
data(LossDiff_uSPA)
Test_uSPA(LossDiff=LossDiff_uSPA, L=3, B=10)
```

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