Package ‘GLSUnitRootTests’

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Type Package

Title GLS Unit Root Tests

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Description Function and data sets in the book chapter entitled ``Unit Root Tests based on GLS Estimator'' B.Guris (2023). The book will be published in Turkish and the original name of this book chapter will be ``Genelleştirilmiş En Küçük Kareler Tahmincisine Dayanan Birim Kök Testleri''.

License GPL (>= 2)

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3

Imports NonlinearTSA

R topics documented:

`GLS_ADF` *Elliott, Rothenberg ve Stock(1996) GLS detrending in ADF unit root test function*

Description

This function allows you to make Elliott, Rothenberg ve Stock(1996) GLS detrending method for the unit root test procedure developed by Dickey and Fuller(1981).

Usage

```
GLS_ADF(data_name, case, max_lag, lsm)
```

Arguments

`data_name`	series name,
`case`	if demeaned data 1 if detrended data 2,
`max_lag`	maximum lag
`lsm`	lag selection methods if 1 AIC, if 2 BIC

Value

"Model" Estimated model

"Selected lag" the lag order

"Test Statistic" the value of the test statistic

References

Elliott, G., T. J. Rothenberg, and J. H. Stock. 1996. Efficient tests for an autoregressive unit root. Econometrica 64 (4):813–36.

Burak Guris, R Uygulamalı Dogrusal Olmayan Zaman Serileri Analizi, DER Yayinevi, 2020.

Examples

```
x <- rnorm(1000)
GLS_ADF(x, case = 1, lags = 6, lsm =1)


y <- cumsum(rnorm(1000))
GLS_ADF(y, 1, 3, 3)
```

Guris_Guris_2022 — *Guris and Guris(2022) GLS detrending in nonlinear unit root test function*

Description

This function allows you to make Güriş and Güriş GLS detrending method for the unit root test procedure developed by Kruse 2011. A new unit root test against ESTAR based on a class of modified statistics. Statistical Papers 52 (1):71–85.

Usage

```
Guris_Guris_2022(data_name, case, lags, lsm)
```

Arguments

`data_name`	series name,
`case`	if demeaned data 1 if detrended data 2,
`lags`	maximum lag
`lsm`	lag selection methods if 1 AIC, if 2 BIC, if 3 t-stat significance

Value

"Model" Estimated model

"Selected lag" the lag order

"Test Statistic" the value of the test statistic

References

Kruse 2011. A new unit root test against ESTAR based on a class of modified statistics. Statistical Papers 52 (1):71–85.

Burak Guris, R Uygulamalı Dogrusal Olmayan Zaman Serileri Analizi, DER Yayinevi, 2020.

Examples

```
x <- rnorm(1000)
Guris_Guris_2022(x, case = 1, lags = 6, lsm =1)


y <- cumsum(rnorm(1000))
Guris_Guris_2022(y, 1, 3, 3)
```

`Kapetanios_Shin_2008` *Kapetanios and Shin(2008) GLS detrending in KSS(2003) nonlinear unit root test function*

Description

This function allows you to make Kapetanios and Shin(2008) GLS detrending method for the unit root test procedure developed by Kapetanios, Shin and Snell(2003).

Usage

```
Kapetanios_Shin_2008(data_name, case, lags, lsm)
```

Arguments

`data_name`	series name,
`case`	if demeaned data 1 if detrended data 2,
`lags`	maximum lag
`lsm`	lag selection methods if 1 AIC, if 2 BIC, if 3 t-stat significance

Value

"Model" Estimated model

"Selected lag" the lag order

"Test Statistic" the value of the test statistic

References

Kapetanios, G., Shin, Y., & Snell, A. (2003). Testing for a unit root in the nonlinear STAR framework. Journal of econometrics, 112(2), 359-379.

Burak Guris, R Uygulamalı Dogrusal Olmayan Zaman Serileri Analizi, DER Yayinevi, 2020.

Examples

```
x <- rnorm(1000)
Kapetanios_Shin_2008(x, case = 1, lags = 6, lsm =1)


y <- cumsum(rnorm(1000))
Kapetanios_Shin_2008(y, 2, 12, 2)
```

Su_Nguyen_2013 — *Su and Nguyen(2013) GLS detrending in Sollis nonlinear unit root test function*

Description

This function allows you to make Su and Nguyen(2013) GLS detrending method for the unit root test procedure developed by Kruse 2009.

Usage

```
Su_Nguyen_2013(data_name, case, lags, lsm)
```

Arguments

`data_name`	series name,
`case`	if demeaned data 1 if detrended data 2,
`lags`	maximum lag
`lsm`	lag selection methods if 1 AIC, if 2 BIC, if 3 t-stat significance

Value

"Model" Estimated model

"Selected lag" the lag order

"Test Statistic" the value of the test statistic

References

Jen-Je Su & Jeremy K. Nguyen (2013) GLS detrending in Sollis nonlinear unit root tests, Applied Economics Letters, 20:13, 1259-1262

Burak Guris, R Uygulamalı Dogrusal Olmayan Zaman Serileri Analizi, DER Yayinevi, 2020.

Examples

```
x <- rnorm(1000)
Su_Nguyen_2013(x, case = 2, lags = 3, lsm = 2)


y <- cumsum(rnorm(1000))
Su_Nguyen_2013(y, 1, 12, 1)
```

Tr_inf_rate *Tr_inf_rate*

Description

Monthly time series data between 01.2005 - 10.2023

Usage

```
Tr_inf_rate
```

Format

A data frame containing :

Inflation Rate in Turkey

Source

The Central Bank of the Republic of Turkey

Examples

```
summary(Tr_inf_rate)
```

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