Package: MEsreg (via r-universe)

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Type Package

Title Generalized Maximum entropy for fitting smooth transition regression

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Author Dr.Woraphon Yamaka

Maintainer The package maintainer <woraphon.econ@gmail.com>

Description This package provides the GME estimation for linear regression and smooth transition regression models

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`MEregress` *Generalized Maximum Entropy for estimating linear regression.*

Description

This function is used to estimate the linear gression model using GME.

Usage

```
MEregress(y,x,number,Z,V)
```

Arguments

`y`	dependent variable
`x`	One dimension of dependent variable
`number`	number of supports i.e. "3", "5" and "7
`Z`	bound of coefficient
`V`	bound of error

Details

This funciton is used to estimated the linear regression

Value

`beta`	intercept,beta
`Maxent`	Maximum entropy

Author(s)

Dr.Woraphon Yamaka

References

Golan, A., Judge, G. G., & Miller, D. (1996). Maximum entropy econometrics. Iowa State University, Department of Economics.

Jaynes, E. T. (1957). Information theory and statistical mechanics. Physical review, 106(4), 620.

Maneejuk, P., Yamaka, W., & Sriboonchitta, S. (2019). Does the Kuznets curve exist in Thailand? A two decades' perspective (1993–2015). Annals of Operations Research, 1-32.

Maneejuk, P. and Yamaka, W. (2020). Entropy Inference in Smooth Transition Kink Regression

Examples

```
library("Rsolnp")
set.seed(1)
n=100
e=rnorm(n)
x0=rnorm(n)
x1=rnorm(n)
y=1+2*x0+3*x1+e
x=cbind(x0,x1)
MEregress(y,x,number="3",Z=10,V=5)
```

`MEskink` *Generalized Maximum Entropy for estimating the smooth transition kink regression*

Description

GME inference method for the smooth transition kink regression model with under kink point. The advantage of GME method is that it is robust even when we have ill-posed or ill-conditioned problems, and thus, it has higher estimation accuracy and robustness, especially when the probability distribution of errors is unknown.

Usage

```
MEskink(y,x,number,Z,V)
```

Arguments

`y`	dependent variable
`x`	One dimension of dependent variable
`number`	number of supports i.e. "3", "5" and "7
`Z`	bound of coefficient
`V`	bound of error

Details

Entropy refers to the amount of uncertainty represented by a discrete probability distribution. The maximum entropy method was proposed by Jaynes (1957) and developed in the early 1990s by Golan, Judge, and Miller (1996) for estimating the unknown probabilities of a discrete probability distribution. This estimator uses the entropy-information measure of Shannon (1948) to recover those unknown probability distributions of underdetermined problems. This function is a simple estimation function for one covariate.

Value

beta	intercept,beta_regime1,beta_regime2
threshold	kink point
smooth	smooth parameter
Maxent	Maximum entropy

Author(s)

Dr.Woraphon Yamaka

References

Golan, A., Judge, G. G., & Miller, D. (1996). Maximum entropy econometrics. Iowa State University, Department of Economics.

Jaynes, E. T. (1957). Information theory and statistical mechanics. Physical review, 106(4), 620.

Maneejuk, P., Yamaka, W., & Sriboonchitta, S. (2019). Does the Kuznets curve exist in Thailand? A two decades' perspective (1993–2015). Annals of Operations Research, 1-32.

Maneejuk, P. and Yamaka, W. (2020). Entropy Inference in Smooth Transition Kink Regression

Examples

```
library("Rsolnp")
set.seed(1)
n=100
thres=3
gam=1.2
e=rnorm(n)
x=rnorm(n,thres,5)
alpha=c(0.5,1,-1)

y=alpha[1]+(alpha[2]*(x*(1-logis(gam,x,thres))))+(alpha[3]*(x*(logis(gam,x,thres))))+e

MEskink(y,x,number="5",Z=10,V=5)
```

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