Package 'Rtauchen'

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Type Package

Title Discretization of AR(1) Processes

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URL https://github.com/davidzarruk/Rtauchen

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Description Discretize AR(1) process following Tauchen (1986) <http://www.sciencedirect.com/science/article/pii/0165176586901680>. A discrete Markov chain that approximates in the sense of weak convergence a continuous-valued univariate Autoregressive process of first order is generated. It is a popular method used in economics and in finance.

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Imports stats

NeedsCompilation no

Repository CRAN

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R topics documented:

Rtauchen *Rtauchen*

Description

This function generates a matrix of transition probabilites of a finite-state Markov chain that mimics an AR(1) process with persistence parameter llamda, standard deviation ssigma and a fixed parameter m.

Usage

```
Rtauchen(ne, ssigma_eps, llambda_eps, m)
```

Arguments

ne	Number of points of the grid of the finite-state Markov chain that mimics the AR(1) process
ssigma_eps	Standard deviation of exogenous shock in the AR(1) process
llambda_eps	Persistence parameter of the AR(1) process
m	Tauchen parameter for the width of the process (number of standard deviations of the AR(1) process covered by the grid)

Details

See Tauchen (1986) for details.

Value

A matrix with the corresponding to the transition matrix of the finite-state Markov chain that approximates the AR(1) process

Examples

```
results = Rtauchen(2, 1.0e-5, 0.1,0.4)
results
```

`Tgrid` *Tgrid*

Description

This function generates a grid of a finite-state Markov chain that mimics an AR(1) process with persistence parameter llamda, standard deviation ssigma and a fixed parameter m.

Usage

```
Tgrid(ne, ssigma_eps, llambda_eps, m)
```

Arguments

`ne`	Number of points of the grid of the finite-state Markov chain that mimics the AR(1) process
`ssigma_eps`	Standard deviation of exogenous shock in the AR(1) process
`llambda_eps`	Persistence parameter of the AR(1) process
`m`	Tauchen parameter for the width of the process (number of standard deviations of the AR(1) process covered by the grid)

Details

See Tauchen (1986) for details.

Value

An array with the grid points of a finite-state Markov chain which approximates the original AR(1) process.

Examples

```
results = Tgrid(5, 0.02, 0.98, 3)
```

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