

Manual

Overview

The code allows the user to carry out Log ACD(p, q) modeling of time series of durations using martingale estimating functions, as discussed in our manuscript. Specifically, this code will enable the user to generate time series of durations as discussed in section 7 and to reproduce the results in Table 1. With slight modification, the code is used for the real data analysis shown in section 8.

Required Software

- R/Rstudio
- Matlab

Required R Packages

Please install the following packages before you execute the sample code

- R.matlab
- moments
- MASS

How to Use

1. Place all seven R files and one matlab file in the same folder.
2. Add path-to-folder to Matlab.
3. Open `example_code.R` and change your working directory:

```
setwd("path where all codes are stored")
```

4. Source all necessary codes.
5. Connect R and Matlab:

```
library(R.matlab)
```

```
## R.matlab v3.5.1 (2016-03-27) successfully loaded. See ?R.matlab for help.
```

```
##
```

```
## Attaching package: 'R.matlab'
```

```
## The following objects are masked from 'package:base':
```

```
##
```

```
##      getOption, isOpen
```

```
Matlab$startServer( )      ### Open Matlab Server
```

```
## [1] 0
```

```
matlab <- Matlab()
```

```
isOpen <- open(matlab)      ### Connect R and Matlab
```

```
isOpen      ### If successfully connected, TRUE will be returned
```

```
## [1] TRUE
```

6. Set up simulation parameters:

Arguments	Description
omega, alpha, beta	parameters of the Log ACD(p, q) model
sim_dist	distribution of errors epsilon
par1, par2	parameters of the epsilon distribution
nsim	number of simulations
len_sim	length of simulated durations
nburn	number of burn-in durations
method	method to estimate parameters (“NESE”, “AVRE”, “AISRE”)
n_interation	maximum number of iterations, if “AISRE” is specified

7. To reproduce our results, set seed as 123457