

Package: StMoSim (via r-universe)

September 13, 2024

Type Package

Title Quantile-Quantile Plot with Several Gaussian Simulations

Version 3.1.1

Date 2018-11-19

Author Matthias Salvisberg

Maintainer Matthias Salvisberg <matthias.salvisberg@gmail.com>

BugReports <https://github.com/matthiassalvisberg/StMoSim/issues>

Description Plots a QQ-Norm Plot with several Gaussian simulations.

License GPL-2 | GPL-3

NeedsCompilation yes

SystemRequirements C++11, GNU make

Imports methods,stats,graphics,RcppParallel,Rcpp

LinkingTo RcppParallel,Rcpp

RoxygenNote 6.1.1

Repository <https://matthiassalvisberg.r-universe.dev>

RemoteUrl <https://github.com/matthiassalvisberg/stmosim>

RemoteRef HEAD

RemoteSha d4dfc71074cd11972af31efd55b84a3dd5934f69

Contents

qqnormSim	2
StMoSim	4
Index	6

 qqnormSim

Quantile-Quantile plot with several Gaussian simulations.

Description

Plots a QQ plot of the variable x with nSim Gaussian simulations.

Usage

```
qqnormSim(x, nSim = 500, mOfVar = "mad",
  main = "Normal Q-Q Plot - SIM", xlab = "Theoretical Quantiles",
  ylab = "Sample Quantiles", qqnormCol = "black", qqnormPch = 1,
  qqlineCol = "#cdd2d015", qqlineLwd = 3)

## S4 method for signature 'lm'
qqnormSim(x, nSim = 500, mOfVar = "mad",
  main = "Normal Q-Q Plot - SIM", xlab = "Theoretical Quantiles",
  ylab = "Sample Quantiles", qqnormCol = "black", qqnormPch = 1,
  qqlineCol = "#cdd2d015", qqlineLwd = 3)

## S4 method for signature 'numeric'
qqnormSim(x, nSim = 500, mOfVar = "mad",
  main = "Normal Q-Q Plot - SIM", xlab = "Theoretical Quantiles",
  ylab = "Sample Quantiles", qqnormCol = "black", qqnormPch = 1,
  qqlineCol = "#cdd2d015", qqlineLwd = 3)
```

Arguments

x	a lm-object or a numeric vector. If it's a lm-object its residuals are plotted.
nSim	<i>[optional]</i> the number of simulations you like to add to the plot.
mOfVar	<i>[optional]</i> a measure of variation. ("mad" or "sd")
main	<i>[optional]</i> an overall title for the plot.
xlab	<i>[optional]</i> a title for the x axis.
ylab	<i>[optional]</i> a title for the y axis.
qqnormCol	<i>[optional]</i> color of the observations in the plot.
qqnormPch	<i>[optional]</i> point character of the observations in the plot.
qqlineCol	<i>[optional]</i> color of the simulations in the plot.
qqlineLwd	<i>[optional]</i> line width of the simulations. should not be higher than 3.

Details

Two estimators are required for the simulation of the normal distribution. Since the normal distribution is a two-parameter family distribution. Default measure of location is the mean. Default measure of variation is the mad. This gives a robust estimation of the standard deviation even if there are outliers in the sample. Likewise this can be changed with the parameter mOfVar.

Value

invisible(NULL)

Author(s)

Matthias Salvisberg <matthias.salvisberg@gmail.com>

See Also

the basic graph corresponds to [qqnorm](#)

Examples

```
## Not run:

##### qqnorm vs. qqnormSim #####

par(mfrow = c(1,2))
x<- rnorm(100)
qqnorm(x)
qqline(x)
qqnormSim(x)
par(mfrow = c(1,1))

##### basic functionality/arguments #####

# The observations should behave like a simulation,
# because the observations are sampled from a Gaussian distribution.
qqnormSim(x = rnorm(100))

# If you don't feel comfortable with the mad as
# measure of variation you can change it to the standard deviation.
qqnormSim(x = rnorm(100),
          mOfVar = "sd")

# On the first glance its obvious that this sample
# doesn't originate from a Gaussian distribution due to the heavy tails.
qqnormSim(x = rt(100,df = 4))

Reduce the simulation tracks from 500 to 50. (500 is default).
Not recommended unless you have not enough computation power.
qqnormSim(x = rnorm(100),
          nSim = 50)

##### graphical arguments #####

# set title and axes labels.
qqnormSim(x = rnorm(100),
          main = "main title",
          xlab = "x-axis label",
          ylab = "y-axis label")
```

```
# I don't recommend fancy colors, unless you need it for your corporate identity.
qqnormSim(x = rnorm(100),
          qqnormCol = "#ff0000",
          qqnormPch = 16,
          qqlineCol = "greenyellow",
          qqlineLwd = 1)

## End(Not run)
```

StMoSim

StMoSim: Plots a QQ-Norm Plot with Several Gaussian Simulations

Description

With this package you can simulate several lines into the QQ-Norm Plot under the assumption of Gaussian distribution. If the realised observations lie inside of the simulations tracks there is the possibility that the observations stem from a Gaussian distribution. This can be very useful in residual analysis where you have to evaluate whether the model residuals fit the assumption of gaussian distributed terms or not.

Changelog

————<CHANGELOG>————

——< v3.1.1 - 2018-11-19 >——

provide more (plot) arguments to the user.

updated documentation - added more expamples.

added BugReports argument in DESCRIPTION.

implemented all recommendations from RcppParallel package.

——< v3.1 - 2018-11-13 >——

Minor bug fixes, due to CHECK changes on CRAN.

Moved documentation to roxygen2.

——< v3.0 - 2014-10-16 >——

Computation intense code moved to C++.

Moved to parallel computation, thanks to Rcpp/RcppParallel !

Minor bug fixes.

——< v2.2 - 2012-02-24 >——

Minor bug fixes, due to CHECK changes on CRAN.

——< v2.1 - 2012-02-24 >——

Minor bug fixes.

——<v2.0 - 2011-03-31 >——

Moved to S4 Classes.

——<v1.1 - 2010-05-03 >——

First Version on CRAN.

——</CHANGELOG>——

Author(s)

Matthias Salvisberg <matthias.salvisberg@gmail.com>

Index

* **package**

StMoSim, [4](#)

* **qqnorm**

qqnormSim, [2](#)

qqnorm, [3](#)

qqnormSim, [2](#)

qqnormSim, lm-method (qqnormSim), [2](#)

qqnormSim, numeric-method (qqnormSim), [2](#)

StMoSim, [4](#)

StMoSim-package (StMoSim), [4](#)