Package 'elm'

December 11, 2013

Type Package

Title Exact linear regression

Version 0.1

Date 2013-11-17

Description Provides an implementation of exact tests for the coefficients of a linear regression.

Depends R (>= 2.10.0), stats, Rglpk, quadprog

License GPL-2

R topics documented:

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elm-package   *Exact linear models*

Description

Implementation of exact test of linear regressions.

Details

Package:	elm
Type:	Package
Version:	0.1
Date:	2013-11-17
License:	GPL-2

~~ An overview of how to use the package, including the most ~~ ~~ important functions ~~

Author(s)

Karl Schlag, Olivier Gossner, Gareth Liu-Evans and Oliver Reiter

References

Olivier Gossner, Karl H. Schlag, "Finite-sample exact tests for linear regressions with bounded dependent variables", Journal of Econometrics, Volume 177, Issue 1, November 2013, Pages 75-84, ISSN 0304-4076, http://dx.doi.org/10.1016/j.jeconom.2013.06.003.

See Also

http://homepage.univie.ac.at/karl.schlag/research/statistics/

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elm	*Exact linear models*

Description

Uses exact tests for the coefficients of linear regressions.

Usage

```
elm(Y, X, lower = 0, upper = 1, alternative = "greater",
    alpha = 0.05, j = 2, betabarj = 0, betaj = 0.5,
    lambda = 1, lambdamm = 1, iterations = 1000,
    qq = 0.0001, qqmm = 0.0001)
```

Arguments

Y	dependent variable, as matrix.
X	independent variable, as matrix.
lower, upper	the theoretical lower and upper bounds on the data outcomes known ex-ante before gathering the data.
alternative	the hypothesis to be tested, "less" or "greater" (default).
alpha	the type I error.
j	index of the coefficient to be tested
betabarj	the critical value for the null hypothesis
betaj	value of the coefficient under the alternative. to bring the type II error to 0.5
lambda	
lambdamm	
iterations	number of iterations
qq	
qqmm	

Details

This function computes several exact tests for the coefficient of a linear regression. For an explanation as to how the tests are constructed, please refer to the paper mentioned below.

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Examples

```
## step example
n <- 40
h <- 0.5
Y <- sample(c(0, 1), size = n, replace = TRUE)
X <- cbind(1, runif(n = n) < h)
elm(Y, X, 0, 1, j = 2, betabarj = 0, betaj = .43)
```

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