Package ‘uqr’

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Title Unconditional Quantile Regression
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Description Estimation and Inference for Unconditional Quantile Regression for cross-
sectional and panel data (see Firpo et al. (2009) <DOI:10.3982/ECTA6822>).
License GPL (>= 2)
LazyData TRUE
Imports stats, base
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Engel Data

Description
Engel food expenditure data used in Koenker and Bassett(1982). This is a regression data set consisting of 235 observations on income and expenditure on food for Belgian working class households.

Usage
data(engel)

Format
A data frame containing 235 observations on 2 variables

income annual household income in Belgian francs
foordexp annual household food expenditure in Belgian francs

References

Trust Data

Description
Data on 12 European Countries

Usage
data(trust)

Format
A data frame containing 180 observations for 12 countries. Data taken from the Eurobarometer, The Hertie School of Governance.

Trust_in_the_ECB Trust in the European Central Bank
Trust_in_the_EU Trust in the European Union
countryname countryname identifier
year year identifier
Description

Returns an object of class urq. that represents an Unconditional Quantile Regression Fit

Usage

urq(formula, data, tau=NULL, kernel=NULL, cre=NULL, id=NULL)

Arguments

formula a formula object, with the response on the left of a \(~\) operator, and the terms, separated by + operators, on the right.
data a dataframe in which to interpret the variables named in the formula
tau the quantile(s) to be estimated, this must be a number (or a vector of numbers) strictly between 0 and 1.
kernel a character string giving the smoothing kernel to be used. This must match one of "gaussian", "rectangular", "triangular", "epanechnikov", "biweight", "cosine" or "optcosine", with default "gaussian".
cre The CRE formula (right hand side only) is a specification of the variables in the CRE component. These are possibly endogenous variables (in the sense that they are affected by the fixed effects) and must be time-varying. If left empty, a cross-sectional analysis is performed.
id defines the structure of the panel.

Details


References

Bache, Stefan Holst; Christian M. Dahl; Johannes Tang Kristensen. 2011. Headlights on tobacco road to low birthweight - Evidence from a battery of quantile regression estimators and a heterogeneous panel.

See Also
density, urqCI

Examples

### example for cross-sectional data ###

data(engel)
formula = foodexp ~ income
rifreg = urq(formula, data = engel)

### example for panel data ###

data(trust)
formula = Trust_in_the_ECB ~ Trust_in_the_EU + Trust_in_National_Government
cre = ~ Trust_in_the_EU + Trust_in_National_Government
rif = urq(formula, data = trust, cre = cre, id = "countryname")

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urqb

*Unconditional Quantile Regression*

Description

Function Not intended for user. Returns an object of class "urq" that represents an Unconditional Quantile Regression Fit.

Usage

urqb(data, tau, formula, kernel = NULL, cluster = cluster)

Arguments

data
	a data.frame in which to interpret the variables named in the formula

tau
	the quantile(s) to be estimated, this must be a number (or a vector of numbers) strictly between 0 and 1.

formula
	a formula object, with the response on the left of a ~ operator, and the terms, separated by + operators, on the right.

kernel
	a character string giving the smoothing kernel to be used. This must match one of "gaussian", "rectangular", "triangular", "epanechnikov", "biweight", "cosine" or "optcosine", with default "gaussian".

cluster

column name of variable to be used in order to obtain cluster robust standard errors.
Inference for Unconditional Quantile Regression

Description

Returns a summary list for an Unconditional Quantile Regression Fit.

Usage

urqCI(urq,R=20,seed=NULL,colour=NULL,confidence=NULL,graph=TRUE,cluster=NULL,BC=FALSE)

Arguments

erq  an object of class urq.
R  the number of bootstrap replications to be used.
seed  random number generator.
colour  colour of plot: default is lightblue.
confidence  significance level.
graph  boolean, if TRUE a graph is produced. At least two quantiles are needed for plot to work.
cluster  column name of variable to be used in order to obtain cluster robust standard errors and confidence intervals.
BC  plot option: If set to TRUE, Bias-Corrected Bootstrap confidence bands are plotted (black dashed lines), along with the bootstrap median (orange dashed line).

Details

This function provides standard errors and confidence intervals for the Recentered Influence Function regression fit urq. If the cluster option is used, standard errors are cluster robust according to the variable supplied by the user, otherwise observations are assumed to be iid. Inference is obtained through a bayesian bootstrap drawing observation (or cluster) weights from a Dirichlet distribution. If the option graph is TRUE, then a quantile plot is provided showing estimates and confidence intervals (t approximation) or Bias-Corrected (BC) intervals. Confidence intervals using the BC percentile method typically require 1000 or more replications.

See Also
density, urq

Examples

NULL
References


See Also

urq

Examples

### example for cross-sectional data ###

data(engel)
formula=foodexp ~ income
rifreg=urq(formula=formula, data=engel)
summary=urqCI(urq = rifreg, R = 10, graph = TRUE, seed = 1234)

### example for panel data ###

data(trust)
formula=Trust_in_the_ECB~Trust_in_the_EU+Trust_in_National_Government
cre=Trust_in_the_EU+Trust_in_National_Government
rif=urq(formula, data=trust, cre=cre, id="countryname")
summary=urqCI(urq = rif, R = 10, graph = TRUE, seed = 1234, cluster="countryname")
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