Package ‘orcutt’

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Title Estimate Procedure in Case of First Order Autocorrelation
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Description Solve first order autocorrelation problems using an iterative method. This procedure estimates both autocorrelation and beta coefficients recursively until we reach the convergence (8th decimal). The residuals are computed after estimating Beta using EGLS approach and Rho is estimated using the previous residuals.
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NeedsCompilation no
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orcutt-package  Estimate Procedure in Case of First Order Autocorrelation

Description

This package has been implemented to solve first order autocorrelation problems using an iterative method. This procedure estimates both autocorrelation and beta coefficients recursively until we reach the convergence (8th decimal). The residuals are computed after estimating Beta using EGLS approach and Rho is estimated using the previous residuals.

Details

Package: orcutt
Type: Package
Version: 2.1
Date: 2017-04-09
License: GPL-2

Author(s)

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References


cochrane.orcutt  Cochrane-Orcutt Estimation

Description

Interactive method using to solve first order autocorrelation problems. This procedure estimates both autocorrelation and beta coefficients recursively until we reach the convergence (8th decimal). The residuals are computed after estimating Beta using EGLS approach and Rho is estimated using the previous residuals.

Usage

cochrane.orcutt(reg)
Arguments
reg a linear model built with lm function

Value
An object of class "orcutt", basically a list including elements
coefficients a named vector of coefficients.
residuals residuals.
fitted.values the fitted mean values.
t.value t test of coefficients.
p.value p-value of coefficients.
call the matched call.
rho Spearman’s rho autocorrelation.
number.interaction number of interaction of the model.
DW vector contained Durbin-Watson statistics and p-value.

Author(s)
Stefano Spada

References

Examples

data(icecream, package="orcutt")
lm = lm(cons ~ price + income + temp, data=icecream)
coch = cochrane.orcutt(lm)
coch

icecream Ice Cream Consumption

Description
four weekly observations from 1951-03-18 to 1953-07-11 in United States (30 observations)

Usage
data("icecream")
Predict method for Cochrane-Orcutt Estimation

Description
Predicted values based on orcutt object.

Usage

## S3 method for class 'orcutt'
predict(object, ...)

Arguments

object An "orcutt" object build with Cochrane-Orcutt fuction
...

further arguments passed to or from other methods.

Author(s)
Stefano Spada

References

Examples

data(icecream, package="orcutt")
lm = lm(cons ~ price + income + temp, data=icecream)
coch = cochrane.orcutt(lm)
predict.coch = predict(coch)

print.orcutt

Print Cochrane-Orcutt Estimation

Description

Print Cochrane-Orcutt Estimation

Usage

## S3 method for class 'orcutt'
print(x, ...)

Arguments

x

an orcutt object

... additional arguments for specific methods.

Author(s)

Stefano Spada

References


Examples

data(icecream, package="orcutt")
lm = lm(cons ~ price + income + temp, data=icecream)
coch = cochrane.orcutt(lm)
coch
Summary Cochrane-Orcutt Fits

Description
summary method for class "orcutt".

Usage
## S3 method for class 'summary.orcutt'
print(x, ...)

Arguments
x an object of class "orcutt", usually, a result of a call to cochrane.orcutt.
... further arguments passed to or from other methods.

Value
The function summary.orcutt computes and returns a list of summary statistics of the fitted Cochrane-Orcutt.

coefficients a $p \times 4$ matrix with columns for the estimated coefficient, its standard error, t-statistic and corresponding (two-sided) p-value. Aliased coefficients are omitted.
fstatistic value of F statistic.
df degrees of freedom of F statistic.
r.squared $R^2$, the fraction of variance explained by the model.
adj.r.squared the above $R^2$ statistic adjusted, penalizing for higher $p$.
DW.t a 4-vector contained the Durbin-Watson statistic and the p-value for the original "lm" model, and the Durbin-Watson statistic and the p-value for the original "orcutt" model.

Author(s)
Stefano Spada

References

Examples
##-- Continuing the cochrane.orcutt(.) example:

summary(coch)
residual.orcutt

Accessing Cochrane-Orcutt Fits

Description
Residual for Cochrane-Orcutt Estimation

Usage
residual.orcutt(object, ...)

Arguments

object
An "orcutt" object build with Cochrane-Orcutt function

...
Further arguments passed to or from other methods.

Author(s)
Stefano Spada

References

Examples

data(icecream, package="orcutt")
lm = lm(cons ~ price + income + temp, data=icecream)
coch = cochrane.orcutt(lm)
residuals(coch)

summary.orcutt

Summarizing Cochrane-Orcutt Fits

Description
summary method for class "orcutt".

Usage
## S3 method for class 'orcutt'
summary(object, ...)

Arguments

object  an object of class "orcutt", usually, a result of a call to cochrane.orcutt.
...  further arguments passed to or from other methods.

Value

The function summary.orcutt computes and returns a list of summary statistics of the fitted Cochrane-Orcutt

coefficients  a $p \times 4$ matrix with columns for the estimated coefficient, its standard error, t-statistic and corresponding (two-sided) p-value. Aliased coefficients are omitted.

fstatistic  value of F statistic.

df  degrees of freedom of F statistic.

r.squared  $R^2$, the fraction of variance explained by the model.

adj.r.squared  the above $R^2$ statistic adjusted, penalizing for higher $p$.

DW.t  a 4-vector contained the Durbin-Watson statistic and the p-value for the original "lm" model, and the Durbin-Watson statistic and the p-value for the original "orcutt" model.

Author(s)

Stefano Spada

References


Examples

```r
#-- Continuing the cochrane.orcutt(.) example:

summary(coch)
```
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