Package ‘ceser’

October 12, 2022

Title  Cluster Estimated Standard Errors
Version  1.0.0
Description  Implementation of the Cluster Estimated Standard Errors (CESE) proposed in Jack-
son (2020) <DOI:10.1017/pan.2019.38> to compute clustered standard errors of linear coeffi-
cients in regression models with grouped data.
License  MIT + file LICENSE
Encoding  UTF-8
LazyData  true
URL  https://github.com/DiogoFerrari/ceser
BugReports  https://github.com/DiogoFerrari/ceser/issues
Depends  R (>= 2.10)
Imports  magrittr, purrr, dplyr, tibble, lmtest
RoxygenNote  7.0.2
Suggests  knitr, rmarkdown
VignetteBuilder  knitr
NeedsCompilation  yes
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Repository  CRAN
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R topics documented:

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Sample data set

Description
A dataset relating the effective number of parties to the number of presidential candidates and presidential power.

Usage
dcese

Format
A data frame with rows and 9 variables:
country name of the country
enep Effective number of legislative parties
enpc Number of presidential candidates
fapres Presidential power
proximity Proximity of the presidential and legislative elections
eneg Effective number of ethnic groups
logmag log of average district magnitudes
enpcfapres Interaction between enpc and fapres
logmag_eneg Interaction between logmag and eneg ...

Source

References
vcovCESE

Cluster Estimated Standard Errors

Description
Cluster Estimated Standard Errors (CESE)

Usage
vcovCESE(mod, cluster = NULL, type = NULL)

Arguments
mod
a model object. It can be the output of the functions \texttt{lm}, \texttt{glm}, or other regression function that returns compatible objects.

cluster
either a string vector with the name of the variables that will be used to cluster the standard errors, or a formula - e.g., \texttt{~ rhs}, with a summation of the variables that will be used to cluster the standard errors replacing the \texttt{rhs} -., or a vector, matrix, or data.frame with the clustering data.

type
string with either \texttt{HC0}, \texttt{HC1}, \texttt{HC2}, \texttt{HC3}, or \texttt{HC4}. It specifies the type of heteroskedasticity correction to use (see Davidson and MacKinnon (1993) and Hayes and Cai (2007)).

Value
The function returns a variance-covariance matrix of the coefficient estimates using the Cluster Estimated Standard Error (CESE) method.

References

Examples
mod = lm(enep ~ enpc + fapres + enpcfapres + proximity + eneg + logmag + logmag_eneg, data=dcese)

## --------------------------------------
## Getting the variance covariance matrix
## --------------------------------------
## Original variance-covariance matrix (no clustered std. errors)
vcov(mod)
## Variance-covariance matrix using CRSE (sandwich package)
sandwich::vcovCL(mod, cluster = ~ country)
sandwich::vcovCL(mod, cluster = ~ country, type="HC3")

## Variance-covariance matrix using CESE
cesar::vcovCESE(mod, cluster = ~ country)
cesar::vcovCESE(mod, cluster = ~ country, type="HC3") # HC3 correction

## Summaries

## no robust SE
summary(mod)

## summary table using CRSE (sandwich package)
#lmtest::coeftest(mod, vcov = sandwich::vcovCL, cluster = ~ country)

## summary using CESE
#lmtest::coeftest(mod, vcov = ceser::vcovCESE, cluster = ~ country, type='HC3')
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