Package: poobly (via r-universe)

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Type Package

Title Poolability Tests in Panel Data

Version 0.1.1

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Description Homogeneity tests of the coefficients in panel data.
Currently, only the Hsiao test for determining coefficient
homogeneity between the panel data individuals is implemented,
as described in Hsiao (2022), ``Analysis of Panel Data''
(<doi:10.1017/9781009057745>).

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Encoding UTF-8

URL https://github.com/cadam00/poobly,
https://cadam00.github.io/poobly/

BugReports https://github.com/cadam00/poobly/issues

LazyData true

Imports stats, methods, plm

Suggests Rfast, Rfast2, knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr, rmarkdown

Config/testthat/edition 3

Repository https://cadam00.r-universe.dev

RemoteUrl https://github.com/cadam00/poobly

RemoteRef HEAD

RemoteSha 81cb452c8c716cd05df7f44aa2276d83e353058f

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hsiao	*Hsiao test*

Description

Hsiao poolability test, as described by Hsiao (1986;2022).

Usage

```
hsiao(formula, data, index = NULL, ...)
```

Arguments

formula	formula object for `plm::plm` function.
data	`plm::pdata.frame` or `data.frame` object for input. Note that for the `data.frame` an additional `index` should be given.
index	An `index` input for `plm::pdata.frame` in case that `data.frame` is given instead of `plm::pdata.frame`.
...	Rest arguments passed to `plm::plm`. Note that `'model'` and `'effect'` can not be used in the current `hsiao` function and in such a case an error will be triggered.

Details

Hsiao (1986;2022) poolability/homogeneity test consists of three consecutive tests. One for testing if the slope and constant coefficients are same across the panel. If it is not the case, then a second test is conducted, with the heterogeneity of both slope and constant coefficients as alternative hypothesis. If this second hypothesis is not rejected, then the final third hypothesis is tested, where the null of the same slope and constant against the alternative of same slopes but different constants is tested.

Value

`hsiao` and `list` object with hypotheses with their corresponding F-statistics, degrees of freedom, and p-values.

Note

Acknowledgments:

Dr. Kevin Tappe from the University of Stuttgart for useful suggestions regarding both the code and the documentation.

References

Hsiao, C. (1986) *Analysis of Panel Data*. 1st edn. Cambridge: Cambridge University Press (Econometric Society Monographs).

Hsiao, C. (2022) *Analysis of Panel Data*. 4th edn. Cambridge: Cambridge University Press (Econometric Society Monographs), pp. 43-49.

Examples

```
library(plm)
data("Gasoline", package = "plm")

x <- hsiao(lgaspcar ~ lincomep + lrpmg + lcarpcap, Gasoline)
print(x)
##
##                       Hsiao Homogeneity Test
##
## Hypothesis| Null |                  Alternative
## ----------+------+------------------------------------------
##     H1    |Pooled|                     H2
##     H2    |  H3  |      Heterogeneous intercepts & slopes
##     H3    |Pooled|Heterogeneous intercepts & homogeneous slopes
## ==============================================================
##
## formula: lgaspcar ~ lincomep + lrpmg + lcarpcap
##
##     Hypothesis  F-statistic    df1        df2       p-value
## 1     H1         129.3166       68         270       < 0.001
## 2     H2          27.3352       51         270       < 0.001
## 3     H3          83.9608       17         321       < 0.001
```

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