

Package ‘poobly’

May 9, 2025

Type Package

Title Poolability Tests in Panel Data

Version 0.1.2

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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>

Imports stats, methods, plm

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

VignetteBuilder knitr, rmarkdown

Config/testthat/edition 3

NeedsCompilation no

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Repository CRAN

Date/Publication 2025-05-09 17:50:06 UTC

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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 <code>plm::plm</code> function.
data	<code>plm::pdata.frame</code> or <code>data.frame</code> object for input. Note that for the <code>data.frame</code> an additional <code>index</code> should be given.
index	An index input for <code>plm::pdata.frame</code> in case that <code>data.frame</code> is given instead of <code>plm::pdata.frame</code> .
...	Rest arguments passed to <code>plm::plm</code> . Note that 'model' and 'effect' can not be used in the current <code>hsiao</code> 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: We would like to acknowledge 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 + lrpmpg + 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 + lrpmpg + 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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