Package 'infotest'

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Type Package

Title Information Matrix Test for Regression Models

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Description Implements the Information Matrix test for regression models following Cameron, A. C., & Trivedi, P. K. (1990) <https://cameron.econ.ucdavis.edu/research/imtest_impliedalternatives_ucdwp372.pdf> Decomposes the test into components for heteroscedasticity, skewness, and kurtosis to diagnose specific forms of misspecification. Provides both overall and component-wise statistics for model assessment.

License GPL (>= 3)

Depends R (>= 3.6.0)

Imports stats

Suggests spelling

Encoding UTF-8

RoxygenNote 7.3.3

URL https://github.com/guliyevh/infotest

BugReports https://github.com/guliyevh/infotest/issues

Language en-US

NeedsCompilation no

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Contents

infotest *Information Matrix Test for Regression Models*

Description

infotest() applies the Information Matrix (IM) test to a fitted lm model and reports the Cameron & Trivedi (1990) decomposition into heteroskedasticity, skewness, and kurtosis components. Optionally, White's (1980) heteroskedasticity test is also reported.

Usage

```
infotest(model, white = TRUE, verbose = TRUE)
```

Arguments

model	A fitted lm object.
white	Logical; if TRUE, also compute and report White's test (default TRUE).
verbose	Logical; if TRUE, print detailed results to console (default TRUE).

Details

Information Matrix (IM) Test for lm() Models

The function checks that model is an lm fit and refuses weighted models. The intercept is removed from the design matrix, regressors are centered, and quadratic terms are constructed for the auxiliary regressions used by the IM and White tests. Test statistics are computed as chi-square values with associated degrees of freedom.

Value

An object of class infotest containing:

- decomposition: a list with components heteroskedasticity, skewness, kurtosis, and total, each providing chi2, df, and p.
- white: (only when white = TRUE) a list with chi2, df, and p.
- call: the function call

Warnings

- Weighted lm fits are not supported.
- If there are no covariates (intercept-only model), the test is skipped with a message.

Author(s)

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References

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*, 48(4), 817–838.
Cameron, A. C., & Trivedi, P. K. (1990). The information matrix test and its applied alternatives. *Econometric Theory*, 6(2), 179–195.

See Also

lm, pchisq

Examples

```
m <- lm(Sepal.Length ~ Sepal.Width + Petal.Length, data = iris)

# Print results to console
infotest(m)

# Store results without printing
res <- infotest(m, verbose = FALSE)
print(res)

# Access components
str(res$decomposition)
```

Index