Package ‘vcov’

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Title Variance-Covariance Matrices and Standard Errors

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Depends R (>= 3.4.0)

Description Methods for faster extraction (about 5x faster in a few test cases) of variance-covariance matrices and standard errors from models. Methods in the 'stats' package tend to rely on the summary method, which may waste time computing other summary statistics which are summarily ignored.

URL https://github.com/MichaelChirico/vcov

NeedsCompilation no

Repository CRAN

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`vcov-package` *Variance-Covariance Matrices and Standard Errors*

Description

This package is designed to produce variance-covariance matrices and standard errors as directly/efficiently as possible from fit models. Default methods (e.g., in `stats`) tend to first compute the `summary` object for a model, from which the matrix is extracted. The catch is that the `summary` itself often involves several other extraneous computations. The `summary` methods are typically fast for most purposes, but falter in this regard when a user wishes to compute standard errors of perhaps thousands of models (as may happen, for example, when bootstrapping).

`test.vcov` *Runs a set of tests.*

Description

Runs a set of tests to check `vcov` is working correctly.

Usage

```
test.vcov(...)
```

Arguments

`...`	Currently no arguments.

Details

Runs a series of tests.

Examples

```
test.vcov()
```

`Vcov` *Fast Covariance Matrix and Standard Error Computation*

Description

Skip wasted object summary steps computed by base R when computing covariance matrices and standard errors of common model objects.

Usage

```
Vcov(object, ...)

## S3 method for class 'lm'
Vcov(object, ...)

## S3 method for class 'glm'
Vcov(object, dispersion = NULL, ...)

se(object, ...)
```

Arguments

`object`	A fitted model object.
`...`	Additional arguments for method functions. For the `glm` method this can be used to pass a `dispersion` parameter.
`dispersion`	The dispersion parameter for the family used. Either a single numerical value or `NULL` (the default), in which case it is inferred from `obj`. For details, see `summary.glm`.

See Also

`summary.glm`

Examples

```
# data taken from ?lm
ctl = c(4.17,5.58,5.18,6.11,4.50,4.61,5.17,4.53,5.33,5.14)
trt = c(4.81,4.17,4.41,3.59,5.87,3.83,6.03,4.89,4.32,4.69)
group = gl(2, 10, 20, labels = c("Ctl","Trt"))
weight = c(ctl, trt)
reg_lm = lm(weight ~ group)
Vcov(reg_lm)
se(reg_lm)

# data taken from ?glm
counts = c(18,17,15,20,10,20,25,13,12)
outcome = gl(3,1,9)
treatment = gl(3,3)
reg_glm = glm(counts ~ outcome + treatment, family = poisson)
Vcov(reg_glm)
se(reg_glm)
```

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