Title

estat vce — Display covariance matrix estimates

Syntax

> estat vce [, *estat_vce_options*]

estat_vce_options	Description
<u>cov</u>ariance	display as covariance matrix; the default
<u>c</u>orrelation	display as correlation matrix
<u>eq</u>uation(*spec*)	display only specified equations
<u>b</u>lock	display submatrices by equation
<u>d</u>iag	display submatrices by equation; diagonal blocks only
<u>f</u>ormat(*%fmt*)	display format for covariances and correlations
<u>nol</u>ines	suppress lines between equations
display_options	control display of omitted variables and base and empty cells

Menu for estat

Statistics > Postestimation > Reports and statistics

Description

estat vce displays the covariance or correlation matrix of the parameter estimates of the previous model.

Options

covariance displays the matrix as a variance–covariance matrix; this is the default.

correlation displays the matrix as a correlation matrix rather than a variance–covariance matrix. rho is a synonym.

equation(*spec*) selects part of the VCE to be displayed. If *spec* is *eqlist*, the VCE for the listed equations is displayed. If *spec* is *eqlist1* \ *eqlist2*, the part of the VCE associated with the equations in *eqlist1* (rowwise) and *eqlist2* (columnwise) is displayed. If *spec* is *, all equations are displayed. equation() implies block if diag is not specified.

block displays the submatrices pertaining to distinct equations separately.

diag displays the diagonal submatrices pertaining to distinct equations separately.

format(*%fmt*) specifies the number format for displaying the elements of the matrix. The default is format(%10.0g) for covariances and format(%8.4f) for correlations. See [U] **12.5 Formats: Controlling how data are displayed** for more information.

nolines suppresses lines between equations.

display_options: <u>noomit</u>ted, <u>noempty</u>cells, <u>base</u>levels, <u>allbase</u>levels; see [R] **estimation options**.

Remarks and examples

estat vce allows you to display the VCE of the parameters of the previously fit model, as either a covariance matrix or a correlation matrix.

▷ Example 1

Returning to the example in [R] **estat ic**, here we display the covariance matrix of the parameters of the mlogit model by using estat vce.

```
. use http://www.stata-press.com/data/r13/sysdsn1
(Health insurance data)
. mlogit insure age male nonwhite
 (output omitted )
. estat vce, block
Covariance matrix of coefficients of mlogit model
  covariances of equation Indemnity
```

	o. age	o. male	o. nonwhite	o. _cons
o.age	0			
o.male	0	0		
o.nonwhite	0	0	0	
o._cons	0	0	0	0

```
  covariances of equation Prepaid (row) by equation Indemnity (column)
```

	o. age	o. male	o. nonwhite	o. _cons
age	0			
male	0	0		
nonwhite	0	0	0	
_cons	0	0	0	0

```
  covariances of equation Prepaid
```

	age	male	nonwhite	_cons
age	.00003711			
male	-.00015303	.0402091		
nonwhite	-.00008948	.00470608	.04795135	
_cons	-.00159095	-.00398961	-.00628886	.08000462

```
  covariances of equation Uninsure (row) by equation Indemnity (column)
```

	o. age	o. male	o. nonwhite	o. _cons
age	0			
male	0	0		
nonwhite	0	0	0	
_cons	0	0	0	0

covariances of equation Uninsure (row) by equation Prepaid (column)

	age	male	nonwhite	_cons
age	.00001753	−.00007926	−.00004564	−.00076886
male	−.00007544	.02188398	.0023186	−.00145923
nonwhite	−.00004577	.00250588	.02813553	−.00263872
_cons	−.00077045	−.00130535	−.00257593	.03888032

covariances of equation Uninsure

	age	male	nonwhite	_cons
age	.00013022			
male	−.00050406	.13248095		
nonwhite	−.00026145	.01505449	.16861327	
_cons	−.00562159	−.01686629	−.02474852	.28607591

The block option is particularly useful for multiple-equation estimators. The first block of output here corresponds to the VCE of the estimated parameters for the first equation—the square roots of the diagonal elements of this matrix are equal to the standard errors of the first equation's parameters. Similarly, the final block corresponds to the VCE of the parameters for the second equation. The middle block shows the covariances between the estimated parameters of the first and second equations. ◁

Stored results

estat vce stores the following in r():

Matrices
    r(V)   VCE or correlation matrix

Reference

Hamilton, L. C. 2013. *Statistics with Stata: Updated for Version 12.* 8th ed. Boston: Brooks/Cole.

Also see

[R] **estat** — Postestimation statistics

[R] **estat ic** — Display information criteria

[R] **estat summarize** — Summarize estimation sample