matrix get — Access system matrices

Syntax

Obtain copy of internal Stata system matrix

```
matrix [define] matname = get(systemname)
```

Post matrix as internal `Rr` matrix

```
mat_put_rr matname
```

where `systemname` is

- `_b` coefficients after any estimation command
- `VCE` covariance matrix of estimators after any estimation command
- `Rr` constraint matrix after `test`; see [R] test
- `Cns` constraint matrix after any estimation command

Description

The `get()` matrix function obtains a copy of an internal Stata system matrix. Some system matrices can also be obtained more easily by directly referring to the returned result after a command. In particular, the coefficient vector can be referred to as `e(b)`, the variance–covariance matrix of estimators as `e(V)`, and the constraints matrix as `e(Cns)` after an estimation command.

`mat_put_rr` is a programmer’s command that posts `matname` as the internal `Rr` matrix. `matname` must have one more than the number of columns in the `e(b)` or `e(V)` matrices. The extra column contains the `r` vector, and the earlier columns contain the `R` matrix for the Wald test

\[ Rb = r \]

The `matrix ...get(Rr)` command provides a way to obtain the current `Rr` system matrix.

Remarks and examples

`get()` obtains copies of matrices containing coefficients and the covariance matrix of the estimators after estimation commands (such as `regress` and `probit`) and obtains copies of matrices left behind by other Stata commands. The other side of `get()` is `ereturn post`, which allows ado-file estimation commands to post results to Stata’s internal areas; see [P] `ereturn`.

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Example 1

After any model-fitting command, the coefficients are available in _b and the variance–covariance matrix of the estimators in VCE.

```
use http://www.stata-press.com/data/r13/auto
(1978 Automobile Data)
regress price weight mpg
(output omitted)
```

Here we can directly use e(b) and e(V) to obtain the matrices:

```
. matrix list e(b)
```
```
e(b)

y1 1.7465592 -49.512221 1946.0687
```

```
. matrix list e(V)
```
```
esymmetric e(V)[3,3]

weight .41133468

mpg 44.601659 7422.863

_cons -2191.9032 -292759.82 12938766
```

We can also use the matrix get() function to obtain these matrices:

```
. matrix b = get(_b)
. matrix V = get(VCE)
```
```
. matrix list b
```
```
b

y1 1.7465592 -49.512221 1946.0687
```

```
. matrix list V
```
```
esymmetric V[3,3]

weight .41133468

mpg 44.601659 7422.863

_cons -2191.9032 -292759.82 12938766
```

The columns of b and both dimensions of V are properly labeled.

Example 2

After test, the restriction matrix is available in Rr. Having just estimated a regression of price on weight and mpg, we will run a test and then get the restriction matrix:

```
. test weight=1, notest
( 1)  weight = 1
. test mpg=40, accum
( 1)  weight = 1
( 2)  mpg = 40
        F(  2,   71) =  6.29
        Prob > F =  0.0030
```

```
. matrix rxtr = get(Rr)
```
. matrix list rxtr

rxtr[2,4]
   c1  c2  c3  c4
  r1  1  0  0  1
  r2  0  1  0  40

Also see

[P] matrix — Introduction to matrix commands
[U] 13.5 Accessing coefficients and standard errors
[U] 14 Matrix expressions