matrix get — Access system matrices

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_get 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

```

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

Syntax

**Obtain copy of internal Stata system matrix**
```
matrix [ define ] matname = get(systemname)
```

**Post matrix as internal Rr matrix**
```
mat_put_r 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

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`.
Example 1

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

\[
\text{use https://www.stata-press.com/data/r16/auto} \\
(1978 \text{ Automobile Data}) \\
\text{regress price weight mpg} \\
\text{(output omitted)}
\]

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

\[
\text{matrix list e(b)} \\
e(b)[1,3] \\
| weight | mpg | _cons | \\
y1 | 1.7465592 | -49.512221 | 1946.0687 |
\]

\[
\text{matrix list e(V)} \\
symmetric e(V)[3,3] \\
| weight | mpg | _cons | \\
weight | 0.41133468 | | \\
mpg | 44.601659 | 7422.863 | \\
_cons | -2191.9032 | -292759.82 | 12938766 |
\]

We can also use the \texttt{matrix get()}\ function to obtain these matrices:

\[
\text{matrix b = get(_b)} \\
\text{matrix V = get(VCE)} \\
\text{matrix list b} \\
b[1,3] \\
| weight | mpg | _cons | \\
y1 | 1.7465592 | -49.512221 | 1946.0687 |
\]

\[
\text{matrix list V} \\
symmetric V[3,3] \\
| weight | mpg | _cons | \\
weight | 0.41133468 | | \\
mpg | 44.601659 | 7422.863 | \\
_cons | -2191.9032 | -292759.82 | 12938766 |
\]

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