Matta Matters (excerpt)


This is a case of something difficult to program in Stata being trivial in Mata. The following example is well worth understanding.

```
: X
  1  2  3
  1  4  7  9
  2  2 12  3
  3  8  8  7
  4  3  4  1
  5  1  7  9

: uniformseed(39483)
: o = ceil(5*uniform(5,1))
: o
  1
  2
  1
  4
  5
  4
  5
  2

: Z = X[o,]
: Z
  1  2  3
  1  2 12  3
  2  4  7  9
  3  1  7  9
  4  1  7  9
  5  2 12  3
```

Below I use these ideas to perform a bootstrap of the regression of mpg on weight and foreign, using the automobile data:

```
. sysuse auto, clear
   (1978 Automobile Data)
. mata:
   mata (type end to exit)
   : st_view(datay=., ., "mpg")
   : st_view(dataX=., ., tokens("weight foreign"))
   : n = rows(datay)
   : dataX = dataX, J(n, 1, 1)
   : N = 10000 // number of replications
   : uniformseed(47686)
   : b = J(N, 3, .)
   : for (i = 1; i <= N; i++) {
```
```plaintext
> o = ceil(n*uniform(n,1))
> y = datay[o,]
> X = dataX[o,]
> b[i,] = (invsym(X'X)*X'y)
> }

: variance(b)

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-.645488234</td>
<td>3.355736044</td>
</tr>
</tbody>
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: end

These results are similar to those that would be produced in Stata by typing `estat vce after bootstrap, reps(10000): regress mpg weight foreign`