. clear
. quietly do bsrocarea2
. bsridoc

*** BSRINTERCEPT IS WRITTEN FOR USE IN BOOTSTRAPING
*** THE INTERCEPT OF OOS AND ROC CURVE, WITH ACCOMPANYING
*** BOOTSTRAPPED OPTIMAL SENSITIVITY AND SPECIFICITY

* Programs by H. Glick, 1/07

* COMMAND LINE

* bsrintercept [OUTCOME] [SCORE] [OOS] [REPS] [if],saving(FILENAME)

* COMMAND LINE INPUTS

* OUTCOME = Variable name of 0/1 outcome = , below
* SCORE = Variable name test score = , below
* OOS = Optimal operating slope (0 to infinit) =
* REPS = Specifies the number of bootstrap replications
* [if] = conditions for observations being included in dataset
* ,saving = [Optional] Name of dataset for storing bootstrap results

* EXAMPLE:

* rocintercept disease score 1.5 1000 if test==1,saving(bs1)
* where disease = 0/1 outcome variable; score = test score; 1.5 =
* optimal operating slope; 1000 = number of bootstrap replications;
* if test==1 = include observations for test==1,only; saving(bs1) =
* save the bootstrap replicates in the file bs1.dta

* SAVED RESULTS

* r(cutoff) = Optimal cutoff
* r(cutoffse) = SE, Optimal cutoff
* r(intercept) = Intercept
* r(interceptse) = SE, Intercept
* r(optimized) = Optimal sensitivity
* r(optimizedse) = SE, Optimal sensitivity
* r(optspec) = Optimal specificity
* r(optspecse) = SE, Optimal specificity
* r(area) = Area
* r(arease) = SE, Area
* r(NN) = # of replicates

. use comptest
. sum

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>dis</td>
<td>2000</td>
<td>.5</td>
<td>.500125</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>test</td>
<td>2000</td>
<td>1.5</td>
<td>.500125</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
command:  

statistics:  

Warning:  Since bsri1 is not an estimation command or does not set e(sample), bootstrap has no way to determine which observations are used in calculating the statistics and so assumes that all observations are used.  This means no observations will be excluded from the resampling due to missing values or other reasons.  If the assumption is not true, press Break, save the data, and drop the observations that are to be excluded.  Be sure that the dataset in memory contains only the relevant data.

(bootstrap: bsri1 dis score 2)

if test==1

Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
cutoff |      1000       2.999    .0316228          2          3
intercept |      1000       .5003    .0283665       .388       .588
optsens |      1000     .600728    .0215653       .536       .722
optspec |      1000     .949786    .0096704       .878        .98
area |      1000    .8022594    .0121307      .7572      .8425

file bs1.dta saved

. return list

scalars:

r(cutoff) =  2.999
r(cutoffse) =  .0316227760016838
r(intercept) =  .5003000000000001
r(interceptse) =  .0284
r(optsens) =  .6007
r(optsensse) =  .0216
r(optspec) =  .9498000000000001
r(optspecse) =  .0097
r(area) =  .8023
r(arease) =  .0121
r(replicates) =  1000

. use bs1
(bootstrap: bsri1 dis score 2)

. sum

Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
cutoff |      1000       2.999    .0316228          2          3
intercept |      1000       .5003    .0283665       .388       .588
optsens |      1000     .600728    .0215653       .536       .722
optspec |      1000     .949786    .0096704       .878        .98
Detailed report of Sensitivity and Specificity

<table>
<thead>
<tr>
<th>Cutpoint</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Classified</th>
<th>LR+</th>
<th>LR-</th>
</tr>
</thead>
<tbody>
<tr>
<td>( &gt;= 1 )</td>
<td>100.00%</td>
<td>0.00%</td>
<td>50.00%</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>( &gt;= 2 )</td>
<td>70.00%</td>
<td>85.00%</td>
<td>77.50%</td>
<td>4.6667</td>
<td>0.3529</td>
</tr>
<tr>
<td>( &gt;= 3 )</td>
<td>60.00%</td>
<td>95.00%</td>
<td>77.50%</td>
<td>12.0000</td>
<td>0.4211</td>
</tr>
<tr>
<td>( &gt; 3  )</td>
<td>0.00%</td>
<td>100.00%</td>
<td>50.00%</td>
<td></td>
<td>1.0000</td>
</tr>
</tbody>
</table>

ROC -Asymptotic Normal--

<table>
<thead>
<tr>
<th>Obs</th>
<th>Area</th>
<th>Std. Err.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>0.8025</td>
<td>0.0125</td>
<td>0.77793 0.82707</td>
</tr>
</tbody>
</table>

. log close
log:  D:\HENRY\HGClass\DIAGTEST\stata\bsrintercept.log
log type:  text
closed on:  29 Jan 2007, 15:54:17