Stata Syntax for Section 6.5.2, Chapter 6

Section 6.5.2

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//Propensity score subclassification

cd "D:\psa\_e2\Chapter6\data"

set more off

clear

use sur\_subclass, replace

//create propensity score using logistic 3

logistic aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 cgrage1 cgrage2 cgrage3 CRA47A mental arrest PSH17A ///

 sexual provide supervis other ra cidi cgneed, coef

predict ps3

save sur\_subclass1, replace

//balance check using normalized difference

program nd

use `1', clear

quiet: sum `3' if `2'==1

mat x1=r(mean)

mat sd1=r(sd)

quiet: sum `3' if `2'==0

mat x0=r(mean)

mat sd0=r(sd)

svmat x1

svmat sd1

svmat x0

svmat sd0

replace x11=0 if x11==.

replace x01=0 if x01==.

replace sd11=0 if sd11==.

replace sd01=0 if sd01==.

display (x11-x01)/sqrt(sd11\*sd11+sd01\*sd01)

end

//original sample

nd sur\_subclass1 aodserv married

nd sur\_subclass1 aodserv high

nd sur\_subclass1 aodserv bahigh

nd sur\_subclass1 aodserv poverty2

nd sur\_subclass1 aodserv poverty3

nd sur\_subclass1 aodserv poverty4

nd sur\_subclass1 aodserv poverty5

nd sur\_subclass1 aodserv employ

nd sur\_subclass1 aodserv open

nd sur\_subclass1 aodserv black

nd sur\_subclass1 aodserv hispanic

nd sur\_subclass1 aodserv natam

nd sur\_subclass1 aodserv chdage1

nd sur\_subclass1 aodserv chdage2

nd sur\_subclass1 aodserv chdage3

nd sur\_subclass1 aodserv cgrage1

nd sur\_subclass1 aodserv cgrage2

nd sur\_subclass1 aodserv cgrage3

nd sur\_subclass1 aodserv CRA47A

nd sur\_subclass1 aodserv mental

nd sur\_subclass1 aodserv arrest

nd sur\_subclass1 aodserv PSH17A

nd sur\_subclass1 aodserv sexual

nd sur\_subclass1 aodserv provide

nd sur\_subclass1 aodserv supervis

nd sur\_subclass1 aodserv other

nd sur\_subclass1 aodserv ra

nd sur\_subclass1 aodserv cidi

nd sur\_subclass1 aodserv cgneed

//balance check using chi-square tests

//original sample

program check\_blc

use `1', clear

tab married aodserv, chi2 row

tab educ aodserv, chi2 row

tab pov aodserv, chi2 row

tab employ aodserv, chi2 row

tab open aodserv, chi2 row

tab race aodserv, chi2 row

tab chdage aodserv, chi2 row

tab cgage aodserv, chi2 row

tab CRA47A aodserv, chi2 row

tab mental aodserv, chi2 row

tab arrest aodserv, chi2 row

tab PSH17A aodserv, chi2 row

tab maltx aodserv, chi2 row

tab ra aodserv, chi2 row

tab cidi aodserv, chi2 row

tab cgneed aodserv, chi2 row

end

check\_blc sur\_subclass1

//display quintiles

program show\_pstl

use sur\_subclass1, clear

sort ps3

collapse (p`1') ps3\_`1'=ps3

list

end

show\_pstl 20

show\_pstl 40

show\_pstl 60

show\_pstl 80

//create 5 subclasses using quintiles

use sur\_subclass1, clear

sort ps3

drop if ps3 > .0121536

sum ps3

save sub1,replace

use sur\_subclass1, clear

sort ps3

drop if ps3 <= .0121536 | ps3 > .0216452

sum ps3

save sub2,replace

use sur\_subclass1, clear

sort ps3

drop if ps3 <= .0216452 | ps3 > .0440495

sum ps3

save sub3,replace

use sur\_subclass1, clear

sort ps3

drop if ps3 <= .0440495 | ps3 > .1421116

sum ps3

save sub4,replace

use sur\_subclass1, clear

sort ps3

drop if ps3 <= .1421116

sum ps3

save sub5,replace

//check imbalance post-subclassification (5 subclasses)

check\_blc sub1

check\_blc sub2

check\_blc sub3

check\_blc sub4

check\_blc sub5

//Trimming

//Program to search best cutoff value alpha for overlap

//Crump et al (2009)

program overlap

use `1', replace

forvalue i = 0.001(0.001)0.1 {

qui drop if `2' <= `i'

qui drop if `2' >= 1-`i'

tempvar n x num

qui sum `2'

gen `n'=r(N)

gen `x'=1/(`2'\*(1-`2'))

qui sum `x'

gen `num'=r(sum)

local part1 = 2\*(`num'/`n')

local part2 = 1/(`i'\*(1-`i'))

if `part1'>`part2' {

 di in g "part1 = " in y "" `part1'

 di in g "part2 = " in y "" `part2'

 di in g "Cutoff Value = " in y `i'

 di in g "Range of Overlap: " in y "[ " `i' " ~ " 1-`i' " ]"

 continue, break

 }

 }

end

overlap sur\_subclass1 ps3

//Trim: observations PS3 < .079 or PS3> .921

use sur\_subclass1, clear

sum ps3

drop if ps3 < .079 | ps3 > .921

sum ps3

//deleted 1978 observations

save sur\_subclass2, replace

//display new quintiles

program show\_pstl1

use sur\_subclass2, clear

sort ps3

collapse (p`1') ps3\_`1'=ps3

list

end

show\_pstl1 20

show\_pstl1 40

show\_pstl1 60

show\_pstl1 80

//create 5 subclasses using quintiles

use sur\_subclass2, clear

sort ps3

drop if ps3 > .1146158

sum ps3

save sub1\_t,replace

use sur\_subclass2, clear

sort ps3

drop if ps3 <= .1146158 | ps3 > .1902192

sum ps3

save sub2\_t,replace

use sur\_subclass2, clear

sort ps3

drop if ps3 <= .1902192 | ps3 > .3173275

sum ps3

save sub3\_t,replace

use sur\_subclass2, clear

sort ps3

drop if ps3 <= .3173275 | ps3 > .5473825

sum ps3

save sub4\_t,replace

use sur\_subclass2, clear

sort ps3

drop if ps3 <= .5473825

sum ps3

save sub5\_t,replace

//check imbalance post-subclassification (5 subclasses)

check\_blc sub1\_t

check\_blc sub2\_t

check\_blc sub3\_t

check\_blc sub4\_t

check\_blc sub5\_t

//outcome analsis by subclass

use sub1\_t, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

use sub2\_t, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

use sub3\_t, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

use sub4\_t, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

use sub5\_t, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

//aggregate results from the five subclasses

//Effect 0.97356238; hazard ratio 2.6473586

display exp(0.37513328)

display (1-normal(1.899353989))\*2

//p = .05751795

use sur\_subclass1, clear

stset durm, failure(rrpt==1)

stcox aodserv married high bahigh poverty2 poverty3 ///

 poverty4 poverty5 employ open black hispanic natam chdage1 chdage2 ///

 chdage3 CRA47A, nohr efron

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