```
1
2   *** * Do file for assignment 2 of pp 713
3
4   clear all
5   set more off, perm
6
7   * input directory
8   global dir "C:\Users\Nmath_000\Documents\MI_school\Second Year\PP 713\ps2"
9
10  * output directory
11  global outdir "C:\Users\Nmath_000\Documents\Code\courses\PP 713\ps2_tex\"
12
13  * load in data
14  use "$dir\ps2_dataset.dta"
15
16
17  ****************************
18  *1. Created needed variables *
19  ****************************
20
21  * a. indicator for scoreing above 475 in year one
22  gen pass_1 = (psut1 >= 475 & psut1 != .)
23  replace pass_1 =. if psut1 == .
24  tab(pass_1)
25
26    label define pass_1L 0 "Below 475" 1 "Above 475"
27    label values pass_1 pass_1L
28
29
30  * b. gnerate pre selected variable based on income quintile
31  gen pre_sel = (qqt1 <= 4 & qqt1 != .)
32  tab qqt1 pre_sel
33
34    label define pre_selL 0 "Not Pre-Selected" 1 "Pre-Selected"
35    label values pre_sel pre_selL
36
37
38
39  * c. running score centered at 475
40  gen r_score_1 = psut1 - 475
41
42  * make interaction variable
43  gen pass score 1 = pass 1 * r score 1
44
45  * make some labels
46  label variable r_score_1    "PSU Score - 475"
47  label variable pass_1       "PSU Score Above 475"
48  label variable pass_score_1 "PSU Score if Above 475"
49
50  ****************************
51  * 2. descriptive stats
52  ******************************
53
54  * check if anyone doesn't have a value for PSU in period one
55  count if psut1 == .
56  * none, no need to worry about that
57
58  ******
59  * a. *
60  ******
61
62  * pre selected individuals in period 1
63  * and proportion of psu takers that are preselected
64  tab pre_sel
65
66  * save it for latex
67  tabout pre_sel using "$outdir\tab2a.tex", ///
68  replace ///
69  style(tex) font(bold)  cells(freq col)
70
```

```
* proportiion above and below cutoff that are preselectd
tab pass_1 pre_sel, r nof

* save it for latex
tabout pass_1 pre_sel using "$outdir\tab2aii.tex", ///
replace ///
style(tex) font(bold)  cells(row)


****
*B.*
****
* the forcing variable
summarize r_score_1
hist r_score_1, freq width(20) start(-320)

* save plot
graph export "$outdir\2b hist.png" , replace


****
*C.*
****
* Rates of immediate ennrollement and ever enrollment by group/

* make labes
  label define yesno 0 "No" 1 "Yes"
  label values enrolt1 yesno
 label values everenroll1 yesno
  * make by group
gen Group = pre_sel
replace Group = 2 if pre_sel == 1 & pass_1 == 1

  label define GroupL 0 "Not Pre-Sel" 1 "Pre-Sel Below" 2 "Pre-Sel Above"
  label values Group GroupL

 * check tables
tab Group enrolt1 , r nof
tab Group everenroll1 , r nof

* save them for latex
tabout Group enrolt1 using "$outdir\tab2ci.tex", replace ///
style(tex) font(bold)  cells(row)

tabout Group everenroll1 using "$outdir\tab2cii.tex", replace ///
style(tex) font(bold)  cells(row)


****
*D.*
****


 * check tables
tab qqt1 enrolt1 , r nof
tab qqt1 everenroll1 , r nof

* save them for latex
tabout qqt1 enrolt1 using "$outdir\tab2di.tex", replace ///
style(tex) font(bold)  cells(row)

tabout qqt1 everenroll1 using "$outdir\tab2dii.tex", replace ///
style(tex) font(bold)  cells(row)




*****************************
* 3. Checking Assumptions
*****************************
```

```
141
142
143   * make plot of distributions by income quantile
144   twoway                                  ///
145      (kdensity r_score_1 if qqt1 == 1 ) ///
146      (kdensity r_score_1 if qqt1 == 2 ) ///
147      (kdensity r_score_1 if qqt1 == 3 ) ///
148      (kdensity r_score_1 if qqt1 == 4 ) ///
149      (kdensity r_score_1 if qqt1 == 5 ) ///
150      ,                                  ///
151      legend(order(1 "Income Quant 1" 2 "Income Quant 2" 3 "Income Quant 3" 4 "Income Quant 4"
      5 "Income Quant 5")) ///
152      ytit("Density") xline(0)
153
154
155    * save plot
156    graph export "$outdir\3_plot.png" , replace
157
158
159   *************************
160   * 4 replicate reg tables *
161   *************************
162
163
164   eststo clear
165
166   * do the regressions the way they did them
167   eststo: reg enrolt1  pass_1 r_score_1 pass_score_1 if qqt1<=4 & abs(r_score_1)<=44, r
168   estadd scalar Bandwidth = 44
169
170   eststo: reg enrolt1  pass_1 r_score_1 pass_score_1 if pre_sel==0 & abs(r_score_1)<=44, r
171
172   estadd scalar Bandwidth = 44
173
174
175
176   esttab using "$outdir\ps2 table 4.tex", ///
177   mtitles("(1)" "(2)") nonumbers replace label stats(Bandwidth) se
178
179   eststo clear
180
181
182
183   * this is an extension of the Imbens and Kalyanaraman approach. It give similar results
184   * but is more robust and bias corrected
185   eststo: rdrobust enrolt1 r_score_1 if qqt1 <= 4
186   display e(h_l)
187   display e(h_r)
188
189   estadd scalar Bandwidth = e(h_l)
190
191   eststo: rdrobust enrolt1 r_score_1 if qqt1 > 4
192   display e(h_l)
193   display e(h_r)
194   estadd scalar Bandwidth = e(h_l)
195
196
197
198   esttab using "$outdir\ps2_table_4ii.tex", ///
199   mtitles("(1b)" "(2b)") nonumbers replace label stats(Bandwidth) se
200
201
202   eststo clear
203
204
205   ***************
206   *5  Replicate IV *
207   ***************
208
209   * dod table 4 regeressions
```

```
eststo: reg everelig1 pass_1 r_score_1 pass_score_1 if qqt1<=4 & abs(r_score_1)<=44, r
eststo: ivreg everenroll1  (everelig1=pass_1) r_score_1 pass_score_1 if qqt1<=4 & abs(
r_score_1)<=44, r
eststo: reg everenroll1  pass_1 r_score_1 pass_score_1 if pre_sel==0 & abs(r_score_1)<=44, r

esttab using "$outdir\ps2_table_5.tex", ///
mtitles("(1 FS)" "(1)" "(2)") nonumbers replace label stats(Bandwidth) se


***************
* 6 make fig 1 *
***************



rdplot enrolt1 psut1 if qqt1<=4 , c(475) shade ci(95) binselect(espr) graph_options(title(RD
 Plot Pre-Selected))

graph export "$outdir\rdplot_1.png" , replace



rdplot enrolt1 psut1 if pre_sel==0, c(475) shade ci(95) binselect(espr) graph_options(title(
RD Plot Not Pre-Selected))
graph export "$outdir\rdplot_2.png" , replace



*********************
* q 7 placebo tests *
*********************

* set up a matrix for the results
matrix Res = J(89,3,.)

forvalues i = 431/519{

* create variables for regression
gen pass_i = (psut1 >= `i' & psut1 != .)
gen r score i= psut1 - `i'
gen pass_score_i = pass_i * r_score_i


* get matrix position
local mat_post = `i' - 430

* store cutoff in matrix
matrix Res[`mat_post',1] =  `i'

* run regression a with these vars
reg enrolt1  pass_i r_score_i pass_score_i if qqt1<=4 & abs(r_score_i)<=44, r

* store result in matrix
matrix Res[`mat_post',2] = abs(_b[pass_i])

* run regression b with these vars
reg enrolt1  pass_i r_score_i pass_score_i if pre_sel==0 & abs(r_score_i)<=44, r

* store result in other matrix column
matrix Res[`mat_post',3] = abs(_b[pass_i])

* drop variables for next iteration
drop pass_i
drop r_score_i
drop pass score i

}
```

```
277
278   * make the results the data set
279   drop _all
280   svmat float Res
281
282   count if Res2 < .175
283   count if Res3 < .002727
284   * make a histogram of each
285   hist Res2, bin(15) kdens  addplot(pci 0 .175 25 .175, lcolor(black) lwidth(1)) ///
286      legend(order(1 "Density" 2 "Kernal Density" 3 "Coefficient at 475")) freq ///
287      title(Placebo Test Pre-Selected Students) xtitle(Absolute Vlaue of Coefficient for above
      score i)
288
289      graph export "$outdir\placebo_1.png" , replace
290
291
292
293   hist Res3, bin(15) kdens  addplot(pci 0 .003 15 .003, lcolor(black) lwidth(1)) freq  ///
294      legend(order(1 "Density" 2 "Kernal Density" 3 "Coefficient at 475")) ///
295         title(Placebo Test Non Pre-Selected Students) xtitle(Absolute Vlaue of Coefficient for
       above score i)
296
297
298      graph export "$outdir\placebo_2.png" , replace
299
300
301
```