```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
___/   /   /___/   /   /___/   14.0   Copyright 1985-2015 StataCorp LP
  Statistics/Data Analysis             StataCorp
                                       4905 Lakeway Drive
      MP - Parallel Edition            College Station, Texas 77845 USA
                                       800-STATA-PC        http://www.stata.com
                                       979-696-4600        stata@stata.com
                                       979-696-4601 (fax)

Single-user 8-core Stata perpetual license:
       Serial number:  10699393
         Licensed to:  Bobby W. Chung
                       University of Illinois at Urbana-Champaign

Notes:
      1.  Unicode is supported; see help unicode_advice.
      2.  More than 2 billion observations are allowed; see help obs_advice.
      3.  Maximum number of variables is set to 5000; see help set_maxvar.

 1 . doedit "C:\Users\Bobby W. Chung\OneDrive\Project E\Project\Occupational License\Archive\oyster_

 2 . do "C:\Users\BOBBYW~1.CHU\AppData\Local\Temp\STD01000000.tmp"

 3 . set matsize 1500

 4 . clear

 5 .
 6 . use "C:\Users\Bobby W. Chung\Desktop\SIPPdata\wave13-16_FULL.dta"

 7 . keep if swave==13
(791,221 observations deleted)

 8 .
 9 . *****Merge with license
10 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Module.dta", generate(_license

    Result                           # of obs.
    -----------------------------------------
    not matched                       1,814
        from master                   1,814  (_licensemerge==1)
        from using                        0  (_licensemerge==2)

    matched                         302,379  (_licensemerge==3)
    -----------------------------------------

11 .
12 .
13 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Wave2_topical", generate(edume

    Result                           # of obs.
    -----------------------------------------
    not matched                      83,448
        from master                  48,966  (edumerge==1)
        from using                   34,482  (edumerge==2)

    matched                         255,227  (edumerge==3)
    -----------------------------------------
```

```
14 . drop if edumerge==2
   (34,482 observations deleted)

15 . gen math=0

16 . replace math=1 if ecourse1==1
   (102,291 real changes made)

17 . gen sci=0

18 . replace sci=1 if ecourse2==1
   (99,592 real changes made)

19 . gen eng=0

20 . replace eng=1 if ecourse3==1
   (148,508 real changes made)

21 . ******************************Data Management**********************
22 . drop if tage<18
   (71,482 observations deleted)

23 . drop if tage >64
   (49,165 observations deleted)

24 .
25 . * Work hour<1
26 . drop if ejbhrs1<1
   (77,858 observations deleted)

27 .
28 .
29 . *delege useless license data
30 . drop if  iprocert <1
   (9,461 observations deleted)

31 .
32 . *Delete imptued license
33 . drop if iwhopcer <0
   (366 observations deleted)

34 .
35 . * Define demographic
36 . generate female =1

37 . replace female =0 if esex==1
   (47,801 real changes made)

38 . drop if female==1
   (48,060 observations deleted)
```

```
39 .
40 . generate black=0

41 . replace black=1 if erace==2
   (4,325 real changes made)

42 .
43 . generate hispanic=0

44 . replace hispanic=1 if eorigin==1 & black==0
   (6,187 real changes made)

45 .
46 . *Create hourly wage
47 . generate long wage = (tpmsum1)/4/ejbhrs1

48 . drop if wage>100
   (685 observations deleted)

49 . drop if wage<5
   (4,047 observations deleted)

50 . gen lwage =log(wage)

51 . generate union=1

52 . replace union=0 if eunion1==2
   (37,332 real changes made)

53 .
54 . *Delete imputed union data
55 . drop if eunion1 <0
   (4 observations deleted)

56 .
57 . *Drop race other than white and black
58 . gen other=0

59 . replace other=1 if erace>2
   (3,246 real changes made)

60 .
61 . ***Merging with Module data of license (skip)
62 . ***Create license dummy (skip)
63 .
64 . *Delete imputed licensure source
65 . drop if iwhopcer <0
   (0 observations deleted)

66 .
67 .
```

```
68 . *Create gov't summy
69 . generate govt=0

70 . replace govt=1 if inrange(eclwrk1, 3,5)
   (6,683 real changes made)

71 .
72 . *service worker?
73 . gen service=0

74 . replace service=1 if inrange(ejbind1,6870,9290)
   (17,093 real changes made)

75 .
76 . *Create education dummy
77 . generate hs =0

78 . replace hs=1 if eeducate==39
   (11,397 real changes made)

79 . generate somecollege =0

80 . replace somecollege=1 if inrange(eeducate,40,43)
   (14,748 real changes made)

81 . generate college=0

82 . replace college=1 if eeducate ==44
   (9,228 real changes made)

83 . generate postgrad=0

84 . replace postgrad=1 if eeducate >44
   (4,531 real changes made)

85 .
86 . *Create self-employment and big company dummy
87 . generate self_emp=1

88 . replace self_emp=0 if ebuscntr<0
   (41,861 real changes made)

89 .
90 . gen age2=tage*tage

91 . rename tage age

92 .
93 .
94 . *Ensure that the license variable does not contain certified
95 . replace license=0 if cert==1
   (3,847 real changes made)
```

```
 96 .
 97 . *Ensure the license indicator include only license being required by job
 98 . gen licensenorequire=0

 99 . replace licensenorequire=1 if irjpcert!=1 & license==1
    (1,298 real changes made)

100 . replace license=0 if irjpcert>1
    (1,637 real changes made)

101 .
102 .
103 . ************** Redefine licensing by 50/50 rule
104 . egen licensecheck=mean(license), by(tfipsst tjbocc1)

105 . replace license=0 if licensecheck<0.5
    (1,845 real changes made)

106 . replace license=1 if licensecheck>=0.5
    (1,245 real changes made)

107 .
108 .
109 .                 *Merge with ban data
110 .         gen state_occ=string(tfipsst)+"-"+string(tjbocc1) if license==1
    (38,163 missing values generated)

111 .
112 .         merge m:1 state_occ using "C:\Users\Bobby W. Chung\OneDrive\Project E\Project\Occupatio
    > ate(_felonymerge)

        Result                           # of obs.
        -----------------------------------------
        not matched                        43,249
            from master                    41,014  (_felonymerge==1)
            from using                      2,235  (_felonymerge==2)

        matched                             2,051  (_felonymerge==3)
        -----------------------------------------

113 .
114 .         drop if _felonymerge==2
    (2,235 observations deleted)

115 .         replace permban=0 if _felonymerge==1
    (41,014 real changes made)

116 .         replace felony=0 if _felonymerge==1
    (41,014 real changes made)

117 .
```

```
118 .         rename permban Ban

119 .
120 .         ***"permban" only contains permanent ban
121 .         ***"felony" contains both temporary and permanent ban
122 .
123 .         keep if apmsum1==0 & inrange(wage,5,100)
    (4,893 observations deleted)

124 .
125 .
126 .         gen person=0

127 .         replace person=1 if iwhypcer==2
    (397 real changes made)

128 .
129 .         ***************** Race selection
130 .         drop if other==1
    (2,928 observations deleted)

131 .         drop if hispanic==1 & black==0
    (4,908 observations deleted)

132 .
133 .
134 .         **********************************
135 .         **** Main Table
136 .         **********************************
137 .
138 .         local controls  age age2  hs somecollege college postgrad union govt self_em service

139 .
140 .
141 .         gen boxyes=0

142 .         replace boxyes=1 if inlist(tfipsst,6,8,9,11,15,25,27,35)
    (4,716 real changes made)

143 .
144 .         gen BTBban=Ban*boxyes

145 .         replace Ban=0 if BTBban==1
    (246 real changes made)

146 .         gen nonBTBban=Ban

147 .
148 .
149 .         gen con_edu=0
```

```
150 . replace con_edu=1 if icdpcert==1
    (5,178 real changes made)

151 .
152 .
153 . replace license=0 if BTBban==1 | nonBTBban==1
    (1,082 real changes made)

154 .
155 . **** Panel B
156 . quietly regress lwage black BTBban nonBTBban license cert licensenorequire  `controls' i.tfipss
    > wpfinwgt], vce(cluster tfipsst)

157 . *Ordinary
158 .         psacalc delta  license, beta(0) rmax(0.61)
```

	——— Bound Estimate ———
delta	**2.28541**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.12658**	**0.004**
Controlled	**0.03060**	**0.560**

	——— Other Inputs ———
R_max	0.610
Beta	0.000000
Unr. Controls	

```
159 .         psacalc delta  license, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**0.71209**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.12658**	**0.004**
Controlled	**0.03060**	**0.560**

	——— Other Inputs ———
R_max	0.720
Beta	0.000000
Unr. Controls	

```
160 .         psacalc delta  license, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.25872**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.12658**	**0.004**
Controlled	**0.03060**	**0.560**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
161 .
162 .
163 . *License with ban in non-BTB states
164 .         psacalc delta  nonBTBban, beta(0) rmax(0.61)
```

	——— Bound Estimate ———
delta	**3.52939**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.24951**	**0.005**
Controlled	**0.08622**	**0.560**

	——— Other Inputs ———
R_max	0.610
Beta	0.000000
Unr. Controls	

```
165 .         psacalc delta  nonBTBban, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**1.10330**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.24951**	**0.005**
Controlled	**0.08622**	**0.560**

```
                  ---- Other Inputs ----
-------------+----------------------------------------------------------------
R_max        |  0.720
Beta         |   0.000000
Unr. Controls|
-------------+----------------------------------------------------------------

166 .         psacalc delta  nonBTBban, beta(0) rmax(1)

                  ---- Bound Estimate ----
-------------+----------------------------------------------------------------
delta        |      0.40124
-------------+----------------------------------------------------------------

                  ---- Inputs from Regressions ----
             |      Coeff.                      R-Squared
-------------+----------------------------------------------------------------
Uncontrolled |       0.24951                    0.005
Controlled   |       0.08622                    0.560
-------------+----------------------------------------------------------------

                  ---- Other Inputs ----
-------------+----------------------------------------------------------------
R_max        |  1.000
Beta         |   0.000000
Unr. Controls|
-------------+----------------------------------------------------------------

167 .
168 . *License with ban in BTB states
169 .         psacalc delta  BTBban, beta(0) rmax(0.61)

                  ---- Bound Estimate ----
-------------+----------------------------------------------------------------
delta        |      6.48389
-------------+----------------------------------------------------------------

                  ---- Inputs from Regressions ----
             |      Coeff.                      R-Squared
-------------+----------------------------------------------------------------
Uncontrolled |       0.28069                    0.002
Controlled   |       0.13326                    0.560
-------------+----------------------------------------------------------------

                  ---- Other Inputs ----
-------------+----------------------------------------------------------------
R_max        |  0.610
Beta         |   0.000000
Unr. Controls|
-------------+----------------------------------------------------------------
```

```
170 .         psacalc delta  BTBban, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**2.02469**

	——— Inputs from Regressions ——— Coeff.	R-Squared
Uncontrolled	**0.28069**	**0.002**
Controlled	**0.13326**	**0.560**

	——— Other Inputs ———
R_max	0.720
Beta	0.000000
Unr. Controls	

```
171 .         psacalc delta  BTBban, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.73609**

	——— Inputs from Regressions ——— Coeff.	R-Squared
Uncontrolled	**0.28069**	**0.002**
Controlled	**0.13326**	**0.560**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
172 .
173 .
174 .
    end of do-file

175 . do "C:\Users\BOBBYW~1.CHU\AppData\Local\Temp\STD01000000.tmp"

176 . set matsize 1500
```

```
177 . clear

178 .
179 . use "C:\Users\Bobby W. Chung\Desktop\SIPPdata\wave13-16_FULL.dta"

180 . keep if swave==13
    (791,221 observations deleted)

181 .
182 . *****Merge with license
183 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Module.dta", generate(_license

        Result                           # of obs.
        -----------------------------------------
        not matched                       1,814
            from master                   1,814  (_licensemerge==1)
            from using                        0  (_licensemerge==2)

        matched                         302,379  (_licensemerge==3)
        -----------------------------------------

184 .
185 .
186 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Wave2_topical", generate(edume

        Result                           # of obs.
        -----------------------------------------
        not matched                      83,448
            from master                  48,966  (edumerge==1)
            from using                   34,482  (edumerge==2)

        matched                         255,227  (edumerge==3)
        -----------------------------------------

187 . drop if edumerge==2
    (34,482 observations deleted)

188 . gen math=0

189 . replace math=1 if ecourse1==1
    (102,291 real changes made)

190 . gen sci=0

191 . replace sci=1 if ecourse2==1
    (99,592 real changes made)

192 . gen eng=0

193 . replace eng=1 if ecourse3==1
    (148,508 real changes made)
```

```
194 . ********************************Data Management***********************
195 . drop if tage<18
    (71,482 observations deleted)

196 . drop if tage >64
    (49,165 observations deleted)

197 .
198 . * Work hour<1
199 . drop if ejbhrs1<1
    (77,858 observations deleted)

200 .
201 .
202 . *delege useless license data
203 . drop if  iprocert <1
    (9,461 observations deleted)

204 .
205 . *Delete imptued license
206 . drop if iwhopcer <0
    (366 observations deleted)

207 .
208 . * Define demographic
209 . generate female =1

210 . replace female =0 if esex==1
    (47,801 real changes made)

211 . drop if female==1
    (48,060 observations deleted)

212 .
213 . generate black=0

214 . replace black=1 if erace==2
    (4,325 real changes made)

215 .
216 . generate hispanic=0

217 . replace hispanic=1 if eorigin==1 & black==0
    (6,187 real changes made)

218 .
219 . *Create hourly wage
220 . generate long wage = (tpmsum1)/4/ejbhrs1

221 . drop if wage>100
    (685 observations deleted)
```

```
222 . drop if wage<5
    (4,047 observations deleted)

223 . gen lwage =log(wage)

224 . generate union=1

225 . replace union=0 if eunion1==2
    (37,332 real changes made)

226 .
227 . *Delete imputed union data
228 . drop if eunion1 <0
    (4 observations deleted)

229 .
230 . *Drop race other than white and black
231 . gen other=0

232 . replace other=1 if erace>2
    (3,246 real changes made)

233 .
234 . ***Merging with Module data of license (skip)
235 . ***Create license dummy (skip)
236 .
237 . *Delete imputed licensure source
238 . drop if iwhopcer <0
    (0 observations deleted)

239 .
240 .
241 . *Create gov't summy
242 . generate govt=0

243 . replace govt=1 if inrange(eclwrk1, 3,5)
    (6,683 real changes made)

244 .
245 . *service worker?
246 . gen service=0

247 . replace service=1 if inrange(ejbind1,6870,9290)
    (17,093 real changes made)

248 .
249 . *Create education dummy
250 . generate hs =0

251 . replace hs=1 if eeducate==39
    (11,397 real changes made)
```

```
252 . generate somecollege =0

253 . replace somecollege=1 if inrange(eeducate,40,43)
    (14,748 real changes made)

254 . generate college=0

255 . replace college=1 if eeducate ==44
    (9,228 real changes made)

256 . generate postgrad=0

257 . replace postgrad=1 if eeducate >44
    (4,531 real changes made)

258 .
259 . *Create self-employment and big company dummy
260 . generate self_emp=1

261 . replace self_emp=0 if ebuscntr<0
    (41,861 real changes made)

262 .
263 . gen age2=tage*tage

264 . rename tage age

265 .
266 .
267 . *Ensure that the license variable does not contain certified
268 . replace license=0 if cert==1
    (3,847 real changes made)

269 .
270 . *Ensure the license indicator include only license being required by job
271 . gen licensenorequire=0

272 . replace licensenorequire=1 if irjpcert!=1 & license==1
    (1,298 real changes made)

273 . replace license=0 if irjpcert>1
    (1,637 real changes made)

274 .
275 .
276 . ************** Redefine licensing by 50/50 rule
277 . egen licensecheck=mean(license), by(tfipsst tjbocc1)

278 . replace license=0 if licensecheck<0.5
    (1,845 real changes made)
```

```
279 . replace license=1 if licensecheck>=0.5
    (1,245 real changes made)

280 .
281 .
282 .                 *Merge with ban data
283 .         gen state_occ=string(tfipsst)+"-"+string(tjbocc1) if license==1
    (38,163 missing values generated)

284 .
285 .         merge m:1 state_occ using "C:\Users\Bobby W. Chung\OneDrive\Project E\Project\Occupatio
    > ate(_felonymerge)

        Result                           # of obs.
        -----------------------------------------
        not matched                        43,249
            from master                    41,014  (_felonymerge==1)
            from using                      2,235  (_felonymerge==2)

        matched                             2,051  (_felonymerge==3)
        -----------------------------------------

286 .
287 .         drop if _felonymerge==2
    (2,235 observations deleted)

288 .         replace permban=0 if _felonymerge==1
    (41,014 real changes made)

289 .         replace felony=0 if _felonymerge==1
    (41,014 real changes made)

290 .
291 .         rename permban Ban

292 .
293 .         ***"permban" only contains permanent ban
294 .         ***"felony" contains both temporary and permanent ban
295 .
296 .         keep if apmsum1==0 & inrange(wage,5,100)
    (4,893 observations deleted)

297 .
298 .
299 .         gen person=0

300 .         replace person=1 if iwhypcer==2
    (397 real changes made)

301 .
302 .         ***************** Race selection
```

```
303 .         drop if other==1
    (2,928 observations deleted)

304 .         drop if hispanic==1 & black==0
    (4,908 observations deleted)

305 .
306 .
307 .         **********************************
308 .         **** Main Table
309 .         **********************************
310 .
311 .         local controls  age age2  hs somecollege college postgrad union govt self_em service

312 .
313 .
314 .         gen boxyes=0

315 .         replace boxyes=1 if inlist(tfipsst,6,8,9,11,15,25,27,35)
    (4,716 real changes made)

316 .
317 .         gen BTBban=Ban*boxyes

318 .         replace Ban=0 if BTBban==1
    (246 real changes made)

319 .         gen nonBTBban=Ban

320 .
321 .
322 .         gen con_edu=0

323 . replace con_edu=1 if icdpcert==1
    (5,178 real changes made)

324 .
325 .
326 . replace license=0 if BTBban==1 | nonBTBban==1
    (1,082 real changes made)

327 .
328 .
329 . ****Panel C
330 . quietly areg lwage BTBban nonBTBban license cert licensenorequire  `controls' i.tfipsst i.rhcal
    > ], vce(cluster tfipsst) absorb(tjbocc1)

331 . *Ordinary
332 .         psacalc delta  license, beta(0) rmax(0.61)
```

	Bound Estimate
delta	**2.44258**

	Inputs from Regressions	
	Coeff.	R-Squared
Uncontrolled	**0.10095**	**0.002**
Controlled	**0.02718**	**0.558**

	——— Other Inputs ———
R_max	0.610
Beta	0.000000
Unr. Controls	

```
333 .         psacalc delta  license, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**0.78750**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.10095**	**0.002**
Controlled	**0.02718**	**0.558**

	——— Other Inputs ———
R_max	0.720
Beta	0.000000
Unr. Controls	

```
334 .         psacalc delta  license, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.28901**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.10095**	**0.002**
Controlled	**0.02718**	**0.558**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
335 .
336 .
```

```
337 . *License with ban in non-BTB states
338 .         psacalc delta  nonBTBban, beta(0) rmax(0.61)
```

	——— Bound Estimate ———
delta	**3.55905**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.21303**	**0.004**
Controlled	**0.07863**	**0.558**

	——— Other Inputs ———
R_max	0.610
Beta	0.000000
Unr. Controls	

```
339 .         psacalc delta  nonBTBban, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**1.15062**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.21303**	**0.004**
Controlled	**0.07863**	**0.558**

	——— Other Inputs ———
R_max	0.720
Beta	0.000000
Unr. Controls	

```
340 .         psacalc delta  nonBTBban, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.42263**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.21303**	**0.004**
Controlled	**0.07863**	**0.558**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
341 .
342 . *License with ban in BTB states
343 .         psacalc delta  BTBban, beta(0) rmax(0.61)
```

	——— Bound Estimate ———
delta	**4.70841**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.29173**	**0.002**
Controlled	**0.11733**	**0.558**

	——— Other Inputs ———
R_max	0.610
Beta	0.000000
Unr. Controls	

```
344 .         psacalc delta  BTBban, beta(0) rmax(0.72)
```

	——— Bound Estimate ———
delta	**1.52041**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.29173**	**0.002**
Controlled	**0.11733**	**0.558**

	——— Other Inputs ———
R_max	0.720
Beta	0.000000
Unr. Controls	

```
345 .         psacalc delta  BTBban, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.55826**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.29173**	**0.002**
Controlled	**0.11733**	**0.558**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
346 .
    end of do-file

347 . do "C:\Users\Bobby W. Chung\OneDrive\Project E\Project\Occupational License\Archive\oyster_5050

348 . set matsize 1500

349 . clear

350 .
351 . use "C:\Users\Bobby W. Chung\Desktop\SIPPdata\wave13-16_FULL.dta"

352 . keep if swave==13
    (791,221 observations deleted)

353 .
354 . *****Merge with license
355 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Module.dta", generate(_license
```

Result	# of obs.	
not matched	**1,814**	
from master	**1,814**	(_licensemerge==1)
from using	**0**	(_licensemerge==2)
matched	**302,379**	(_licensemerge==3)

```
356 .
357 .
```

```
358 . merge m:1 lgtkey using "C:\Users\Bobby W. Chung\Desktop\SIPPdata\Wave2_topical", generate(edume

    Result                           # of obs.
    -----------------------------------------
    not matched                        83,448
        from master                    48,966  (edumerge==1)
        from using                     34,482  (edumerge==2)

    matched                           255,227  (edumerge==3)
    -----------------------------------------

359 . drop if edumerge==2
    (34,482 observations deleted)

360 . gen math=0

361 . replace math=1 if ecourse1==1
    (102,291 real changes made)

362 . gen sci=0

363 . replace sci=1 if ecourse2==1
    (99,592 real changes made)

364 . gen eng=0

365 . replace eng=1 if ecourse3==1
    (148,508 real changes made)

366 . ******************************Data Management**********************
367 . drop if tage<18
    (71,482 observations deleted)

368 . drop if tage >64
    (49,165 observations deleted)

369 .
370 . * Work hour<1
371 . drop if ejbhrs1<1
    (77,858 observations deleted)

372 .
373 .
374 . *delege useless license data
375 . drop if  iprocert <1
    (9,461 observations deleted)

376 .
377 . *Delete imptued license
378 . drop if iwhopcer <0
    (366 observations deleted)
```

```
379 .
380 . * Define demographic
381 . generate female =1

382 . replace female =0 if esex==1
    (47,801 real changes made)

383 . drop if female==1
    (48,060 observations deleted)

384 .
385 . generate black=0

386 . replace black=1 if erace==2
    (4,325 real changes made)

387 .
388 . generate hispanic=0

389 . replace hispanic=1 if eorigin==1 & black==0
    (6,187 real changes made)

390 .
391 . *Create hourly wage
392 . generate long wage = (tpmsum1)/4/ejbhrs1

393 . drop if wage>100
    (685 observations deleted)

394 . drop if wage<5
    (4,047 observations deleted)

395 . gen lwage =log(wage)

396 . generate union=1

397 . replace union=0 if eunion1==2
    (37,332 real changes made)

398 .
399 . *Delete imputed union data
400 . drop if eunion1 <0
    (4 observations deleted)

401 .
402 . *Drop race other than white and black
403 . gen other=0

404 . replace other=1 if erace>2
    (3,246 real changes made)
```

```
405 .
406 . ***Merging with Module data of license (skip)
407 . ***Create license dummy (skip)
408 .
409 . *Delete imputed licensure source
410 . drop if iwhopcer <0
    (0 observations deleted)

411 .
412 .
413 . *Create gov't summy
414 . generate govt=0

415 . replace govt=1 if inrange(eclwrk1, 3,5)
    (6,683 real changes made)

416 .
417 . *service worker?
418 . gen service=0

419 . replace service=1 if inrange(ejbind1,6870,9290)
    (17,093 real changes made)

420 .
421 . *Create education dummy
422 . generate hs =0

423 . replace hs=1 if eeducate==39
    (11,397 real changes made)

424 . generate somecollege =0

425 . replace somecollege=1 if inrange(eeducate,40,43)
    (14,748 real changes made)

426 . generate college=0

427 . replace college=1 if eeducate ==44
    (9,228 real changes made)

428 . generate postgrad=0

429 . replace postgrad=1 if eeducate >44
    (4,531 real changes made)

430 .
431 . *Create self-employment and big company dummy
432 . generate self_emp=1

433 . replace self_emp=0 if ebuscntr<0
    (41,861 real changes made)
```

```
434 .
435 . gen age2=tage*tage

436 . rename tage age

437 .
438 .
439 . *Ensure that the license variable does not contain certified
440 . replace license=0 if cert==1
    (3,847 real changes made)

441 .
442 . *Ensure the license indicator include only license being required by job
443 . gen licensenorequire=0

444 . replace licensenorequire=1 if irjpcert!=1 & license==1
    (1,298 real changes made)

445 . replace license=0 if irjpcert>1
    (1,637 real changes made)

446 .
447 .
448 . ************** Redefine licensing by 50/50 rule
449 . egen licensecheck=mean(license), by(tfipsst tjbocc1)

450 . replace license=0 if licensecheck<0.5
    (1,845 real changes made)

451 . replace license=1 if licensecheck>=0.5
    (1,245 real changes made)

452 .
453 .
454 .                 *Merge with ban data
455 .         gen state_occ=string(tfipsst)+"-"+string(tjbocc1) if license==1
    (38,163 missing values generated)

456 .
457 .         merge m:1 state_occ using "C:\Users\Bobby W. Chung\OneDrive\Project E\Project\Occupatio
    > ate(_felonymerge)

        Result                           # of obs.
        -----------------------------------------
        not matched                        43,249
            from master                    41,014  (_felonymerge==1)
            from using                      2,235  (_felonymerge==2)

        matched                             2,051  (_felonymerge==3)
        -----------------------------------------
```

```
458 .
459 .         drop if _felonymerge==2
    (2,235 observations deleted)

460 .         replace permban=0 if _felonymerge==1
    (41,014 real changes made)

461 .         replace felony=0 if _felonymerge==1
    (41,014 real changes made)

462 .
463 .         rename permban Ban

464 .
465 .         ***"permban" only contains permanent ban
466 .         ***"felony" contains both temporary and permanent ban
467 .
468 .         keep if apmsum1==0 & inrange(wage,5,100)
    (4,893 observations deleted)

469 .
470 .
471 .         gen person=0

472 .         replace person=1 if iwhypcer==2
    (397 real changes made)

473 .
474 .         ***************** Race selection
475 .         drop if other==1
    (2,928 observations deleted)

476 .         drop if hispanic==1 & black==0
    (4,908 observations deleted)

477 .
478 .
479 .         **********************************
480 .         **** Main Table
481 .         **********************************
482 .
483 .         local controls  age age2  hs somecollege college postgrad union govt self_em service

484 .
485 .
486 .         gen boxyes=0

487 .         replace boxyes=1 if inlist(tfipsst,6,8,9,11,15,25,27,35)
    (4,716 real changes made)

488 .
```

```
489 .         gen BTBban=Ban*boxyes

490 .         replace Ban=0 if BTBban==1
    (246 real changes made)

491 .         gen nonBTBban=Ban

492 .
493 .
494 .         gen con_edu=0

495 . replace con_edu=1 if icdpcert==1
    (5,178 real changes made)

496 .
497 .
498 . replace license=0 if BTBban==1 | nonBTBban==1
    (1,082 real changes made)

499 .
500 . ***** Panel D
501 . quietly regress lwage  BTBban nonBTBban license cert licensenorequire  `controls' i.tfipsst i.r
    > weight=wpfinwgt], vce(cluster tfipsst)

502 . *Ordinary
503 .         psacalc delta  license, beta(0) rmax(0.75)

                    ---- Bound Estimate ----
    ------------+-------------------------------------------------------------
    delta       |       1.37713
    ------------+-------------------------------------------------------------

                    ---- Inputs from Regressions ----
                |      Coeff.                      R-Squared
    ------------+-------------------------------------------------------------
    Uncontrolled |        0.22496                   0.007
    Controlled  |        0.06776                   0.687
    ------------+-------------------------------------------------------------

                    ---- Other Inputs ----
    ------------+-------------------------------------------------------------
    R_max       |   0.750
    Beta        |    0.000000
    Unr. Controls|
    ------------+-------------------------------------------------------------

504 .         psacalc delta  license, beta(0) rmax(0.89)

                    ---- Bound Estimate ----
    ------------+-------------------------------------------------------------
    delta       |       0.43063
    ------------+-------------------------------------------------------------

                    ---- Inputs from Regressions ----
                |      Coeff.                      R-Squared
    ------------+-------------------------------------------------------------
    Uncontrolled |        0.22496                   0.007
    Controlled  |        0.06776                   0.687
    ------------+-------------------------------------------------------------
```

	——— Other Inputs ———
R_max	0.890
Beta	0.000000
Unr. Controls	

```
505 .         psacalc delta  license, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.27963**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.22496**	**0.007**
Controlled	**0.06776**	**0.687**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
506 .
507 .
508 . *License with ban in non-BTB states
509 .         psacalc delta  nonBTBban, beta(0) rmax(0.75)
```

	——— Bound Estimate ———
delta	**3.08727**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.51274**	**0.011**
Controlled	**0.18371**	**0.687**

	——— Other Inputs ———
R_max	0.750
Beta	0.000000
Unr. Controls	

```
510 .         psacalc delta  nonBTBban, beta(0) rmax(0.89)
```

	——— Bound Estimate ———
delta	**0.97233**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.51274**	**0.011**
Controlled	**0.18371**	**0.687**

	——— Other Inputs ———
R_max	0.890
Beta	0.000000
Unr. Controls	

```
511 .         psacalc delta  nonBTBban, beta(0) rmax(1)
```

	——— Bound Estimate ———
delta	**0.63210**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.51274**	**0.011**
Controlled	**0.18371**	**0.687**

	——— Other Inputs ———
R_max	1.000
Beta	0.000000
Unr. Controls	

```
512 .
513 .
514 . *License with ban in BTB states
515 .         psacalc delta  BTBban, beta(0) rmax(0.75)
```

	——— Bound Estimate ———
delta	**-15.34676**

	——— Inputs from Regressions ———	
	Coeff.	R-Squared
Uncontrolled	**0.08669**	**0.000**
Controlled	**0.38834**	**0.687**

```
                  ---- Other Inputs ----
-------------+------------------------------------------------------------
R_max        |  0.750
Beta         |   0.000000
Unr. Controls|
-------------+------------------------------------------------------------

516 .         psacalc delta  BTBban, beta(0) rmax(0.89)

                  ---- Bound Estimate ----
-------------+------------------------------------------------------------
delta        |     -4.88489
-------------+------------------------------------------------------------

                  ---- Inputs from Regressions ----
             |     Coeff.                    R-Squared
-------------+------------------------------------------------------------
Uncontrolled |       0.08669                 0.000
Controlled   |       0.38834                 0.687
-------------+------------------------------------------------------------

                  ---- Other Inputs ----
-------------+------------------------------------------------------------
R_max        |  0.890
Beta         |   0.000000
Unr. Controls|
-------------+------------------------------------------------------------

517 .         psacalc delta  BTBban, beta(0) rmax(1)

                  ---- Bound Estimate ----
-------------+------------------------------------------------------------
delta        |     -3.18105
-------------+------------------------------------------------------------

                  ---- Inputs from Regressions ----
             |     Coeff.                    R-Squared
-------------+------------------------------------------------------------
Uncontrolled |       0.08669                 0.000
Controlled   |       0.38834                 0.687
-------------+------------------------------------------------------------

                  ---- Other Inputs ----
-------------+------------------------------------------------------------
R_max        |  1.000
Beta         |   0.000000
Unr. Controls|
-------------+------------------------------------------------------------

518 .
519 .
520 .
    end of do-file

521 .
```