

```

1 #delimit ;
2
3 capture clear all ;
4 capture log close ;
5
6 log using "... \program4--table 7.log", replace ;
7
8 *****
9 * Author: E McClintock *
10 * Last modified: September 2014 *
11 * Last modifications: Comment-out *
12 * tabs with small cell sizes, *
13 * add comments, for posting on *
14 * website *
15 * Purpose: matching or exchange? *
16 * Does: negative binomial models *
17 * presented in Table 7 *
18 *****;
19
20
21 *** Open Partner-Level Data, Modified for this analysis in "exchange and mathcing -
data.do" ***;
22
23 * this data is organized by gender *;
24 use "... \program2--forecast SES.dta" ;
25
26 des, short ;
27
28 sum ;
29
30
31 ***** LOG-LINEAR MODELS *****;
32
33 recode m3_physatt 1=2, gen(m3_physatt4) ;
34 recode f3_physatt 1=2, gen(f3_physatt4) ;
35
36 gen all = 1 ;
37
38 save "... \temp_mim.dta", replace ;
39
40 keep if _mj == 0 ;
41
42 save "... \temp.dta", replace ;
43
44
45
46 ***** Use college grad status *****;
47
48
49 *** Not MIM ***;
50
51 use "... \temp.dta", clear ;
52
53 display "tab before contract" ;
54 tab1 f3_physatt4 m3_physatt4 f3_ee_cgrdp m3_ee_cgrdp ;
55
56 contract m3_physatt4 f3_physatt4 f3_ee_cgrdp m3_ee_cgrdp, freq(count) zero ;
57
58 display "edu_endog" ;
59 gen edu_endog = 0 ;
60 replace edu_endog = 1 if m3_ee_cgrdp == f3_ee_cgrdp ;
61 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean edu_endog) ;
62
63 display "physatt_endog" ;
64 gen physatt_endog = 0 ;
65 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
66 table m3_physatt4 f3_physatt4, contents(mean physatt_endog) ;
67
68 display "exchange" ;

```

```

69 gen exchange = 0 ;
70 replace exchange = 1 if ((f3_ee_cgrdp > m3_ee_cgrdp) & (f3_physatt4 < m3_physatt4))
71 | ((f3_ee_cgrdp < m3_ee_cgrdp) & (f3_physatt4 > m3_physatt4)) ;
72
73 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean exchange) ;
74 table m3_physatt4 f3_physatt4, contents(mean exchange) ;
75
76 display "exchange_trad--that is, gender-stereotypical exchange (trad=traditional)" ;
77 gen exchange_trad = 0 ;
78 replace exchange_trad = 1 if ((f3_ee_cgrdp < m3_ee_cgrdp) & (f3_physatt4 > m3_physatt4)) ;
79
80 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean exchange_trad) ;
81 table m3_physatt4 f3_physatt4, contents(mean exchange_trad) ;
82
83 display "model with gender-symmetric exchange term but without gender-stereotypical
exchange term" ;
84 desmat: nbreg count edu_endog physatt_endog exchange f3_ee_cgrdp m3_ee_cgrdp m3_physatt4
f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
85
86 display "model with gender-symmetric exchange term and gender-stereotypical exchange term" ;
87 desmat: nbreg count edu_endog physatt_endog exchange exchange_trad f3_ee_cgrdp m3_ee_cgrdp
m3_physatt4 f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
88
89
90 *** MIM ***;
91
92 forvalues i = 1/10 { ;
93
94 use "...\temp_mim.dta", clear ;
95
96 keep if _mj == `i' ;
97
98 display "imputation is `i'" ;
99
100 display "tab before contract" ;
101 tab1 f3_physatt4 m3_physatt4 f3_ee_cgrdp m3_ee_cgrdp ;
102
103 contract m3_physatt4 f3_physatt4 f3_ee_cgrdp m3_ee_cgrdp, freq(count) zero ;
104
105 display "edu_endog" ;
106 gen edu_endog = 0 ;
107 replace edu_endog = 1 if m3_ee_cgrdp == f3_ee_cgrdp ;
108 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean edu_endog) ;
109
110 display "physatt_endog" ;
111 gen physatt_endog = 0 ;
112 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
113 table m3_physatt4 f3_physatt4, contents(mean physatt_endog) ;
114
115 display "exchange" ;
116 gen exchange = 0 ;
117 replace exchange = 1 if ((f3_ee_cgrdp > m3_ee_cgrdp) & (f3_physatt4 < m3_physatt4))
118 | ((f3_ee_cgrdp < m3_ee_cgrdp) & (f3_physatt4 > m3_physatt4)) ;
119
120 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean exchange) ;
121 table m3_physatt4 f3_physatt4, contents(mean exchange) ;
122
123 display "exchange_trad--that is, gender-stereotypical exchange (trad=traditional)" ;
124 gen exchange_trad = 0 ;
125 replace exchange_trad = 1 if ((f3_ee_cgrdp < m3_ee_cgrdp) & (f3_physatt4 > m3_physatt4)) ;
126
127 table m3_ee_cgrdp f3_ee_cgrdp, contents(mean exchange_trad) ;
128 table m3_physatt4 f3_physatt4, contents(mean exchange_trad) ;
129
130 display "poisson, without gender-stereotypical exchange term (only gender-symmetric
exchange)" ;
131 desmat: poisson count edu_endog physatt_endog exchange f3_ee_cgrdp m3_ee_cgrdp m3_physatt4
f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
132 display "poisson, with gender-stereotypical exchange term" ;
133 desmat: poisson count edu_endog physatt_endog exchange exchange_trad f3_ee_cgrdp m3_ee_cgrdp

```

```

134 m3_physatt4 f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
135 display "nbreg, without gender-stereotypical exchange term (only gender-symmetric exchange)"
136 ;
137 desmat: nbreg count edu_endog physatt_endog exchange f3_ee_cgrdp m3_ee_cgrdp m3_physatt4
138 f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
139
140 * this is the coef matrix *;
141 matrix b1=e(b) ; matrix list b1 ;
142 matrix v1=e(V) ;
143 forvalues j=1/3 { ;
144 gen b1_`j'=b1[1,`j'] ;
145 gen v1_`j'=v1[`j',`j'] ;
146 gen sel_`j'=sqrt(v1_`j') ;
147 } ;
148
149 display "nbreg, with gender-stereotypical exchange term" ;
150 desmat: nbreg count edu_endog physatt_endog exchange exchange_trad f3_ee_cgrdp m3_ee_cgrdp
151 m3_physatt4 f3_physatt4 f3_ee_cgrdp*f3_physatt4 m3_ee_cgrdp*m3_physatt4 ; estat ic ;
152
153 * this is the coef matrix *;
154 matrix b2=e(b) ; matrix list b2 ;
155 matrix v2=e(V) ;
156 forvalues j=1/4 { ;
157 gen b2_`j'=b2[1,`j'] ;
158 gen v2_`j'=v2[`j',`j'] ;
159 gen se2_`j'=sqrt(v2_`j') ;
160 } ;
161
162 drop _* ;
163
164 gen mj=`i' ;
165
166 keep mj b* v* se* ;
167
168 des ; sum ;
169
170 sample 1, count ;
171
172 save "...temp`i'", replace ;
173
174 };
175
176 *** see Rubin, D.B. (1987) Multiple Imputation for Nonresponse in Surveys. J Wiley & Sons,
177 NY ***;
178 *** also see sites.stat.psu.edu/~jls/mifaq.html#howto ***;
179
180 use "...temp1", clear ;
181
182 forvalues i=2/10 { ;
183
184 append using "...temp`i'" ;
185
186 } ;
187
188 ** p-values for model without gender-stereotypical term **;
189
190 forvalues j=1/3 { ;
191
192 * we need to average the coef estimates *;
193 egen avg_b`j'=mean(b1_`j') ;
194
195 * we need to average the within-imputation variance *;
196 egen wi_v`j'=mean(v1_`j') ;
197
198 * we need the between-imputation variance *;
199 egen bi_sd`j' = sd(b1_`j') ;
200 gen bi_var`j' = (bi_sd`j')^2 ;
201
202 * calculate total variance *;

```

```

199 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
    variance *;
200 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
201
202 sum b1_`j' avg_b`j' v1_`j' var_b`j' ;
203
204 display "p-value for b1_`j'" ;
205 gen abv_avg_b`j'=abs(avg_b`j') ;
206 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;
207
208 } ;
209
210 drop avg_ * wi_ * bi_ * var_ * abv_ * ;
211
212 ** p-values for model with gender-stereotypical term **;
213
214 forvalues j=1/4 { ;
215
216 * we need to average the coef estimates *;
217 egen avg_b`j'=mean(b2_`j') ;
218
219 * we need to average the within-imputation variance *;
220 egen wi_v`j'=mean(v2_`j') ;
221
222 * we need the between-imputation variance *;
223 egen bi_sd`j' = sd(b2_`j') ;
224 gen bi_var`j' = (bi_sd`j')^2 ;
225
226 * calculate total variance *;
227 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
    variance *;
228 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
229
230 sum b2_`j' avg_b`j' v2_`j' var_b`j' ;
231
232 display "p-value for b2_`j'" ;
233 gen abv_avg_b`j'=abs(avg_b`j') ;
234 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;
235
236 } ;
237
238 * Average BIC for model w/o gender-trad (gender-stereotypical exchange) term ;
239 display (407.3335 + 407.3335 + 407.3335 + 408.0613 + 407.3335 + 407.3335 + 407.3335 +
    407.3335 + 407.3335 + 407.3335)/10 ;
240
241 * Average BIC for model w/ gender-trad term ;
242 display (411.4492 + 411.4492 + 411.4492 + 412.1982 + 411.4492 + 411.4492 + 411.4492 +
    411.4492 + 411.4492 + 411.4492)/10 ;
243
244 * Note--lower BIC indicates better fit so this suggests that the model without the
    gender-trad (gender-stereotypical exchange) term fits the data better ;
245
246
247
248
249
250
251
252
253
254
255 ***** Use an alternate level of education *****;
256
257 * based off yrsedu -- current edu, nothing forecast *;
258
259
260 *** not MIM ***;
261
262 use "...temp.dta", clear ;
263

```

```

264 display "tab before contract" ;
265 * commented out due to small N in extreme values of yrsedu ;
266 *tab1 f3_physatt4 m3_physatt4 m3_yrsedu m3_yrsedu ;
267
268 display "make categorical edu" ;
269 recode m3_yrsedu 0/11=1 12=2 13/15=3 16/25=4, gen(m3_edu4) ;
270 recode f3_yrsedu 0/11=1 12=2 13/15=3 16/25=4, gen(f3_edu4) ;
271
272 tab1 f3_edu4 m3_edu4 ;
273 * commented out due to small N ;
274 *tab f3_edu4 m3_edu4 ;
275
276 contract m3_physatt4 f3_physatt4 f3_edu4 m3_edu4, freq(count) zero ;
277
278 * commented out due to small N ;
279 *bysort f3 edu4 m3 edu4: table f3 physatt4 m3 physatt4 , contents(sum count) ;
280
281 display "edu_endog" ;
282 gen edu_endog = 0 ;
283 replace edu_endog = 1 if m3_edu4 == f3_edu4 ;
284 table m3_edu4 f3_edu4, contents(mean edu_endog) ;
285
286 display "physatt_endog" ;
287 gen physatt_endog = 0 ;
288 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
289 table m3_physatt4 f3_physatt4 , contents(mean physatt_endog) ;
290
291 table m3_edu4 f3_edu4, contents(mean edu_endog mean physatt_endog) ;
292 table m3_physatt4 f3_physatt4 , contents(mean edu_endog mean physatt_endog) ;
293
294 display "exchange" ;
295 gen exchange = 0 ;
296 replace exchange = 1 if ((f3_edu4 > m3_edu4) & (f3_physatt4 < m3_physatt4 ))
297 | ((f3_edu4 < m3_edu4) & (f3_physatt4 > m3_physatt4 )) ;
298
299 table m3_edu4 f3_edu4, contents(mean exchange) ;
300 table m3_physatt4 f3_physatt4 , contents(mean exchange) ;
301
302 display "exchange_trad--that is, gender-stereotypical exchange (trad=traditional)" ;
303 gen exchange_trad = 0 ;
304 replace exchange_trad = 1 if ((f3_edu4 < m3_edu4) & (f3_physatt4 > m3_physatt4 )) ;
305
306 table m3_edu4 f3_edu4, contents(mean exchange_trad) ;
307 table m3_physatt4 f3_physatt4 , contents(mean exchange_trad) ;
308
309 * model with gender-symmetric exchange term but without gender-stereotypical exchange term ;
310 desmat: nbreg count edu_endog physatt_endog exchange f3_edu4 m3_edu4 m3_physatt4 f3_physatt4
311 f3_edu4*f3_physatt4 m3_edu4*m3_physatt4 ; estat ic ;
312 * model with gender-symmetric exchange term and gender-stereotypical exchange term ;
313 desmat: nbreg count edu_endog physatt_endog exchange exchange_trad f3_edu4 m3_edu4
314 m3_physatt4 f3_physatt4 f3_edu4*f3_physatt4 m3_edu4*m3_physatt4 ; estat ic ;
315
316 *** MIM ***;
317
318 forvalues i = 1/10 { ;
319
320 use "...\temp_mim.dta", clear ;
321
322 keep if _mj == `i' ;
323
324 display "imputation is `i'" ;
325
326 display "tab before contract" ;
327 * commented out due to small N in extreme values of edu ;
328 *tab1 f3_physatt4 m3_physatt4 m3_yrsedu m3_yrsedu ;
329
330 display "make categorical edu" ;
331 recode m3_yrsedu 0/11=1 12=2 13/15=3 16/25=4, gen(m3_edu4) ;

```

```

332 recode f3_yrsedu 0/11=1 12=2 13/15=3 16/25=4, gen(f3_edu4) ;
333
334 tab1 f3_edu4 m3_edu4 ;
335
336 contract m3_physatt4 f3_physatt4 f3_edu4 m3_edu4, freq(count) zero ;
337
338 display "edu_endog" ;
339 gen edu_endog = 0 ;
340 replace edu_endog = 1 if m3_edu4 == f3_edu4 ;
341 table m3_edu4 f3_edu4, contents(mean edu_endog) ;
342
343 display "physatt_endog" ;
344 gen physatt_endog = 0 ;
345 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
346 table m3_physatt4 f3_physatt4 , contents(mean physatt_endog) ;
347
348 table m3_edu4 f3_edu4, contents(mean edu_endog mean physatt_endog) ;
349 table m3_physatt4 f3_physatt4 , contents(mean edu_endog mean physatt_endog) ;
350
351 display "exchange" ;
352 gen exchange = 0 ;
353 replace exchange = 1 if ((f3_edu4 > m3_edu4) & (f3_physatt4 < m3_physatt4 ))
354 | ((f3_edu4 < m3_edu4) & (f3_physatt4 > m3_physatt4 )) ;
355
356 table m3_edu4 f3_edu4, contents(mean exchange) ;
357 table m3_physatt4 f3_physatt4 , contents(mean exchange) ;
358
359 display "exchange_trad--that is, gender-stereotypical exchange (trad=traditional)" ;
360 gen exchange_trad = 0 ;
361 replace exchange_trad = 1 if ((f3_edu4 < m3_edu4) & (f3_physatt4 > m3_physatt4 )) ;
362
363 table m3_edu4 f3_edu4, contents(mean exchange_trad) ;
364 table m3_physatt4 f3_physatt4 , contents(mean exchange_trad) ;
365
366 display "nbreg, without gender-stereotypical exchange term (only gender-symmetric exchange)"
367 ;
368 desmat: nbreg count edu_endog physatt_endog exchange f3_edu4 m3_edu4 m3_physatt4 f3_physatt4
369 f3_edu4*f3_physatt4 m3_edu4*m3_physatt4 ; estat ic ;
370
371 * this is the coef matrix *;
372 matrix b1=e(b) ; matrix list b1 ;
373 matrix v1=e(V) ;
374 forvalues j=1/3 { ;
375 gen b1_`j'=b1[1,`j'] ;
376 gen v1_`j'=v1[`j',`j'] ;
377 gen se1_`j'=sqrt(v1_`j') ;
378 } ;
379
380 display "nbreg, with gender-stereotypical exchange term" ;
381 desmat: nbreg count edu_endog physatt_endog exchange exchange_trad f3_edu4 m3_edu4
382 m3_physatt4 f3_physatt4 f3_edu4*f3_physatt4 m3_edu4*m3_physatt4 ; estat ic ;
383
384 * this is the coef matrix *;
385 matrix b2=e(b) ; matrix list b2 ;
386 matrix v2=e(V) ;
387 forvalues j=1/4 { ;
388 gen b2_`j'=b2[1,`j'] ;
389 gen v2_`j'=v2[`j',`j'] ;
390 gen se2_`j'=sqrt(v2_`j') ;
391 } ;
392
393 drop _* ;
394
395 gen mj=`i' ;
396
397 keep mj b* v* se* ;
398
399 des ; sum ;
400
401 sample 1, count ;

```

```

399
400 save "...\\temp`i'", replace ;
401
402 };
403
404 *** see Rubin, D.B. (1987) Multiple Imputation for Nonresponse in Surveys. J Wiley & Sons,
405 NY ***;
406 *** also see sites.stat.psu.edu/~jls/mifaq.html#howto ***;
407
408 use "...\\temp1", clear ;
409
410 forvalues i=2/10 { ;
411 append using "...\\temp`i'" ;
412
413 } ;
414
415 ** p-values for model without gender-stereotypical term **;
416
417 forvalues j=1/3 { ;
418
419 * we need to average the coef estimates *;
420 egen avg_b`j'=mean(b1_`j') ;
421
422 * we need to average the within-imputation variance *;
423 egen wi_v`j'=mean(v1_`j') ;
424
425 * we need the between-imputation variance *;
426 egen bi_sd`j' = sd(b1_`j') ;
427 gen bi_var`j' = (bi_sd`j')^2 ;
428
429 * calculate total variance *;
430 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
431 variance *;
432 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
433
434 sum b1_`j' avg_b`j' v1_`j' var_b`j' ;
435
436 display "p-value for b1_`j'" ;
437 gen abv_avg_b`j'=abs(avg_b`j') ;
438 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;
439
440 } ;
441
442 drop avg_* wi_* bi_* var_* abv_* ;
443
444 ** p-values for model with gender-stereotypical term **;
445
446 forvalues j=1/4 { ;
447
448 * we need to average the coef estimates *;
449 egen avg_b`j'=mean(b2_`j') ;
450
451 * we need to average the within-imputation variance *;
452 egen wi_v`j'=mean(v2_`j') ;
453
454 * we need the between-imputation variance *;
455 egen bi_sd`j' = sd(b2_`j') ;
456 gen bi_var`j' = (bi_sd`j')^2 ;
457
458 * calculate total variance *;
459 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
460 variance *;
461 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
462
463 sum b2_`j' avg_b`j' v2_`j' var_b`j' ;
464
465 display "p-value for b2_`j'" ;
466 gen abv_avg_b`j'=abs(avg_b`j') ;
467 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;

```

```

466
467 } ;
468
469 * Average BIC for model w/o gender-trad (gender-stereotypical exchange) term ;
470 display (1218.513 + 1218.256 + 1218.256 + 1218.256 + 1218.256 + 1218.341 + 1218.256 + 1218.513 +
1218.256 + 1218.256 + 1218.256)/10 ;
471
472 * Average BIC for model w/ gender-trad term ;
473 display (1222.706 + 1222.459 + 1222.459 + 1222.459 + 1222.459 + 1222.558 + 1222.459 + 1222.706 +
1222.459 + 1222.459 + 1222.459)/10 ;
474
475 * Note--lower BIC indicates better fit so this suggests that the model without the
gender-trad (gender-stereotypical exchange) term fits the data better ;
476
477
478
479
480
481
482
483 ***** Duncan SEI *****;
484
485
486 *** not MIM ***;
487
488 use "...temp.dta", clear ;
489
490 egen temp1 = pctlile(f4_seip), p(25) ;
491 egen temp2 = pctlile(f4_seip), p(50) ;
492 egen temp3 = pctlile(f4_seip), p(75) ;
493
494 gen f4_seipc = 1 if f4_seip < temp1 ;
495 replace f4_seipc = 2 if f4_seip >=temp1 & f4_seip <= temp2 ;
496 replace f4_seipc = 3 if f4_seip >=temp2 & f4_seip <= temp3 ;
497 replace f4_seipc = 4 if f4_seip > temp3 & f4_seip ~=. ;
498 drop temp* ;
499
500 sum f4_seipc f4_seip ;
501 table f4_seipc, contents(min f4_seip max f4_seip) ;
502
503 egen temp1 = pctlile(m4_seip), p(25) ;
504 egen temp2 = pctlile(m4_seip), p(50) ;
505 egen temp3 = pctlile(m4_seip), p(75) ;
506
507 gen m4_seipc = 1 if m4_seip < temp1 ;
508 replace m4_seipc = 2 if m4_seip >=temp1 & m4_seip <= temp2 ;
509 replace m4_seipc = 3 if m4_seip >=temp2 & m4_seip <= temp3 ;
510 replace m4_seipc = 4 if m4_seip > temp3 & m4_seip ~=. ;
511 drop temp* ;
512
513 sum m4_seipc m4_seip ;
514 table m4_seipc, contents(min m4_seip max m4_seip) ;
515
516 tab1 f4_seipc m4_seipc ;
517 * N okay here.
518 tab f4_seipc m4_seipc ;
519
520 contract m3_physatt4 f3_physatt4 f4_seipc m4_seipc, freq(count) zero ;
521
522 gen sei_endog = 0 ;
523 replace sei_endog = 1 if f4_seipc == m4_seipc ;
524 table f4_seipc m4_seipc, contents(mean sei_endog) ;
525
526 gen physatt_endog = 0 ;
527 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
528 table m3_physatt4 f3_physatt4 , contents(mean physatt_endog) ;
529
530 table f4_seipc m4_seipc, contents(mean sei_endog mean physatt_endog) ;
531 table m3_physatt4 f3_physatt4 , contents(mean sei_endog mean physatt_endog) ;
532

```



```

533 gen exchange = 0 ;
534 replace exchange = 1 if ((f4_seipc > m4_seipc) & (f3_physatt4 < m3_physatt4 ))
535 | ((f4_seipc < m4_seipc) & (f3_physatt4 > m3_physatt4 )) ;
536
537 table f4_seipc m4_seipc, contents(mean exchange) ;
538 table m3_physatt4 f3_physatt4 , contents(mean exchange) ;
539
540 gen exchange_trad = 0 ;
541 replace exchange_trad = 1 if ((f4_seipc < m4_seipc) & (f3_physatt4 > m3_physatt4 )) ;
542
543 table f4_seipc m4_seipc, contents(mean exchange_trad) ;
544 table m3_physatt4 f3_physatt4 , contents(mean exchange_trad) ;
545
546 display "nbreg, without gender-stereotypical exchange term (only gender-symmetric exchange)"
547 ;
548 desmat: nbreg count sei endog physatt endog exchange f4 seipc m4 seipc m3 physatt4
549 f3_physatt4 f4_seipc*f3_physatt4 m4_seipc*m3_physatt4 ; estat ic ;
550
551 display "nbreg, with gender-stereotypical exchange term" ;
552 desmat: nbreg count sei_endog physatt_endog exchange exchange_trad f4_seipc m4_seipc
553 m3_physatt4 f3_physatt4 f4_seipc*f3_physatt4 m4_seipc*m3_physatt4 ; estat ic ;
554
555 *** MIM ***;
556
557 forvalues i = 1/10 { ;
558 display "basic model - combines relp duration & union status groups" ;
559
560 use "... \temp_mim.dta", clear ;
561
562 keep if _mj == `i' ;
563
564 display "imputation is `i'" ;
565
566 egen temp1 = pctlile(f4_seip), p(25) ;
567 egen temp2 = pctlile(f4_seip), p(50) ;
568 egen temp3 = pctlile(f4_seip), p(75) ;
569
570 gen f4_seipc = 1 if f4_seip < temp1 ;
571 replace f4_seipc = 2 if f4_seip >=temp1 & f4_seip <= temp2 ;
572 replace f4_seipc = 3 if f4_seip >=temp2 & f4_seip <= temp3 ;
573 replace f4_seipc = 4 if f4_seip > temp3 & f4_seip ~=. ;
574 drop temp* ;
575
576 sum f4_seipc f4_seip ;
577 table f4_seipc, contents(min f4_seip max f4_seip) ;
578
579 egen temp1 = pctlile(m4_seip), p(25) ;
580 egen temp2 = pctlile(m4_seip), p(50) ;
581 egen temp3 = pctlile(m4_seip), p(75) ;
582
583 gen m4_seipc = 1 if m4_seip < temp1 ;
584 replace m4_seipc = 2 if m4_seip >=temp1 & m4_seip <= temp2 ;
585 replace m4_seipc = 3 if m4_seip >=temp2 & m4_seip <= temp3 ;
586 replace m4_seipc = 4 if m4_seip > temp3 & m4_seip ~=. ;
587 drop temp* ;
588
589 sum m4_seipc m4_seip ;
590 table m4_seipc, contents(min m4_seip max m4_seip) ;
591
592 tab1 f4_seipc m4_seipc ;
593
594 contract m3_physatt4 f3_physatt4 f4_seipc m4_seipc, freq(count) zero ;
595
596 gen sei_endog = 0 ;
597 replace sei_endog = 1 if f4_seipc == m4_seipc ;
598 table f4_seipc m4_seipc, contents(mean sei_endog) ;
599

```

```

600 gen physatt_endog = 0 ;
601 replace physatt_endog = 1 if m3_physatt4 == f3_physatt4 ;
602 table m3_physatt4 f3_physatt4 , contents(mean physatt_endog) ;
603
604 table f4_seipc m4_seipc, contents(mean sei_endog mean physatt_endog) ;
605 table m3_physatt4 f3_physatt4 , contents(mean sei_endog mean physatt_endog) ;
606
607 gen exchange = 0 ;
608 replace exchange = 1 if ((f4_seipc > m4_seipc) & (f3_physatt4 < m3_physatt4 ))
609 | ((f4_seipc < m4_seipc) & (f3_physatt4 > m3_physatt4 )) ;
610
611 table f4_seipc m4_seipc, contents(mean exchange) ;
612 table m3_physatt4 f3_physatt4 , contents(mean exchange) ;
613
614 gen exchange_trad = 0 ;
615 replace exchange_trad = 1 if ((f4_seipc < m4_seipc) & (f3_physatt4 > m3_physatt4 )) ;
616
617 table f4_seipc m4_seipc, contents(mean exchange_trad) ;
618 table m3_physatt4 f3_physatt4 , contents(mean exchange_trad) ;
619
620 display "nbreg, without gender-stereotypical exchange term (only gender-symmetric exchange)"
621 ;
622 desmat: nbreg count sei_endog physatt_endog exchange f4_seipc m4_seipc m3_physatt4
623 f3_physatt4 f4_seipc*f3_physatt4 m4_seipc*m3_physatt4 ; estat ic ;
624
625 * this is the coef matrix *;
626 matrix b1=e(b) ; matrix list b1 ;
627 matrix v1=e(V) ;
628 forvalues j=1/3 { ;
629 gen b1_`j'=b1[1,`j'] ;
630 gen v1_`j'=v1[`j',`j'] ;
631 gen se1_`j'=sqrt(v1_`j') ;
632 } ;
633
634 display "nbreg, with gender-stereotypical exchange term" ;
635 desmat: nbreg count sei_endog physatt_endog exchange exchange_trad f4_seipc m4_seipc
636 m3_physatt4 f3_physatt4 f4_seipc*f3_physatt4 m4_seipc*m3_physatt4 ; estat ic ;
637
638 * this is the coef matrix *;
639 matrix b2=e(b) ; matrix list b2 ;
640 matrix v2=e(V) ;
641 forvalues j=1/4 { ;
642 gen b2_`j'=b2[1,`j'] ;
643 gen v2_`j'=v2[`j',`j'] ;
644 gen se2_`j'=sqrt(v2_`j') ;
645 } ;
646
647 drop _* ;
648
649 gen mj=`i' ;
650
651 keep mj b* v* se* ;
652
653 des ; sum ;
654
655 sample 1, count ;
656
657 save "...temp`i'", replace ;
658
659 };
660
661 *** see Rubin, D.B. (1987) Multiple Imputation for Nonresponse in Surveys. J Wiley & Sons,
662 NY ***;
663 *** also see sites.stat.psu.edu/~jls/mifaq.html#howto ***;
664
665 use "...temp1", clear ;
666
667 forvalues i=2/10 { ;
668
669 append using "...temp`i'" ;

```

```

666
667 } ;
668
669 ** p-values for model without gender-stereotypical term **;
670
671 forvalues j=1/3 { ;
672
673 * we need to average the coef estimates *;
674 egen avg_b`j'=mean(b1_`j') ;
675
676 * we need to average the within-imputation variance *;
677 egen wi_v`j'=mean(v1_`j') ;
678
679 * we need the between-imputation variance *;
680 egen bi_sd`j' = sd(b1_`j') ;
681 gen bi_var`j' = (bi_sd`j')^2 ;
682
683 * calculate total variance *;
684 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
variance *;
685 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
686
687 sum b1_`j' avg_b`j' v1_`j' var_b`j' ;
688
689 display "p-value for b1_`j'" ;
690 gen abv_avg_b`j'=abs(avg_b`j') ;
691 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;
692
693 } ;
694
695 drop avg_ * wi_ * bi_ * var_ * abv_ * ;
696
697 ** p-values for model with gender-stereotypical term **;
698
699 forvalues j=1/4 { ;
700
701 * we need to average the coef estimates *;
702 egen avg_b`j'=mean(b2_`j') ;
703
704 * we need to average the within-imputation variance *;
705 egen wi_v`j'=mean(v2_`j') ;
706
707 * we need the between-imputation variance *;
708 egen bi_sd`j' = sd(b2_`j') ;
709 gen bi_var`j' = (bi_sd`j')^2 ;
710
711 * calculate total variance *;
712 * total variance = average within-imputation variance + (1 + 1/m)*between-imputation
variance *;
713 gen var_b`j' = wi_v`j' + (11/10)*bi_var`j' ;
714
715 sum b2_`j' avg_b`j' v2_`j' var_b`j' ;
716
717 display "p-value for b2_`j'" ;
718 gen abv_avg_b`j'=abs(avg_b`j') ;
719 display (1-normal(abv_avg_b`j'/sqrt(var_b`j')))*2 ;
720
721 } ;
722
723 * Average BIC for model w/o gender-trad (gender-stereotypical exchange) term ;
724 display (1238.889 + 1259.169 + 1268.6 + 1253.695 + 1230.934 + 1254.042 + 1250.427 +
1236.665 + 1255.572 + 1258.905)/10 ;
725
726 * Average BIC for model w/ gender-trad term ;
727 display (1244.01 + 1262.879 + 1273.674 + 1258.618 + 1235.582 + 1258.843 + 1255.915 +
1239.418 + 1260.995 + 1264.377)/10 ;
728
729 * Note--lower BIC indicates better fit so this suggests that the model without the
gender-trad (gender-stereotypical exchange) term fits the data better ;
730

```

```
731  
732  
733  
734  
735  
736 *** End Program ***;  
737  
738 clear ; log close ;  
739
```