Statistics/Data Analysis

```
      log:  C:\Synchronization Files\Research\peacekeeping\ISQ-probit models with sel
> ection output.smcl
  log type:  smcl
 opened on:  18 Jan 2006, 14:40:06

1 . do "C:\DOCUME~1\greig\LOCALS~1\Temp\STD0h0000.tmp"

2 . use "C:\Synchronization Files\Research\peacekeeping\enduring rivalry-full agreement.
> dta"

3 .
end of do-file

4 . do "C:\DOCUME~1\greig\LOCALS~1\Temp\STD0h0000.tmp"

5 . *Full agreement model for enduring rivalries - Mediation
6 . heckprob fullagreementm hongdis prevneg smdem hecksev hperstal hecktime polity24 pre
> vmed dispinme prevsmem complexm tangiblem peacekee prevattm medrankm, select(mediat3
>  = heckwar hongdis smdem hecksev hperstal major2 hecktime polity24 prevmed prevneg p
> eacekee)

Fitting probit model:

Iteration 0:   log likelihood = -52.312933
Iteration 1:   log likelihood = -33.425908
Iteration 2:   log likelihood = -30.623692
Iteration 3:   log likelihood =  -29.93164
Iteration 4:   log likelihood = -29.863468
Iteration 5:   log likelihood = -29.862759
Iteration 6:   log likelihood = -29.862758

Fitting selection model:

Iteration 0:   log likelihood = -1418.9002
Iteration 1:   log likelihood = -1173.9304
Iteration 2:   log likelihood =  -1119.061
Iteration 3:   log likelihood =   -1116.29
Iteration 4:   log likelihood = -1116.2546
Iteration 5:   log likelihood = -1116.2546

Comparison:    log likelihood = -1146.1174

Fitting starting values:

Iteration 0:   log likelihood = -189.92233
Iteration 1:   log likelihood = -53.773255
Iteration 2:   log likelihood =  -35.23451
Iteration 3:   log likelihood = -30.427221
Iteration 4:   log likelihood =  -28.57842
Iteration 5:   log likelihood = -28.063677
Iteration 6:   log likelihood = -28.031356
Iteration 7:   log likelihood = -28.031163
Iteration 8:   log likelihood = -28.031163

Fitting full model

initial values not feasible
note:  default initial values infeasible; starting from B=0

Iteration 0:   log likelihood = -12680.435  (not concave)
Iteration 1:   log likelihood = -12544.647  (not concave)
Iteration 2:   log likelihood = -2283.9736  (not concave)
Iteration 3:   log likelihood = -2014.6582  (not concave)
Iteration 4:   log likelihood = -1860.1091  (not concave)
Iteration 5:   log likelihood = -1857.5856  (not concave)
Iteration 6:   log likelihood = -1857.1358  (not concave)
Iteration 7:   log likelihood = -1849.2027  (not concave)
Iteration 8:   log likelihood = -1810.6373  (not concave)
Iteration 9:   log likelihood =  -1773.557  (not concave)
Iteration 10:  log likelihood = -1767.7963  (not concave)
Iteration 11:  log likelihood = -1764.4105  (not concave)
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Iteration 12:  log likelihood = -1758.9988  (not concave)
Iteration 13:  log likelihood =  -1757.633  (not concave)
Iteration 14:  log likelihood = -1673.7793  (not concave)
Iteration 15:  log likelihood = -1644.6602  (not concave)
Iteration 16:  log likelihood = -1621.3666
Iteration 17:  log likelihood = -1244.7497  (not concave)
Iteration 18:  log likelihood = -1232.7327  (not concave)
Iteration 19:  log likelihood = -1210.8835  (not concave)
Iteration 20:  log likelihood = -1206.0724
Iteration 21:  log likelihood = -1153.5614  (not concave)
Iteration 22:  log likelihood = -1147.8275  (not concave)
Iteration 23:  log likelihood = -1146.8662
Iteration 24:  log likelihood = -1146.0624
Iteration 25:  log likelihood = -1145.7699  (not concave)
Iteration 26:  log likelihood = -1145.7669
Iteration 27:  log likelihood = -1145.7616
Iteration 28:  log likelihood = -1145.7561  (not concave)
Iteration 29:  log likelihood = -1145.7553  (not concave)
Iteration 30:  log likelihood = -1145.7551  (not concave)
Iteration 31:  log likelihood = -1145.7551  (not concave)

Probit model with sample selection              Number of obs      =     18020
                                                Censored obs       =     17746
                                                Uncensored obs     =       274

                                                Wald chi2(15)      =    341.28
Log likelihood = -1145.755                      Prob > chi2        =    0.0000
```

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
fullagreem~m						
hongdis	.0332467	.3046322	0.11	0.913	-.5638214	.6303147
prevneg	-.0335506	.0370604	-0.91	0.365	-.1061875	.0390864
smdem	.0454995	.0321001	1.42	0.156	-.0174155	.1084145
hecksev	-.0107225	.0071836	-1.49	0.136	-.024802	.003357
hperstal	-.0080742	.0069664	-1.16	0.246	-.0217281	.0055798
hecktime	-.0056247	.0017593	-3.20	0.001	-.0090728	-.0021767
polity24	.1686095	.334326	0.50	0.614	-.4866574	.8238763
prevmed	.0635862	.0155207	4.10	0.000	.0331662	.0940062
dispinmed	.5122755	.3717737	1.38	0.168	-.2163875	1.240938
prevsmem	.0204332	.0971468	0.21	0.833	-.1699711	.2108374
complexm	-.5528449	.2594373	-2.13	0.033	-1.061333	-.0443571
tangiblem	1.299426	.5213521	2.49	0.013	.2775947	2.321257
peacekee	-.7038164	.4201938	-1.67	0.094	-1.527381	.1197484
prevattm	-.0331491	.1086149	-0.31	0.760	-.2460304	.1797321
medrankm	-.103648	.0619051	-1.67	0.094	-.2249798	.0176839
_cons	.1418771	.	.	.	.	.
mediat3						
heckwar	.2463426	.1001044	2.46	0.014	.0501416	.4425436
hongdis	.6640386	.0611003	10.87	0.000	.5442842	.7837931
smdem	.0391521	.0053087	7.38	0.000	.0287473	.0495569
hecksev	.0022151	.0011176	1.98	0.047	.0000246	.0044056
hperstal	-.0009251	.0011296	-0.82	0.413	-.003139	.0012888
major2	-.2552168	.0926871	-2.75	0.006	-.4368801	-.0735536
hecktime	-.0013182	.0002601	-5.07	0.000	-.001828	-.0008085
polity24	.1779841	.0593163	3.00	0.003	.0617264	.2942418
prevmed	.0363522	.0029173	12.46	0.000	.0306344	.04207
prevneg	-.0194017	.0035362	-5.49	0.000	-.0263326	-.0124709
peacekee	-.3004256	.0950356	-3.16	0.002	-.4866919	-.1141593
_cons	-2.362499	.1367256	-17.28	0.000	-2.630477	-2.094522
/athrho	1.202104	.7922886	1.52	0.129	-.3507533	2.754961
rho	.8342952	.2408173			-.3370435	.9919398

LR test of indep. eqns. (rho = 0): chi2(1) = 0.72 Prob > chi2 = 0.3946

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7 .
8 .
9 . *Full agreement model for enduring rivalries - Negotiation
10. heckprob fullagreementn hongdis prevneg smdem hecksev hperstal hecktime polity24 pre
  > vmed tangiblen bothinne complexn leadnego peacekee, select(negotia3 = heckwar hongdi
  > s smdem hecksev hperstal major2 hecktime polity24 prevmed prevneg peacekee)

  Fitting probit model:

  Iteration 0:   log likelihood = -51.325025
  Iteration 1:   log likelihood = -35.680865
  Iteration 2:   log likelihood = -30.122109
  Iteration 3:   log likelihood = -28.325673
  Iteration 4:   log likelihood = -28.032649
  Iteration 5:   log likelihood =  -28.01949
  Iteration 6:   log likelihood = -28.019425
  Iteration 7:   log likelihood = -28.019425

  Fitting selection model:

  Iteration 0:   log likelihood = -1623.0617
  Iteration 1:   log likelihood = -1393.6543
  Iteration 2:   log likelihood = -1336.2752
  Iteration 3:   log likelihood = -1335.9947
  Iteration 4:   log likelihood = -1335.9946

  Comparison:    log likelihood =  -1364.014

  Fitting starting values:

  Iteration 0:   log likelihood = -224.57969
  Iteration 1:   log likelihood =  -61.48522
  Iteration 2:   log likelihood = -39.320248
  Iteration 3:   log likelihood = -31.068146
  Iteration 4:   log likelihood = -27.247689
  Iteration 5:   log likelihood = -26.336209
  Iteration 6:   log likelihood = -26.262138
  Iteration 7:   log likelihood = -26.261235
  Iteration 8:   log likelihood = -26.261235

  Fitting full model

  initial values not feasible
  note:  default initial values infeasible; starting from B=0

  Iteration 0:   log likelihood = -12715.092
  Iteration 1:   log likelihood = -12531.435  (not concave)
  Iteration 2:   log likelihood = -9456.7662  (not concave)
  Iteration 3:   log likelihood = -5570.6976  (not concave)
  Iteration 4:   log likelihood = -5558.2379  (not concave)
  Iteration 5:   log likelihood = -5550.4118  (not concave)
  Iteration 6:   log likelihood = -4679.2831  (not concave)
  Iteration 7:   log likelihood = -4524.8679  (not concave)
  Iteration 8:   log likelihood = -3470.0479  (not concave)
  Iteration 9:   log likelihood = -3347.9034  (not concave)
  Iteration 10:  log likelihood = -3324.7036  (not concave)
  Iteration 11:  log likelihood = -3322.8629  (not concave)
  Iteration 12:  log likelihood = -3305.8704  (not concave)
  Iteration 13:  log likelihood = -3231.3216  (not concave)
  Iteration 14:  log likelihood = -3085.5861  (not concave)
  Iteration 15:  log likelihood = -2687.6406  (not concave)
  Iteration 16:  log likelihood = -2653.2048  (not concave)
  Iteration 17:  log likelihood = -2647.4408  (not concave)
  Iteration 18:  log likelihood = -2632.8736  (not concave)
  Iteration 19:  log likelihood = -2414.9998  (not concave)
  Iteration 20:  log likelihood = -2353.4737  (not concave)
  Iteration 21:  log likelihood =  -2327.823  (not concave)
  Iteration 22:  log likelihood = -2322.3982  (not concave)
  Iteration 23:  log likelihood = -2297.0213  (not concave)
  Iteration 24:  log likelihood = -2295.6582  (not concave)
  Iteration 25:  log likelihood =   -2288.46  (not concave)
  Iteration 26:  log likelihood = -2287.3737  (not concave)
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Iteration 27:  log likelihood =   -2123.76  (not concave)
Iteration 28:  log likelihood =   -1818.87
Iteration 29:  log likelihood = -1404.2081
Iteration 30:  log likelihood = -1365.9148
Iteration 31:  log likelihood = -1364.9636
Iteration 32:  log likelihood = -1364.7145
Iteration 33:  log likelihood = -1364.4024
Iteration 34:  log likelihood = -1363.9872
Iteration 35:  log likelihood = -1363.8432
Iteration 36:  log likelihood = -1363.5231  (not concave)
Iteration 37:  log likelihood = -1363.3655  (not concave)
Iteration 38:  log likelihood = -1363.1636  (not concave)
Iteration 39:  log likelihood = -1363.0236  (not concave)
Iteration 40:  log likelihood = -1362.9516  (not concave)
Iteration 41:  log likelihood = -1362.5503
Iteration 42:  log likelihood = -1361.7821
Iteration 43:  log likelihood = -1361.0445
Iteration 44:  log likelihood = -1360.9292
Iteration 45:  log likelihood = -1360.9187
Iteration 46:  log likelihood = -1360.9169
Iteration 47:  log likelihood = -1360.9159
Iteration 48:  log likelihood = -1360.9158

Probit model with sample selection              Number of obs      =     18020
                                                Censored obs       =     17696
                                                Uncensored obs     =       324

                                                Wald chi2(13)      =     29.43
Log likelihood = -1360.916                      Prob > chi2        =    0.0057
```

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
fullagreem~n						
hongdis	-.2782692	.2753328	-1.01	0.312	-.8179116	.2613731
prevneg	.0230717	.0155037	1.49	0.137	-.007315	.0534585
smdem	-.0590116	.0364459	-1.62	0.105	-.1304442	.012421
hecksev	-.0074089	.0066382	-1.12	0.264	-.0204195	.0056016
hperstal	-.018989	.0092873	-2.04	0.041	-.0371919	-.0007862
hecktime	-.0101362	.0027792	-3.65	0.000	-.0155833	-.0046891
polity24	.4557689	.2707538	1.68	0.092	-.0748989	.9864367
prevmed	.0691347	.0232854	2.97	0.003	.0234962	.1147732
tangiblen	.1678383	.306125	0.55	0.584	-.4321556	.7678322
bothinnego~e	.2402325	.2233451	1.08	0.282	-.1975159	.6779809
complexn	-.4757741	.2196644	-2.17	0.030	-.9063085	-.0452398
leadnegoti~s	-.1387736	.3027097	-0.46	0.647	-.7320737	.4545265
peacekee	-1.55276	.67337	-2.31	0.021	-2.872541	-.2329792
_cons	.4198466	1.432102	0.29	0.769	-2.387023	3.226716
negotia3						
heckwar	.2034323	.0784994	2.59	0.010	.0495763	.3572884
hongdis	.2231903	.0598004	3.73	0.000	.1059838	.3403969
smdem	.0031568	.0058862	0.54	0.592	-.0083799	.0146936
hecksev	.0030567	.0010023	3.05	0.002	.0010922	.0050212
hperstal	.0014801	.0010969	1.35	0.177	-.0006697	.0036299
major2	.2564431	.0640326	4.00	0.000	.1309416	.3819447
hecktime	-.0003297	.0002231	-1.48	0.140	-.0007671	.0001076
polity24	.1367667	.0562499	2.43	0.015	.0265189	.2470146
prevmed	.0067383	.0030835	2.19	0.029	.0006948	.0127818
prevneg	.0233875	.0015337	15.25	0.000	.0203816	.0263934
peacekee	-.1998538	.1080666	-1.85	0.064	-.4116604	.0119527
_cons	-2.862038	.132272	-21.64	0.000	-3.121286	-2.60279
/athrho	6.964002	36.42077	0.19	0.848	-64.41939	78.34739
rho	.9999982	.0001302			-1	1

LR test of indep. eqns. (rho = 0): chi2(1) = 6.20 Prob > chi2 = 0.0128

```
11.
12.
13. *Probit model with selection for civil wars - Mediation
14. use "C:\Synchronization Files\Research\peacekeeping\civil war mediation data-isq.dta
  > ", clear

15. heckprob agreemen avemnthlntime avemnth lntime tangible bothinitiate complex medlead
  >  numneg nummed prevsame peacekeep prevagre ethnoreligious, select(mediated = avemnth
  > lntime avemnth lntime nummed numneg peacekeep sumagre avefrac ethnoreligious)

  Fitting probit model:

  Iteration 0:   log likelihood = -262.14309
  Iteration 1:   log likelihood =  -239.6893
  Iteration 2:   log likelihood =  -239.5336
  Iteration 3:   log likelihood = -239.53354

  Fitting selection model:

  Iteration 0:   log likelihood = -1896.6762
  Iteration 1:   log likelihood = -1671.1346
  Iteration 2:   log likelihood = -1615.9242
  Iteration 3:   log likelihood =  -1615.561
  Iteration 4:   log likelihood = -1615.5609

  Comparison:    log likelihood = -1855.0945

  Fitting starting values:

  Iteration 0:   log likelihood = -302.21217
  Iteration 1:   log likelihood = -238.10937
  Iteration 2:   log likelihood = -236.51827
  Iteration 3:   log likelihood = -236.51167
  Iteration 4:   log likelihood = -236.51167

  Fitting full model

  Iteration 0:   log likelihood = -1864.0234
  Iteration 1:   log likelihood =  -1854.072
  Iteration 2:   log likelihood = -1854.0199
  Iteration 3:   log likelihood = -1851.8021
  Iteration 4:   log likelihood = -1851.7747
  Iteration 5:   log likelihood = -1851.7662
  Iteration 6:   log likelihood = -1851.7662

  Probit model with sample selection              Number of obs      =     12648
                                                  Censored obs       =     12212
                                                  Uncensored obs     =       436

                                                  Wald chi2(13)      =     74.89
  Log likelihood = -1851.766                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
agreemen     |
avemnthlnt~e |  -.0008771   .0006374    -1.38   0.169    -.0021263    .0003721
     avemnth |   .0034227   .0031117     1.10   0.271    -.0026761    .0095214
      lntime |   .2076482   .0733778     2.83   0.005     .0638303    .3514662
    tangible |  -.3324752    .153354    -2.17   0.030    -.6330434   -.0319069
bothinitia~d |   .4258332   .1541708     2.76   0.006     .1236639    .7280024
     complex |  -.1215112   .1021946    -1.19   0.234     -.321809    .0787866
     medlead |   .2269209   .1400775     1.62   0.105    -.0476259    .5014677
      numneg |    .015727   .0145201     1.08   0.279     -.012732    .0441859
      nummed |  -.0280151    .005564    -5.04   0.000    -.0389204   -.0171098
    prevsame |    .026419    .037645     0.70   0.483    -.0473638    .1002019
   peacekeep |   .1791979   .1869468     0.96   0.338    -.1872109    .5456068
    prevagre |  -.0406701   .1113397    -0.37   0.715    -.2588919    .1775517
ethnorelig~s |   .2017892    .132616     1.52   0.128    -.0581335    .4617119
       _cons |   .8170332   .4359879     1.87   0.061    -.0374873    1.671554
-------------+----------------------------------------------------------------
mediated     |
```

avemnthlnt~e	.0009124	.0002775	3.29	0.001	.0003684	.0014563
avemnth	-.0059236	.0013515	-4.38	0.000	-.0085726	-.0032747
lntime	-.1933975	.0285097	-6.78	0.000	-.2492756	-.1375195
nummed	.0069522	.0033528	2.07	0.038	.0003809	.0135236
numneg	-.0054569	.0060404	-0.90	0.366	-.0172958	.006382
peacekeep	.2019519	.0855352	2.36	0.018	.034306	.3695979
sumagree	.1141529	.0174093	6.56	0.000	.0800313	.1482745
avefrac	.0057637	.0013272	4.34	0.000	.0031624	.008365
ethnorelig~s	-.0404327	.0508092	-0.80	0.426	-.140017	.0591515
_cons	-1.540123	.1394146	-11.05	0.000	-1.81337	-1.266875
/athrho	-1.024295	.3695921	-2.77	0.006	-1.748682	-.299908
rho	-.7716102	.1495435			-.9412254	-.2912284

LR test of indep. eqns. (rho = 0): chi2(1) = 6.66 Prob > chi2 = 0.0099

```
16.
17. *Probit model with selection for civil wars - Negotiation
18. use "C:\Synchronization Files\Research\peacekeeping\civil war negotiation data-isq.d
  > ta", clear

19. heckprob agreemen avemnthlntime avemnth lntime tangible bothini leadnego complex num
  > neg nummed peacekee prevagre ethnoreligious, select(negotiat = avemnthlntime avemnth
  >  lntime nummed numneg peacekee sumagre avefrac ethnoreligious)

  Fitting probit model:

  Iteration 0:   log likelihood = -141.57578
  Iteration 1:   log likelihood = -131.40065
  Iteration 2:   log likelihood = -131.21117
  Iteration 3:   log likelihood = -131.21014
  Iteration 4:   log likelihood = -131.21014

  Fitting selection model:

  Iteration 0:   log likelihood = -1113.4651
  Iteration 1:   log likelihood = -1011.6259
  Iteration 2:   log likelihood = -991.19609
  Iteration 3:   log likelihood = -990.93893
  Iteration 4:   log likelihood = -990.93886

  Comparison:    log likelihood =  -1122.149

  Fitting starting values:

  Iteration 0:   log likelihood = -153.18553
  Iteration 1:   log likelihood = -124.19951
  Iteration 2:   log likelihood = -122.52384
  Iteration 3:   log likelihood =  -122.4837
  Iteration 4:   log likelihood = -122.48365

  Fitting full model

  initial values not feasible
  note:  default initial values infeasible; starting from B=0

  Iteration 0:   log likelihood = -8920.1111  (not concave)
  Iteration 1:   log likelihood = -8904.5073  (not concave)
  Iteration 2:   log likelihood = -8468.7418  (not concave)
  Iteration 3:   log likelihood = -1552.4938  (not concave)
  Iteration 4:   log likelihood = -1452.1808  (not concave)
  Iteration 5:   log likelihood = -1269.6313  (not concave)
  Iteration 6:   log likelihood = -1211.3181
  Iteration 7:   log likelihood = -1168.3329
  Iteration 8:   log likelihood = -1126.6586  (not concave)
  Iteration 9:   log likelihood = -1116.8341  (not concave)
  Iteration 10:  log likelihood = -1114.1917
  Iteration 11:  log likelihood =  -1113.348
  Iteration 12:  log likelihood = -1108.4257
  Iteration 13:  log likelihood = -1108.0361
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```
Iteration 14:  log likelihood = -1106.4921
Iteration 15:  log likelihood = -1106.0073
Iteration 16:  log likelihood = -1105.9907
Iteration 17:  log likelihood = -1105.9253
Iteration 18:  log likelihood = -1105.9223
Iteration 19:  log likelihood = -1105.9117
Iteration 20:  log likelihood = -1105.9051
Iteration 21:  log likelihood =  -1105.905  (not concave)

Probit model with sample selection              Number of obs      =     12648
                                                Censored obs       =     12427
                                                Uncensored obs     =       221

                                                Wald chi2(12)      =     99.27
Log likelihood = -1105.905                      Prob > chi2        =    0.0000
```

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
agreemen						
avemnthlnt~e	-.0005755	.0004116	-1.40	0.162	-.0013823	.0002313
avemnth	.0030162	.0010162	2.97	0.003	.0010244	.005008
lntime	-.1562088	.0598255	-2.61	0.009	-.2734647	-.038953
tangible	.1091044	.1041164	1.05	0.295	-.09496	.3131689
bothinit	-.1227403	.0848988	-1.45	0.148	-.2891388	.0436582
leadnego	-.0862656	.0977131	-0.88	0.377	-.2777798	.1052485
complex	-.0319022	.1031938	-0.31	0.757	-.2341583	.1703539
numneg	.0747619	.0153501	4.87	0.000	.0446764	.1048475
nummed	-.0018323	.0049592	-0.37	0.712	-.0115522	.0078876
peacekee	.0202829	.2078809	0.10	0.922	-.3871562	.4277221
prevagre	.0374522	.0722898	0.52	0.604	-.1042331	.1791375
ethnorelig~s	-.055968	.2167071	-0.26	0.796	-.480706	.3687701
_cons	-2.197988	.2749611	-7.99	0.000	-2.736902	-1.659074
negotiat						
avemnthlnt~e	.0003641	.00019	1.92	0.055	-8.23e-06	.0007364
avemnth	-.0008647	.0005769	-1.50	0.134	-.0019954	.000266
lntime	-.2119413	.0345233	-6.14	0.000	-.2796057	-.1442769
nummed	-.006873	.0029225	-2.35	0.019	-.012601	-.001145
numneg	.1046937	.008027	13.04	0.000	.0889611	.1204264
peacekee	-.1617474	.1698515	-0.95	0.341	-.4946503	.1711554
sumagree	-.1174124	.0460372	-2.55	0.011	-.2076436	-.0271811
avefrac	.0054302	.0016065	3.38	0.001	.0022816	.0085788
ethnorelig~s	-.0461088	.1370598	-0.34	0.737	-.3147411	.2225235
_cons	-2.012925	.1646799	-12.22	0.000	-2.335692	-1.690159
/athrho	9.668474	.	.	.	.	.
rho	1	.			-1	1

```
LR test of indep. eqns. (rho = 0):   chi2(1) =    32.49   Prob > chi2 = 0.0000
```

```
20.
  end of do-file

21. log close
       log:  C:\Synchronization Files\Research\peacekeeping\ISQ-probit models with sel
  > ection output.smcl
    log type:  smcl
   closed on:  18 Jan 2006, 14:47:32
```