(R)
Statistics/Data Analysis

User: Mark R. Beissinger
Project: The Revolutionary City

```
. *         interested in these data must consult with the Gallup Organization directly
      name:  <unnamed>
       log:  C:\Users\mbeissin\Desktop\Stata files for book\Robustnesstestfiles\Logfiles\robustnesstestschapter7.l
> og
  log type:  text
 opened on:  26 Jan 2022, 13:53:29

. * ================================================================================
. * Robustness checks for results reported in Chapter 7
. * Author: Mark R. Beissinger
. * Date:  January 2022
. * Princeton, NJ
. * ================================================================================
. * BEFORE RUNNING, YOU MUST SET THE DEFAULT PATH FOR WHERE THE DATA
. *   FILES RESIDE
. * ================================================================================
. * The following datafiles are used in this chapter:
. *   Monitoring surveys (Ukraine)--monitoring20052014engmerged.dta
. *   KIIS survey (Ukraine)--mohyla.orangerev.dta
. *   2011 Arab Barometer--Tunisia and Egypt--fullarabbarom2.dta
. *   NOTE: The Gallup data cited in chapter are not available for replication; readers
. *         interested in these data must consult with the Gallup Organization directly
. * ================================================================================
. * Before running, download the following packages for STATA:
. * checkrob from http://fmwww.bc.edu/RePEc/bocode/c
. * spost_13.ado from https://jslsoc.sitehost.iu.edu/spost13.htm for Brant test
. * smhsiao module from http://fmwww.bc.edu/RePEc/bocode/s
. * collin from https://stats.oarc.ucla.edu/stata/ado/analysis/
. * ================================================================================
. * The following output is generated by these robustness tests:
. *       Robustnesstestfiles\Logfiles\robustnesstestschapter7.log
. *       Excel file with the reconfigured results of checkrob tests
. *              Robustnesstestfiles\Outputfiles\checkrob.results.chapter7.xlsx
. * ================================================================================
.
.
. * ================================================================
. * TESTING BASE MODELS FOR PROPORTIONAL ODDS ASSUMPTION--BRANT TEST
. * ================================================================
.
. * Ukraine 2005
. clear

. use monitoring20052014engmerged.dta

. * Testing the proportional odds assumption of ordered logit on gender and age base model
. ologit partic5a gender newage if EVA_vers=="yr2005", or

Iteration 0:   log likelihood = -2367.5224
Iteration 1:   log likelihood = -2360.9553
Iteration 2:   log likelihood = -2360.9526
Iteration 3:   log likelihood = -2360.9526

Ordered logistic regression                     Number of obs     =      1,747
                                                LR chi2(2)        =      13.14
                                                Prob > chi2       =     0.0014
Log likelihood = -2360.9526                     Pseudo R2         =     0.0028

------------------------------------------------------------------------------
    partic5a | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gender |   .7916976   .0702516    -2.63   0.008     .6653154    .9420871
      newage |   1.005816   .0026195     2.23   0.026     1.000695    1.010963
-------------+----------------------------------------------------------------
       /cut1 |  -1.501182   .1447168                     -1.784822   -1.217542
       /cut2 |  -1.269646   .1430481                     -1.550015   -.9892769
       /cut3 |   .4325869   .1381726                      .1617736    .7034002
       /cut4 |   .8040097    .138588                      .5323821    1.075637
------------------------------------------------------------------------------

. brant, detail

Estimated coefficients from binary logits

-------------------------------------------------------
    Variable |  y_gt_1     y_gt_2     y_gt_3     y_gt_4
-------------+-----------------------------------------
      gender |   -0.441     -0.430     -0.199     -0.094
             |    -3.31      -3.49      -2.04      -0.92
      newage |    0.025      0.020     -0.004      0.004
             |     6.07       5.26      -1.37       1.28
       _cons |    0.785      0.766      0.004     -0.770
             |     3.96       4.13       0.03      -4.90
-------------------------------------------------------
                                           legend: b/t

Brant test of parallel regression assumption

             |       chi2     p>chi2      df
-------------+------------------------------
         All |      76.82      0.000       6
-------------+------------------------------
      gender |       7.69      0.053       3
      newage |      69.10      0.000       3

A significant test statistic provides evidence that the parallel
regression assumption has been violated.
```

```
41 . *       RESULT:  Test failed--must use multinomial logit
42 .
43 . * Ukraine 2014
44 . ologit partic5a gender newage if EVA_vers=="yr2014", or

Iteration 0:   log likelihood = -2440.8253
Iteration 1:   log likelihood = -2433.0337
Iteration 2:   log likelihood =  -2433.029
Iteration 3:   log likelihood =  -2433.029

Ordered logistic regression                     Number of obs     =      1,752
                                                LR chi2(2)        =      15.59
                                                Prob > chi2       =     0.0004
Log likelihood =  -2433.029                     Pseudo R2         =     0.0032

------------------------------------------------------------------------------
    partic5a | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gender |   .7502822   .0666681    -3.23   0.001     .6303606     .893018
      newage |   1.005197   .0027138     1.92   0.055     .9998919     1.01053
-------------+----------------------------------------------------------------
       /cut1 |  -2.320442   .1591327                     -2.632336   -2.008547
       /cut2 |  -1.564046   .1486435                     -1.855382    -1.27271
       /cut3 |   .4091755   .1423814                      .1301131    .6882379
       /cut4 |    .979549   .1437636                      .6977776    1.26132
------------------------------------------------------------------------------

45 . brant, detail

Estimated coefficients from binary logits

------------------------------------------------------------
    Variable |  y_gt_1     y_gt_2     y_gt_3     y_gt_4
-------------+----------------------------------------------
      gender |   -0.610     -0.380     -0.320     -0.120
             |    -3.41      -2.88      -3.26      -1.13
      newage |    0.016      0.012      0.002      0.004
             |     2.76       2.91       0.70       1.20
       _cons |    2.051      1.310     -0.248     -0.987
             |     7.29       6.26      -1.59      -5.82
------------------------------------------------------------
                                        legend: b/t

Brant test of parallel regression assumption

             |       chi2     p>chi2      df
-------------+------------------------------
         All |      19.11      0.004       6
-------------+------------------------------
      gender |      11.77      0.008       3
      newage |       7.08      0.070       3

A significant test statistic provides evidence that the parallel
regression assumption has been violated.

46 . *       RESULT:  Test failed--must use multinomial logit
47 .
48 . * Egyptian Revolution
49 . clear

50 . use fullarabbarom2.dta

51 . ologit egpartic5 gender newage if country==2, or

Iteration 0:   log likelihood = -1211.6406
Iteration 1:   log likelihood = -1201.7426
Iteration 2:   log likelihood = -1201.6838
Iteration 3:   log likelihood = -1201.6838

Ordered logistic regression                     Number of obs     =      1,211
                                                LR chi2(2)        =      19.91
                                                Prob > chi2       =     0.0000
Log likelihood = -1201.6838                     Pseudo R2         =     0.0082

------------------------------------------------------------------------------
   egpartic5 | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gender |   .5762348     .07188    -4.42   0.000     .4512528    .7358325
      newage |   1.003495   .0043847     0.80   0.425     .9949383    1.012126
-------------+----------------------------------------------------------------
       /cut1 |  -2.687374   .2097097                     -3.098397   -2.276351
       /cut2 |  -2.388099   .2033403                     -2.786639   -1.989559
       /cut3 |   1.187669   .1893775                      .8164961    1.558842
       /cut4 |   1.653906   .1935849                      1.274486    2.033325
------------------------------------------------------------------------------

52 . brant, detail

Estimated coefficients from binary logits
```

```
------------------------------------------------------------
    Variable |  y_gt_1     y_gt_2     y_gt_3     y_gt_4
-------------+----------------------------------------------
      gender |   -1.256     -0.973     -0.345     -0.461
             |    -4.94      -4.59      -2.42      -2.77
      newage |    0.018      0.011      0.001     -0.007
             |     2.12       1.48       0.26      -1.09
       _cons |    2.628      2.392     -1.188     -1.295
             |     7.21       7.64      -5.53      -5.21
------------------------------------------------------------
                                               legend: b/t

Brant test of parallel regression assumption

              |       chi2     p>chi2      df
 -------------+------------------------------
          All |      19.61      0.003       6
 -------------+------------------------------
       gender |      12.00      0.007       3
       newage |       8.27      0.041       3

A significant test statistic provides evidence that the parallel
regression assumption has been violated.

53 . *       RESULT:  Test failed--must use multinomial logit
54 .
55 . * Tunisian Revolution
56 . ologit tpartic4 gender newage if country==10, or

Iteration 0:   log likelihood = -1030.2143
Iteration 1:   log likelihood = -1008.5874
Iteration 2:   log likelihood = -1008.2433
Iteration 3:   log likelihood =  -1008.243
Iteration 4:   log likelihood =  -1008.243

Ordered logistic regression                     Number of obs     =      1,154
                                                LR chi2(2)        =      43.94
                                                Prob > chi2       =     0.0000
Log likelihood =  -1008.243                     Pseudo R2         =     0.0213

------------------------------------------------------------------------------
    tpartic4 | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      gender |   .4524869   .0600633    -5.97   0.000     .3488327    .5869417
      newage |   1.013519   .0041824     3.25   0.001     1.005355     1.02175
-------------+----------------------------------------------------------------
       /cut1 |  -1.650399   .1907804                     -2.024321   -1.276476
       /cut2 |   1.981808    .194451                      1.600691    2.362925
       /cut3 |   3.585299    .239415                      3.116054    4.054543
------------------------------------------------------------------------------

57 . brant, detail

Estimated coefficients from binary logits

------------------------------------------------
    Variable |  y_gt_1     y_gt_2     y_gt_3
-------------+----------------------------------
      gender |   -1.662     -0.097      0.634
             |    -8.16      -0.58       1.86
      newage |    0.039     -0.007     -0.026
             |     6.00      -1.26      -2.17
        cons |    1.356     -1.427     -2.748
             |     4.94      -5.99      -5.62
------------------------------------------------
                                    legend: b/t

Brant test of parallel regression assumption

              |       chi2     p>chi2      df
 -------------+------------------------------
          All |      82.54      0.000       4
 -------------+------------------------------
       gender |      49.03      0.000       2
       newage |      38.68      0.000       2

A significant test statistic provides evidence that the parallel
regression assumption has been violated.

58 . *       RESULT:  Test failed--must use multinomial logit
59 .
60 . * ====================================================
61 . * TESTING BASE MODELS FOR IIA ASSUMPTION--HAUSMAN TESTS
62 . * ====================================================
63 . * Ukraine data
64 . clear

65 . use monitoring20052014engmerged.dta
```

```
66 .
67 . * UKRAINE 2005 DATA
68 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005", rrr b(3)

69 . estimates store basemod

70 . * Test excluding 2
71 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005" & partic5a~=2, rrr b(3)

72 . estimates store basemodno2

73 . hausman basemodno2 basemod, alleqs constant

                  ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno2    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Part_in_rev  |
      gender |    .4103789     .4138332       -.0034543        .0053671
      newage |   -.0321985    -.0323227        .0001243              .
        cons |    .3700763     .3738193        -.003743        .0081143
-------------+------------------------------------------------------------------
Apathetic    |
      gender |   -.2608113     -.257114       -.0036972         .006703
      newage |   -.0325262    -.0325519        .0000257              .
        _cons |    .1010245     .1007368        .0002877        .0119338
-------------+------------------------------------------------------------------
Oppose_rev   |
      gender |   -.0165963    -.0159172       -.0006791        .0028543
      newage |   -.0081238    -.0081425        .0000188              .
        _cons |    .3194337      .320036       -.0006022              .
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.73
                Prob>chi2 =      0.9998
                (V_b-V_B is not positive definite)

74 . *  RESULT:  PASSED
75 . * Test excluding 4
76 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005" & partic5a~=4, rrr b(3)

77 . estimates store basemodno4

78 . hausman basemodno4 basemod, alleqs constant

Note: the rank of the differenced variance matrix (8) does not equal the number of coefficients being tested (9);
        be sure this is what you expect, or there may be problems computing the test.  Examine the output of your
        estimators for anything unexpected and possibly consider scaling your variables so that the coefficients
        are on a similar scale.

                  ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno4    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Part_in_rev  |
      gender |    .4144012     .4138332         .000568        .0079762
      newage |   -.0327802    -.0323227       -.0004575        .0005937
        cons |    .3937539     .3738193        .0199345        .0248802
-------------+------------------------------------------------------------------
Aid_rev      |
      gender |    .2941268     .2940644        .0000624              .
      newage |    -.003868    -.0037921       -.0000759        .0009727
        _cons |   -2.368411    -2.372021        .0036099        .0448097
-------------+------------------------------------------------------------------
Oppose_rev   |
      gender |    -.015656    -.0159172        .0002611        .0004782
      newage |   -.0082586    -.0081425        -.000116        .0004093
        _cons |    .3254349      .320036        .0053989        .0190538
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        2.98
                Prob>chi2 =      0.9355
                (V_b-V_B is not positive definite)

79 . *  RESULT:  PASSED
80 . * Test excluding 5
81 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005" & partic5a~=5, rrr b(3)

82 . estimates store basemodno5
```

```
 83 . hausman basemodno5 basemod, alleqs constant

                    ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |   basemodno5    basemod       Difference          S.E.
   -------------+------------------------------------------------------------
   Part_in_rev  |
         gender |    .3972768     .4138332       -.0165564        .0196599
         newage |   -.0331716    -.0323227       -.0008489        .0010553
          _cons |    .4189885     .3738193        .0451691        .0488244
   -------------+------------------------------------------------------------
   Aid_rev      |
         gender |    .2919729     .2940644       -.0020915         .017722
         newage |   -.0037489    -.0037921        .0000432        .0015556
          _cons |   -2.373131    -2.372021       -.0011101        .0882168
   -------------+------------------------------------------------------------
   Apathetic    |
         gender |   -.2741566     -.257114       -.0170425        .0212948
         newage |   -.0335906    -.0325519       -.0010387        .0011522
          _cons |    .1536799     .1007368        .0529431        .0550242
   ------------------------------------------------------------------------------
                            b = consistent under Ho and Ha; obtained from mlogit
              B = inconsistent under Ha, efficient under Ho; obtained from mlogit

       Test:  Ho:  difference in coefficients not systematic

                     chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                             =        1.07
                   Prob>chi2 =      0.9993
                   (V_b-V_B is not positive definite)

 84 . *  RESULT:  PASSED
 85 . * Test excluding 3, with base 4
 86 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005", rrr b(4)

 87 . estimates store altbasemod

 88 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2005" & partic5a~=3, rrr b(4)

 89 . estimates store altbasemodno3

 90 . hausman altbasemodno3 altbasemod, alleqs constant

                    ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |  altbasemod~3  altbasemod     Difference          S.E.
   -------------+------------------------------------------------------------
   Part_in_rev  |
         gender |    .6703995     .6709472       -.0005477               .
         newage |   -.0000628     .0002292       -.0002919               .
          _cons |    .2849455     .2730826        .0118629               .
   -------------+------------------------------------------------------------
   Aid_rev      |
         gender |    .5327959     .5511784       -.0183825               .
         newage |      .02756     .0287598       -.0011998               .
          _cons |   -2.412399    -2.472758        .0603586               .
   -------------+------------------------------------------------------------
   Oppose_rev   |
         gender |    .2264821     .2411969       -.0147147        .0115677
         newage |    .0235101     .0244094       -.0008993               .
          _cons |    .2638858     .2192992        .0445866               .
   ------------------------------------------------------------------------------
                            b = consistent under Ho and Ha; obtained from mlogit
              B = inconsistent under Ha, efficient under Ho; obtained from mlogit

       Test:  Ho:  difference in coefficients not systematic

                     chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                             =        2.82
                   Prob>chi2 =      0.9710
                   (V_b-V_B is not positive definite)

 91 . *  RESULT:  PASSED
 92 . drop _est_basemod _est_basemodno2 _est_basemodno4 _est_basemodno5 _est_altbasemod _est_altbasemodno3

 93 .
 94 . * UKRAINE 2014 DATA
 95 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014", rrr b(3)

 96 . estimates store basemod

 97 . * Test excluding 2
 98 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014" & partic5a~=2, rrr b(3)

 99 . estimates store basemodno2

100 . hausman basemodno2 basemod, alleqs constant

    Note: the rank of the differenced variance matrix (8) does not equal the number of coefficients being tested (9);
            be sure this is what you expect, or there may be problems computing the test.  Examine the output of your
            estimators for anything unexpected and possibly consider scaling your variables so that the coefficients
            are on a similar scale.
```

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno2    basemod       Difference          S.E.
-------------+------------------------------------------------------------
Part in rev  |
      gender |    .4956757      .494411        .0012647               .
      newage |   -.0167093    -.0168753         .000166               .
        _cons |   -1.148877    -1.140897       -.0079809               .
-------------+------------------------------------------------------------
Apathetic    |
      gender |   -.4858877    -.4863427         .000455               .
      newage |   -.0047718    -.0048471        .0000753               .
        _cons |   -.7422626    -.7386221       -.0036405               .
-------------+------------------------------------------------------------
Oppose_rev   |
      gender |   -.1497507    -.1497551        4.48e-06               .
      newage |    .0002004     .0001959        4.54e-06               .
        _cons |   -.2737366    -.2735238       -.0002129               .
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.09
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

101 . *  RESULT:  PASSED
102 . * Test excluding 4
103 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014" & partic5a~=4, rrr b(3)

104 . estimates store basemodno4

105 . hausman basemodno4 basemod, alleqs constant

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno4    basemod       Difference          S.E.
-------------+------------------------------------------------------------
Part_in_rev  |
      gender |    .5017617      .494411        .0073507               .
      newage |   -.0172358    -.0168753       -.0003604        .0005021
        _cons |   -1.128871    -1.140897        .0120253               .
-------------+------------------------------------------------------------
Aid_rev      |
      gender |     .007409     .0031835        .0042256               .
      newage |     -.00867    -.0086026       -.0000674        .0004797
        _cons |   -1.291823    -1.292917        .0010931               .
-------------+------------------------------------------------------------
Oppose_rev   |
      gender |   -.1496594    -.1497551        .0000958               .
      newage |    .0002737     .0001959        .0000778        .0002784
        cons |   -.2771793    -.2735238       -.0036556               .
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        2.46
                Prob>chi2 =      0.9819
                (V_b-V_B is not positive definite)

106 . *  RESULT:  PASSED
107 . * Test excluding 5
108 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014" & partic5a~=5, rrr b(3)

109 . estimates store basemodno5

110 . hausman basemodno5 basemod, alleqs constant

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno5    basemod       Difference          S.E.
-------------+------------------------------------------------------------
Part_in_rev  |
      gender |    .4863295      .494411       -.0080815        .0126112
      newage |   -.0168785    -.0168753       -3.11e-06        .0007869
        _cons |   -1.136487    -1.140897        .0044092         .044532
-------------+------------------------------------------------------------
Aid_rev      |
      gender |   -.0014554     .0031835       -.0046388        .0116927
      newage |   -.0087311    -.0086026       -.0001284        .0007526
        _cons |   -1.284951    -1.292917        .0079653        .0439669
-------------+------------------------------------------------------------
Apathetic    |
      gender |   -.4897755    -.4863427       -.0034328        .0096317
      newage |   -.0051469    -.0048471       -.0002999        .0006662
        _cons |   -.7234628    -.7386221        .0151593        .0373846
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic
```

```
                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.63
                Prob>chi2 =      0.9999
                (V_b-V_B is not positive definite)

111 . *  RESULT:  PASSED
112 . * Test excluding 3, with base 4
113 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014", rrr b(4)

114 . estimates store altbasemod

115 . quietly: mlogit partic5a gender newage if EVA_vers=="yr2014" & partic5a~=3, rrr b(4)

116 . estimates store altbasemodno3

117 . hausman altbasemodno3 altbasemod, alleqs constant

                    ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |  altbasemod~3  altbasemod     Difference          S.E.
-------------+------------------------------------------------------------------
Part_in_rev  |
      gender |    .9779485     .9807537       -.0028052        .0105001
      newage |   -.0118722    -.0120283        .0001561         .000948
       _cons |   -.4077617    -.4022745       -.0054872        .0468628
-------------+------------------------------------------------------------------
Aid_rev      |
      gender |    .4887808     .4895261       -.0007453         .009485
      newage |   -.0036595    -.0037556        .0000961        .0007636
       cons |   -.5582982    -.5542945       -.0040037        .0414749
-------------+------------------------------------------------------------------
Oppose_rev   |
      gender |    .3385868     .3365875        .0019992        .0082577
      newage |    .0051858      .005043        .0001428        .0005534
       _cons |    .4577563     .4650983        -.007342        .0310166
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.12
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

118 . *  RESULT:  PASSED
119 . drop _est_basemod _est_basemodno2 _est_basemodno4 _est_basemodno5 _est_altbasemod _est_altbasemodno3

120 .
121 . * Egyptian and Tunisian data
122 . clear

123 . use fullarabbarom2.dta

124 .
125 . * EGYPTIAN REVOLUTION
126 . quietly: mlogit egpartic5 gender newage if country==2, rrr b(3)

127 . estimates store basemod

128 . * Test excluding 2
129 . quietly: mlogit egpartic5 gender newage if country==2 & egpartic5~=2, rrr b(3)

130 . estimates store basemodno2

131 . hausman basemodno2 basemod, alleqs constant

Note: the rank of the differenced variance matrix (8) does not equal the number of coefficients being tested (9);
      be sure this is what you expect, or there may be problems computing the test.  Examine the output of your
      estimators for anything unexpected and possibly consider scaling your variables so that the coefficients
      are on a similar scale.

                    ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno2    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.204323      1.20254        .0017829        .0072332
      newage |   -.0174037    -.0173391       -.0000646               .
       _cons |   -2.317991    -2.319322        .0013313               .
-------------+------------------------------------------------------------------
Apathetic    |
      gender |      .01817     .0186638       -.0004938        .0044984
      newage |    .0132063     .0132921       -.0000859               .
       _cons |   -2.869646    -2.873413         .003767               .
-------------+------------------------------------------------------------------
Oppose       |
      gender |   -.3590202    -.3592947        .0002746        .0044327
      newage |    -.006542    -.0066265        .0000845               .
       _cons |   -1.135205    -1.131803       -.0034027               .
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic
```

```
                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.04
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

132 . * RESULT:  PASSED
133 . * Test excluding 4
134 . quietly: mlogit egpartic5 gender newage if country==2 & egpartic5~=4, rrr b(3)

135 . estimates store basemodno4

136 . hausman basemodno4 basemod, alleqs constant

                  ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno4    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.201304      1.20254       -.0012353               .
      newage |   -.0172799    -.0173391        .0000591        .0003919
        cons |   -2.320801    -2.319322       -.0014787        .0201516
-------------+------------------------------------------------------------------
Aid          |
      gender |    .1275034     .1271603        .0003432               .
      newage |    .0096598      .009627        .0000328        .0006409
       _cons |   -3.852313    -3.850805       -.0015077        .0312706
-------------+------------------------------------------------------------------
Oppose       |
      gender |   -.3595134    -.3592947       -.0002187               .
      newage |   -.0066759    -.0066265       -.0000494        .0003783
       _cons |   -1.129788    -1.131803        .0020146        .0165246
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.14
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

137 . * RESULT:  PASSED
138 . * Test excluding 5
139 . quietly: mlogit egpartic5 gender newage if country==2 & egpartic5~=5, rrr b(3)

140 . estimates store basemodno5

141 . hausman basemodno5 basemod, alleqs constant

Note: the rank of the differenced variance matrix (8) does not equal the number of coefficients being tested (9);
      be sure this is what you expect, or there may be problems computing the test.  Examine the output of your
      estimators for anything unexpected and possibly consider scaling your variables so that the coefficients
      are on a similar scale.

                  ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   basemodno5    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.198855      1.20254       -.0036848               .
      newage |   -.0172272    -.0173391        .0001118        .0006833
        cons |    -2.32116    -2.319322       -.0018385        .0375657
-------------+------------------------------------------------------------------
Aid          |
      gender |    .1273698     .1271603        .0002095               .
      newage |    .0098119      .009627        .0001849        .0017628
       _cons |   -3.858422    -3.850805       -.0076166        .0723846
-------------+------------------------------------------------------------------
Apathetic    |
      gender |    .0187229     .0186638        .0000591        .0056029
      newage |    .0135397     .0132921        .0002476        .0011209
       _cons |   -2.883584    -2.873413       -.0101709        .0455781
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.09
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

142 . * RESULT:  PASSED
143 . * Test excluding 3 (with base 4)
144 . quietly: mlogit egpartic5 gender newage if country==2, rrr b(4)

145 . estimates store altbasemod
```

```
146 . quietly: mlogit egpartic5 gender newage if country==2 & egpartic5~=3, rrr b(4)

147 . estimates store altbasemodno3

148 . hausman altbasemodno3 altbasemod, alleqs constant

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |  altbasemod~3  altbasemod     Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.198811     1.183876        .0149355        .0496817
      newage |   -.0317578    -.0306312       -.0011266        .0028556
       _cons |    .5882909     .5540912        .0341997        .0790469
-------------+------------------------------------------------------------------
Aid          |
      gender |    .1091042     .1084965        .0006077        .0177781
      newage |   -.0037106    -.0036651       -.0000455        .0015056
       _cons |   -.9758012    -.9773922         .001591        .0469946
-------------+------------------------------------------------------------------
Oppose       |
      gender |   -.3729291    -.3779585        .0050294         .026413
      newage |   -.0198089    -.0199186        .0001097        .0012664
       _cons |    1.735112     1.741611       -.0064989        .0501793
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.18
                Prob>chi2 =      1.0000
                (V_b-V_B is not positive definite)

149 . * RESULT:  PASSED
150 . drop _est_basemod _est_basemodno2 _est_basemodno4 _est_basemodno5 _est_altbasemod _est_altbasemodno3

151 .
152 . * TUNISIAN REVOLUTION
153 . quietly: mlogit tpartic4 gender newage if country==10, rrr b(2)

154 . estimates store basemod

155 . * Test excluding 3
156 . * quietly: mlogit tpartic4 gender newage if country==10 & tpartic4~=3, rrr b(2)
157 . * estimates store basemodno3
158 . * hausman basemodno3 basemod, alleqs constant
159 . * Failed to meet the asymptotic assumptions of the Hausman test
160 . * Must use suest
161 . * Suest test
162 . quietly: mlogit tpartic4 gender newage if country==10, rrr b(2)

163 . estimates store m1

164 . quietly: mlogit tpartic4 gender newage if country==10 & tpartic4~=3, rrr b(2)

165 . estimates store m3

166 . suest m1 m3, noomitted

    Simultaneous results for m1, m3

                                                 Number of obs     =      1,154

------------------------------------------------------------------------------
             |               Robust
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
m1_Partici~e |
      gender |   1.702776   .2044877     8.33   0.000     1.301987    2.103564
      newage |  -.0415961   .0065242    -6.38   0.000    -.0543832   -.0288089
       _cons |  -1.072174   .2837352    -3.78   0.000    -1.628285   -.5160636
-------------+----------------------------------------------------------------
m1_Support   |
-------------+----------------------------------------------------------------
m1_Apathet~e |
      gender |  -.0293111   .1928888    -0.15   0.879    -.4073662    .3487439
      newage |  -.0079609   .0060822    -1.31   0.191    -.0198818    .0039601
       cons  |  -1.481634   .2575494    -5.75   0.000    -1.986422    -.976847
-------------+----------------------------------------------------------------
m1_Oppose    |
      gender |   .9084897   .3508509     2.59   0.010     .2208347    1.596145
      newage |  -.0343097   .0144158    -2.38   0.017     -.062564   -.0060553
       _cons |  -2.226751   .5202866    -4.28   0.000    -3.246494   -1.207008
-------------+----------------------------------------------------------------
m3_Partici~e |
      gender |   1.709258   .2048567     8.34   0.000     1.307747     2.11077
      newage |  -.0412992   .0064087    -6.44   0.000    -.0538601   -.0287384
       _cons |  -1.085901   .2804486    -3.87   0.000     -1.63557   -.5362318
-------------+----------------------------------------------------------------
m3_Support   |
-------------+----------------------------------------------------------------
m3_Oppose    |
      gender |   .9150565    .351261     2.61   0.009     .2265976    1.603516
      newage |  -.0341283   .0142055    -2.40   0.016    -.0619705   -.0062861
       _cons |  -2.236584    .513454    -4.36   0.000    -3.242935   -1.230232
------------------------------------------------------------------------------
```

```
167 . test [m1_Participate = m3_Participate], cons

 ( 1)  [m1_Participate]gender - [m3_Participate]gender = 0
 ( 2)  [m1_Participate]newage - [m3_Participate]newage = 0
 ( 3)  [m1_Participate]_cons - [m3_Participate]_cons = 0

           chi2(  3) =    3.78
         Prob > chi2 =    0.2868

168 . * RESULT:  PASSED
169 . * Test excluding 4
170 . quietly: mlogit tpartic4 gender newage if country==10 & tpartic4~=4, rrr b(2)

171 . estimates store basemodno4

172 . hausman basemodno4 basemod, alleqs constant

                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |   basemodno4    basemod       Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.714288     1.702776        .0115117        .0128891
      newage |   -.0425315    -.0415961       -.0009354        .0009942
       _cons |   -1.044471    -1.072174        .0277035        .0241419
-------------+------------------------------------------------------------------
Apathetic_inactive|
      gender |   -.0274299    -.0293111        .0018813        .0084691
      newage |   -.0080383    -.0079609       -.0000775        .0006677
        cons |   -1.479325    -1.481634        .0023099        .0197127
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        1.95
                Prob>chi2 =      0.9244
                (V_b-V_B is not positive definite)

173 . * RESULT:  PASSED
174 . * Test excluding 2 (with base 3)
175 . quietly: mlogit tpartic4 gender newage if country==10, rrr b(3)

176 . estimates store altbasemod

177 . quietly: mlogit tpartic4 gender newage if country==10 & tpartic4~=2, rrr b(3)

178 . estimates store altbasemodno2

179 . hausman altbasemodno2 altbasemod, alleqs constant

                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |  altbasemod~2  altbasemod     Difference          S.E.
-------------+------------------------------------------------------------------
Participate  |
      gender |    1.693949     1.732087        -.038138         .047619
      newage |   -.0312239    -.0336352        .0024113        .0031055
       _cons |    .3412238       .40946       -.0682362        .0968994
-------------+------------------------------------------------------------------
Oppose       |
      gender |    .9036179     .9378009        -.034183        .0310858
      newage |   -.0244338    -.0263488         .001915        .0004293
       _cons |    -.799096    -.7451169       -.0539791        .0606109
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from mlogit
           B = inconsistent under Ha, efficient under Ho; obtained from mlogit

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        0.33
                Prob>chi2 =      0.9994
                (V_b-V_B is not positive definite)

180 . * RESULT:  PASSED
181 . drop _est_basemod _est_basemodno4 _est_altbasemod _est_altbasemodno2 _est_m1 _est_m3

182 .
183 . * ============================================================
184 . * TESTING BASE MODELS FOR IIA ASSUMPTION--SMALL-HSIAO TESTS
185 . * ============================================================
186 . * set seed to randomly generated number (number previously generated by runiformint(1000000, 9999999))
187 . * number given here for replicability
188 . set seed 2667533

189 .
```

```
190 . * UKRAINE DATA
191 . clear

192 . use monitoring20052014engmerged.dta

193 . * Generated two randomly selected groups--group2005 and group2014--for use in Small-Hsiao tests
194 . * gen group2005=rbinomial(1, 0.5) if EVA_vers=="yr2005"
195 . * gen group2014=rbinomial(1, 0.5) if EVA_vers=="yr2014"
196 . * Saved groups for replication
197 . * Performed Small-Hsiao test on 5-part dependent variable for 2005 sample
198 . smhsiao partic5a age gender if EVA_vers=="yr2005", elim(1) samp(group2005)

    Iteration 0:   log likelihood = -2367.5224
    Iteration 1:   log likelihood = -2322.4348
    Iteration 2:   log likelihood = -2321.6189
    Iteration 3:   log likelihood = -2321.6182

    Multinomial logistic regression                 Number of obs   =       1747
                                                    LR chi2(8)      =      91.81
                                                    Prob > chi2     =     0.0000
    Log likelihood = -2321.6182                     Pseudo R2       =     0.0194

    ------------------------------------------------------------------------------
        partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    Part in rev  |
             age |  -.0323213   .0045565    -7.09   0.000     -.041252   -.0233906
          gender |   .4134441   .1466226     2.82   0.005     .1260691    .7008191
           _cons |   .3746554   .2230113     1.68   0.093    -.0624387    .8117495
    -------------+----------------------------------------------------------------
    Aid rev      |
             age |  -.0039624   .0082214    -0.48   0.630     -.020076    .0121512
          gender |   .2933969   .2756349     1.06   0.287    -.2468376    .8336313
           _cons |  -2.363424   .4467353    -5.29   0.000    -3.239009   -1.487839
    -------------+----------------------------------------------------------------
    Apathetic    |
             age |  -.0324462   .0056377    -5.76   0.000    -.0434959   -.0213966
          gender |  -.2572978   .1860051    -1.38   0.167    -.6218611    .1072655
           _cons |   .0973343   .2663869     0.37   0.715    -.4247744     .619443
    -------------+----------------------------------------------------------------
    Oppose rev   |
             age |  -.0081656   .0033795    -2.42   0.016    -.0147893   -.0015419
          gender |  -.0162062   .1149385    -0.14   0.888    -.2414815    .2090691
           _cons |   .3216267   .1811749     1.78   0.076    -.0334695     .676723
    ------------------------------------------------------------------------------
    (partic5a==Support rev is the base outcome)

    Small-Hsiao Test of IIA
    -----------------------

      LnL for weighted average of coeffients in two half-samples: -8.1e+02
      LnL based on restricted model (partic5a==1 omitted):        -8.1e+02
      Test chi2(3) =  5.722, Pr = 0.1260

199 . smhsiao partic5a age gender if EVA_vers=="yr2005", elim(2) samp(group2005)

    Iteration 0:   log likelihood = -2367.5224
    Iteration 1:   log likelihood = -2322.4348
    Iteration 2:   log likelihood = -2321.6189
    Iteration 3:   log likelihood = -2321.6182

    Multinomial logistic regression                 Number of obs   =       1747
                                                    LR chi2(8)      =      91.81
                                                    Prob > chi2     =     0.0000
    Log likelihood = -2321.6182                     Pseudo R2       =     0.0194

    ------------------------------------------------------------------------------
        partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    Part in rev  |
             age |  -.0323213   .0045565    -7.09   0.000     -.041252   -.0233906
          gender |   .4134441   .1466226     2.82   0.005     .1260691    .7008191
           _cons |   .3746554   .2230113     1.68   0.093    -.0624387    .8117495
    -------------+----------------------------------------------------------------
    Aid rev      |
             age |  -.0039624   .0082214    -0.48   0.630     -.020076    .0121512
          gender |   .2933969   .2756349     1.06   0.287    -.2468376    .8336313
           _cons |  -2.363424   .4467353    -5.29   0.000    -3.239009   -1.487839
    -------------+----------------------------------------------------------------
    Apathetic    |
             age |  -.0324462   .0056377    -5.76   0.000    -.0434959   -.0213966
          gender |  -.2572978   .1860051    -1.38   0.167    -.6218611    .1072655
           _cons |   .0973343   .2663869     0.37   0.715    -.4247744     .619443
    -------------+----------------------------------------------------------------
    Oppose rev   |
             age |  -.0081656   .0033795    -2.42   0.016    -.0147893   -.0015419
          gender |  -.0162062   .1149385    -0.14   0.888    -.2414815    .2090691
            cons |   .3216267   .1811749     1.78   0.076    -.0334695     .676723
    ------------------------------------------------------------------------------
    (partic5a==Support rev is the base outcome)

    Small-Hsiao Test of IIA
    -----------------------

      LnL for weighted average of coeffients in two half-samples: -1.1e+03
      LnL based on restricted model (partic5a==2 omitted):        -1.0e+03
      Test chi2(3) =  2.911, Pr = 0.4056
```

```
200 . smhsiao partic5a age gender if EVA_vers=="yr2005", elim(3) samp(group2005)

Iteration 0:   log likelihood = -2367.5224
Iteration 1:   log likelihood = -2322.4348
Iteration 2:   log likelihood = -2321.6189
Iteration 3:   log likelihood = -2321.6182

Multinomial logistic regression                 Number of obs   =       1747
                                                LR chi2(8)      =      91.81
                                                Prob > chi2     =     0.0000
Log likelihood = -2321.6182                     Pseudo R2       =     0.0194

------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0323213   .0045565    -7.09   0.000     -.041252   -.0233906
      gender |   .4134441   .1466226     2.82   0.005     .1260691    .7008191
       _cons |   .3746554   .2230113     1.68   0.093    -.0624387    .8117495
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0039624   .0082214    -0.48   0.630     -.020076    .0121512
      gender |   .2933969   .2756349     1.06   0.287    -.2468376    .8336313
       _cons |  -2.363424   .4467353    -5.29   0.000    -3.239009   -1.487839
-------------+----------------------------------------------------------------
Apathetic    |
         age |  -.0324462   .0056377    -5.76   0.000    -.0434959   -.0213966
      gender |  -.2572978   .1860051    -1.38   0.167    -.6218611    .1072655
       _cons |   .0973343   .2663869     0.37   0.715    -.4247744     .619443
-------------+----------------------------------------------------------------
Oppose rev   |
         age |  -.0081656   .0033795    -2.42   0.016    -.0147893   -.0015419
      gender |  -.0162062   .1149385    -0.14   0.888    -.2414815    .2090691
       _cons |   .3216267   .1811749     1.78   0.076    -.0334695     .676723
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
----------------------

  LnL for weighted average of coeffients in two half-samples: -6.0e+02
  LnL based on restricted model (partic5a==3 omitted):        -6.0e+02
  Test chi2(3) =  5.523, Pr = 0.1373

201 . smhsiao partic5a age gender if EVA_vers=="yr2005", elim(4) samp(group2005)

Iteration 0:   log likelihood = -2367.5224
Iteration 1:   log likelihood = -2322.4348
Iteration 2:   log likelihood = -2321.6189
Iteration 3:   log likelihood = -2321.6182

Multinomial logistic regression                 Number of obs   =       1747
                                                LR chi2(8)      =      91.81
                                                Prob > chi2     =     0.0000
Log likelihood = -2321.6182                     Pseudo R2       =     0.0194

------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0323213   .0045565    -7.09   0.000     -.041252   -.0233906
      gender |   .4134441   .1466226     2.82   0.005     .1260691    .7008191
       cons |   .3746554   .2230113     1.68   0.093    -.0624387    .8117495
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0039624   .0082214    -0.48   0.630     -.020076    .0121512
      gender |   .2933969   .2756349     1.06   0.287    -.2468376    .8336313
       _cons |  -2.363424   .4467353    -5.29   0.000    -3.239009   -1.487839
-------------+----------------------------------------------------------------
Apathetic    |
         age |  -.0324462   .0056377    -5.76   0.000    -.0434959   -.0213966
      gender |  -.2572978   .1860051    -1.38   0.167    -.6218611    .1072655
       _cons |   .0973343   .2663869     0.37   0.715    -.4247744     .619443
-------------+----------------------------------------------------------------
Oppose rev   |
         age |  -.0081656   .0033795    -2.42   0.016    -.0147893   -.0015419
      gender |  -.0162062   .1149385    -0.14   0.888    -.2414815    .2090691
       _cons |   .3216267   .1811749     1.78   0.076    -.0334695     .676723
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
----------------------

  LnL for weighted average of coeffients in two half-samples: -9.3e+02
  LnL based on restricted model (partic5a==4 omitted):        -9.3e+02
  Test chi2(3) =  4.396, Pr = 0.2218

202 . smhsiao partic5a age gender if EVA_vers=="yr2005", elim(5) samp(group2005)

Iteration 0:   log likelihood = -2367.5224
Iteration 1:   log likelihood = -2322.4348
Iteration 2:   log likelihood = -2321.6189
Iteration 3:   log likelihood = -2321.6182

Multinomial logistic regression                 Number of obs   =       1747
                                                LR chi2(8)      =      91.81
                                                Prob > chi2     =     0.0000
Log likelihood = -2321.6182                     Pseudo R2       =     0.0194
```

```
------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0323213   .0045565    -7.09   0.000     -.041252   -.0233906
      gender |   .4134441   .1466226     2.82   0.005     .1260691    .7008191
       _cons |   .3746554   .2230113     1.68   0.093    -.0624387    .8117495
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0039624   .0082214    -0.48   0.630     -.020076    .0121512
      gender |   .2933969   .2756349     1.06   0.287    -.2468376    .8336313
       _cons |  -2.363424   .4467353    -5.29   0.000    -3.239009   -1.487839
-------------+----------------------------------------------------------------
Apathetic    |
         age |  -.0324462   .0056377    -5.76   0.000    -.0434959   -.0213966
      gender |  -.2572978   .1860051    -1.38   0.167    -.6218611    .1072655
       _cons |   .0973343   .2663869     0.37   0.715    -.4247744     .619443
-------------+----------------------------------------------------------------
Oppose rev   |
         age |  -.0081656   .0033795    -2.42   0.016    -.0147893   -.0015419
      gender |  -.0162062   .1149385    -0.14   0.888    -.2414815    .2090691
       _cons |   .3216267   .1811749     1.78   0.076    -.0334695     .676723
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -6.1e+02
  LnL based on restricted model (partic5a==5 omitted):        -6.1e+02
  Test chi2(3) =  5.504, Pr = 0.1384

203 . * RESULT:  Passed
204 . * Performed Small-Hsiao test on 5-part dependent variable for 2014 sample
205 . smhsiao partic5a age gender if EVA_vers=="yr2014", elim(1) samp(group2014)

Iteration 0:   log likelihood = -2440.8253
Iteration 1:   log likelihood = -2423.5816
Iteration 2:   log likelihood = -2423.2622
Iteration 3:   log likelihood =  -2423.262

Multinomial logistic regression                 Number of obs   =       1752
                                                LR chi2(8)      =      35.13
                                                Prob > chi2     =     0.0000
Log likelihood =  -2423.262                     Pseudo R2       =     0.0072

------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0169146   .0058713    -2.88   0.004    -.0284221   -.0054071
      gender |   .4941499   .1870729     2.64   0.008     .1274939     .860806
       _cons |  -1.138628   .2947905    -3.86   0.000    -1.716407   -.5608494
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0085936   .0058574    -1.47   0.142    -.0200738    .0028866
      gender |   .0031158   .1888884     0.02   0.987    -.3670988    .3733303
       _cons |  -1.292938   .2982153    -4.34   0.000    -1.877429   -.7084468
-------------+----------------------------------------------------------------
Apathetic    |
         age |   -.004914   .0047161    -1.04   0.297    -.0141574    .0043294
      gender |  -.4866075   .1586145    -3.07   0.002    -.7974861   -.1757288
        cons |  -.7352536   .2412801    -3.05   0.002    -1.208154   -.2623532
-------------+----------------------------------------------------------------
Oppose rev   |
         age |    .000244    .003544     0.07   0.945    -.0067022    .0071902
      gender |  -.1496025   .1163779    -1.29   0.199    -.3776989    .0784939
       _cons |  -.2758406   .1862993    -1.48   0.139    -.6409806    .0892994
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -9.6e+02
  LnL based on restricted model (partic5a==1 omitted):        -9.6e+02
  Test chi2(3) =  4.211, Pr = 0.2396

206 . smhsiao partic5a age gender if EVA_vers=="yr2014", elim(2) samp(group2014)

Iteration 0:   log likelihood = -2440.8253
Iteration 1:   log likelihood = -2423.5816
Iteration 2:   log likelihood = -2423.2622
Iteration 3:   log likelihood =  -2423.262

Multinomial logistic regression                 Number of obs   =       1752
                                                LR chi2(8)      =      35.13
                                                Prob > chi2     =     0.0000
Log likelihood =  -2423.262                     Pseudo R2       =     0.0072
```

```
------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0169146   .0058713    -2.88   0.004    -.0284221   -.0054071
      gender |   .4941499   .1870729     2.64   0.008     .1274939     .860806
       _cons |  -1.138628   .2947905    -3.86   0.000    -1.716407   -.5608494
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0085936   .0058574    -1.47   0.142    -.0200738    .0028866
      gender |   .0031158   .1888884     0.02   0.987    -.3670988    .3733303
       _cons |  -1.292938   .2982153    -4.34   0.000    -1.877429   -.7084468
-------------+----------------------------------------------------------------
Apathetic    |
         age |   -.004914   .0047161    -1.04   0.297    -.0141574    .0043294
      gender |  -.4866075   .1586145    -3.07   0.002    -.7974861   -.1757288
       _cons |  -.7352536   .2412801    -3.05   0.002    -1.208154   -.2623532
-------------+----------------------------------------------------------------
Oppose rev   |
         age |    .000244    .003544     0.07   0.945    -.0067022    .0071902
      gender |  -.1496025   .1163779    -1.29   0.199    -.3776989    .0784939
       _cons |  -.2758406   .1862993    -1.48   0.139    -.6409806    .0892994
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -9.5e+02
  LnL based on restricted model (partic5a==2 omitted):        -9.5e+02
  Test chi2(3) =  5.323, Pr = 0.1496

207 . smhsiao partic5a age gender if EVA_vers=="yr2014", elim(3) samp(group2014)

Iteration 0:   log likelihood = -2440.8253
Iteration 1:   log likelihood = -2423.5816
Iteration 2:   log likelihood = -2423.2622
Iteration 3:   log likelihood =  -2423.262

Multinomial logistic regression                 Number of obs   =       1752
                                                LR chi2(8)      =      35.13
                                                Prob > chi2     =     0.0000
Log likelihood =  -2423.262                     Pseudo R2       =     0.0072

------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0169146   .0058713    -2.88   0.004    -.0284221   -.0054071
      gender |   .4941499   .1870729     2.64   0.008     .1274939     .860806
       _cons |  -1.138628   .2947905    -3.86   0.000    -1.716407   -.5608494
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0085936   .0058574    -1.47   0.142    -.0200738    .0028866
      gender |   .0031158   .1888884     0.02   0.987    -.3670988    .3733303
       _cons |  -1.292938   .2982153    -4.34   0.000    -1.877429   -.7084468
-------------+----------------------------------------------------------------
Apathetic    |
         age |   -.004914   .0047161    -1.04   0.297    -.0141574    .0043294
      gender |  -.4866075   .1586145    -3.07   0.002    -.7974861   -.1757288
       _cons |  -.7352536   .2412801    -3.05   0.002    -1.208154   -.2623532
-------------+----------------------------------------------------------------
Oppose rev   |
         age |    .000244    .003544     0.07   0.945    -.0067022    .0071902
      gender |  -.1496025   .1163779    -1.29   0.199    -.3776989    .0784939
       _cons |  -.2758406   .1862993    -1.48   0.139    -.6409806    .0892994
------------------------------------------------------------------------------
(partic5a==Support rev is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -5.9e+02
  LnL based on restricted model (partic5a==3 omitted):        -5.9e+02
  Test chi2(3) =  3.781, Pr = 0.2861

208 . smhsiao partic5a age gender if EVA_vers=="yr2014", elim(4) samp(group2014)

Iteration 0:   log likelihood = -2440.8253
Iteration 1:   log likelihood = -2423.5816
Iteration 2:   log likelihood = -2423.2622
Iteration 3:   log likelihood =  -2423.262

Multinomial logistic regression                 Number of obs   =       1752
                                                LR chi2(8)      =      35.13
                                                Prob > chi2     =     0.0000
Log likelihood =  -2423.262                     Pseudo R2       =     0.0072

------------------------------------------------------------------------------
    partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Part in rev  |
         age |  -.0169146   .0058713    -2.88   0.004    -.0284221   -.0054071
      gender |   .4941499   .1870729     2.64   0.008     .1274939     .860806
       _cons |  -1.138628   .2947905    -3.86   0.000    -1.716407   -.5608494
-------------+----------------------------------------------------------------
Aid rev      |
         age |  -.0085936   .0058574    -1.47   0.142    -.0200738    .0028866
      gender |   .0031158   .1888884     0.02   0.987    -.3670988    .3733303
       _cons |  -1.292938   .2982153    -4.34   0.000    -1.877429   -.7084468
-------------+----------------------------------------------------------------
```

```
    Apathetic    |
             age |   -.004914   .0047161    -1.04   0.297    -.0141574    .0043294
          gender |  -.4866075   .1586145    -3.07   0.002    -.7974861   -.1757288
           _cons |  -.7352536   .2412801    -3.05   0.002    -1.208154   -.2623532
    -------------+----------------------------------------------------------------
    Oppose rev   |
             age |    .000244    .003544     0.07   0.945    -.0067022    .0071902
          gender |  -.1496025   .1163779    -1.29   0.199    -.3776989    .0784939
           _cons |  -.2758406   .1862993    -1.48   0.139    -.6409806    .0892994
    ------------------------------------------------------------------------------
    (partic5a==Support rev is the base outcome)

    Small-Hsiao Test of IIA
    -----------------------

      LnL for weighted average of coeffients in two half-samples: -8.5e+02
      LnL based on restricted model (partic5a==4 omitted):        -8.5e+02
      Test chi2(3) =  4.398, Pr = 0.2216

209 . smhsiao partic5a age gender if EVA_vers=="yr2014", elim(5) samp(group2014)

    Iteration 0:   log likelihood = -2440.8253
    Iteration 1:   log likelihood = -2423.5816
    Iteration 2:   log likelihood = -2423.2622
    Iteration 3:   log likelihood =  -2423.262

    Multinomial logistic regression                 Number of obs   =       1752
                                                    LR chi2(8)      =      35.13
                                                    Prob > chi2     =     0.0000
    Log likelihood =  -2423.262                     Pseudo R2       =     0.0072

    ------------------------------------------------------------------------------
        partic5a |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    Part in rev  |
             age |  -.0169146   .0058713    -2.88   0.004    -.0284221   -.0054071
          gender |   .4941499   .1870729     2.64   0.008     .1274939     .860806
            cons |  -1.138628   .2947905    -3.86   0.000    -1.716407   -.5608494
    -------------+----------------------------------------------------------------
    Aid rev      |
             age |  -.0085936   .0058574    -1.47   0.142    -.0200738    .0028866
          gender |   .0031158   .1888884     0.02   0.987    -.3670988    .3733303
           _cons |  -1.292938   .2982153    -4.34   0.000    -1.877429   -.7084468
    -------------+----------------------------------------------------------------
    Apathetic    |
             age |   -.004914   .0047161    -1.04   0.297    -.0141574    .0043294
          gender |  -.4866075   .1586145    -3.07   0.002    -.7974861   -.1757288
           _cons |  -.7352536   .2412801    -3.05   0.002    -1.208154   -.2623532
    -------------+----------------------------------------------------------------
    Oppose rev   |
             age |    .000244    .003544     0.07   0.945    -.0067022    .0071902
          gender |  -.1496025   .1163779    -1.29   0.199    -.3776989    .0784939
           _cons |  -.2758406   .1862993    -1.48   0.139    -.6409806    .0892994
    ------------------------------------------------------------------------------
    (partic5a==Support rev is the base outcome)

    Small-Hsiao Test of IIA
    -----------------------

      LnL for weighted average of coeffients in two half-samples: -6.6e+02
      LnL based on restricted model (partic5a==5 omitted):        -6.6e+02
      Test chi2(3) =  3.108, Pr = 0.3752

210 . * RESULT:  Passed
211 .
212 . * ARAB BAROMETER DATA
213 . clear

214 . use fullarabbarom2.dta

215 . * Small-Hsiao tests
216 . * set seed to randomly generated number (number generated by runiformint(1000000, 9999999))
217 . set seed 2667533

218 . * Generated two randomly selected groups--groupeg and grouptu--for use in Small-Hsiao tests
219 . * gen groupeg=rbinomial(1, 0.5) if country==2
220 . * gen grouptu=rbinomial(1, 0.5) if country==10
221 . * Saved groups for replication
222 . * Performed Small-Hsiao test on 5-part dependent variable for Egyptian sample
223 . smhsiao egpartic5 gender newage if country==2, elim(1) samp(groupeg)

    Iteration 0:   log likelihood = -1211.6406
    Iteration 1:   log likelihood = -1191.9286
    Iteration 2:   log likelihood = -1190.9384
    Iteration 3:   log likelihood = -1190.9333
    Iteration 4:   log likelihood = -1190.9333

    Multinomial logistic regression                 Number of obs   =       1211
                                                    LR chi2(8)      =      41.41
                                                    Prob > chi2     =     0.0000
    Log likelihood = -1190.9333                     Pseudo R2       =     0.0171
```

```
------------------------------------------------------------------------------
   egpartic5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.20254   .2565398     4.69   0.000      .699731    1.705348
      newage |  -.0173391   .0084208    -2.06   0.039    -.0338435   -.0008346
       _cons |  -2.319322   .3688739    -6.29   0.000    -3.042301   -1.596342
-------------+----------------------------------------------------------------
Aid          |
      gender |   .1271603   .3886634     0.33   0.744    -.6346061    .8889266
      newage |    .009627   .0134621     0.72   0.475    -.0167583    .0360123
       _cons |  -3.850805   .6026895    -6.39   0.000    -5.032055   -2.669556
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .0186638   .2339147     0.08   0.936    -.4398005    .4771281
      newage |   .0132921   .0080827     1.64   0.100    -.0025497    .0291339
       _cons |  -2.873413   .3639679    -7.89   0.000    -3.586777   -2.160049
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.3592947   .1695254    -2.12   0.034    -.6915584   -.0270311
      newage |  -.0066265   .0061659    -1.07   0.283    -.0187115    .0054585
       _cons |  -1.131803   .2526693    -4.48   0.000    -1.627025   -.6365797
------------------------------------------------------------------------------
(egpartic5==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -4.4e+02
  LnL based on restricted model (egpartic5==1 omitted):       -4.4e+02
  Test chi2(3) =  4.967, Pr = 0.1742

224 . smhsiao egpartic5 gender newage if country==2, elim(2) samp(groupeg)

Iteration 0:   log likelihood = -1211.6406
Iteration 1:   log likelihood = -1191.9286
Iteration 2:   log likelihood = -1190.9384
Iteration 3:   log likelihood = -1190.9333
Iteration 4:   log likelihood = -1190.9333

Multinomial logistic regression                 Number of obs   =       1211
                                                LR chi2(8)      =      41.41
                                                Prob > chi2     =     0.0000
Log likelihood = -1190.9333                     Pseudo R2       =     0.0171

------------------------------------------------------------------------------
   egpartic5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.20254   .2565398     4.69   0.000      .699731    1.705348
      newage |  -.0173391   .0084208    -2.06   0.039    -.0338435   -.0008346
       _cons |  -2.319322   .3688739    -6.29   0.000    -3.042301   -1.596342
-------------+----------------------------------------------------------------
Aid          |
      gender |   .1271603   .3886634     0.33   0.744    -.6346061    .8889266
      newage |    .009627   .0134621     0.72   0.475    -.0167583    .0360123
       _cons |  -3.850805   .6026895    -6.39   0.000    -5.032055   -2.669556
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .0186638   .2339147     0.08   0.936    -.4398005    .4771281
      newage |   .0132921   .0080827     1.64   0.100    -.0025497    .0291339
       _cons |  -2.873413   .3639679    -7.89   0.000    -3.586777   -2.160049
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.3592947   .1695254    -2.12   0.034    -.6915584   -.0270311
      newage |  -.0066265   .0061659    -1.07   0.283    -.0187115    .0054585
       _cons |  -1.131803   .2526693    -4.48   0.000    -1.627025   -.6365797
------------------------------------------------------------------------------
(egpartic5==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -5.3e+02
  LnL based on restricted model (egpartic5==2 omitted):       -5.3e+02
  Test chi2(3) =  4.607, Pr = 0.2029

225 . smhsiao egpartic5 gender newage if country==2, elim(3) samp(groupeg)

Iteration 0:   log likelihood = -1211.6406
Iteration 1:   log likelihood = -1191.9286
Iteration 2:   log likelihood = -1190.9384
Iteration 3:   log likelihood = -1190.9333
Iteration 4:   log likelihood = -1190.9333

Multinomial logistic regression                 Number of obs   =       1211
                                                LR chi2(8)      =      41.41
                                                Prob > chi2     =     0.0000
Log likelihood = -1190.9333                     Pseudo R2       =     0.0171
```

```
------------------------------------------------------------------------------
   egpartic5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.20254   .2565398     4.69   0.000      .699731    1.705348
      newage |  -.0173391   .0084208    -2.06   0.039    -.0338435   -.0008346
       _cons |  -2.319322   .3688739    -6.29   0.000    -3.042301   -1.596342
-------------+----------------------------------------------------------------
Aid          |
      gender |   .1271603   .3886634     0.33   0.744    -.6346061    .8889266
      newage |    .009627   .0134621     0.72   0.475    -.0167583    .0360123
       _cons |  -3.850805   .6026895    -6.39   0.000    -5.032055   -2.669556
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .0186638   .2339147     0.08   0.936    -.4398005    .4771281
      newage |   .0132921   .0080827     1.64   0.100    -.0025497    .0291339
       _cons |  -2.873413   .3639679    -7.89   0.000    -3.586777   -2.160049
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.3592947   .1695254    -2.12   0.034    -.6915584   -.0270311
      newage |  -.0066265   .0061659    -1.07   0.283    -.0187115    .0054585
       _cons |  -1.131803   .2526693    -4.48   0.000    -1.627025   -.6365797
------------------------------------------------------------------------------
(egpartic5==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -2.2e+02
  LnL based on restricted model (egpartic5==3 omitted):       -2.2e+02
  Test chi2(3) =  3.400, Pr = 0.3340

226 . smhsiao egpartic5 gender newage if country==2, elim(4) samp(groupeg)

Iteration 0:   log likelihood = -1211.6406
Iteration 1:   log likelihood = -1191.9286
Iteration 2:   log likelihood = -1190.9384
Iteration 3:   log likelihood = -1190.9333
Iteration 4:   log likelihood = -1190.9333

Multinomial logistic regression                 Number of obs   =       1211
                                                LR chi2(8)      =      41.41
                                                Prob > chi2     =     0.0000
Log likelihood = -1190.9333                     Pseudo R2       =     0.0171

------------------------------------------------------------------------------
   egpartic5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.20254   .2565398     4.69   0.000      .699731    1.705348
      newage |  -.0173391   .0084208    -2.06   0.039    -.0338435   -.0008346
       _cons |  -2.319322   .3688739    -6.29   0.000    -3.042301   -1.596342
-------------+----------------------------------------------------------------
Aid          |
      gender |   .1271603   .3886634     0.33   0.744    -.6346061    .8889266
      newage |    .009627   .0134621     0.72   0.475    -.0167583    .0360123
       _cons |  -3.850805   .6026895    -6.39   0.000    -5.032055   -2.669556
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .0186638   .2339147     0.08   0.936    -.4398005    .4771281
      newage |   .0132921   .0080827     1.64   0.100    -.0025497    .0291339
       _cons |  -2.873413   .3639679    -7.89   0.000    -3.586777   -2.160049
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.3592947   .1695254    -2.12   0.034    -.6915584   -.0270311
      newage |  -.0066265   .0061659    -1.07   0.283    -.0187115    .0054585
       _cons |  -1.131803   .2526693    -4.48   0.000    -1.627025   -.6365797
------------------------------------------------------------------------------
(egpartic5==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -4.5e+02
  LnL based on restricted model (egpartic5==4 omitted):       -4.4e+02
  Test chi2(3) =  5.777, Pr = 0.1230

227 . smhsiao egpartic5 gender newage if country==2, elim(5) samp(groupeg)

Iteration 0:   log likelihood = -1211.6406
Iteration 1:   log likelihood = -1191.9286
Iteration 2:   log likelihood = -1190.9384
Iteration 3:   log likelihood = -1190.9333
Iteration 4:   log likelihood = -1190.9333

Multinomial logistic regression                 Number of obs   =       1211
                                                LR chi2(8)      =      41.41
                                                Prob > chi2     =     0.0000
Log likelihood = -1190.9333                     Pseudo R2       =     0.0171
```

```
------------------------------------------------------------------------------
   egpartic5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.20254   .2565398     4.69   0.000      .699731    1.705348
      newage |  -.0173391   .0084208    -2.06   0.039    -.0338435   -.0008346
       _cons |  -2.319322   .3688739    -6.29   0.000    -3.042301   -1.596342
-------------+----------------------------------------------------------------
Aid          |
      gender |   .1271603   .3886634     0.33   0.744    -.6346061    .8889266
      newage |    .009627   .0134621     0.72   0.475    -.0167583    .0360123
       _cons |  -3.850805   .6026895    -6.39   0.000    -5.032055   -2.669556
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .0186638   .2339147     0.08   0.936    -.4398005    .4771281
      newage |   .0132921   .0080827     1.64   0.100    -.0025497    .0291339
       _cons |  -2.873413   .3639679    -7.89   0.000    -3.586777   -2.160049
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.3592947   .1695254    -2.12   0.034    -.6915584   -.0270311
      newage |  -.0066265   .0061659    -1.07   0.283    -.0187115    .0054585
       _cons |  -1.131803   .2526693    -4.48   0.000    -1.627025   -.6365797
------------------------------------------------------------------------------
(egpartic5==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -3.6e+02
  LnL based on restricted model (egpartic5==5 omitted):       -3.6e+02
  Test chi2(3) =  2.475, Pr = 0.4798

228 . * RESULT:  Passed
229 . * Performed Small-Hsiao test on 4-part dependent variable for Tunisian sample
230 . smhsiao tpartic4 gender newage if country==10, elim(1) samp(grouptu)

Iteration 0:   log likelihood = -1030.2143
Iteration 1:   log likelihood = -970.12806
Iteration 2:   log likelihood = -965.22886
Iteration 3:   log likelihood =  -965.1507
Iteration 4:   log likelihood = -965.15065

Multinomial logistic regression                 Number of obs   =       1154
                                                LR chi2(6)      =     130.13
                                                Prob > chi2     =     0.0000
Log likelihood = -965.15065                     Pseudo R2       =     0.0632

------------------------------------------------------------------------------
    tpartic4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   1.702776   .2064353     8.25   0.000      1.29817    2.107382
      newage |  -.0415961   .0065759    -6.33   0.000    -.0544845   -.0287076
       _cons |  -1.072174   .2783453    -3.85   0.000    -1.617721   -.5266276
-------------+----------------------------------------------------------------
Apathetic/~e |
      gender |  -.0293111   .1910885    -0.15   0.878    -.4038377    .3452154
      newage |  -.0079609   .0062287    -1.28   0.201    -.0201688    .0042471
       _cons |  -1.481634    .268002    -5.53   0.000    -2.006909   -.9563601
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .9084897   .3440836     2.64   0.008     .2340984    1.582881
      newage |  -.0343097   .0122034    -2.81   0.005    -.0582279   -.0103914
       _cons |  -2.226751   .4900106    -4.54   0.000    -3.187154   -1.266348
------------------------------------------------------------------------------
(tpartic4==Support is the base outcome)

Small-Hsiao Test of IIA
-----------------------

  LnL for weighted average of coeffients in two half-samples: -2.7e+02
  LnL based on restricted model (tpartic4==1 omitted):        -2.7e+02
  Test chi2(3) =  6.223, Pr = 0.1012

231 . smhsiao tpartic4 gender newage if country==10, elim(2) samp(grouptu)

Iteration 0:   log likelihood = -1030.2143
Iteration 1:   log likelihood = -970.12806
Iteration 2:   log likelihood = -965.22886
Iteration 3:   log likelihood =  -965.1507
Iteration 4:   log likelihood = -965.15065

Multinomial logistic regression                 Number of obs   =       1154
                                                LR chi2(6)      =     130.13
                                                Prob > chi2     =     0.0000
Log likelihood = -965.15065                     Pseudo R2       =     0.0632

------------------------------------------------------------------------------
    tpartic4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   1.702776   .2064353     8.25   0.000      1.29817    2.107382
      newage |  -.0415961   .0065759    -6.33   0.000    -.0544845   -.0287076
       _cons |  -1.072174   .2783453    -3.85   0.000    -1.617721   -.5266276
-------------+----------------------------------------------------------------
Apathetic/~e |
      gender |  -.0293111   .1910885    -0.15   0.878    -.4038377    .3452154
      newage |  -.0079609   .0062287    -1.28   0.201    -.0201688    .0042471
       _cons |  -1.481634    .268002    -5.53   0.000    -2.006909   -.9563601
-------------+----------------------------------------------------------------
Oppose       |
```

```
      gender |   .9084897   .3440836     2.64   0.008     .2340984    1.582881
      newage |  -.0343097   .0122034    -2.81   0.005    -.0582279   -.0103914
       _cons |  -2.226751   .4900106    -4.54   0.000    -3.187154   -1.266348
------------------------------------------------------------------------------
(tpartic4==Support is the base outcome)

Small-Hsiao Test of IIA
----------------------

  LnL for weighted average of coeffients in two half-samples: -1.6e+02
  LnL based on restricted model (tpartic4==2 omitted):        -1.6e+02
  Test chi2(3) =  6.160, Pr = 0.1041

232 . smhsiao tpartic4 gender newage if country==10, elim(3) samp(grouptu)

Iteration 0:   log likelihood = -1030.2143
Iteration 1:   log likelihood = -970.12806
Iteration 2:   log likelihood = -965.22886
Iteration 3:   log likelihood =  -965.1507
Iteration 4:   log likelihood = -965.15065

Multinomial logistic regression                 Number of obs   =       1154
                                                LR chi2(6)      =     130.13
                                                Prob > chi2     =     0.0000
Log likelihood = -965.15065                     Pseudo R2       =     0.0632

------------------------------------------------------------------------------
    tpartic4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   1.702776   .2064353     8.25   0.000      1.29817    2.107382
      newage |  -.0415961   .0065759    -6.33   0.000    -.0544845   -.0287076
       _cons |  -1.072174   .2783453    -3.85   0.000    -1.617721   -.5266276
-------------+----------------------------------------------------------------
Apathetic/~e |
      gender |  -.0293111   .1910885    -0.15   0.878    -.4038377    .3452154
      newage |  -.0079609   .0062287    -1.28   0.201    -.0201688    .0042471
        cons |  -1.481634    .268002    -5.53   0.000    -2.006909   -.9563601
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .9084897   .3440836     2.64   0.008     .2340984    1.582881
      newage |  -.0343097   .0122034    -2.81   0.005    -.0582279   -.0103914
       _cons |  -2.226751   .4900106    -4.54   0.000    -3.187154   -1.266348
------------------------------------------------------------------------------
(tpartic4==Support is the base outcome)

Small-Hsiao Test of IIA
----------------------

  LnL for weighted average of coeffients in two half-samples: -2.9e+02
  LnL based on restricted model (tpartic4==3 omitted):        -2.9e+02
  Test chi2(3) =  3.234, Pr = 0.3569

233 . smhsiao tpartic4 gender newage if country==10, elim(4) samp(grouptu)

Iteration 0:   log likelihood = -1030.2143
Iteration 1:   log likelihood = -970.12806
Iteration 2:   log likelihood = -965.22886
Iteration 3:   log likelihood =  -965.1507
Iteration 4:   log likelihood = -965.15065

Multinomial logistic regression                 Number of obs   =       1154
                                                LR chi2(6)      =     130.13
                                                Prob > chi2     =     0.0000
Log likelihood = -965.15065                     Pseudo R2       =     0.0632

------------------------------------------------------------------------------
    tpartic4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   1.702776   .2064353     8.25   0.000      1.29817    2.107382
      newage |  -.0415961   .0065759    -6.33   0.000    -.0544845   -.0287076
       _cons |  -1.072174   .2783453    -3.85   0.000    -1.617721   -.5266276
-------------+----------------------------------------------------------------
Apathetic/~e |
      gender |  -.0293111   .1910885    -0.15   0.878    -.4038377    .3452154
      newage |  -.0079609   .0062287    -1.28   0.201    -.0201688    .0042471
       _cons |  -1.481634    .268002    -5.53   0.000    -2.006909   -.9563601
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .9084897   .3440836     2.64   0.008     .2340984    1.582881
      newage |  -.0343097   .0122034    -2.81   0.005    -.0582279   -.0103914
       _cons |  -2.226751   .4900106    -4.54   0.000    -3.187154   -1.266348
------------------------------------------------------------------------------
(tpartic4==Support is the base outcome)

Small-Hsiao Test of IIA
----------------------

  LnL for weighted average of coeffients in two half-samples: -4.1e+02
  LnL based on restricted model (tpartic4==4 omitted):        -4.1e+02
  Test chi2(3) =  5.797, Pr = 0.1219
```

```
234 . * RESULT:  Passed
235 .
236 . * ================================================================
237 . * ROBUSTNESS TESTS FOR FIGURE 7.9: PARTICIPATION BY LANGUAGE USE AT
238 . *       HOME (UKRAINE ONLY)
239 . * ================================================================
240 . * Ukraine data
241 . clear

242 . use monitoring20052014engmerged.dta

243 . * Multinomial logit, but examining only the participation portion of the regression
244 . * Orange Revolution
245 . * checkrob command
246 . * checkrob 2 3 ch7fig7_9a.txt: mlogit partic5a gender newage edulevel consumergoods ukrspeakathome if version==0
    > , rrr
247 . *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
248 . *               under the Robustnesstests/Outputfiles directory
249 . *       RESULT:  All patterns of significance stable (with exception of edulevel, which is insignificant when co
    > nsumergoods included but ukrspeakathome not included); all signs stable
250 . * Robust standard errors
251 . mlogit partic5a  gender newage edulevel consumergoods ukrspeakathome  if EVA_vers=="yr2005", rrr vce(robust)

    Iteration 0:   log pseudolikelihood = -2366.4614
    Iteration 1:   log pseudolikelihood = -2037.8904
    Iteration 2:   log pseudolikelihood = -2022.2983
    Iteration 3:   log pseudolikelihood =  -2022.198
    Iteration 4:   log pseudolikelihood =  -2022.198

    Multinomial logistic regression                 Number of obs     =      1,746
                                                    Wald chi2(20)     =     522.35
                                                    Prob > chi2       =     0.0000
    Log pseudolikelihood =  -2022.198               Pseudo R2         =     0.1455

    ------------------------------------------------------------------------------
                 |               Robust
          partic5a |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
    ---------------+--------------------------------------------------------------
    Part_in_rev    |
            gender |   1.494754   .2287692     2.63   0.009     1.107376    2.017644
            newage |   .9723597    .004966    -5.49   0.000     .9626752    .9821418
          edulevel |   1.166069   .0794453     2.26   0.024     1.020307    1.332654
     consumergoods |   1.216015   .0419615     5.67   0.000     1.136491    1.301103
    ukrspeakathome |   3.137825   .5465924     6.56   0.000     2.230252    4.414724
             _cons |   .1432741   .0596102    -4.67   0.000     .0633898    .3238295
    ---------------+--------------------------------------------------------------
    Aid_rev        |
            gender |   1.335445   .3642297     1.06   0.289     .7824724    2.279203
            newage |   .9974216   .0089747    -0.29   0.774     .9799858    1.015168
          edulevel |    1.02673    .131054     0.21   0.836     .7994787    1.318577
     consumergoods |   1.130487   .0714411     1.94   0.052     .9987896     1.27955
    ukrspeakathome |    2.38496    .765427     2.71   0.007     1.271444    4.473681
             _cons |   .0257419   .0206891    -4.55   0.000     .0053274    .1243833
    ---------------+--------------------------------------------------------------
    Support rev    |  (base outcome)
    ---------------+--------------------------------------------------------------
    Apathetic      |
            gender |   .7300962   .1394366    -1.65   0.100     .5021278    1.061563
            newage |   .9727284   .0060914    -4.42   0.000     .9608624     .984741
          edulevel |   1.001542   .0825179     0.02   0.985     .8521926    1.177065
     consumergoods |   .9202741   .0411492    -1.86   0.063     .8430562    1.004565
    ukrspeakathome |   .2301635   .0494259    -6.84   0.000      .151094    .3506111
              cons |   2.407614   .9924625     2.13   0.033     1.073263     5.40092
    ---------------+--------------------------------------------------------------
    Oppose_rev     |
            gender |   .8689785   .1121545    -1.09   0.277     .6747594    1.119101
            newage |   .9985631   .0038718    -0.37   0.711     .9910032    1.006181
          edulevel |   .8959331   .0539518    -1.82   0.068     .7961914     1.00817
     consumergoods |   1.012041   .0292732     0.41   0.679     .9562627    1.071073
    ukrspeakathome |   .0887285   .0136517   -15.74   0.000     .0656293    .1199577
              cons |   2.714424   .8166488     3.32   0.001     1.505183    4.895152
    ------------------------------------------------------------------------------

252 . *       RESULT:  No changes
253 . * Bootstrapped standard errors
254 . mlogit partic5a  gender newage edulevel consumergoods ukrspeakathome if EVA_vers=="yr2005", rrr vce(bootstrap, b
    > ca seed(1234) rep(1000))
    (running mlogit on estimation sample)

    Jackknife replications (1746)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..................................................   250
    ..................................................   300
    ..................................................   350
    ..................................................   400
    ..................................................   450
    ..................................................   500
    ..................................................   550
    ..................................................   600
    ..................................................   650
    ..................................................   700
    ..................................................   750
    ..................................................   800
    ..................................................   850
    ..................................................   900
    ..................................................   950
    ..................................................  1000
```

```
.................................................  1050
.................................................  1100
.................................................  1150
.................................................  1200
.................................................  1250
.................................................  1300
.................................................  1350
.................................................  1400
.................................................  1450
.................................................  1500
.................................................  1550
.................................................  1600
.................................................  1650
.................................................  1700
..............................................

Bootstrap replications (1000)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
.......x..........x...............x..........x....    50
.....x........x...................................   100
x..........x......x................x..........x...   150
......x...........................................   200
........x...........x.....x.......................   250
.x........x.x...........x.........................   300
.....x...x....x.......x.......x...x.........x.....   350
.............................x...............x...x.   400
.....................x.....x......................   450
x..............x...................................   500
..x.............................x.x...............x   550
.........x.....................x........x...x.x...   600
.................x.........x..x......x.x...x..x...   650
.................................................   700
.................x...x.x..........................   750
....................x.xxx...............x.......   800
.....x............xx.............x....x...........   850
x.............................x...........x.......   900
..............x.xx....x............x....x.........   950
..x.......x...........x....xxx.x............x....x  1000

Multinomial logistic regression                 Number of obs     =      1,746
                                                Replications      =        920
                                                Wald chi2(20)     =     506.08
                                                Prob > chi2       =     0.0000
Log likelihood =  -2022.198                     Pseudo R2         =     0.1455

------------------------------------------------------------------------------
               |   Observed   Bootstrap                         Normal-based
      partic5a |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
---------------+--------------------------------------------------------------
Part_in_rev    |
        gender |   1.494754   .2372636     2.53   0.011      1.09511    2.040242
        newage |   .9723597   .0049189    -5.54   0.000     .9627666    .9820485
      edulevel |   1.166069   .0791269     2.26   0.024     1.020854    1.331941
 consumergoods |   1.216015   .0434248     5.48   0.000     1.133814    1.304175
ukrspeakathome |   3.137825   .5338268     6.72   0.000     2.248107    4.379662
         _cons |   .1432741   .0608064    -4.58   0.000      .062361    .3291718
---------------+--------------------------------------------------------------
Aid_rev        |
        gender |   1.335445   .3707684     1.04   0.297     .7749993     2.30118
        newage |   .9974216   .0095836    -0.27   0.788     .9788138    1.016383
      edulevel |    1.02673   .1368136     0.20   0.843     .7907368    1.333154
 consumergoods |   1.130487   .0713146     1.94   0.052     .9990088     1.27927
ukrspeakathome |    2.38496   .7662417     2.71   0.007     1.270593    4.476677
         _cons |   .0257419   .0215167    -4.38   0.000     .0050021    .1324738
---------------+--------------------------------------------------------------
Support_rev    |  (base outcome)
---------------+--------------------------------------------------------------
Apathetic      |
        gender |   .7300962   .1368598    -1.68   0.093     .5056134    1.054245
        newage |   .9727284    .006482    -4.15   0.000     .9601065    .9855162
      edulevel |   1.001542   .0842092     0.02   0.985     .8493767    1.180967
 consumergoods |   .9202741   .0409322    -1.87   0.062     .8434458      1.0041
ukrspeakathome |   .2301635   .0486723    -6.95   0.000     .1520667    .3483684
         _cons |   2.407614   1.006006     2.10   0.035     1.061495    5.460798
---------------+--------------------------------------------------------------
Oppose_rev     |
        gender |   .8689785   .1144416    -1.07   0.286     .6712877    1.124888
        newage |   .9985631   .0040138    -0.36   0.721      .990727    1.006461
      edulevel |   .8959331   .0544642    -1.81   0.071     .7952994    1.009301
 consumergoods |   1.012041   .0282322     0.43   0.668     .9581924    1.068916
ukrspeakathome |   .0887285   .0136978   -15.69   0.000     .0655625      .12008
         _cons |   2.714424   .7899224     3.43   0.001     1.534512    4.801591
------------------------------------------------------------------------------
Note: One or more parameters could not be estimated in 80 bootstrap replicates;
      standard-error estimates include only complete replications.

255 . estat bootstrap, all

Multinomial logistic regression                 Number of obs     =      1,746
                                                Replications      =        920
```

	Observed		Bootstrap			
partic5a	Coef.	Bias	Std. Err.	[95% Conf.	Interval]	
Part in rev						
gender	.40196167	-.0108264	.15873086	.0908549	.7130685	(N)
				.0829748	.6942806	(P)
				.1093158	.7322342	(BC)
				.1093158	.7319939	(BCa)
newage	-.02802943	-.0003857	.0050587	-.0379443	-.0181146	(N)
				-.038454	-.0177953	(P)
				-.0375099	-.0172175	(BC)
				-.0375099	-.01717	(BCa)
edulevel	.15363816	.0006272	.06785781	.0206393	.286637	(N)
				.0194368	.2858852	(P)
				.0188591	.284481	(BC)
				.0188591	.284481	(BCa)
consumergo~s	.19557888	.0018248	.03571077	.1255871	.2655707	(N)
				.131062	.268256	(P)
				.129652	.2653485	(BC)
				.1291154	.2653485	(BCa)
ukrspeakat~e	1.14353	.0101353	.17012636	.8100885	1.476972	(N)
				.8424817	1.489121	(P)
				.8348711	1.48033	(BC)
				.8305748	1.478559	(BCa)
_cons	-1.9429956	-.0109926	.42440578	-2.774816	-1.111176	(N)
				-2.775203	-1.116468	(P)
				-2.727793	-1.097025	(BC)
				-2.718888	-1.092416	(BCa)
Aid_rev						
gender	.28926451	-.0038331	.27763659	-.2548932	.8334222	(N)
				-.2420941	.8843529	(P)
				-.2278477	.8958694	(BC)
				-.2278477	.8958694	(BCa)
newage	-.00258171	-.000071	.00960839	-.0214138	.0162504	(N)
				-.0214467	.0164111	(P)
				-.0203486	.0172811	(BC)
				-.0208995	.0172127	(BCa)
edulevel	.02637869	-.0044835	.13325186	-.2347902	.2875475	(N)
				-.2478753	.2648178	(P)
				-.2464911	.2649392	(BC)
				-.2251712	.2711249	(BCa)
consumergo~s	.12264874	.0039097	.06308304	-.0009917	.2462892	(N)
				.0009324	.2532486	(P)
				-.0229465	.23848	(BC)
				-.023226	.2383105	(BCa)
ukrspeakat~e	.86918233	.0310086	.32128074	.2394837	1.498881	(N)
				.2979958	1.6081	(P)
				.2803587	1.570032	(BC)
				.2415448	1.524813	(BCa)
_cons	-3.6596361	-.0892267	.83586521	-5.297902	-2.02137	(N)
				-5.442281	-2.215934	(P)
				-5.261242	-2.104564	(BC)
				-5.236734	-2.058749	(BCa)
Support_rev						
o.gender	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.newage	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.edulevel	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.consumer~s	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.ukrspeak~e	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o._cons	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
Apathetic						
gender	-.31457899	-.001022	.18745446	-.681983	.052825	(N)
				-.7177691	.0172729	(P)
				-.7281956	.0108285	(BC)
				-.7249762	.0118898	(BCa)
newage	-.02765036	-.0002304	.00666374	-.0407111	-.0145897	(N)
				-.0402094	-.015177	(P)
				-.0400176	-.0149664	(BC)
				-.0399795	-.0148605	(BCa)
edulevel	.00154049	-.0003915	.08407957	-.1632524	.1663334	(N)
				-.176421	.1649018	(P)
				-.179889	.1576923	(BC)
				-.1778354	.1586361	(BCa)
consumergo~s	-.08308375	.000201	.04447829	-.1702596	.0040921	(N)
				-.1701275	.005405	(P)
				-.1746446	.0037515	(BC)
				-.172544	.0038579	(BCa)
ukrspeakat~e	-1.4689653	-.0085648	.21146841	-1.883436	-1.054495	(N)
				-1.887025	-1.055548	(P)

```
                |                                     -1.884171  -1.055174  (BC)
                |                                     -1.874396  -1.048148 (BCa)
         _cons  |    .8786364  -.0130011   .41784364    .0596779   1.697595   (N)
                |                                      .0306628   1.664669   (P)
                |                                      .0908428   1.685249  (BC)
                |                                      .0908428   1.685249 (BCa)
-------------+------------------------------------------------------------------
Oppose_rev      |
        gender  |  -.14043684  -.0080709   .13169664   -.3985575   .1176838   (N)
                |                                     -.4085007   .1095344   (P)
                |                                     -.3983273   .1205014  (BC)
                |                                     -.3983273   .1205014 (BCa)
        newage  |  -.00143798  -.0000463   .00401962   -.0093163   .0064403   (N)
                |                                     -.0095958   .0066557   (P)
                |                                     -.0096395    .006643  (BC)
                |                                     -.0096395    .006643 (BCa)
     edulevel   |  -.10988952  -.0011787   .06079047   -.2290367   .0092576   (N)
                |                                     -.2327182   .0065567   (P)
                |                                     -.2304654   .0135791  (BC)
                |                                     -.2304654   .0135791 (BCa)
consumergo~s    |   .01196906   .0006686   .02789631   -.0427067   .0666448   (N)
                |                                     -.0423976   .0684877   (P)
                |                                     -.0422868   .0691159  (BC)
                |                                     -.0422868   .0691159 (BCa)
ukrspeakat~e    |  -2.4221744  -.0066063   .15437919   -2.724752  -2.119597   (N)
                |                                     -2.733954  -2.135409   (P)
                |                                     -2.731022  -2.131747  (BC)
                |                                     -2.726097  -2.128074 (BCa)
         _cons  |   .99857992  -.0073422   .29100916    .4282124   1.568947   (N)
                |                                      .447303   1.575896   (P)
                |                                     .4616867   1.608318  (BC)
                |                                     .4616867   1.608318 (BCa)
-------------------------------------------------------------------------------
(N)    normal confidence interval
(P)    percentile confidence interval
(BC)   bias-corrected confidence interval
(BCa)  bias-corrected and accelerated confidence interval
Note: One or more parameters could not be estimated in 80 bootstrap replicates;
      standard-error estimates include only complete replications.

256 . *       RESULT:  No changes
257 . * Testing for multicollinearity
258 . collin  gender newage edulevel consumergoods ukrspeakathome if EVA_vers=="yr2005"
    (obs=1,799)

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.02    1.01    0.9793      0.0207
    newage      1.18    1.09    0.8449      0.1551
  edulevel      1.22    1.10    0.8220      0.1780
consumergoods      1.12    1.06    0.8956      0.1044
ukrspeakathome      1.02    1.01    0.9766      0.0234
----------------------------------------------------
  Mean VIF      1.11

                         Cond
        Eigenval         Index
---------------------------------
    1     4.5314          1.0000
    2     0.6090          2.7278
    3     0.4629          3.1288
    4     0.2309          4.4303
    5     0.1362          5.7676
    6     0.0297         12.3614
---------------------------------
 Condition Number        12.3614
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.7534

259 . *       RESULT:  tolerances are all > .5
260 .
261 . * Euromaidan Revolution
262 . * checkrob command
263 . * checkrob 2 3 ch7fig7_9b.txt: mlogit partic5a gender newage edulevel consumergoods ukrspeakathome if version==1
    > , rrr
264 . *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
265 . *               under the Robustnesstests/Outputfiles directory
266 . *       RESULT:  All patterns of significance stable (with exception of edulevel, which is marginally significan
    > t at the .10 level when consumergoods included but ukrspeakathome not included); all signs stable
267 . * Robust standard errors
268 . mlogit partic5a  gender newage edulevel consumergoods ukrspeakathome  if EVA_vers=="yr2014", rrr vce(robust)

Iteration 0:   log pseudolikelihood = -2414.9662
Iteration 1:   log pseudolikelihood =  -2223.672
Iteration 2:   log pseudolikelihood = -2213.3862
Iteration 3:   log pseudolikelihood = -2213.3155
Iteration 4:   log pseudolikelihood = -2213.3155

Multinomial logistic regression                 Number of obs     =      1,736
                                                Wald chi2(20)     =     300.72
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -2213.3155               Pseudo R2         =     0.0835
```

```
------------------------------------------------------------------------------
             |               Robust
     partic5a |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
Part in rev   |
       gender |   1.588197     .30218     2.43   0.015     1.093829    2.305999
       newage |   .9859188   .0059749    -2.34   0.019     .9742775    .9976992
     edulevel |   1.175512   .0919963     2.07   0.039      1.00835    1.370385
 consumergoods |   1.140657   .0487029     3.08   0.002     1.049086     1.24022
ukrspeakathome |   2.829424   .5987728     4.91   0.000     1.868803    4.283831
        _cons |   .0425023   .0228782    -5.87   0.000     .0147988    .1220671
--------------+---------------------------------------------------------------
Aid rev       |
       gender |    1.00039   .1932923     0.00   0.998     .6850189    1.460951
       newage |   .9961001   .0060223    -0.65   0.518     .9843662    1.007974
     edulevel |   1.241997   .1005497     2.68   0.007     1.059763    1.455567
 consumergoods |   1.179995   .0506818     3.85   0.000     1.084727     1.28363
ukrspeakathome |   2.612066   .5625329     4.46   0.000     1.712655    3.983808
        _cons |   .0236864   .0124005    -7.15   0.000     .0084893     .066089
--------------+---------------------------------------------------------------
Support rev   |  (base outcome)
--------------+---------------------------------------------------------------
Apathetic     |
       gender |   .6359465   .1024448    -2.81   0.005     .4637674     .872049
       newage |    .994295   .0048947    -1.16   0.245     .9847477    1.003935
     edulevel |   .9912426   .0668353    -0.13   0.896     .8685344    1.131287
 consumergoods |   .8444038   .0348567    -4.10   0.000     .7787764    .9155615
ukrspeakathome |   .3980307   .0659659    -5.56   0.000     .2876381     .550791
        _cons |   1.746346   .7105631     1.37   0.171     .7866627    3.876787
--------------+---------------------------------------------------------------
Oppose_rev    |
       gender |   .8542415   .1064877    -1.26   0.206     .6690706     1.09066
       newage |   1.001084    .003877     0.28   0.780     .9935137    1.008712
     edulevel |   .9822968   .0530486    -0.33   0.741      .883637    1.091972
 consumergoods |    .894853   .0249942    -3.98   0.000      .847182    .9452065
ukrspeakathome |   .1712323   .0243831   -12.39   0.000     .1295319    .2263575
        _cons |   2.503317   .8113615     2.83   0.005     1.326261    4.725009
------------------------------------------------------------------------------
```

```
269 . *       RESULT:  No changes
270 . * Bootstrapped standard errors
271 . mlogit partic5a  gender newage edulevel consumergoods ukrspeakathome if EVA_vers=="yr2014", rrr vce(bootstrap, b
    > ca seed(1234) rep(1000))
    (running mlogit on estimation sample)

    Jackknife replications (1736)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..................................................   250
    ..................................................   300
    ..................................................   350
    ..................................................   400
    ..................................................   450
    ..................................................   500
    ..................................................   550
    ..................................................   600
    ..................................................   650
    ..................................................   700
    ..................................................   750
    ..................................................   800
    ..................................................   850
    ..................................................   900
    ..................................................   950
    ..................................................  1000
    ..................................................  1050
    ..................................................  1100
    ..................................................  1150
    ..................................................  1200
    ..................................................  1250
    ..................................................  1300
    ..................................................  1350
    ..................................................  1400
    ..................................................  1450
    ..................................................  1500
    ..................................................  1550
    ..................................................  1600
    ..................................................  1650
    ..................................................  1700
    ..................................

    Bootstrap replications (1000)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..................................................   250
    ..................................................   300
    ..................................................   350
    ..................................................   400
    ..................................................   450
    ..................................................   500
    ..................................................   550
    ..................................................   600
    ..................................................   650
    ..................................................   700
    ..................................................   750
    ..................................................   800
```

```
.................................................   850
.................................................   900
.................................................   950
.................................................  1000

Multinomial logistic regression                 Number of obs     =      1,736
                                                Replications      =      1,000
                                                Wald chi2(20)     =     301.14
                                                Prob > chi2       =     0.0000
Log likelihood = -2213.3155                     Pseudo R2         =     0.0835

------------------------------------------------------------------------------
             |   Observed   Bootstrap                         Normal-based
     partic5a |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
Part_in_rev  |
      gender |   1.588197   .3171116     2.32   0.021     1.073858    2.348885
      newage |   .9859188   .0058116    -2.41   0.016     .9745938    .9973753
    edulevel |   1.175512   .0930561     2.04   0.041      1.00657    1.372808
 consumergoods |   1.140657   .0500676     3.00   0.003     1.046628    1.243132
ukrspeakathome |   2.829424   .6078946     4.84   0.000     1.857032    4.310985
       _cons |   .0425023   .0227894    -5.89   0.000     .0148595    .1215685
--------------+---------------------------------------------------------------
Aid_rev      |
      gender |    1.00039   .2013812     0.00   0.998     .6742484    1.484289
      newage |   .9961001   .0061222    -0.64   0.525     .9841729    1.008172
    edulevel |   1.241997   .1036407     2.60   0.009     1.054607    1.462684
 consumergoods |   1.179995   .0508398     3.84   0.000     1.084442    1.283967
ukrspeakathome |   2.612066   .5720128     4.38   0.000     1.700516    4.012247
         cons |   .0236864   .0121932    -7.27   0.000     .0086362    .0649649
--------------+---------------------------------------------------------------
Support_rev  |  (base outcome)
--------------+---------------------------------------------------------------
Apathetic    |
      gender |   .6359465    .100385    -2.87   0.004      .466721    .8665304
      newage |    .994295   .0048329    -1.18   0.239     .9848677    1.003813
    edulevel |   .9912426   .0639909    -0.14   0.892     .8734329    1.124943
 consumergoods |   .8444038   .0346478    -4.12   0.000     .7791543    .9151175
ukrspeakathome |   .3980307   .0671652    -5.46   0.000     .2859445    .5540533
       _cons |   1.746346   .7042639     1.38   0.167     .7922439    3.849476
--------------+---------------------------------------------------------------
Oppose_rev   |
      gender |   .8542415   .1075264    -1.25   0.211      .667478    1.093262
      newage |   1.001084   .0039016     0.28   0.781     .9934659     1.00876
    edulevel |   .9822968   .0542244    -0.32   0.746     .8815663    1.094537
 consumergoods |    .894853    .025641    -3.88   0.000     .8459827    .9465465
ukrspeakathome |   .1712323   .0246767   -12.25   0.000     .1290973    .2271194
       _cons |   2.503317   .8097065     2.84   0.005      1.32798    4.718891
------------------------------------------------------------------------------

272 . estat bootstrap, all

Multinomial logistic regression                 Number of obs     =      1,736
                                                Replications      =       1000

------------------------------------------------------------------------------
             |    Observed               Bootstrap
     partic5a |       Coef.       Bias    Std. Err.  [95% Conf. Interval]
--------------+---------------------------------------------------------------
Part_in_rev  |
      gender |   .46259926   .0125483   .19966767    .0712578   .8539407   (N)
             |                                      .0624163    .853881   (P)
             |                                      .0432137   .8324343  (BC)
             |                                      .0432137   .8300015 (BCa)
      newage |  -.01418128    -.00005   .00589459   -.0257345  -.0026281   (N)
             |                                     -.0258457  -.0036141   (P)
             |                                      -.025714  -.0035033  (BC)
             |                                      -.025714  -.0035033 (BCa)
    edulevel |   .16170352   .0022973   .07916218    .0065485   .3168585   (N)
             |                                     .0051737   .3225724   (P)
             |                                       .00162   .3192818  (BC)
             |                                     .0026459   .3198164 (BCa)
consumergo~s |   .13160401   .0002987   .04389371    .0455739   .2176341   (N)
             |                                     .0527393   .2159378   (P)
             |                                     .0535155   .2164992  (BC)
             |                                     .0529947   .2164992 (BCa)
ukrspeakat~e |    1.040073   .0248709   .21484752    .6189796   1.461166   (N)
             |                                     .6447136   1.505183   (P)
             |                                     .5806105   1.431146  (BC)
             |                                     .5660886   1.422189 (BCa)
       _cons |  -3.1581977   -.045318   .53619348   -4.209118  -2.107278   (N)
             |                                    -4.271231  -2.172226   (P)
             |                                     -4.21645  -2.149698  (BC)
             |                                    -4.214783  -2.144964 (BCa)
--------------+---------------------------------------------------------------
Aid_rev      |
      gender |   .00038949   .0008273   .20130278   -.3941567   .3949357   (N)
             |                                     -.3694107   .4077576   (P)
             |                                     -.3799089   .4019543  (BC)
             |                                     -.3799089   .4042594 (BCa)
      newage |  -.00390748  -.0002555   .00614613   -.0159537   .0081387   (N)
             |                                     -.0164449    .008201   (P)
             |                                     -.0153317   .0100286  (BC)
             |                                     -.0153317   .0100286 (BCa)
    edulevel |    .2167206  -.0015873   .08344681    .0531679   .3802733   (N)
             |                                     .0442958   .3832345   (P)
             |                                     .0488926   .3862936  (BC)
             |                                     .0496201   .3862936 (BCa)
consumergo~s |   .16551015   .0030271   .04308473    .0810656   .2499547   (N)
             |                                     .0847318   .2569325   (P)
             |                                     .0824684   .2469933  (BC)
```

				.0824684	.2469933	(BCa)
ukrspeakat~e	.96014151	.0121115	.21898863	.5309317	1.389351	(N)
				.5535776	1.408099	(P)
				.5443037	1.395118	(BC)
				.5321507	1.381844	(BCa)
_cons	-3.7428536	-.0319135	.51477718	-4.751798	-2.733909	(N)
				-4.85567	-2.787609	(P)
				-4.780946	-2.748298	(BC)
				-4.761055	-2.741876	(BCa)
Support_rev						
o.gender	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.newage	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.edulevel	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.consumer~s	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.ukrspeak~e	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o._cons	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
Apathetic						
gender	-.45264087	.0072347	.15785127	-.7620237	-.1432581	(N)
				-.729678	-.1449805	(P)
				-.7854658	-.174944	(BC)
				-.7728905	-.1732875	(BCa)
newage	-.00572134	-.000062	.00486062	-.015248	.0038053	(N)
				-.0152027	.0036417	(P)
				-.0152167	.0036385	(BC)
				-.0152167	.0036385	(BCa)
edulevel	-.00879601	-.0026672	.06455629	-.135324	.117732	(N)
				-.1367725	.1146548	(P)
				-.1368092	.1144041	(BC)
				-.1367359	.1149055	(BCa)
consumergo~s	-.16912452	-.0001618	.04103223	-.2495462	-.0887028	(N)
				-.2508811	-.0922715	(P)
				-.2505625	-.0921239	(BC)
				-.2492754	-.0905275	(BCa)
ukrspeakat~e	-.92122603	.0014623	.16874372	-1.251958	-.5904944	(N)
				-1.24992	-.5544633	(P)
				-1.26476	-.5661688	(BC)
				-1.253972	-.5578416	(BCa)
_cons	.55752555	.0024525	.40327859	-.232886	1.347937	(N)
				-.2549542	1.360713	(P)
				-.2452652	1.360896	(BC)
				-.2452652	1.360896	(BCa)
Oppose rev						
gender	-.1575413	-.0001306	.12587353	-.4042489	.0891663	(N)
				-.3962265	.08548	(P)
				-.3958696	.0856911	(BC)
				-.3958696	.0856911	(BCa)
newage	.00108319	-.0000949	.00389741	-.0065556	.008722	(N)
				-.0067625	.0088915	(P)
				-.0064505	.0093349	(BC)
				-.0064505	.0093349	(BCa)
edulevel	-.01786181	-.0016848	.05520167	-.1260551	.0903315	(N)
				-.1286494	.0923547	(P)
				-.127054	.0965186	(BC)
				-.1264877	.0965186	(BCa)
consumergo~s	-.11109579	-.0008672	.02865389	-.1672564	-.0549352	(N)
				-.1665946	-.0544569	(P)
				-.1647217	-.0526514	(BC)
				-.1647217	-.0524477	(BCa)
ukrspeakat~e	-1.7647339	-.0058063	.14411218	-2.047189	-1.482279	(N)
				-2.080943	-1.496366	(P)
				-2.089967	-1.502187	(BC)
				-2.080948	-1.496449	(BCa)
_cons	.91761649	.0148683	.32345351	.2836593	1.551574	(N)
				.3169215	1.552799	(P)
				.2429066	1.491716	(BC)
				.2429066	1.491716	(BCa)

(N) normal confidence interval
(P) percentile confidence interval
(BC) bias-corrected confidence interval
(BCa) bias-corrected and accelerated confidence interval

```
273 . *       RESULT:  No changes
274 . * Testing for multicollinearity
275 . collin  gender newage edulevel consumergoods ukrspeakathome if EVA_vers=="yr2014"
(obs=1,783)

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.02    1.01    0.9772      0.0228
    newage      1.07    1.03    0.9369      0.0631
  edulevel      1.06    1.03    0.9453      0.0547
consumergoods      1.06    1.03    0.9390      0.0610
ukrspeakathome      1.02    1.01    0.9832      0.0168
----------------------------------------------------
  Mean VIF      1.05

                         Cond
        Eigenval         Index
-----------------------------------
    1     4.6469          1.0000
    2     0.5497          2.9075
    3     0.4988          3.0522
    4     0.1585          5.4153
    5     0.1189          6.2504
    6     0.0272         13.0707
-----------------------------------
 Condition Number        13.0707
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.8898

276 . *       RESULT:  tolerances are all > .5
277 .
278 .
279 . * ================================================================
280 . * ROBUSTNESS TESTS FOR FIGURE 7.10: RELIGIOUS PRACTICE IN TUNISIAN
281 . *               AND EGYPTIANS REVOLUTIONS
282 . * ================================================================
283 . clear

284 . use fullarabbarom2.dta

285 . * Egyptian Revolution
286 . * checkrob command
287 . * checkrob 1 3 ch7fig7_10a.txt: mlogit egpartic5 gender newage religscale christian if country==2 [pw=WT], rrr b
> (3)
288 . *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
289 . *               under the Robustnesstests/Outputfiles directory
290 . *       RESULT:  All patterns of significance stable (with exception of religscale, which is significant at the
> .10 level when newage is excluded); all signs stable; christian is statistically insignificant
291 . * Robust standard errors
292 . mlogit egpartic5 gender newage  religscale christian if country==2 [pw=WT], rrr b(3) vce(robust)

Iteration 0:   log pseudolikelihood = -1206.3169
Iteration 1:   log pseudolikelihood = -1164.3115
Iteration 2:   log pseudolikelihood =  -1160.798
Iteration 3:   log pseudolikelihood = -1160.6491
Iteration 4:   log pseudolikelihood = -1160.6194
Iteration 5:   log pseudolikelihood =  -1160.613
Iteration 6:   log pseudolikelihood = -1160.6116
Iteration 7:   log pseudolikelihood = -1160.6112
Iteration 8:   log pseudolikelihood = -1160.6112
Iteration 9:   log pseudolikelihood = -1160.6111

Multinomial logistic regression                 Number of obs     =      1,207
                                                Wald chi2(16)     =    3240.62
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -1160.6111               Pseudo R2         =     0.0379

------------------------------------------------------------------------------
             |               Robust
   egpartic5 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   3.269492   .8559003     4.53   0.000     1.957264    5.461489
      newage |   .9805408   .0077838    -2.48   0.013     .9654029    .9959161
  religscale |   1.085508   .0440135     2.02   0.043     1.002582    1.175293
   christian |   .7347861   .4658889    -0.49   0.627     .2120602    2.546025
        cons |    .051202   .0246313    -6.18   0.000     .0199437    .1314522
-------------+----------------------------------------------------------------
Aid          |
      gender |   1.172399   .4834881     0.39   0.700     .5224525    2.630899
      newage |   1.004481   .0122646     0.37   0.714     .9807279    1.028809
  religscale |   1.163786   .0717756     2.46   0.014     1.031278    1.313319
   christian |   1.19e-06   3.27e-07   -49.81   0.000     6.98e-07    2.04e-06
       _cons |   .0066187   .0048953    -6.78   0.000     .0015532    .0282052
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   1.027114   .2449547     0.11   0.911     .6436013    1.639156
      newage |   1.014772   .0087056     1.71   0.087      .997852    1.031979
  religscale |   .8819621   .0441585    -2.51   0.012     .7995241    .9729001
   christian |   2.896803   1.056756     2.92   0.004     1.417098    5.921584
        cons |   .1326261   .0617442    -4.34   0.000     .0532539    .3302984
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .6653437   .1156928    -2.34   0.019     .4731899    .9355276
      newage |   .9960126   .0063974    -0.62   0.534     .9835525    1.008631
  religscale |   .9030543   .0265095    -3.47   0.001      .852563    .9565358
```

```
   christian |   1.938829   .6144969     2.09   0.037     1.041736    3.608455
       _cons |   .6570219   .2305478    -1.20   0.231     .3302895    1.306968
-------------------------------------------------------------------------------

293 . *       RESULT:  No changes
294 . * Bootstrapped standard errors
295 . mlogit egpartic5 gender newage  religscale christian if country==2, rrr b(3) vce(bootstrap, bca seed(1234) rep(1
    > 000))
(running mlogit on estimation sample)

Jackknife replications (1207)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
..................................................    50
..................................................   100
..................................................   150
..................................................   200
..................................................   250
..................................................   300
..................................................   350
..................................................   400
..................................................   450
..................................................   500
..................................................   550
..................................................   600
..................................................   650
..................................................   700
..................................................   750
..................................................   800
..................................................   850
..................................................   900
..................................................   950
..................................................  1000
..................................................  1050
..................................................  1100
..................................................  1150
..................................................  1200
.......

Bootstrap replications (1000)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
..................................................    50
..................................................   100
..................................................   150
..................................................   200
..................................................   250
..................................................   300
..................................................   350
..................................................   400
..................................................   450
..................................................   500
..................................................   550
..................................................   600
..................................................   650
..................................................   700
..................................................   750
..................................................   800
..................................................   850
..................................................   900
..................................................   950
..................................................  1000

Multinomial logistic regression                 Number of obs     =      1,207
                                                Replications      =      1,000
                                                Wald chi2(16)     =     616.59
                                                Prob > chi2       =     0.0000
Log likelihood =  -1163.597                     Pseudo R2         =     0.0372

------------------------------------------------------------------------------
             |   Observed   Bootstrap                         Normal-based
   egpartic5 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   3.276317      .8761     4.44   0.000     1.939864    5.533508
      newage |   .9799497   .0076618    -2.59   0.010     .9650473    .9950821
  religscale |   1.101639   .0452448     2.36   0.018     1.016436    1.193984
   christian |   .7548841    2.43627    -0.09   0.931     .0013513    421.6959
       _cons |   .0471507   .0224364    -6.42   0.000     .0185544    .1198196
-------------+----------------------------------------------------------------
Aid          |
      gender |   1.063264   .4578707     0.14   0.887     .4571834    2.472817
      newage |   1.006594   .0122719     0.54   0.590      .982827    1.030937
  religscale |   1.151146   .0692271     2.34   0.019     1.023155    1.295149
   christian |   1.20e-06   8.00e-07   -20.44   0.000     3.25e-07    4.44e-06
       _cons |   .0071774   .0053375    -6.64   0.000      .001671    .0308292
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   1.052822   .2568263     0.21   0.833     .6526979    1.698235
      newage |   1.016039    .008321     1.94   0.052     .9998605     1.03248
  religscale |   .8822678   .0424502    -2.60   0.009     .8028694    .9695181
   christian |   2.756682   1.033663     2.70   0.007     1.321949    5.748554
       _cons |   .1267989   .0590042    -4.44   0.000     .0509354    .3156539
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .7035996   .1231032    -2.01   0.045     .4993415    .9914104
      newage |   .9960031    .006374    -0.63   0.531     .9835884    1.008574
  religscale |    .909012   .0269079    -3.22   0.001     .8577741    .9633105
   christian |   1.909991   .6281665     1.97   0.049       1.0025    3.638969
       _cons |    .603558   .2059028    -1.48   0.139     .3092666    1.177891
------------------------------------------------------------------------------
```

```
296 . estat bootstrap, all

Multinomial logistic regression                 Number of obs     =      1,207
                                                Replications      =       1000

------------------------------------------------------------------------------
             |   Observed               Bootstrap
   egpartic5 |      Coef.       Bias    Std. Err.  [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |     1.18672   .0211679   .26740392    .6626179   1.710822   (N)
             |                                      .7304776   1.770466   (P)
             |                                      .7197775    1.74563  (BC)
             |                                      .7117531   1.718125 (BCa)
      newage |  -.02025407  -.0001948   .00781854   -.0355781    -.00493   (N)
             |                                     -.0350711  -.0052077   (P)
             |                                     -.0345789  -.0042542  (BC)
             |                                      -.034352   -.004134 (BCa)
  religscale |   .09679888   .0032403   .04107044    .0163023   .1772955   (N)
             |                                      .0195334   .1769414   (P)
             |                                      .0169438   .1738851  (BC)
             |                                      .0166836   .1722409 (BCa)
    christian |  -.28119101  -.8648789   3.2273428   -6.606667   6.044285   (N)
             |                                     -14.09426   .6535716   (P)
             |                                       -13.778   .8023461  (BC)
             |                                     -1.652397   .9660931 (BCa)
       _cons |  -3.0544074  -.0557322   .47584535   -3.987047  -2.121768   (N)
             |                                     -4.096598  -2.223011   (P)
             |                                     -3.944181  -2.092823  (BC)
             |                                     -3.906196  -2.084509 (BCa)
-------------+----------------------------------------------------------------
Aid          |
      gender |   .06134364  -.0386573   .43062742   -.7826706   .9053579   (N)
             |                                      -.800024   .8636607   (P)
             |                                     -.7358775   .9591364  (BC)
             |                                      -.735907   .9533877 (BCa)
      newage |   .00657276   .0008597   .01219151   -.0173221   .0304677   (N)
             |                                      -.016854   .0302402   (P)
             |                                     -.0183141   .0291623  (BC)
             |                                     -.0183141   .0291623 (BCa)
  religscale |     .140758   .0027908   .06013753    .0228906   .2586254   (N)
             |                                      .0302379   .2617436   (P)
             |                                       .027765    .260822  (BC)
             |                                      .0313615   .2620792 (BCa)
    christian |  -13.633133   .4463811    .666943   -14.94032  -12.32595   (N)
             |                                     -14.38838  -12.10826   (P)
             |                                     -15.94105  -12.56048  (BC)
             |                                     -17.63887  -12.59044 (BCa)
       _cons |  -4.9368247  -.1037028   .74365248   -6.394357  -3.479293   (N)
             |                                     -6.692125   -3.66992   (P)
             |                                     -6.548615  -3.580139  (BC)
             |                                     -6.462977  -3.519711 (BCa)
-------------+----------------------------------------------------------------
Support      |
    o.gender |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
    o.newage |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
o.religscale |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
 o.christian |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
     o._cons |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
-------------+----------------------------------------------------------------
Apathetic    |
      gender |   .05147427   .0046259   .24394081   -.4266409   .5295895   (N)
             |                                     -.4146469   .5349025   (P)
             |                                     -.4314664    .515938  (BC)
             |                                     -.4314664    .515938 (BCa)
      newage |   .01591191   .0003217   .00818965   -.0001395   .0319633   (N)
             |                                     -.0003683   .0321908   (P)
             |                                     -.0012595   .0311173  (BC)
             |                                     -.0012595   .0311173 (BCa)
  religscale |  -.12525969  -.0028919   .04811493   -.2195632  -.0309562   (N)
             |                                      -.220962   -.030622   (P)
             |                                     -.2191221  -.0281439  (BC)
             |                                     -.2182673  -.0256828 (BCa)
    christian |   1.0140277  -.0257823   .37496639    .2791071   1.748948   (N)
             |                                      .1771447   1.673011   (P)
             |                                      .1617188   1.651573  (BC)
             |                                      .1875377   1.688572 (BCa)
       _cons |   -2.065153  -.0219397   .46533711   -2.977197  -1.153109   (N)
             |                                     -3.043877   -1.17669   (P)
             |                                     -3.010498  -1.115439  (BC)
             |                                     -2.988989  -1.086951 (BCa)
-------------+----------------------------------------------------------------
Oppose       |
      gender |  -.35154589   .0015282   .17496198   -.6944651  -.0086267   (N)
             |                                     -.7005061  -.0094338   (P)
```

```
             |                                     -.6985246    -.00721  (BC)
             |                                     -.6971155   .0143699 (BCa)
      newage |  -.00400491  -.0002161   .00639953   -.0165478   .0085379   (N)
             |                                      -.016892   .0075432   (P)
             |                                     -.0167101   .0075745  (BC)
             |                                     -.0166665   .0076938 (BCa)
  religscale |  -.09539698  -.0007129   .02960131   -.1534145  -.0373795   (N)
             |                                     -.1517445  -.0371904   (P)
             |                                      -.148869  -.0351706  (BC)
             |                                     -.1486836  -.0341654 (BCa)
   christian |   .64709877  -.0170121   .32888446    .0024971    1.2917   (N)
             |                                     -.0343794   1.231759   (P)
             |                                     -.0027464   1.258675  (BC)
             |                                      .0249073    1.32194 (BCa)
       _cons |  -.50491312   .0058456   .34114835   -1.173552   .1637254   (N)
             |                                     -1.151367   .1920935   (P)
             |                                     -1.152142    .183278  (BC)
             |                                     -1.150591    .200909 (BCa)
-------------------------------------------------------------------------------
(N)    normal confidence interval
(P)    percentile confidence interval
(BC)   bias-corrected confidence interval
(BCa)  bias-corrected and accelerated confidence interval

297 . *       RESULT:  No changes
298 . * Testing for multicollinearity
299 . collin gender newage  religscale christian if country==2
(obs=1,215)

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.02    1.01    0.9821      0.0179
    newage      1.03    1.01    0.9737      0.0263
religscale      1.02    1.01    0.9791      0.0209
 christian      1.00    1.00    0.9956      0.0044
----------------------------------------------------
  Mean VIF      1.02

                         Cond
        Eigenval         Index
---------------------------------
    1     3.5283          1.0000
    2     0.9281          1.9497
    3     0.4043          2.9542
    4     0.0967          6.0414
    5     0.0426          9.1025
---------------------------------
 Condition Number         9.1025
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.9648

300 . *       RESULT:  tolerances are all > .5
301 . * Tunisian Revolution
302 . * checkrob command
303 . * checkrob 1 2 ch7fig7_10b.txt: mlogit tpartic4 gender newage religscale if country==10 [pw=WT], rrr b(2)
304 . *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
305 . *             under the Robustnesstests/Outputfiles directory
306 . *       RESULT:  All patterns of significance stable (with exception of religscale, which is insignificant when
    > newage is excluded); all signs stable
307 . * Robust standard errors
308 . mlogit tpartic4 gender newage religscale if country==10 [pw=WT], rrr b(2) vce(robust)

Iteration 0:   log pseudolikelihood = -1029.9264
Iteration 1:   log pseudolikelihood = -960.65476
Iteration 2:   log pseudolikelihood = -953.95135
Iteration 3:   log pseudolikelihood = -953.90587
Iteration 4:   log pseudolikelihood = -953.90585

Multinomial logistic regression                 Number of obs     =      1,154
                                                Wald chi2(9)      =     114.99
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -953.90585               Pseudo R2         =     0.0738

------------------------------------------------------------------------------
             |               Robust
    tpartic4 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   5.912811     1.2345     8.51   0.000     3.927144    8.902484
      newage |   .9545834   .0070129    -6.33   0.000     .9409368    .9684279
  religscale |   1.068971   .0281114     2.54   0.011     1.015269    1.125513
       _cons |   .2517243   .0775138    -4.48   0.000     .1376619    .4602954
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic_in~e |
      gender |   .8699838   .1700151    -0.71   0.476     .5931528    1.276015
      newage |   .9970193   .0061606    -0.48   0.629     .9850176    1.009167
  religscale |   .9321919   .0276631    -2.37   0.018     .8795198    .9880184
       _cons |   .2892598   .0832926    -4.31   0.000     .1645068    .5086187
-------------+----------------------------------------------------------------
Oppose       |
      gender |   2.542877   .8968518     2.65   0.008     1.273837    5.076181
      newage |   .9629738   .0151869    -2.39   0.017     .9336634    .9932044
  religscale |   1.054082   .0425569     1.30   0.192     .9738869    1.140881
       _cons |   .0865768   .0445868    -4.75   0.000     .0315526    .2375569
------------------------------------------------------------------------------
```

```
. *       RESULT:  No changes
. * Bootstrapped standard errors
. mlogit tpartic4 gender newage religscale if country==10, rrr b(2) vce(bootstrap, bca seed(1234) rep(1000))
(running mlogit on estimation sample)

Jackknife replications (1154)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
..................................................    50
..................................................   100
..................................................   150
..................................................   200
..................................................   250
..................................................   300
..................................................   350
..................................................   400
..................................................   450
..................................................   500
..................................................   550
..................................................   600
..................................................   650
..................................................   700
..................................................   750
..................................................   800
..................................................   850
..................................................   900
..................................................   950
..................................................  1000
..................................................  1050
..................................................  1100
..................................................  1150
....

Bootstrap replications (1000)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
..................................................    50
..................................................   100
..................................................   150
..................................................   200
..................................................   250
..................................................   300
..................................................   350
..................................................   400
..................................................   450
..................................................   500
..................................................   550
..................................................   600
..................................................   650
..................................................   700
..................................................   750
..................................................   800
..................................................   850
..................................................   900
..................................................   950
..................................................  1000

Multinomial logistic regression                 Number of obs     =      1,154
                                                Replications      =      1,000
                                                Wald chi2(9)      =     117.89
                                                Prob > chi2       =     0.0000
Log likelihood = -956.77825                     Pseudo R2         =     0.0713

------------------------------------------------------------------------------
             |   Observed   Bootstrap                         Normal-based
    tpartic4 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   5.966734   1.221275     8.73   0.000     3.994958    8.911711
      newage |   .9539144   .0070217    -6.41   0.000     .9402509    .9677763
  religscale |   1.072232   .0282398     2.65   0.008     1.018287    1.129034
       _cons |   .2588284   .0786849    -4.45   0.000     .1426406     .469657
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic_in~e |
      gender |   .9152039   .1877988    -0.43   0.666      .612142    1.368307
      newage |   .9952082   .0060675    -0.79   0.431      .983387    1.007172
  religscale |   .9344097    .029924    -2.12   0.034     .8775624    .9949394
       _cons |    .303383   .0875846    -4.13   0.000     .1722881    .5342289
-------------+----------------------------------------------------------------
Oppose       |
      gender |   2.661793   .9746368     2.67   0.008     1.298673    5.455675
      newage |    .962003   .0153629    -2.43   0.015     .9323585      .99259
  religscale |   1.065572   .0411815     1.64   0.100      .987839    1.149422
       _cons |   .0822896   .0446811    -4.60   0.000       .02839      .23852
------------------------------------------------------------------------------

. estat bootstrap, all

Multinomial logistic regression                 Number of obs     =      1,154
                                                Replications      =       1000
```

tpartic4	Observed Coef.	Bias	Bootstrap Std. Err.	[95% Conf.	Interval]	
Participate						
gender	1.7861997	.010162	.20468058	1.385033	2.187366	(N)
				1.394177	2.191912	(P)
				1.381645	2.185386	(BC)
				1.375594	2.179392	(BCa)
newage	-.04718139	-.0006052	.00736091	-.0616085	-.0327543	(N)
				-.0624924	-.0340256	(P)
				-.062361	-.0336923	(BC)
				-.0620374	-.0333521	(BCa)
religscale	.06974237	-.0008981	.02633744	.0181219	.1213628	(N)
				.0176236	.1212779	(P)
				.0195116	.1222183	(BC)
				.0195116	.1222183	(BCa)
_cons	-1.3515899	.0117175	.30400418	-1.947427	-.7557527	(N)
				-1.982628	-.7261665	(P)
				-1.999676	-.7879394	(BC)
				-1.99821	-.7742804	(BCa)
Support						
o.gender	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.newage	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o.religscale	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
o._cons	0	0	0	0	0	(N)
				0	0	(P)
				.	.	(BC)
				.	.	(BCa)
Apathetic_~e						
gender	-.08860843	-.0031466	.20519892	-.4907909	.3135741	(N)
				-.4883816	.3217658	(P)
				-.4850285	.3232598	(BC)
				-.4850285	.3273071	(BCa)
newage	-.00480329	-.000074	.00609669	-.0167526	.007146	(N)
				-.0175002	.0060188	(P)
				-.0174345	.0061143	(BC)
				-.0172565	.0062301	(BCa)
religscale	-.06784034	.000377	.03202453	-.1306073	-.0050734	(N)
				-.1332277	-.0062738	(P)
				-.1365792	-.0094605	(BC)
				-.1364515	-.0094605	(BCa)
_cons	-1.1927591	-.0145606	.28869313	-1.758587	-.626931	(N)
				-1.758411	-.6350217	(P)
				-1.717086	-.5780597	(BC)
				-1.711634	-.5740051	(BCa)
Oppose						
gender	.97899986	.0295766	.36615803	.2613433	1.696656	(N)
				.3467185	1.746312	(P)
				.2821623	1.689702	(BC)
				.2343286	1.671399	(BCa)
newage	-.03873773	-.0015133	.01596975	-.0700379	-.0074376	(N)
				-.0736836	-.0113332	(P)
				-.0726914	-.0098401	(BC)
				-.0706859	-.0074327	(BCa)
religscale	.06351179	.001664	.03864733	-.0122356	.1392592	(N)
				-.0084905	.141124	(P)
				-.0104349	.1403961	(BC)
				-.0104349	.1406061	(BCa)
_cons	-2.497511	-.0201179	.54297367	-3.56172	-1.433302	(N)
				-3.554765	-1.45531	(P)
				-3.533617	-1.436916	(BC)
				-3.526499	-1.427512	(BCa)

(N) normal confidence interval
(P) percentile confidence interval
(BC) bias-corrected confidence interval
(BCa) bias-corrected and accelerated confidence interval

```
313 . *       RESULT:  No changes
314 . * Testing for multicollinearity
315 . collin gender newage  religscale if country==10
(obs=1,196)

  Collinearity Diagnostics

                     SQRT                  R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.01    1.01    0.9859      0.0141
    newage      1.05    1.02    0.9549      0.0451
religscale      1.05    1.02    0.9547      0.0453
----------------------------------------------------
  Mean VIF      1.04
```

```
                         Cond
        Eigenval         Index
----------------------------------
    1     3.3215          1.0000
    2     0.4532          2.7072
    3     0.1611          4.5410
    4     0.0642          7.1906
----------------------------------
 Condition Number         7.1906
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.9494
```

```
316 . *       RESULT:  tolerances are all > .5
317 .
318 . * ============================================================================
319 . * ROBUSTNESS TESTS FOR FIGURE 7.13:  STRONG TIES AND USE OF INTERNET DURING REVOLUTIONS--ARAB REVS ONLY
320 . * ============================================================================
321 . * Egypt
322 . * checkrob command
323 . * checkrob 2 3 ch7fig7_13a.txt:  mlogit egpartic5 newage newage2  gender frpart intnetinrev if country==2 [pw=WT
    > ], rrr
324 . *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
325 . *             under the Robustnesstests/Outputfiles directory
326 . *       RESULT:  All patterns of significance stable (with exception of newage and newage2, which are variously
    > insignificant); all signs remain stable
327 . mlogit egpartic5 newage newage2  gender frpart intnetinrev if country==2 [pw=WT], rrr vce(robust)

Iteration 0:   log pseudolikelihood = -1209.7412
Iteration 1:   log pseudolikelihood = -1138.9935
Iteration 2:   log pseudolikelihood = -1101.4208
Iteration 3:   log pseudolikelihood = -1080.3293
Iteration 4:   log pseudolikelihood = -1076.2209
Iteration 5:   log pseudolikelihood = -1076.1504
Iteration 6:   log pseudolikelihood = -1076.1484
Iteration 7:   log pseudolikelihood = -1076.1482
Iteration 8:   log pseudolikelihood = -1076.1482
Iteration 9:   log pseudolikelihood = -1076.1481

Multinomial logistic regression                 Number of obs     =      1,211
                                                Wald chi2(20)     =    7029.76
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -1076.1481               Pseudo R2         =     0.1104

------------------------------------------------------------------------------
             |               Robust
   egpartic5 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      newage |   1.121803   .0661813     1.95   0.051     .9993085    1.259313
     newage2 |   .9984993   .0006908    -2.17   0.030     .9971463    .9998542
      gender |   3.501862   .9930255     4.42   0.000     2.008737    6.104848
      frpart |   15.46449   5.372795     7.88   0.000     7.827165    30.55391
 intnetinrev |   3.419836   1.188068     3.54   0.000     1.730987    6.756425
       _cons |   .0012671   .0015944    -5.30   0.000     .0001076    .0149249
-------------+----------------------------------------------------------------
Aid          |
      newage |   1.170405   .1154785     1.59   0.111     .9646101    1.420104
     newage2 |    .998346   .0011279    -1.47   0.143     .9961379    1.000559
      gender |    1.36068   .5361149     0.78   0.434     .6286057    2.945329
      frpart |   12.65518   6.437759     4.99   0.000     4.669358    34.29882
 intnetinrev |   3.717223   1.926613     2.53   0.011     1.346004    10.26576
       _cons |   .0002163   .0004669    -3.91   0.000     3.15e-06    .0148701
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic    |
      newage |   .9967523   .0451392    -0.07   0.943     .9120938    1.089269
     newage2 |   1.000163   .0004975     0.33   0.743     .9991883    1.001138
      gender |   .9942442   .2377362    -0.02   0.981     .6222431    1.588642
      frpart |   .7174359   .2216641    -1.07   0.282     .3915523    1.314548
 intnetinrev |   5.91e-07   1.66e-07   -51.04   0.000     3.41e-07    1.03e-06
       _cons |   .0893793   .0867342    -2.49   0.013     .0133422    .5987526
-------------+----------------------------------------------------------------
Oppose       |
      newage |   .9572783   .0319895    -1.31   0.191     .8965892    1.022075
     newage2 |   1.000443   .0003855     1.15   0.251     .9996872    1.001198
      gender |   .6406941   .1111577    -2.57   0.010     .4560064    .9001824
      frpart |   .6228262   .1429774    -2.06   0.039     .3971579    .9767211
 intnetinrev |   1.197397   .5822236     0.37   0.711     .4616883     3.10547
       cons |   .7274125   .4936649    -0.47   0.639     .1923558    2.750782
------------------------------------------------------------------------------
```

```
328 . *       RESULT:  No changes, except newage marginally significant at the .10 level
329 . * Bootstrapped standard errors
330 . mlogit egpartic5 c.newage##c.newage  gender frpart intnetinrev if country==2, rrr vce(bootstrap, bca seed(1234)
    > rep(1000))
    (running mlogit on estimation sample)

    Jackknife replications (1211)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    .................................................    50
    .................................................   100
    .................................................   150
    .................................................   200
    .................................................   250
    .................................................   300
    .................................................   350
    .................................................   400
    .................................................   450
    .................................................   500
    .................................................   550
```

```
.................................................   600
.................................................   650
.................................................   700
.................................................   750
.................................................   800
.................................................   850
.................................................   900
.................................................   950
.................................................  1000
.................................................  1050
.................................................  1100
.................................................  1150
.................................................  1200
...........

Bootstrap replications (1000)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
.................................................    50
.................................................   100
.................................................   150
.................................................   200
.................................................   250
.................................................   300
.................................................   350
.................................................   400
.................................................   450
.................................................   500
.................................................   550
.................................................   600
.................................................   650
.................................................   700
.................................................   750
.................................................   800
.................................................   850
.................................................   900
.................................................   950
.................................................  1000
```

Multinomial logistic regression — Number of obs = 1,211; Replications = 1,000; Wald chi2(20) = 282.98; Prob > chi2 = 0.0000; Log likelihood = -1073.9511; Pseudo R2 = 0.1136

egpartic5	Observed RRR	Bootstrap Std. Err.	z	P>|z|	Normal-based [95% Conf.	Interval]
Participate						
newage	1.139514	.0706114	2.11	0.035	1.009192	1.286665
c.newage#c.newage	.9983464	.0007273	-2.27	0.023	.996922	.9997728
gender	3.565495	1.029371	4.40	0.000	2.024766	6.278629
frpart	17.83013	6.201548	8.28	0.000	9.017699	35.2544
intnetinrev	3.875754	1.350963	3.89	0.000	1.957288	7.674632
_cons	.0007722	.0009988	-5.54	0.000	.0000612	.0097424
Aid						
newage	1.178375	.1345194	1.44	0.150	.9421354	1.473852
c.newage#c.newage	.9983179	.0013171	-1.28	0.202	.9957397	1.000903
gender	1.257258	.5065527	0.57	0.570	.5707859	2.769337
frpart	12.59985	13.26241	2.41	0.016	1.601046	99.15779
intnetinrev	3.72654	2.69375	1.82	0.069	.9036707	15.36744
_cons	.0001794	.0004912	-3.15	0.002	8.36e-07	.0384559
Support	(base outcome)					
Apathetic						
newage	.9947896	.0484003	-0.11	0.914	.9043095	1.094323
c.newage#c.newage	1.000191	.0005364	0.36	0.721	.9991405	1.001243
gender	1.021234	.2331756	0.09	0.927	.6527889	1.597636
frpart	.7362015	.2260388	-1.00	0.319	.4033193	1.34383
intnetinrev	6.37e-08	9.11e-08	-11.58	0.000	3.85e-09	1.05e-06
_cons	.0924654	.096568	-2.28	0.023	.0119402	.7160578
Oppose						
newage	.9548926	.0328558	-1.34	0.180	.8926197	1.02151
c.newage#c.newage	1.000466	.0003976	1.17	0.241	.9996869	1.001245
gender	.6809709	.1180631	-2.22	0.027	.4847879	.9565448
frpart	.6319432	.1536059	-1.89	0.059	.3924436	1.017604
intnetinrev	1.121848	1.165336	0.11	0.912	.1464657	8.592743
_cons	.7471496	.51981	-0.42	0.675	.191076	2.921521

```
331 . estat bootstrap, all

Multinomial logistic regression                 Number of obs     =      1,211
                                                Replications      =       1000

------------------------------------------------------------------------------
             |   Observed               Bootstrap
   egpartic5 |      Coef.       Bias    Std. Err.  [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      newage |   .13060196   .0090312   .06196622    .0091504   .2520535   (N)
             |                                       .0206214    .272198   (P)
             |                                       .0157333   .2574097  (BC)
             |                                       .0136251   .2551802 (BCa)
c.newage#c~e |  -.00165499  -.0001144   .00072846   -.0030828  -.0002272   (N)
             |                                      -.0033707  -.0004291   (P)
             |                                      -.0030441  -.0002733  (BC)
             |                                      -.0030116  -.0002217 (BCa)
      gender |   1.2713028   .0235883   .28870365    .7054541   1.837152   (N)
             |                                       .7437147   1.884429   (P)
             |                                       .7093437   1.859282  (BC)
             |                                       .7025352    1.83666 (BCa)
      frpart |   2.8808898   .0572723   .34781281    2.199189    3.56259   (N)
             |                                       2.287059   3.646091   (P)
             |                                       2.205519   3.531358  (BC)
             |                                       2.185434   3.495799 (BCa)
 intnetinrev |   1.3547402   .0179314   .34856769    .6715601    2.03792   (N)
             |                                       .7033423   2.058034   (P)
             |                                       .6815503   2.032182  (BC)
             |                                       .6740817   2.027622 (BCa)
       _cons |  -7.1662693  -.2558883   1.2933893   -9.701266  -4.631273   (N)
             |                                      -10.08379  -4.965273   (P)
             |                                      -9.616004  -4.540407  (BC)
             |                                      -9.484677  -4.492416 (BCa)
-------------+----------------------------------------------------------------
Aid          |
      newage |   .16413667   .0266242   .11415666   -.0596063   .3878796   (N)
             |                                       .0119244   .4528504   (P)
             |                                      -.0057536   .4106863  (BC)
             |                                      -.0230299   .3824703 (BCa)
c.newage#c~e |  -.00168357  -.0003211   .00131935   -.0042694   .0009023   (N)
             |                                      -.0049659   .0001221   (P)
             |                                      -.0043857   .0003055  (BC)
             |                                      -.0041385   .0005207 (BCa)
      gender |   .22893342   .0117996    .4029026   -.5607412   1.018608   (N)
             |                                      -.5534472   1.001222   (P)
             |                                      -.6002102   .9595647  (BC)
             |                                      -.6002102   .9595647 (BCa)
      frpart |   2.5336848   .1622808   1.0525845    .4706571   4.596712   (N)
             |                                       1.736028   4.060634   (P)
             |                                        1.69978   3.878996  (BC)
             |                                        1.57338   3.744862 (BCa)
 intnetinrev |   1.3154802  -.0381853   .72285536   -.1012902   2.732251   (N)
             |                                         .15553   2.345525   (P)
             |                                       .2105167    2.35761  (BC)
             |                                       .2752273   2.402133 (BCa)
       _cons |  -8.6261549  -.7491962   2.7387802   -13.99407  -3.258244   (N)
             |                                      -15.52869  -5.280943   (P)
             |                                       -14.3163   -4.93779  (BC)
             |                                      -13.44109  -4.566325 (BCa)
-------------+----------------------------------------------------------------
Support      |
    o.newage |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
co.newage#~e |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
    o.gender |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
    o.frpart |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
o.intnetin~v |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
     o._cons |           0          0           0           0          0   (N)
             |                                               0          0   (P)
             |                                               .          .  (BC)
             |                                               .          . (BCa)
-------------+----------------------------------------------------------------
Apathetic    |
      newage |  -.00522399   .0057418   .04865378   -.1005837   .0901357   (N)
             |                                      -.0933225   .1004844   (P)
             |                                      -.1004646   .0900873  (BC)
             |                                       -.100968   .0860922 (BCa)
c.newage#c~e |   .00019118  -.0000637   .00053628   -.0008599   .0012423   (N)
             |                                      -.0010171   .0011676   (P)
             |                                      -.0008749    .001214  (BC)
             |                                      -.0008302   .0012536 (BCa)
      gender |   .02101179  -.0051955   .22832726   -.4265014    .468525   (N)
             |                                       -.462684   .4578038   (P)
             |                                      -.4145994   .4841665  (BC)
             |                                      -.4145994   .4841665 (BCa)
      frpart |  -.30625147  -.0322992   .30703384   -.9080267   .2955238   (N)
```

```
             |                                     -1.004467   .2323049   (P)
             |                                     -.9276787   .2761122  (BC)
             |                                     -.8581694   .3025149 (BCa)
 intnetinrev |  -16.569862   2.588215   1.4310734   -19.37471  -13.76501   (N)
             |                                     -17.93122  -12.53982   (P)
             |                                     -29.04928  -15.57993  (BC)
             |                                     -29.04928  -15.57993 (BCa)
       _cons |  -2.3809212  -.1357625   1.0443697   -4.427848  -.3339943   (N)
             |                                     -4.650143  -.5977584   (P)
             |                                     -4.522143  -.4323478  (BC)
             |                                     -4.397315   -.343747 (BCa)
-------------+------------------------------------------------------------------
Oppose       |
      newage |  -.04615639   -.000947    .0344079   -.1135946   .0212819   (N)
             |                                       -.11234   .0254999   (P)
             |                                     -.1095551   .0288818  (BC)
             |                                     -.1104351   .0279206 (BCa)
c.newage#c~e |   .00046569   2.94e-06   .00039737   -.0003131   .0012445   (N)
             |                                     -.0003308   .0012352   (P)
             |                                     -.0003615   .0012278  (BC)
             |                                     -.0003334    .001233 (BCa)
      gender |  -.38423576  -.0044552   .17337465   -.7240438  -.0444277   (N)
             |                                     -.7397557  -.0684508   (P)
             |                                     -.7435818  -.0694129  (BC)
             |                                     -.7407575  -.0689678 (BCa)
      frpart |  -.45895577  -.0204416   .24306914   -.9353625    .017451   (N)
             |                                     -1.007997  -.0305584   (P)
             |                                      -.974281  -.0175693  (BC)
             |                                     -.9392021  -.0059205 (BCa)
 intnetinrev |   .11497707  -.1067117   1.0387645   -1.920964   2.150918   (N)
             |                                     -1.146845    .919425   (P)
             |                                      -1.05677   .9462944  (BC)
             |                                      -.975266   .9736804 (BCa)
       _cons |  -.29148981   .0185603   .69572415   -1.655084   1.072104   (N)
             |                                     -1.712779   1.101117   (P)
             |                                     -1.752279   1.043105  (BC)
             |                                     -1.742636   1.068701 (BCa)
-------------------------------------------------------------------------------
(N)    normal confidence interval
(P)    percentile confidence interval
(BC)   bias-corrected confidence interval
(BCa)  bias-corrected and accelerated confidence interval

. *       RESULT:  No changes
. * Testing for collinearity
. collin gender newage frpart intnetinrev if country==2
(obs=1,219)

  Collinearity Diagnostics

                        SQRT                   R-
  Variable      VIF     VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.03    1.01    0.9743      0.0257
    newage      1.03    1.02    0.9694      0.0306
    frpart      1.11    1.05    0.9007      0.0993
intnetinrev      1.14    1.07    0.8784      0.1216
----------------------------------------------------
  Mean VIF      1.08

                          Cond
        Eigenval          Index
---------------------------------
    1     3.0495          1.0000
    2     0.9904          1.7547
    3     0.5589          2.3358
    4     0.3462          2.9678
    5     0.0550          7.4483
---------------------------------
 Condition Number         7.4483
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.8655

. *       RESULT:  tolerances are all > .5
. * Tunisia
. * checkrob command
. * checkrob 1 3 ch7fig7_13b.txt: mlogit tpartic4 gender newage  frpart intnetinrev if country==10 [pw=WT], rrr
. *       Reworked results can be found in the Excel file checkrob.results.chapter7.xlsx,
. *              under the Robustnesstests/Outputfiles directory
. *       RESULT:  All patterns of significance stable and significant; all signs stable
. * Robust standard errors
. mlogit tpartic4 gender newage  frpart intnetinrev if country==10 [pw=WT], rrr vce(robust)

Iteration 0:   log pseudolikelihood = -1029.9264
Iteration 1:   log pseudolikelihood = -899.27655
Iteration 2:   log pseudolikelihood = -874.15002
Iteration 3:   log pseudolikelihood = -873.09758
Iteration 4:   log pseudolikelihood = -873.09505
Iteration 5:   log pseudolikelihood = -873.09505

Multinomial logistic regression                 Number of obs     =      1,154
                                                Wald chi2(12)     =     223.44
                                                Prob > chi2       =     0.0000
Log pseudolikelihood = -873.09505               Pseudo R2         =     0.1523
```

```
------------------------------------------------------------------------------
             |               Robust
    tpartic4 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |   4.565247   .9980975     6.95   0.000     2.974175    7.007482
      newage |   .9820751   .0075047    -2.37   0.018     .9674758    .9968948
      frpart |   10.01048   2.609023     8.84   0.000     6.006302     16.6841
   intnetinrev |   2.089132   .4840554     3.18   0.001     1.326603    3.289961
       _cons |   .0279145   .0116148    -8.60   0.000     .0123497     .063096
-------------+----------------------------------------------------------------
Support      |  (base outcome)
-------------+----------------------------------------------------------------
Apathetic_inactive |
      gender |   .9713182   .1892357    -0.15   0.881     .6630211     1.42297
      newage |   .9895968   .0067349    -1.54   0.124     .9764842    1.002885
      frpart |   .4305664    .107997    -3.36   0.001     .2633524     .703952
   intnetinrev |   .8983032   .2872027    -0.34   0.737     .4800422    1.680995
       _cons |   .3161211   .0934705    -3.89   0.000     .1770804    .5643341
-------------+----------------------------------------------------------------
Oppose       |
      gender |   2.290775   .8004207     2.37   0.018     1.154951    4.543611
      newage |   .9771539    .014274    -1.58   0.114     .9495742    1.005535
      frpart |   1.195066   .4225461     0.50   0.614     .5976236    2.389769
   intnetinrev |   2.268755   .8638864     2.15   0.031      1.07565    4.785246
       _cons |   .0555092   .0325186    -4.94   0.000     .0176081    .1749924
------------------------------------------------------------------------------
```

```
344 . *       RESULT:  No changes
345 . * Bootstrapped standard errors
346 . mlogit tpartic4 gender newage  frpart intnetinrev if country==10, rrr vce(bootstrap, bca seed(1234) rep(1000))
    (running mlogit on estimation sample)

    Jackknife replications (1154)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..................................................   250
    ..................................................   300
    ..................................................   350
    ..................................................   400
    ..................................................   450
    ..................................................   500
    ..................................................   550
    ..................................................   600
    ..................................................   650
    ..................................................   700
    ..................................................   750
    ..................................................   800
    ..................................................   850
    ..................................................   900
    ..................................................   950
    ..................................................  1000
    ..................................................  1050
    ..................................................  1100
    ..................................................  1150
    ....

    Bootstrap replications (1000)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..................................................   250
    ..................................................   300
    ..................................................   350
    ..................................................   400
    ..................................................   450
    ..................................................   500
    ..................................................   550
    ..................................................   600
    ..................................................   650
    ..................................................   700
    ..................................................   750
    ..................................................   800
    ..................................................   850
    ..................................................   900
    ..................................................   950
    ..................................................  1000

    Multinomial logistic regression                 Number of obs     =      1,154
                                                    Replications      =      1,000
                                                    Wald chi2(12)     =     221.37
                                                    Prob > chi2       =     0.0000
    Log likelihood = -876.40278                     Pseudo R2         =     0.1493

    ------------------------------------------------------------------------------
                 |   Observed   Bootstrap                         Normal-based
        tpartic4 |        RRR   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    Participate  |
          gender |   4.544665   .9796139     7.02   0.000     2.978676    6.933946
          newage |   .9815852   .0076299    -2.39   0.017     .9667442     .996654
          frpart |   9.757791   2.549552     8.72   0.000     5.847179    16.28383
       intnetinrev |   2.112812   .4771567     3.31   0.001     1.357144    3.289243
           _cons |   .0298529   .0122907    -8.53   0.000     .0133211     .066901
    -------------+----------------------------------------------------------------
    Support      |  (base outcome)
```

```
-------------------+----------------------------------------------------------------
Apathetic_inactive |
            gender |   1.026586   .2099975     0.13   0.898     .6875022    1.532909
            newage |   .9873577    .006611    -1.90   0.057     .9744849      1.0004
            frpart |   .4307868   .1108562    -3.27   0.001     .2601471     .713355
       intnetinrev |   .8880006    .301359    -0.35   0.726     .4566072    1.726966
             _cons |     .34056   .0996107    -3.68   0.000     .1919663    .6041743
-------------------+----------------------------------------------------------------
Oppose             |
            gender |   2.365988   .8654359     2.35   0.019     1.155203    4.845814
            newage |   .9764304   .0147731    -1.58   0.115     .9479007    1.005819
            frpart |   1.221756   .4784188     0.51   0.609     .5671117    2.632089
       intnetinrev |   2.176165   .9087332     1.86   0.063     .9599375    4.933334
             _cons |   .0568559   .0350446    -4.65   0.000      .016987    .1902985
------------------------------------------------------------------------------
```

347 . estat bootstrap, all

Multinomial logistic regression Number of obs = 1,154
Replications = 1000

```
------------------------------------------------------------------------------
             |    Observed               Bootstrap
    tpartic4 |       Coef.       Bias    Std. Err.  [95% Conf. Interval]
-------------+----------------------------------------------------------------
Participate  |
      gender |    1.513954   .0144698   .21555251    1.091479   1.936429   (N)
             |                                      1.135431   1.955477   (P)
             |                                      1.120451   1.945172  (BC)
             |                                      1.113764   1.936042 (BCa)
      newage |   -.0185865  -.0004607   .00777304   -.0338214  -.0033516   (N)
             |                                     -.0340812  -.0043282   (P)
             |                                     -.0332741  -.0033905  (BC)
             |                                     -.0332741  -.0033905 (BCa)
      frpart |    2.278066   .0158277   .26128369    1.765959   2.790173   (N)
             |                                      1.809004   2.832017   (P)
             |                                      1.782443   2.798056  (BC)
             |                                      1.769227   2.772295 (BCa)
 intnetinrev |   .74801982   .0127183   .22583963    .3053823   1.190657   (N)
             |                                       .313613   1.177877   (P)
             |                                      .2508208   1.143375  (BC)
             |                                      .2508208   1.142159 (BCa)
       _cons |   -3.511474  -.0200185   .41170753   -4.318406  -2.704542   (N)
             |                                     -4.373159  -2.759495   (P)
             |                                     -4.367049  -2.744133  (BC)
             |                                     -4.336818  -2.709872 (BCa)
-------------+----------------------------------------------------------------
Support      |
    o.gender |           0          0           0           0          0   (N)
             |                                                0          0   (P)
             |                                                .          .  (BC)
             |                                                .          . (BCa)
    o.newage |           0          0           0           0          0   (N)
             |                                                0          0   (P)
             |                                                .          .  (BC)
             |                                                .          . (BCa)
    o.frpart |           0          0           0           0          0   (N)
             |                                                0          0   (P)
             |                                                .          .  (BC)
             |                                                .          . (BCa)
o.intnetin~v |           0          0           0           0          0   (N)
             |                                                0          0   (P)
             |                                                .          .  (BC)
             |                                                .          . (BCa)
     o._cons |           0          0           0           0          0   (N)
             |                                                0          0   (P)
             |                                                .          .  (BC)
             |                                                .          . (BCa)
-------------+----------------------------------------------------------------
Apathetic_~e |
      gender |   .02623841  -.0015721   .20455919   -.3746902    .427167   (N)
             |                                     -.3786194   .4382618   (P)
             |                                     -.3696083   .4553282  (BC)
             |                                     -.3685881   .4610455 (BCa)
      newage |  -.01272293  -.0000981   .00669569   -.0258462   .0004004   (N)
             |                                     -.0266776  -.0003586   (P)
             |                                     -.0263749  -.0002064  (BC)
             |                                     -.0263171  -.0001247 (BCa)
      frpart |    -.842142  -.0220731   .25733425   -1.346508  -.3377761   (N)
             |                                      -1.40242  -.3950607   (P)
             |                                     -1.355803  -.3682234  (BC)
             |                                     -1.348432  -.3531865 (BCa)
 intnetinrev |  -.11878281  -.0356878   .33936795   -.7839318   .5463661   (N)
             |                                     -.9060855   .4822722   (P)
             |                                      -.834905   .5307557  (BC)
             |                                      -.789025   .5473208 (BCa)
       _cons |   -1.077164  -.0080341   .29249079   -1.650435  -.5038926   (N)
             |                                     -1.669156  -.5292653   (P)
             |                                     -1.667666  -.5247121  (BC)
             |                                     -1.657491   -.524559 (BCa)
-------------+----------------------------------------------------------------
Oppose       |
      gender |   .86119559   .0299672   .36578207    .1442759   1.578115   (N)
             |                                      .2285678   1.644644   (P)
             |                                      .1819401   1.589069  (BC)
             |                                       .148332   1.568586 (BCa)
      newage |  -.02385176  -.0010112   .01512975   -.0535055    .005802   (N)
             |                                     -.0570255   .0040794   (P)
             |                                     -.0575167   .0037957  (BC)
             |                                     -.0557056   .0048264 (BCa)
      frpart |   .20028938   .0227566   .39158288    -.567199   .9677777   (N)
```

```
             |                                       -.58104   .9767493   (P)
             |                                     -.6377853   .8811821  (BC)
             |                                     -.6291618   .8944513 (BCa)
 intnetinrev |   .77756401  -.0049667   .41758476   -.0408871   1.596015   (N)
             |                                     -.1247819   1.572097   (P)
             |                                     -.1280612   1.567699  (BC)
             |                                     -.1280612   1.567699 (BCa)
       _cons |  -2.8672347  -.0522307   .61637527   -4.075308  -1.659161   (N)
             |                                      -4.20939  -1.707206   (P)
             |                                     -4.108427  -1.589887  (BC)
             |                                     -4.030815  -1.570155 (BCa)
-------------------------------------------------------------------------------
(N)    normal confidence interval
(P)    percentile confidence interval
(BC)   bias-corrected confidence interval
(BCa)  bias-corrected and accelerated confidence interval

. *       RESULT:  No changes
. * Testing for collinearity
. collin gender newage frpart intnetinrev if country==10
(obs=1,196)

  Collinearity Diagnostics

                       SQRT                  R-
  Variable      VIF    VIF    Tolerance    Squared
----------------------------------------------------
    gender      1.04   1.02    0.9643      0.0357
    newage      1.19   1.09    0.8393      0.1607
    frpart      1.17   1.08    0.8526      0.1474
intnetinrev      1.29    1.13    0.7774      0.2226
----------------------------------------------------
  Mean VIF      1.17

                        Cond
        Eigenval        Index
---------------------------------
    1     3.3026          1.0000
    2     0.8544          1.9661
    3     0.4169          2.8146
    4     0.3750          2.9676
    5     0.0512          8.0346
---------------------------------
 Condition Number         8.0346
 Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
 Det(correlation matrix)    0.7196

. *       RESULT:  tolerances are all > .5
.
.
. log close
      name:  <unnamed>
       log:  C:\Users\mbeissin\Desktop\Stata files for book\Robustnesstestfiles\Logfiles\robustnesstestschapter7.l
> og
  log type:  text
 closed on:  26 Jan 2022, 14:06:24
-------------------------------------------------------------------------------------------------------------------------------
```