```
                                                                                                  ___  ____  ____  ____  ____(R)
                                                                                                 /__    /   ____/   /   ____/
                                                                                                ___/   /   /___/   /   /___/
                                                                                                  Statistics/Data Analysis

                                                                                                     User: Mark R. Beissinger
                                                                                                 Project: The Revolutionary City
```

```
 1 . *       switchcopula from http://www.stata-journal.com/software/sj13-3
       name:  <unnamed>
        log:  C:\Users\mbeissin\Desktop\Stata files for book\Robustnesstestfiles\Logfiles\robustnesstestschapter8.l
  > og
    log type:  text
   opened on:  26 Jan 2022, 14:48:42

 2 . * ==========================================================================
 3 . * ROBUSTNESS CHECKS FOR STATISTICAL RESULTS APPEARING IN CHAPTER 8
 4 . * STATA
 5 . * Robustness checks for results reported in Chapter 8
 6 . * Author: Mark R. Beissinger
 7 . * Date:  January 2022
 8 . * Princeton, NJ
 9 . * ============================================================================
10 . * BEFORE RUNNING, YOU MUST SET THE DEFAULT PATH FOR WHERE THE DATA
11 . *   FILES RESIDE
12 . * ============================================================================
13 . * Before running, download the following packages for STATA:
14 . *       switchcopula from http://www.stata-journal.com/software/sj13-3
15 . *       collin from https://stats.oarc.ucla.edu/stata/ado/analysis/
16 . * ==========================================================================
17 . * The following datafiles are used in this file:
18 . *   Data set of revolutionary episodes--revolutionaryeps.dta
19 . * ============================================================================
20 . * The following files are produced by these robustness tests:
21 . *       Robustnesstestfiles\Logfiles\robustnesstestschapter8.log
22 . *
23 . *       The following graphs were produced by these tests:
24 . *               Robustnesstestfiles\Logfiles\robch8_scat1.pdf
25 . *               Robustnesstestfiles\Logfiles\robch8_scat2.pdf
26 . *               Robustnesstestfiles\Logfiles\robch8_scat3.pdf
27 . *               Robustnesstestfiles\Logfiles\robch8_scat4.pdf
28 . *       They were added to the end of the pdf output files for the robustness
29 . *               tests for the chapter.
30 . * ============================================================================
31 .
32 . use revolutionaryeps.dta

33 .
34 . * ====================================================================
35 . * ROBUSTNESS TESTS OF ENDOGENOUS SWITCHING MODEL, Model 3 in Table 8.2
36 . * ====================================================================
37 . * Boostrapped standard errors, 1000 replications, with bias-corrected standard errors
38 . * NOTE: THIS OPERATION CAN TAKE A WHILE TO EXECUTE
39 . bootstrap, reps(1000) seed(1234): switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum
  > ) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnic
  > order) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal) iterate(75)
  (running switchcopula on estimation sample)

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

  Swithching Regression: Copulas clayton-fgm, Margins probit-normal-normal

                                                Number of obs     =        230
                                                Replications      =        962
                                                Wald chi2(3)      =      84.27
  Log likelihood = -569.93973                   Prob > chi2       =     0.0000

  ------------------------------------------------------------------------------
                |   Observed   Bootstrap                         Normal-based
                |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
  --------------+---------------------------------------------------------------
  select        |
       urbandum |  -2.211441   .2670409    -8.28   0.000    -2.734832    -1.68805
        leftist |   .5557443   .2626634     2.12   0.034     .0409334    1.070555
    ethnicorder |   1.499009   .3114549     4.81   0.000     .8885681    2.109449
           cons |   .6859092   .2237272     3.07   0.002     .2474119    1.124406
  --------------+---------------------------------------------------------------
  regime0       |
        success |  -1.647397   .4799129    -3.43   0.001    -2.588009   -.7067855
  newpolitymin1 |  -.1013102   .0369398    -2.74   0.006    -.1737109   -.0289095
     urbancivic |  -1.681998   .4859814    -3.46   0.001    -2.634504   -.7294921
    newgdppcthl |  -.2261862    .066564    -3.40   0.001    -.3566493   -.0957232
       urbandum |  -4.682154   2.178898    -2.15   0.032    -8.952715   -.4115926
          _cons |   10.96281   2.247945     4.88   0.000     6.556923     15.3687
  --------------+---------------------------------------------------------------
  regime1       |
    lnmonthsdur |   .5766471   .1432726     4.02   0.000      .295838    .8574562
  urbpercbefrev |   -.029129    .013327    -2.19   0.029    -.0552494   -.0030086
```

```
      success |   1.177386   .4050322     2.91   0.004     .3835378    1.971235
        _cons |   7.813654   .6949085    11.24   0.000     6.451658    9.175649
--------------+------------------------------------------------------------------
lnsigma0      |
        cons |   .8296942   .0919665     9.02   0.000     .6494432    1.009945
--------------+------------------------------------------------------------------
lnsigma1      |
        _cons |   .6029933    .076951     7.84   0.000      .452172    .7538146
--------------+------------------------------------------------------------------
atheta0       |
        _cons |   .0372385   19.73822     0.00   0.998    -38.64896    38.72343
--------------+------------------------------------------------------------------
atheta1       |
        _cons |   6.474984   57.01929     0.11   0.910    -105.2808    118.2307
--------------+------------------------------------------------------------------
       sigma0 |   2.292617    .210844                      1.914474     2.74545
       sigma1 |   1.827581   .1406343                      1.571722    2.125091
       theta0 |   1.037941    20.4871                      1.64e-17    6.57e+16
       theta1 |   .9999952    .000542                            -1           1
         tau0 |  -.3416593   4.439682                            -1   -8.20e-18
         tau1 |  -.2222212   .0001204                     -.2222222    .2222222
------------------------------------------------------------------------------
Wald test of independence :      Test statistic  6.6e+05 with p-value  0.0000
------------------------------------------------------------------------------
```

```
40 . * Bias-corrected standard errors
41 . estat bootstrap, bc

Swithching Regression: Copulas clayton-fgm, Margins probit-normal-normal
                                          Number of obs     =        230
                                          Replications      =        962

------------------------------------------------------------------------------
             |    Observed               Bootstrap
             |       Coef.       Bias    Std. Err.  [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
    urbandum |   -2.211441  -.0430918   .26704095    -2.77193  -1.759281  (BC)
     leftist |    .55574427   .0147559   .26266342    .0421197   1.083353  (BC)
 ethnicorder |   1.4990086   .0229337   .31145493    .8715065   2.109204  (BC)
       _cons |    .68590918   .0158121   .22372721    .2547856   1.104524  (BC)
-------------+----------------------------------------------------------------
regime0      |
     success |  -1.6473975  -.0076524   .47991291   -2.502948  -.6478051  (BC)
newpolitym~1 |  -.10131017  -.0000191   .03693981   -.1752914  -.0275036  (BC)
  urbancivic |  -1.6819981   .0083719   .48598137   -2.593418   -.717527  (BC)
 newgdppcthl |  -.22618624   .0036922   .06656402   -.3654173  -.1170675  (BC)
    urbandum |  -4.6821537   .3312505   2.1788977    -17.4134  -2.229675  (BC)
       _cons |   10.962814  -.3398251   2.2479449    8.587548   28.75662  (BC)
-------------+----------------------------------------------------------------
regime1      |
 lnmonthsdur |    .5766471   -.001127    .1432726    .2824472   .8507219  (BC)
urbpercbef~v |  -.02912897  -.0019396   .01332697   -.0587777  -.0093117  (BC)
     success |   1.1773863  -.0157469   .40503223    .4039422   2.019733  (BC)
       cons |   7.8136536   .0870305   .69490853    6.565419   9.231916  (BC)
-------------+----------------------------------------------------------------
lnsigma0     |
       _cons |   .82969416  -.0243662   .09196649    .7386602   1.152528  (BC)
-------------+----------------------------------------------------------------
lnsigma1     |
       _cons |   .60299327  -.0293997   .07695105    .4780687   .7687482  (BC)
-------------+----------------------------------------------------------------
atheta0      |
       _cons |   .03723853  -4.561173   19.738217   -38.29678   1.101364  (BC)
-------------+----------------------------------------------------------------
atheta1      |
       _cons |   6.4749844   10.99881   57.019289   -265.8669    7.69826  (BC)
------------------------------------------------------------------------------
(BC)   bias-corrected confidence interval
Note: One or more parameters could not be estimated in 38 bootstrap replicates;
      standard-error estimates include only complete replications.

42 . *       RESULT:  All results remained statistically significant, no sign shifts.
43 .
44 . * Identification of potential outliers
45 . quietly:  switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsd
   > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton)
   > copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

46 . predict xb0, xb0
   (20 missing values generated)

47 . predict xb1, xb1
   (96 missing values generated)

48 . predict cll, cll

49 . scatter  lndeaths  xb0 if civilwar==0 & e(sample), mlab(revid) || lfit xb0 lndeaths if civilwar==0 & e(sample)
```

```
50 . graph export Robustnesstestfiles\Logfiles\robch8_scat1.pdf, replace
   (file Robustnesstestfiles\Logfiles\robch8_scat1.pdf written in PDF format)

51 . * Potential outliers:  revid 216, 1991 Uprisings in Iraq
52 . scatter  lndeaths  xb1 if civilwar==1 & e(sample), mlab(revid) || lfit xb1 lndeaths if civilwar==1 & e(sample)

53 . graph export Robustnesstestfiles\Logfiles\robch8_scat2.pdf, replace
   (file Robustnesstestfiles\Logfiles\robch8_scat2.pdf written in PDF format)

54 . * Potential outliers:  revid 195, Togo 1991 Revolution
55 . *                                    revid 38, Chinese Civil War Part 1
56 . *                                    revid 359, Tunisian independence movement
57 . *                                    revid 367, Second Malayan Emergency
58 . *                              revid 163, Chinese Civil War Part 2
59 . scatter  cll xb0  if e(sample) & civilwar==0, mlab(revid)

60 . graph export Robustnesstestfiles\Logfiles\robch8_scat3.pdf, replace
   (file Robustnesstestfiles\Logfiles\robch8_scat3.pdf written in PDF format)

61 . * Potential outliers:  revid 384, Bajram Currie Revolt in 1922
62 . scatter  cll xb1  if e(sample) & civilwar==1, mlab(revid)

63 . graph export Robustnesstestfiles\Logfiles\robch8_scat4.pdf, replace
   (file Robustnesstestfiles\Logfiles\robch8_scat4.pdf written in PDF format)

64 . * Potential outliers:  revid 38, Chinese Civil War Part 1
65 . * Regression without outliers
66 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
   > befrev success) if startyear>1899 & revid~= 216 & revid~=195 & revid~= 38 & revid~=359 & revid~=367 & revid~=163
   >  & revid~=384, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) m
   > argin0(normal) margsel(normal)

   Iteration 0:   log likelihood =   -538.646  (not concave)
   Iteration 1:   log likelihood = -533.98149  (not concave)
   Iteration 2:   log likelihood = -533.74592
   Iteration 3:   log likelihood = -531.49152  (not concave)
   Iteration 4:   log likelihood = -531.28863  (not concave)
   Iteration 5:   log likelihood = -531.22331  (not concave)
   Iteration 6:   log likelihood = -531.18396  (not concave)
   Iteration 7:   log likelihood = -531.14688  (not concave)
   Iteration 8:   log likelihood = -531.07739  (not concave)
   Iteration 9:   log likelihood = -531.02382  (not concave)
   Iteration 10:  log likelihood = -530.97903
   Iteration 11:  log likelihood = -530.83237
   Iteration 12:  log likelihood = -530.33561
   Iteration 13:  log likelihood = -530.33231
   Iteration 14:  log likelihood = -530.33231

   Swithching Regression: Copulas clayton-fgm, Margins probit-normal-normal

                                                 Number of obs     =        223
                                                 Wald chi2(3)      =     100.25
   Log likelihood = -530.33231                   Prob > chi2       =     0.0000

   ------------------------------------------------------------------------------
                |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
   -------------+----------------------------------------------------------------
   select       |
        urbandum |   -2.32694   .2554735    -9.11   0.000    -2.827659   -1.826222
         leftist |   .5400551   .2326162     2.32   0.020     .0841358    .9959745
     ethnicorder |   1.574473   .2964669     5.31   0.000     .9934081    2.155537
           _cons |    .755312   .2349915     3.21   0.001     .2947372    1.215887
   -------------+----------------------------------------------------------------
   regime0      |
         success |  -1.524229   .4168823    -3.66   0.000    -2.341303   -.7071548
   newpolitymin1 |  -.0884617   .0337608    -2.62   0.009    -.1546317   -.0222918
      urbancivic |  -1.592791    .420089    -3.79   0.000     -2.41615   -.7694313
     newgdppcthl |  -.2344197   .0620346    -3.78   0.000    -.3560053    -.112834
        urbandum |  -5.350911   .8812215    -6.07   0.000    -7.078074   -3.623749
           _cons |   11.53622   .9123362    12.64   0.000     9.748074    13.32437
   -------------+----------------------------------------------------------------
   regime1      |
     lnmonthsdur |   .5881044   .1260791     4.66   0.000     .3409938    .8352149
   urbpercbefrev |  -.0237669   .0103687    -2.29   0.022    -.0440891   -.0034447
         success |   1.113575   .3312691     3.36   0.001     .4642993     1.76285
           _cons |    7.82074    .579499    13.50   0.000     6.684943    8.956537
   -------------+----------------------------------------------------------------
   lnsigma0     |
           _cons |   .8050432   .0639446    12.59   0.000     .6797141    .9303723
   -------------+----------------------------------------------------------------
   lnsigma1     |
           _cons |   .4441596   .0754173     5.89   0.000     .2963443    .5919749
   -------------+----------------------------------------------------------------
   atheta0      |
           _cons |   .1801652   .4934989     0.37   0.715    -.7870749    1.147405
   -------------+----------------------------------------------------------------
   atheta1      |
            cons |   8.992911   2503.583     0.00   0.997     -4897.94    4915.926
   -------------+----------------------------------------------------------------
          sigma0 |   2.236793   .1430309                      1.973313    2.535453
          sigma1 |   1.559179   .1175892                      1.344933    1.807555
          theta0 |   1.197415   .5909231                      .4551743    3.150009
          theta1 |          1   .0001547                            -1           1
            tau0 |  -.3744948   .1156013                     -.6116512   -.1853939
            tau1 |  -.2222222   .0000344                     -.2222222    .2222222
   ------------------------------------------------------------------------------
   LR test of independence :        Test statistic    5.965 with p-value  0.0326
   ------------------------------------------------------------------------------
```

```
67 . *       RESULT:  All variables significant at the .05 level or better. No signs changed.
68 . drop xb0 xb1 cll

69 . * Excluded ongoing episodes
70 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
   > befrev success) if startyear>1899 & ongoing==0, select (civilwar =  urbandum leftist ethnicorder) copula0(clayto
   > n) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

Iteration 0:   log likelihood = -563.47251  (not concave)
Iteration 1:   log likelihood = -557.68835  (not concave)
Iteration 2:   log likelihood = -557.09329
Iteration 3:   log likelihood = -554.27383
Iteration 4:   log likelihood = -553.77806
Iteration 5:   log likelihood = -553.76666
Iteration 6:   log likelihood = -553.76414
Iteration 7:   log likelihood = -553.76362
Iteration 8:   log likelihood =  -553.7635
Iteration 9:   log likelihood = -553.76347

Swithching Regression: Copulas clayton-fgm, Margins probit-normal-normal

                                                Number of obs     =        222
                                                Wald chi2(3)      =      96.68
Log likelihood = -553.76347                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.179264   .2447787    -8.90   0.000    -2.659022   -1.699507
      leftist |   .5455138   .2296881     2.38   0.018     .0953333    .9956943
  ethnicorder |   1.459353   .2736173     5.33   0.000     .9230731    1.995633
        _cons |   .6521694   .2250993     2.90   0.004     .2109828    1.093356
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.644802   .4245798    -3.87   0.000    -2.476963   -.8126404
newpolitymin1 |  -.1013784   .0345784    -2.93   0.003    -.1691508    -.033606
   urbancivic |  -1.680342     .43028    -3.91   0.000    -2.523675   -.8370084
  newgdppcthl |  -.2257948   .0624846    -3.61   0.000    -.3482624   -.1033272
     urbandum |  -4.614934   .8832852    -5.22   0.000    -6.346142   -2.883727
        _cons |   10.88919   .8939585    12.18   0.000     9.137064    12.64132
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5675497   .1579944     3.59   0.000     .2578864    .8772131
urbpercbefrev |  -.0430677   .0143932    -2.99   0.003    -.0712778   -.0148576
      success |   1.294926   .3984723     3.25   0.001      .513935    2.075918
        _cons |   7.968346   .7063468    11.28   0.000     6.583932     9.35276
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8303538   .0633767    13.10   0.000     .7061379    .9545698
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6211262   .0767483     8.09   0.000     .4707023    .7715502
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0507839   .4911813     0.10   0.918    -.9119139    1.013482
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.732542   222.9655     0.03   0.976    -430.2717    443.7368
-------------+----------------------------------------------------------------
       sigma0 |    2.29413   .1453943                      2.026151    2.597553
       sigma1 |   1.861023   .1428303                      1.601118    2.163117
       theta0 |   1.052095   .5167697                      .4017546    2.755177
       theta1 |   .9999972   .0012661                            -1           1
         tau0 |  -.3447125   .1109509                     -.5794058   -.1672755
         tau1 |  -.2222216   .0002814                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.448 with p-value  0.0091
------------------------------------------------------------------------------

71 . *       RESULT:  All variables significant at the .05 level or better. No signs changed.
72 .
73 .
74 . * ++++++++++++++++++++++++++++++++++++++++++++
75 . * GLM ESTIMATIONS--CIVIL WAR PORTION OF MODEL
76 . * ++++++++++++++++++++++++++++++++++++++++++++
77 .
78 . * ================================================================================
79 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO SHORTENED CIVIL WARS IN POST-COLD WAR PERIOD
80 . *              Model 3 in Table 8.2
81 . * ================================================================================
82 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
83 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths = lnmonthsdur
   >  urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) co
   > pula1(fgm) margin1(normal) margin0(normal) margsel(normal)

84 . glm totaldeaths lnmonthsdur urbpercbefrev success if civilwar==1 & startyear>1899 & e(sample), family(gamma) lin
   > k(log)

Iteration 0:   log likelihood = -1184.7266
Iteration 1:   log likelihood = -1168.1326
Iteration 2:   log likelihood = -1166.9205
Iteration 3:   log likelihood = -1166.9187
Iteration 4:   log likelihood = -1166.9187

Generalized linear models                         No. of obs      =         93
Optimization     : ML                             Residual df     =         89
                                                  Scale parameter =   3.225176
Deviance         =   231.060241                   (1/df) Deviance =   2.596182
Pearson          =  287.0406757                   (1/df) Pearson  =   3.225176
```

```
Variance function: V(u) = u^2                    [Gamma]
Link function    : g(u) = ln(u)                  [Log]

                                                 AIC             =   25.18105
Log likelihood   = -1166.918742                  BIC             =  -172.3411

------------------------------------------------------------------------------
             |                 OIM
  totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
  lnmonthsdur |    .443891   .1584719     2.80   0.005     .1332918    .7544903
urbpercbefrev |  -.0378198   .0094414    -4.01   0.000    -.0563246   -.0193149
      success |   1.238744   .3870245     3.20   0.001     .4801896    1.997298
        _cons |   9.959848   .7333449    13.58   0.000     8.522519    11.39718
------------------------------------------------------------------------------

 85 . * Calculate average duration for each period
 86 . tabstat lnmonthsdur if civilwar==1 & startyear>1899, s(mean) by(timeperiods) save

Summary for variables: lnmonthsdur
     by categories of: timeperiods (Time period)

timeperiods |      mean
------------+----------
  1900-1949 |   3.40984
  1950-1984 |  4.638158
  1985-2014 |  3.862143
------------+----------
      Total |  4.000527
----------------------

 87 . mat total1 = r(Stat2)

 88 . mat total2 = r(Stat3)

 89 . local newtot1 = total1[1,1]

 90 . display `newtot1'
4.6381585

 91 . local newtot2 = total2[1,1]

 92 . display `newtot2'
3.8621427

 93 . * Calculate ln of average duration for each period
 94 . local dur1 = `newtot1'

 95 . local dur2 = `newtot2'

 96 . * Calculate marginal effects for average durations for each period
 97 . margins, atmeans at(lnmonthsdur=(`dur1' `dur2')) post

Adjusted predictions                             Number of obs     =         93
Model VCE    : OIM

Expression   : Predicted mean totaldeaths, predict()

1._at        : lnmonthsdur     =    4.638158
               urbpercbef~v    =    17.51282 (mean)
               success         =    .3978495 (mean)

2. at        : lnmonthsdur     =    3.862143
               urbpercbef~v    =    17.51282 (mean)
               success         =    .3978495 (mean)

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          at |
           1 |   139970.7   30111.44     4.65   0.000     80953.33      198988
           2 |   99182.99   18532.54     5.35   0.000     62859.88    135506.1
------------------------------------------------------------------------------

 98 . * Calculate difference between marginal effects for each period
 99 . scalar m1 = el(r(b),1,1)

100 . scalar m2 = el(r(b),1,2)

101 . scalar mdiff = m2 - m1

102 . * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
103 . tab timeperiods civilwar if startyear>1899, matcell(tper)

           |  Revolution involved
           | civil war? (sustained
      Time |   warfare > 2 mos)
    period |        no        yes |     Total
-----------+----------------------+----------
 1900-1949 |        62         60 |       122
 1950-1984 |        32         66 |        98
 1985-2014 |        75         48 |       123
-----------+----------------------+----------
     Total |       169        174 |       343
```

```
104 . scalar cwnum = tper[3,2]

105 . display cwnum
    48

106 . display mdiff * cwnum
    -1957808.4

107 . * Drop scalars and macros
108 . macro drop _all

109 . scalar drop _all

110 .
111 . * ============================================================================
112 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO URBANIZATION IN POST-COLD WAR PERIOD
113 . *               Model 3 in Table 8.2
114 . * ============================================================================
115 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
116 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths = lnmonthsdur
    >  urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) co
    > pula1(fgm) margin1(normal) margin0(normal) margsel(normal)

117 . glm totaldeaths lnmonthsdur urbpercbefrev success if civilwar==1 & startyear>1899 & e(sample), family(gamma) lin
    > k(log)

    Iteration 0:   log likelihood = -1184.7266
    Iteration 1:   log likelihood = -1168.1326
    Iteration 2:   log likelihood = -1166.9205
    Iteration 3:   log likelihood = -1166.9187
    Iteration 4:   log likelihood = -1166.9187

    Generalized linear models                         No. of obs      =         93
    Optimization     : ML                             Residual df     =         89
                                                      Scale parameter =   3.225176
    Deviance         =   231.060241                   (1/df) Deviance =   2.596182
    Pearson          =  287.0406757                   (1/df) Pearson  =   3.225176

    Variance function: V(u) = u^2                     [Gamma]
    Link function    : g(u) = ln(u)                   [Log]

                                                      AIC             =   25.18105
    Log likelihood   = -1166.918742                   BIC             =  -172.3411

    ------------------------------------------------------------------------------
                 |                 OIM
      totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
      lnmonthsdur |    .443891   .1584719     2.80   0.005     .1332918    .7544903
    urbpercbefrev |  -.0378198   .0094414    -4.01   0.000    -.0563246   -.0193149
          success |   1.238744   .3870245     3.20   0.001     .4801896    1.997298
            _cons |   9.959848   .7333449    13.58   0.000     8.522519    11.39718
    ------------------------------------------------------------------------------

118 . tabstat urbpercbefrev if civilwar==1 & startyear>1899, s(mean) by(timeperiods) save

    Summary for variables: urbpercbefrev
         by categories of: timeperiods (Time period)

    timeperiods |      mean
    ------------+----------
      1900-1949 |   8.39083
      1950-1984 |  15.62373
      1985-2014 |  27.01655
    ------------+----------
          Total |  17.23594
    ----------------------

119 . mat total1 = r(Stat2)

120 . mat total2 = r(Stat3)

121 . local newtot1 = total1[1,1]

122 . display `newtot1'
    15.623732

123 . local newtot2 = total2[1,1]

124 . display `newtot2'
    27.016546

125 . * Reassign variables
126 . local urb1 = `newtot1'

127 . local urb2 = `newtot2'

128 . * Calculate marginal effects for average urbanization for each period
129 . margins, atmeans at(urbpercbefrev=(`urb1' `urb2')) post

    Adjusted predictions                              Number of obs     =         93
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1. at        : lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    15.62373
                   success         =    .3978495 (mean)
```

```
2._at        : lnmonthsdur     =    3.958544 (mean)
               urbpercbef~v    =    27.01655
               success         =    .3978495 (mean)

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |   111185.8   20800.49     5.35   0.000     70417.61      151954
          2  |   72264.23   14938.18     4.84   0.000     42985.93    101542.5
------------------------------------------------------------------------------

130 . * Calculate difference between marginal effects for each period
131 . scalar m1 = el(r(b),1,1)

132 . scalar m2 = el(r(b),1,2)

133 . scalar mdiff = m2 - m1

134 . display mdiff
-38921.59

135 . * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
136 . tab timeperiods civilwar if startyear>1899, matcell(tper)

           |  Revolution involved
           | civil war? (sustained
      Time |   warfare > 2 mos)
    period |        no        yes |     Total
-----------+----------------------+----------
 1900-1949 |        62         60 |       122
 1950-1984 |        32         66 |        98
 1985-2014 |        75         48 |       123
-----------+----------------------+----------
     Total |       169        174 |       343


137 . scalar cwnum = tper[3,2]

138 . display cwnum
48

139 . display mdiff * cwnum
-1868236.3

140 . * Drop scalars and macros
141 . macro drop _all

142 . scalar drop _all

143 .
144 . * ================================================================================================
145 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO CHANGING RATES OF SUCCESS IN CIVIL WAR
146 . *               IN POST-COLD WAR PERIOD, Model 3 in Table 8.2
147 . * ================================================================================================
148 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
149 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths = lnmonthsdur
    >  urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) co
    > pula1(fgm) margin1(normal) margin0(normal) margsel(normal)

150 . glm totaldeaths lnmonthsdur urbpercbefrev success if civilwar==1 & startyear>1899 & e(sample), family(gamma) lin
    > k(log)

Iteration 0:   log likelihood = -1184.7266
Iteration 1:   log likelihood = -1168.1326
Iteration 2:   log likelihood = -1166.9205
Iteration 3:   log likelihood = -1166.9187
Iteration 4:   log likelihood = -1166.9187

Generalized linear models                         No. of obs      =         93
Optimization     : ML                             Residual df     =         89
                                                  Scale parameter =   3.225176
Deviance         =   231.060241                   (1/df) Deviance =   2.596182
Pearson          =  287.0406757                   (1/df) Pearson  =   3.225176

Variance function: V(u) = u^2                     [Gamma]
Link function    : g(u) = ln(u)                   [Log]

                                                  AIC             =   25.18105
Log likelihood   = -1166.918742                   BIC             =  -172.3411

------------------------------------------------------------------------------
             |                 OIM
  totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
  lnmonthsdur |    .443891   .1584719     2.80   0.005     .1332918    .7544903
urbpercbefrev |  -.0378198   .0094414    -4.01   0.000    -.0563246   -.0193149
      success |   1.238744   .3870245     3.20   0.001     .4801896    1.997298
        _cons |   9.959848   .7333449    13.58   0.000     8.522519    11.39718
------------------------------------------------------------------------------
```

```
151 . * Calculate marginal effects for successful and failed revolutionary civil wars
152 . margins, atmeans at(success=(0 1)) post

Adjusted predictions                            Number of obs     =         93
Model VCE    : OIM

Expression   : Predicted mean totaldeaths, predict()

1._at        : lnmonthsdur     =    3.958544 (mean)
               urbpercbef~v    =    17.51282 (mean)
               success         =           0

2. at        : lnmonthsdur     =    3.958544 (mean)
               urbpercbef~v    =    17.51282 (mean)
               success         =           1

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          at |
           1  |   63239.22   15281.05     4.14   0.000      33288.9    93189.53
           2  |   218255.9   65108.78     3.35   0.001     90645.05    345866.8
------------------------------------------------------------------------------

153 . * Calculate difference between marginal effects for failed and successful revolutionary civil wars
154 . scalar m1 = el(r(b),1,1)

155 . scalar m2 = el(r(b),1,2)

156 . scalar mdiff = m2 - m1

157 . display mdiff
155016.69

158 . * Calculate difference in number of successes for each period
159 . tab timeperiod success if civilwar==1 & startyear>1899, matcell(civsuc)

           | Succeeded in gaining
      Time |        power?
    period |        no        yes |     Total
-----------+----------------------+----------
 1900-1949 |        49         11 |        60
 1950-1984 |        45         21 |        66
 1985-2014 |        32         16 |        48
-----------+----------------------+----------
     Total |       126         48 |       174


160 . local cwnum2 = civsuc[2,2]

161 . display `cwnum2'
21

162 . local cwnum3 = civsuc[3,2]

163 . display `cwnum3'
16

164 . local cwnum4 = `cwnum3' - `cwnum2'

165 . display `cwnum4'
-5

166 . * Calculate effect:  Multiply difference in number of successes by difference in marginal effects
167 . display mdiff * `cwnum4'
-775083.46

168 . * Drop scalars and macros
169 . macro drop _all

170 . scalar drop _all

171 .
172 . * ================================================================================================
173 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO CHANGING POLITY SCORES IN POST-COLD WAR PERIOD,
174 . *                Model 4 in Table 8.2
175 . * ================================================================================================
176 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
177 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success newpolitymin1) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copu
    > la0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

178 . glm totaldeaths lnmonthsdur urbpercbefrev success newpolitymin1 if civilwar==1 & startyear>1899 & e(sample), fam
    > ily(gamma) link(log)

Iteration 0:   log likelihood = -1182.5085
Iteration 1:   log likelihood = -1166.0318
Iteration 2:   log likelihood = -1164.6379
Iteration 3:   log likelihood = -1164.6355
Iteration 4:   log likelihood = -1164.6355

Generalized linear models                         No. of obs      =         93
Optimization     : ML                             Residual df     =         88
                                                  Scale parameter =   3.022778
Deviance         =  226.4936927                   (1/df) Deviance =   2.573792
Pearson          =  266.0044392                   (1/df) Pearson  =   3.022778

Variance function: V(u) = u^2                     [Gamma]
Link function    : g(u) = ln(u)                   [Log]
```

```
                                                AIC             =   25.15345
Log likelihood   = -1164.635468                 BIC             =  -172.3751

------------------------------------------------------------------------------
             |                 OIM
  totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
  lnmonthsdur |   .4471563   .1526612     2.93   0.003     .1479458    .7463668
urbpercbefrev |  -.0361915   .0098284    -3.68   0.000    -.0554547   -.0169282
      success |    1.27706   .3765071     3.39   0.001     .5391193       2.015
newpolitymin1 |  -.0381542   .0305484    -1.25   0.212     -.098028    .0217196
        _cons |    9.84456   .7045522    13.97   0.000     8.463663    11.22546
------------------------------------------------------------------------------
```

```
179 . * Calculate average Polity score of states experiencing civil wars for each period
180 . tabstat newpolitymin1 if civilwar==1 & startyear>1899, s(mean) by(timeperiods) save

    Summary for variables: newpolitymin1
         by categories of: timeperiods (Time period)

    timeperiods |      mean
    ------------+----------
      1900-1949 |  1.929825
      1950-1984 | -.6825397
      1985-2014 |  .3478261
    ------------+----------
          Total |        .5
    ----------------------

181 . mat total1 = r(Stat2)

182 . mat total2 = r(Stat3)

183 . local pol1= total1[1,1]

184 . display `pol1'
    -.68253968

185 . local pol2 = total2[1,1]

186 . display `pol2'
    .34782609

187 . * Calculate marginal effects for average Polity score for each period
188 . margins, atmeans at(newpolitymin1=(`pol1' `pol2')) post

    Adjusted predictions                            Number of obs     =         93
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1._at        : lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    17.51282 (mean)
                   success         =    .3978495 (mean)
                   newpolitym~1    =   -.6825397

    2._at        : lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    17.51282 (mean)
                   success         =    .3978495 (mean)
                   newpolitym~1    =    .3478261

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   100202.9   18076.76     5.54   0.000     64773.09    135632.7
              2  |   96340.05   17748.33     5.43   0.000     61553.96    131126.1
    ------------------------------------------------------------------------------

189 . * Calculate difference between marginal effects for each period
190 . scalar m1 = el(r(b),1,1)

191 . scalar m2 = el(r(b),1,2)

192 . scalar mdiff = m2 - m1

193 . display mdiff
    -3862.8292

194 . * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
195 . tab timeperiods civilwar if startyear>1899, matcell(tper)

               |  Revolution involved
               | civil war? (sustained
          Time |   warfare > 2 mos)
        period |        no        yes |     Total
    -----------+----------------------+----------
     1900-1949 |        62         60 |       122
     1950-1984 |        32         66 |        98
     1985-2014 |        75         48 |       123
    -----------+----------------------+----------
         Total |       169        174 |       343
```

```
196 . scalar cwnum = tper[3,2]

197 . display cwnum
    48

198 . display mdiff * cwnum
    -185415.8

199 . * Drop scalars and macros
200 . macro drop _all

201 . scalar drop _all

202 .
203 .
204 . * ================================================================================
205 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO POPULATION SIZE IN POST-COLD WAR PERIOD
206 . * ================================================================================
207 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
208 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success lnpop) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clay
    > ton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

209 . glm totaldeaths lnmonthsdur urbpercbefrev success lnpop if civilwar==1 & startyear>1899 & e(sample), family(gamm
    > a) link(log)

    Iteration 0:   log likelihood = -1163.1323
    Iteration 1:   log likelihood = -1150.2393
    Iteration 2:   log likelihood = -1149.1946
    Iteration 3:   log likelihood = -1149.1934
    Iteration 4:   log likelihood = -1149.1934

    Generalized linear models                         No. of obs      =         93
    Optimization     : ML                             Residual df     =         88
                                                      Scale parameter =   1.735348
    Deviance         =  195.6095686                   (1/df) Deviance =   2.222836
    Pearson          =  152.7106043                   (1/df) Pearson  =   1.735348

    Variance function: V(u) = u^2                     [Gamma]
    Link function    : g(u) = ln(u)                   [Log]

                                                      AIC             =   24.82136
    Log likelihood   = -1149.193406                   BIC             =  -203.2592

    ------------------------------------------------------------------------------
                 |                 OIM
      totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
      lnmonthsdur |   .3970233   .1048194     3.79   0.000     .1915811    .6024654
    urbpercbefrev |   -.032282   .0075328    -4.29   0.000     -.047046   -.0175179
          success |   1.178022   .2817538     4.18   0.000     .6257951     1.73025
            lnpop |   .4168451   .1019719     4.09   0.000     .2169838    .6167064
            _cons |   6.045968    1.01796     5.94   0.000     4.050804    8.041132
    ------------------------------------------------------------------------------

210 . * Calculate average pop of states experiencing civil wars for each period
211 . tabstat lnpop if civilwar==1 & startyear>1899, s(mean) by(timeperiods) save

    Summary for variables: lnpop
         by categories of: timeperiods (Time period)

    timeperiods |      mean
    ------------+----------
      1900-1949 |  8.710207
      1950-1984 |   8.78433
      1985-2014 |    9.2585
    ------------+----------
          Total |  8.875878
    ----------------------

212 . mat total1 = r(Stat2)

213 . mat total2 = r(Stat3)

214 . local pop1= total1[1,1]

215 . display `pop1'
    8.7843297

216 . local pop2 = total2[1,1]

217 . display `pop2'
    9.2585002

218 . * Calculate marginal effects for average pop for each period
219 . margins, atmeans at(lnpop=(`pop1' `pop2')) post

    Adjusted predictions                              Number of obs     =         93
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1._at        : lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    17.51282 (mean)
                   success         =    .3978495 (mean)
                   lnpop           =     8.78433
```

```
2._at        : lnmonthsdur     =    3.958544 (mean)
               urbpercbef~v    =    17.51282 (mean)
               success         =    .3978495 (mean)
               lnpop           =      9.2585

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |   71871.45   10284.87     6.99   0.000     51713.49    92029.42
          2  |   87578.44   11973.87     7.31   0.000     64110.08    111046.8
------------------------------------------------------------------------------

220 . * Calculate difference between marginal effects for each period
221 . scalar m1 = el(r(b),1,1)

222 . scalar m2 = el(r(b),1,2)

223 . scalar mdiff = m2 - m1

224 . display mdiff
    15706.99

225 . * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
226 . tab timeperiods civilwar if startyear>1899, matcell(tper)

           |  Revolution involved
           | civil war? (sustained
      Time |   warfare > 2 mos)
    period |        no        yes |     Total
-----------+----------------------+----------
 1900-1949 |        62         60 |       122
 1950-1984 |        32         66 |        98
 1985-2014 |        75         48 |       123
-----------+----------------------+----------
     Total |       169        174 |       343


227 . scalar cwnum = tper[3,2]

228 . display cwnum
    48

229 . display mdiff * cwnum
    753935.52

230 . * Drop scalars and macros
231 . macro drop _all

232 . scalar drop _all

233 .
234 . * ========================================================================
235 . * ROBUSTNESS TESTS FOR SELECTION PORTION OF MODEL, Model 3 in Table 8.3
236 . * ========================================================================
237 . * Robust standard errors
238 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

239 . probit civilwar urbandum leftist ethnicorder if startyear>1899 & e(sample), vce(robust)

    Iteration 0:   log pseudolikelihood =  -155.1891
    Iteration 1:   log pseudolikelihood = -78.917118
    Iteration 2:   log pseudolikelihood = -78.150704
    Iteration 3:   log pseudolikelihood = -78.149942
    Iteration 4:   log pseudolikelihood = -78.149942

    Probit regression                               Number of obs     =        230
                                                    Wald chi2(3)      =      89.83
                                                    Prob > chi2       =     0.0000
    Log pseudolikelihood = -78.149942               Pseudo R2         =     0.4964

    ------------------------------------------------------------------------------
                 |               Robust
        civilwar |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
        urbandum |  -2.175329   .2504676    -8.69   0.000    -2.666237   -1.684422
         leftist |   .5824157   .2632918     2.21   0.027     .0663734    1.098458
     ethnicorder |   1.337373   .2984891     4.48   0.000     .7523456    1.922401
           _cons |   .6900474   .2146764     3.21   0.001     .2692894    1.110805
    ------------------------------------------------------------------------------

240 . *       RESULT:  All variables remain statistically significant at the .05 level or better
241 . * Area under the curve
242 . lroc

    Probit model for civilwar

    number of observations =      230
    area under ROC curve   =   0.9230
```

```
243 . graph export Robustnesstestfiles\Logfiles\robch8_lroc.pdf, replace
    (file Robustnesstestfiles\Logfiles\robch8_lroc.pdf written in PDF format)

244 . *       RESULT:  Explains .9265 of area under the curve
245 . * Classification capacity
246 . estat classification

    Probit model for civilwar

                -------- True --------
    Classified |         D            ~D  |      Total
    -----------+--------------------------+-----------
         +     |        72            10  |         82
         -     |        21           127  |        148
    -----------+--------------------------+-----------
       Total   |        93           137  |        230

    Classified + if predicted Pr(D) >= .5
    True D defined as civilwar != 0
    --------------------------------------------------
    Sensitivity                     Pr( +| D)   77.42%
    Specificity                     Pr( -|~D)   92.70%
    Positive predictive value       Pr( D| +)   87.80%
    Negative predictive value       Pr(~D| -)   85.81%
    --------------------------------------------------
    False + rate for true ~D        Pr( +|~D)    7.30%
    False - rate for true D         Pr( -| D)   22.58%
    False + rate for classified +   Pr(~D| +)   12.20%
    False - rate for classified -   Pr( D| -)   14.19%
    --------------------------------------------------
    Correctly classified                        86.52%
    --------------------------------------------------

247 . *       RESULT:  Model properly classifies 86.73 percent of cases
248 . * Testing for collinearity
249 . collin  urbandum  leftist ethnicorder if startyear>1899 & e(sample)
    (obs=230)

      Collinearity Diagnostics

                           SQRT                   R-
      Variable      VIF    VIF    Tolerance    Squared
    ----------------------------------------------------
      urbandum      1.13   1.07    0.8812      0.1188
       leftist      1.09   1.04    0.9181      0.0819
    ethnicorder     1.12   1.06    0.8910      0.1090
    ----------------------------------------------------
      Mean VIF      1.12

                             Cond
            Eigenval         Index
    ---------------------------------
        1     2.3035          1.0000
        2     0.8937          1.6055
        3     0.6775          1.8439
        4     0.1253          4.2880
    ---------------------------------
     Condition Number         4.2880
     Eigenvalues & Cond Index computed from scaled raw sscp (w/ intercept)
     Det(correlation matrix)    0.8589

250 . *       RESULT:  tolerances are all > .5
251 . * Boostrapped standard errors
252 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

253 . generate sample=0

254 . replace sample=1 if e(sample)==1
    (230 real changes made)

255 . bootstrap, reps(1000) seed(1234): probit civilwar urbandum leftist ethnicorder if startyear>1899 & sample==1
    (running probit on estimation sample)

    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
```

```
Probit regression                                 Number of obs     =        230
                                                  Replications      =      1,000
                                                  Wald chi2(3)      =      70.30
                                                  Prob > chi2       =     0.0000
Log likelihood = -78.149942                       Pseudo R2         =     0.4964

------------------------------------------------------------------------------
             |   Observed   Bootstrap                         Normal-based
    civilwar |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    urbandum |  -2.175329    .277518    -7.84   0.000    -2.719254   -1.631404
     leftist |   .5824157   .2793516     2.08   0.037     .0348966    1.129935
 ethnicorder |   1.337373   .3370359     3.97   0.000     .6767952    1.997952
       _cons |   .6900474   .2275607     3.03   0.002     .2440365    1.136058
------------------------------------------------------------------------------

256 . * Result: all variables remain significant at the .05 level or better.
257 . drop sample

258 .
259 .
260 . * ++++++++++++++++++++++++++++++++++++++
261 . * GLM ESTIMATES FOR NO CIVIL WAR REGIME
262 . * ++++++++++++++++++++++++++++++++++++++
263 .
264 . * ========================================================================
265 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO CHANGING LOCATIONS FOR NO CIVIL
266 . *                WAR REGIME, Model 5 in Table 8.4
267 . * ========================================================================
268 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
269 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

270 . glm totaldeaths success newpolitymin1 urbancivic  newgdppcthl urbandum if civilwar==0 & startyear>1899 & e(sampl
    > e), family(gamma) link(log)

Iteration 0:   log likelihood =  -1042.045
Iteration 1:   log likelihood = -1009.4673
Iteration 2:   log likelihood = -986.52415
Iteration 3:   log likelihood = -986.11074
Iteration 4:   log likelihood =  -986.1093
Iteration 5:   log likelihood =  -986.1093

Generalized linear models                         No. of obs      =        137
Optimization     : ML                             Residual df     =        131
                                                  Scale parameter =   5.194879
Deviance         =  488.6435915                   (1/df) Deviance =   3.730104
Pearson          =  680.5291614                   (1/df) Pearson  =   5.194879

Variance function: V(u) = u^2                     [Gamma]
Link function    : g(u) = ln(u)                   [Log]

                                                  AIC             =   14.48335
Log likelihood   = -986.1092991                   BIC             =  -155.8739

------------------------------------------------------------------------------
             |                 OIM
  totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
      success |  -1.003941   .4597253    -2.18   0.029    -1.904986   -.1028963
newpolitymin1 |  -.0708483   .0337073    -2.10   0.036    -.1369134   -.0047833
   urbancivic |  -1.336458    .450903    -2.96   0.003    -2.220212   -.4527048
  newgdppcthl |  -.3123443   .0899487    -3.47   0.001    -.4886406    -.136048
     urbandum |  -1.706538    .838066    -2.04   0.042    -3.349117   -.0639588
        _cons |   9.832824   .8125524    12.10   0.000      8.24025     11.4254
------------------------------------------------------------------------------

271 . * Calculate marginal effects for urban location
272 . margins, atmeans at(urbandum=(0 1)) post

Adjusted predictions                              Number of obs     =        137
Model VCE    : OIM

Expression   : Predicted mean totaldeaths, predict()

1._at        : success         =    .5109489 (mean)
               newpolitym~1    =   -1.708029 (mean)
               urbancivic      =    .3722628 (mean)
               newgdppcthl     =    3.685198 (mean)
               urbandum        =           0

2._at        : success         =    .5109489 (mean)
               newpolitym~1    =   -1.708029 (mean)
               urbancivic      =    .3722628 (mean)
               newgdppcthl     =    3.685198 (mean)
               urbandum        =           1

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |     2421.9   1954.137     1.24   0.215    -1408.139    6251.939
          2  |   439.5581   88.95017     4.94   0.000     265.2189    613.8972
------------------------------------------------------------------------------
```

```
273 . * Calculate difference between marginal effects for urban and rural episodes without civil wars
274 . scalar m1 = el(r(b),1,1)

275 . scalar m2 = el(r(b),1,2)

276 . scalar mdiff = m2 - m1

277 . display mdiff
-1982.3421

278 . * Calculate difference in number of urban episodes without civil wars for each period
279 . tab timeperiod urbandum if civilwar==0 & startyear>1899, matcell(civsuc)

           |   Episode occurred
           | primarily in an urban
      Time |        setting
    period |        no        yes |     Total
-----------+----------------------+----------
 1900-1949 |        15         47 |        62
 1950-1984 |         3         29 |        32
 1985-2014 |         2         73 |        75
-----------+----------------------+----------
     Total |        20        149 |       169


280 . local cwnum1 = civsuc[1,2]

281 . display `cwnum1'
47

282 . local cwnum3 = civsuc[3,2]

283 . display `cwnum3'
73

284 . local cwnum4 = `cwnum3' - `cwnum1'

285 . display `cwnum4'
26

286 . * Calculate effect:  Multiply difference in number of urban episodes without civil wars by difference in margina
    > l effects
287 . display mdiff * `cwnum4'
-51540.895

288 . * Drop scalars and macros
289 . macro drop _all

290 . scalar drop _all

291 .
292 . * ====================================================================
293 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO CHANGING GDP PER CAPITA FOR
294 . *                NO CIVIL WAR REGIME
295 . * ====================================================================
296 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
297 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum ) (lndeaths =  lnmonthsd
    > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) vce(robust) copul
    > a0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

298 . quietly: glm totaldeaths success newpolitymin1 urbancivic newgdppcthl urbandum if civilwar==0 & startyear>1899 &
    >  e(sample), family(gamma) link(log)

299 . * Calculate marginal effects for GDP per capita
300 . tabstat newgdppcthl if civilwar==0 & startyear>1899, s(mean) by(timeperiods) save

    Summary for variables: newgdppcthl
         by categories of: timeperiods (Time period)

    timeperiods |      mean
    ------------+----------
      1900-1949 |  1.713955
      1950-1984 |    4.2564
      1985-2014 |  4.667942
    ------------+----------
          Total |  3.506306
    ------------------------

301 . mat total1 = r(Stat1)

302 . mat total3 = r(Stat3)

303 . local newtot1 = total1[1,1]

304 . display `newtot1'
1.7139552

305 . local newtot3 = total3[1,1]
```

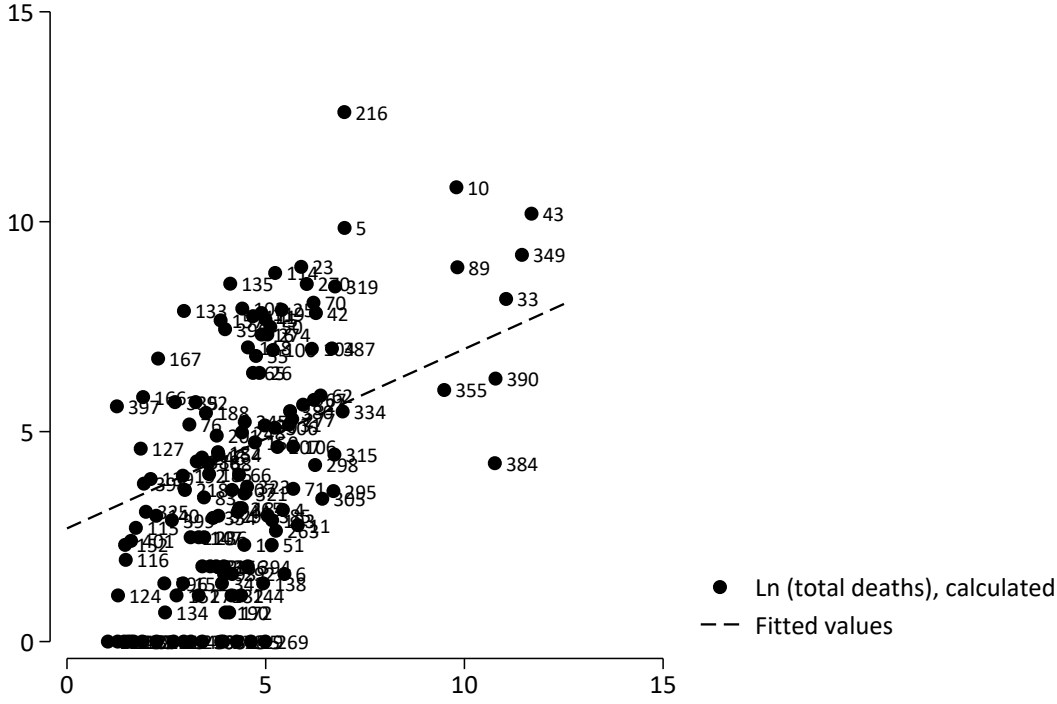
```
306 . display `newtot3'
    4.6679418

307 . * Reassign var
308 . local lev1 = `newtot1'

309 . local lev3 = `newtot3'

310 . * Calculate marginal effects for success rates for each period
311 . margins, atmeans at(newgdppcthl=(`lev1' `lev3')) subpop(if civilwar==0)

    Adjusted predictions                            Number of obs     =        137
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1._at        : success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    1.713955
                   urbandum        =    .9343066 (mean)

    2._at        : success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    4.667942
                   urbandum        =    .9343066 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   910.1274   239.6915     3.80   0.000     440.3407    1379.914
              2  |   361.7393   77.35939     4.68   0.000     210.1177    513.3609
    ------------------------------------------------------------------------------

312 . * Calculate difference between marginal effects for each period
313 . scalar m1 = el(r(b),1,1)

314 . scalar m3 = el(r(b),1,2)

315 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
316 . tab timeperiods civilwar if startyear>1899, matcell(tper)

               |  Revolution involved
               | civil war? (sustained
          Time |   warfare > 2 mos)
        period |        no        yes |     Total
    -----------+----------------------+----------
     1900-1949 |        62         60 |       122
     1950-1984 |        32         66 |        98
     1985-2014 |        75         48 |       123
    -----------+----------------------+----------
         Total |       169        174 |       343


317 . scalar ncwnum1 = tper[1,1]

318 . scalar ncwnum3 = tper[3,1]

319 . display ncwnum1
    62

320 . display ncwnum3
    75

321 . scalar effper1 = m1 * ncwnum1

322 . scalar effper3 = m3 * ncwnum3

323 . display effper3 - effper1
    -29297.451

324 . * Drop scalars and macros
325 . macro drop _all

326 . scalar drop _all

327 .
328 . * ============================================================================
329 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO URBAN CIVIC REPERTOIRE IN EPISODES
330 . *               WITH NO CIVIL WAR
331 . * ============================================================================
332 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
333 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum ) (lndeaths =  lnmonthsd
    > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton)
    > copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
334 . quietly: glm totaldeaths success newpolitymin1 urbancivic  newgdppcthl urbandum if civilwar==0 & startyear>1899
    > & e(sample), family(gamma) link(log)

335 . * Calculate marginal effects for urban civic
336 . margins, atmeans at(urbancivic=(0 1)) post

    Adjusted predictions                            Number of obs     =        137
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1._at        : success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =           0
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    2._at        : success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =           1
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   808.6708   207.9003     3.89   0.000     401.1938    1216.148
              2  |   212.4982   73.00669     2.91   0.004      69.4077    355.5887
    ------------------------------------------------------------------------------

337 . * Calculate difference between marginal effects for urban civic without civil wars
338 . scalar m1 = el(r(b),1,1)

339 . scalar m2 = el(r(b),1,2)

340 . scalar mdiff = m2 - m1

341 . display mdiff
    -596.17261

342 . * Calculate difference in number of urban civic episodes without civil wars for each period
343 . tab timeperiod urbancivic if civilwar==0 & startyear>1899, matcell(civsuc)

          Time |  Urban civic episode
        period |        no        yes |     Total
    -----------+----------------------+----------
     1900-1949 |        61          1 |        62
     1950-1984 |        26          6 |        32
     1985-2014 |        30         45 |        75
    -----------+----------------------+----------
         Total |       117         52 |       169


344 . local cwnum1 = civsuc[1,2]

345 . display `cwnum1'
    1

346 . local cwnum3 = civsuc[3,2]

347 . display `cwnum3'
    45

348 . local cwnum4 = `cwnum3' - `cwnum1'

349 . display `cwnum4'
    44

350 . * Calculate effect:  Multiply difference in number of urban civic episodes without civil wars by difference in m
    > arginal effects
351 . display mdiff * `cwnum4'
    -26231.595

352 . * Drop scalars and macros
353 . macro drop _all

354 . scalar drop _all

355 .
356 . * ================================================================
357 . * GLM: ESTIMATED CHANGE IN DEATHS DUE TO CHANGE IN FREQUENCY OF
358 . *               OPPOSITION SUCCESS IN EPISODES WITH NO CIVIL WAR
359 . * ================================================================
360 . * GLM model on same sample as switching regression; obtain sample first, then run GLM estimation
361 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum ) (lndeaths =  lnmonthsd
    > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) vce(robust) copul
    > a0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

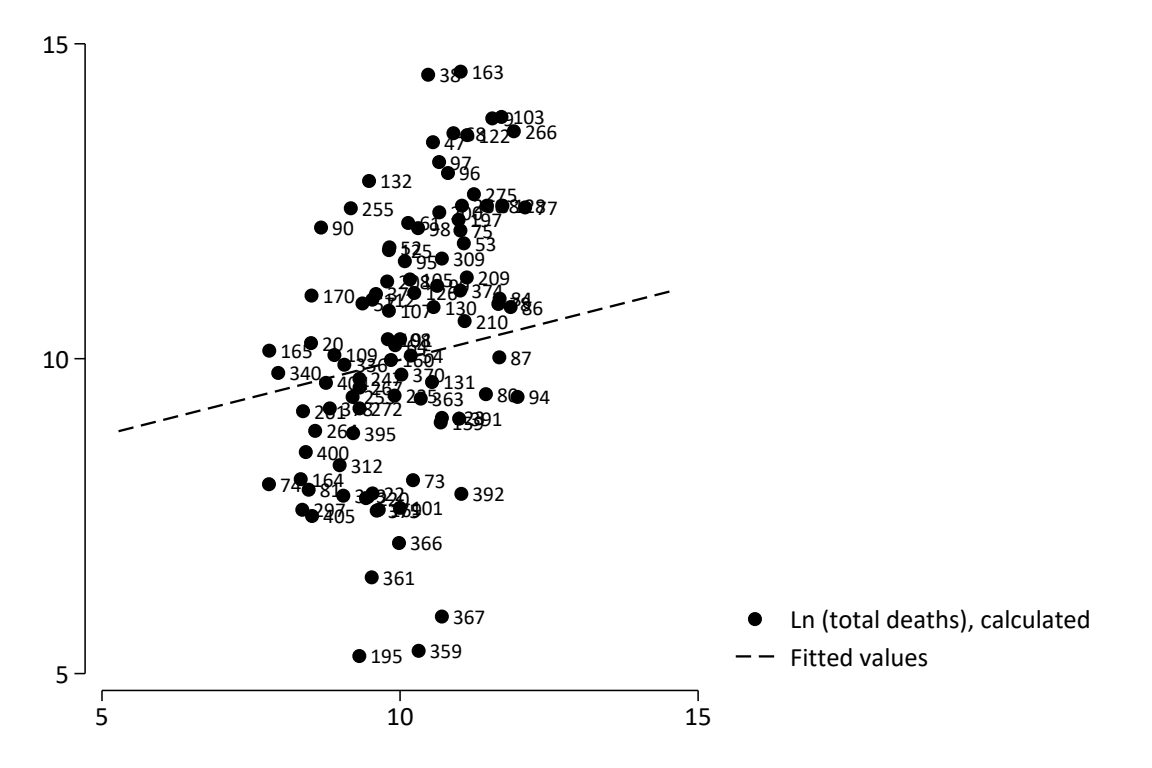
```
362 . quietly: glm totaldeaths success newpolitymin1 urbancivic newgdppcthl urbandum if civilwar==0 & startyear>1899 &
    >  e(sample), family(gamma) link(log)

363 . * Calculate marginal effects for opposition success for revolutionary episodes
364 . margins, atmeans at(success=(0 1)) post

    Adjusted predictions                            Number of obs     =        137
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1._at        : success         =           0
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    2._at        : success         =           1
                   newpolitym~1    =   -1.708029 (mean)
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   821.2609   250.5798     3.28   0.001     330.1335    1312.388
              2  |   300.9366   89.50914     3.36   0.001     125.5019    476.3713
    ------------------------------------------------------------------------------

365 . * Calculate difference between marginal effects for successful episodes without civil wars
366 . scalar m1 = el(r(b),1,1)

367 . scalar m2 = el(r(b),1,2)

368 . scalar mdiff = m2 - m1

369 . display mdiff
    -520.32431

370 . * Calculate difference in number of successful episodes without civil wars for each period
371 . tab timeperiod success if civilwar==0 & startyear>1899, matcell(civsuc)

               | Succeeded in gaining
          Time |        power?
        period |        no        yes |     Total
    -----------+----------------------+----------
     1900-1949 |        42         20 |        62
     1950-1984 |        17         15 |        32
     1985-2014 |        35         40 |        75
    -----------+----------------------+----------
         Total |        94         75 |       169


372 . local cwnum1 = civsuc[1,2]

373 . display `cwnum1'
    20

374 . local cwnum3 = civsuc[3,2]

375 . display `cwnum3'
    40

376 . local cwnum4 = `cwnum3' - `cwnum1'

377 . display `cwnum4'
    20

378 . * Calculate effect:  Multiply difference in number of successful episodes without civil wars by difference in ma
    > rginal effects
379 . display mdiff * `cwnum4'
    -10406.486

380 . * Drop scalars and macros
381 . macro drop _all

382 . scalar drop _all

383 .
384 . * ============================================================================
385 . * GLM ESTIMATION: ESTIMATED EFFECT ON DEATHS OF POLITY SCORES IN EPISODES
386 . *               WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
387 . * ============================================================================
388 . * Full switching model
389 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum ) (lndeaths =  lnmonthsd
    > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) vce(robust) copul
    > a0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

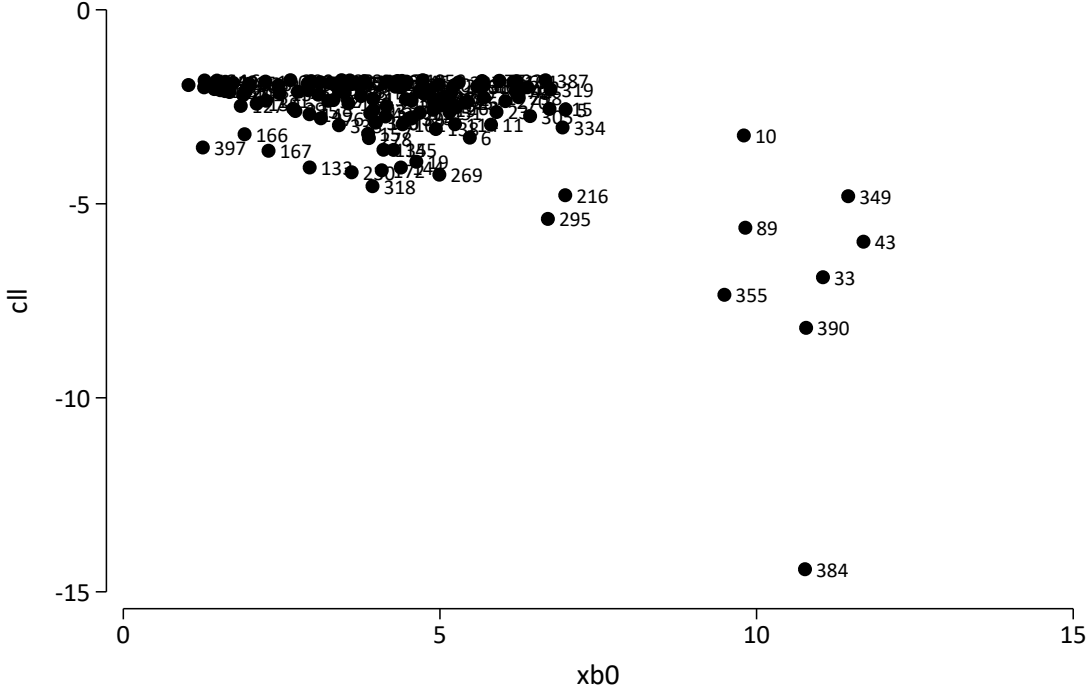
```
390 . quietly: glm totaldeaths success newpolitymin1 urbancivic newgdppcthl urbandum if civilwar==0 & startyear>1899 &
    >  e(sample), family(gamma) link(log)

391 . tabstat newpolitymin1 if civilwar==0 & startyear>1899, s(mean) by(timeperiods) save

    Summary for variables: newpolitymin1
         by categories of: timeperiods (Time period)

    timeperiods |      mean
    ------------+----------
      1900-1949 |  .4833333
      1950-1984 |    -2.125
      1985-2014 | -1.930556
    ------------+----------
          Total | -1.085366
    ----------------------

392 . mat total1 = r(Stat1)

393 . mat total3 = r(Stat3)

394 . local newtot1 = total1[1,1]

395 . display `newtot1'
    .48333333

396 . local newtot3 = total3[1,1]

397 . display `newtot3'
    -1.9305556

398 . * Reassign var
399 . local lev1 = `newtot1'

400 . local lev3 = `newtot3'

401 . * Calculate marginal effects for success rates for each period
402 . margins, atmeans at(newpolitymin1=(`lev1' `lev3')) subpop(if civilwar==0)

    Adjusted predictions                            Number of obs     =        137
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : Predicted mean totaldeaths, predict()

    1. at        : success         =    .5109489 (mean)
                   newpolitym~1    =    .4833333
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    2._at        : success         =    .5109489 (mean)
                   newpolitym~1    =   -1.930556
                   urbancivic      =    .3722628 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   urbandum        =    .9343066 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   420.9962   87.68008     4.80   0.000     249.1464     592.846
              2  |   499.5181   97.34304     5.13   0.000     308.7292    690.3069
    ------------------------------------------------------------------------------

403 . * Calculate difference between marginal effects for each period
404 . scalar m1 = el(r(b),1,1)

405 . scalar m3 = el(r(b),1,2)

406 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
407 . tab timeperiods civilwar if startyear>1899, matcell(tper)

               |  Revolution involved
               | civil war? (sustained
         Time  |   warfare > 2 mos)
        period |        no        yes |     Total
    -----------+----------------------+----------
     1900-1949 |        62         60 |       122
     1950-1984 |        32         66 |        98
     1985-2014 |        75         48 |       123
    -----------+----------------------+----------
         Total |       169        174 |       343


408 . scalar ncwnum1 = tper[1,1]

409 . scalar ncwnum3 = tper[3,1]
```

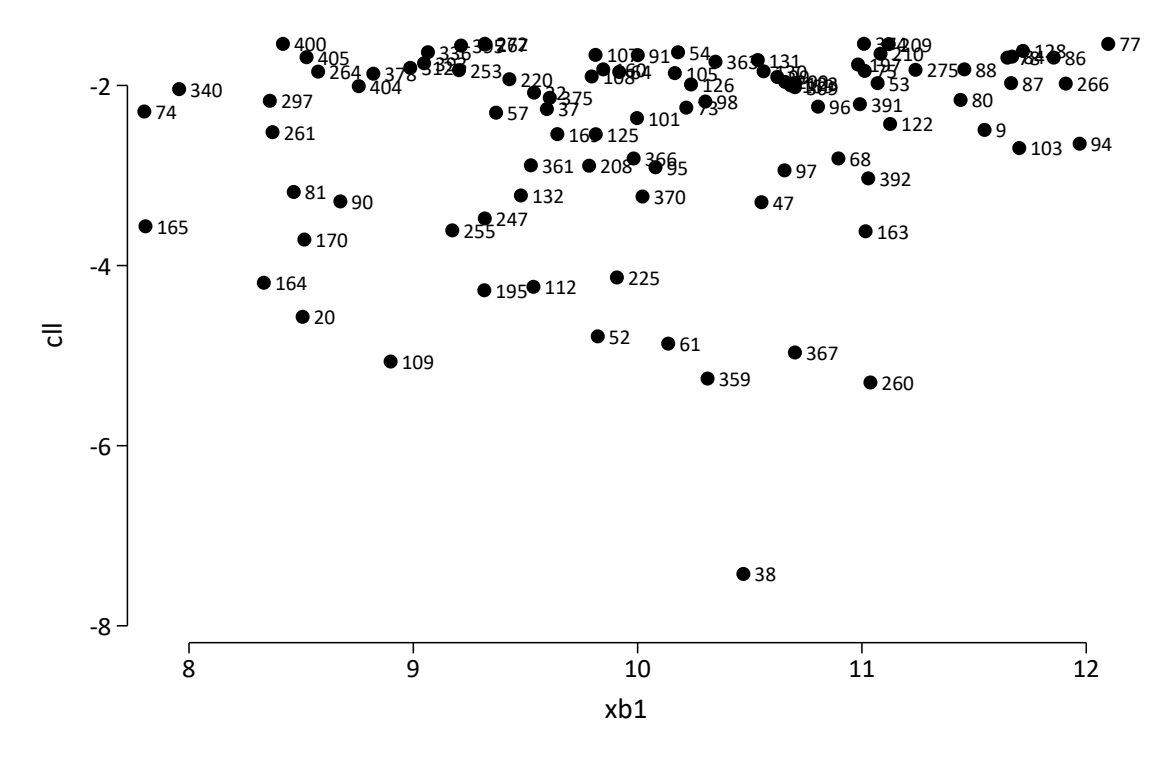
```
410 . display ncwnum1
    62

411 . display ncwnum3
    75

412 . scalar effper1 = m1 * ncwnum1

413 . scalar effper3 = m3 * ncwnum3

414 . display effper3 - effper1
    11362.09

415 . * Drop scalars and macros
416 . macro drop _all

417 . scalar drop _all

418 .
419 .
420 .
421 . log close
          name:  <unnamed>
           log:  C:\Users\mbeissin\Desktop\Stata files for book\Robustnesstestfiles\Logfiles\robustnesstestschapter8.l
    > og
      log type:  text
     closed on:  26 Jan 2022, 14:56:49
    ----------------------------------------------------------------------------------------------------------------------------------
```

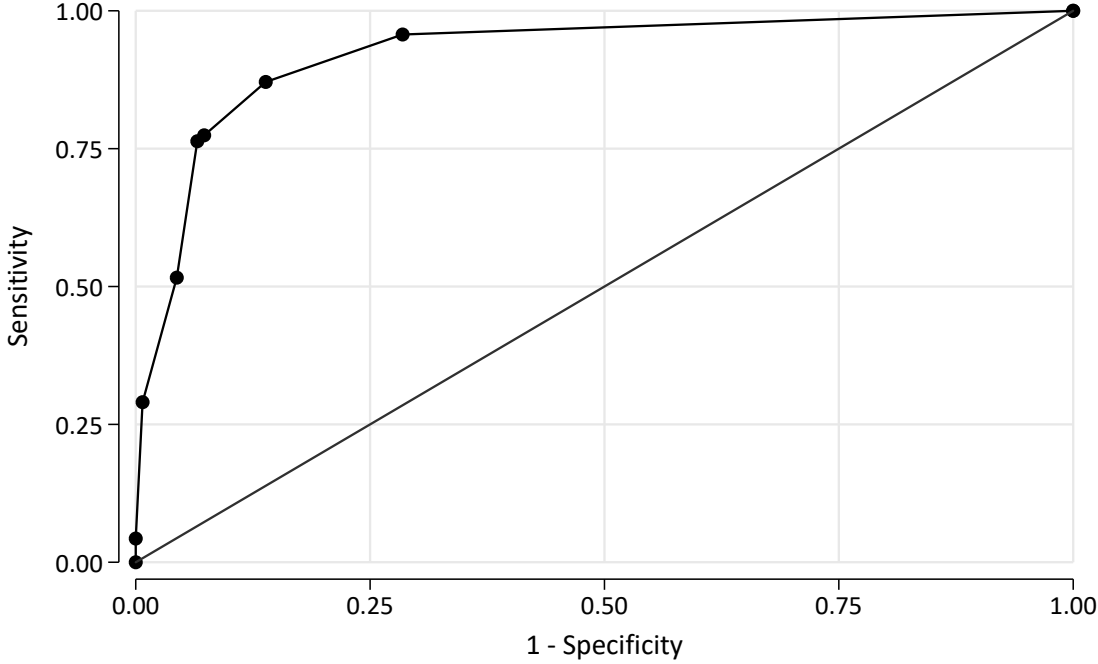


15
10
5
0
0
5
10
15
216
10
43
5
349
89
33
135
319
133
42
167
390
355
397
334
127
315
298
384
116
124
134
Ln (total deaths), calculated
Fitted values


15
10
5
5
10
15
Ln (total deaths), calculated
Fitted values


0
-5
-10
-15
cll
0
5
10
15
xb0
387
319
334
10
166
397
167
269
216
295
349
89
43
33
355
390
384


cll
xb1
-2
-4
-6
-8
8
9
10
11
12
400
405
264
378
404
340
74
297
261
165
81
90
170
164
20
109
253
220
57
37
275
101
125
361
208
366
95
132
370
247
255
195
112
225
52
61
359
38
367
260
47
97
68
392
163
391
122
9
103
94
80
275
88
87
266
53
105
126
98
73
54
91
131
365
77
86
78
128
410
409


1.00
0.75
0.50
0.25
0.00
Sensitivity
0.00
0.25
0.50
0.75
1.00
1 - Specificity
Area under ROC curve = 0.9230