(R)
Statistics/Data Analysis

User: Mark R. Beissinger
Project: The Revolutionary City

```
. *    switchcopula from http://www.stata-journal.com/software/sj13-3
       name:  <unnamed>
        log:  C:\Users\mbeissin\Desktop\Stata files for book\Logfiles\chapter8.log
  log type:  text
 opened on:  25 Jan 2022, 22:20:14

. * ============================================================================
. * STATISTICAL RESULTS APPEARING IN CHAPTER 8
. * STATA Do file for Chapter 8
. * Results reported in Chapter 8
. * Author: Mark R. Beissinger
. * Date:  January 2022
. * Princeton, NJ
. * ============================================================================
. * BEFORE RUNNING, YOU MUST SET THE DEFAULT PATH FOR WHERE THE DATA
. *   FILES RESIDE
. * ============================================================================
. * Before running, you must download the following package for STATA for running
. *    Brant command, from spost13_ado from https://jslsoc.sitehost.iu.edu/statatests
. *    switchcopula from http://www.stata-journal.com/software/sj13-3
. * ============================================================================
. * The following datafiles are used in this chapter:
. *   Data set of revolutionary episodes--revolutionaryeps.dta
. * ============================================================================
. * Output produced:  Logfiles\chapter8.log
. * ============================================================================
.
. * ============================================================
. * LEVELS OF VIOLENCE IN SOCIAL VS. OTHER REVOLUTIONARY EPISODES
. * ============================================================
. clear

. use revolutionaryeps.dta

. ttest totaldeaths if startyear>1899, by(leftist)

Two-sample t test with equal variances
------------------------------------------------------------------------------
Variable |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
      no |     250    55943.27    13214.04    208932.3    29917.73    81968.81
     yes |      75    155206.2    56824.23    492112.3    41981.46      268431
---------+--------------------------------------------------------------------
combined |     325     78850.1    16697.66    301021.3    46000.59    111699.6
---------+--------------------------------------------------------------------
    diff |           -99262.94    39306.46               -176591.9   -21933.95
------------------------------------------------------------------------------
    diff = mean(no) - mean(yes)                                   t =  -2.5254
Ho: diff = 0                     degrees of freedom =      323

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0060         Pr(|T| > |t|) = 0.0120          Pr(T > t) = 0.9940

. centile totaldeaths if startyear>1899 & success==1 & leftist==1, centile(60)

                                                    -- Binom. Interp. --
    Variable |       Obs  Percentile    Centile        [95% Conf. Interval]
-------------+-------------------------------------------------------------
 totaldeaths |        22          60       48000         12056.1    656414.3

. sum totaldeaths if startyear>1899 & success==1 & leftist==1, detail

                    Total deaths in episode
-------------------------------------------------------------
      Percentiles      Smallest
 1%            4              4
 5%            5              5
10%          600            600       Obs                  22
25%         2096            600       Sum of Wgt.          22

50%        25500                      Mean           375141.3
                        Largest       Std. Dev.      771004.5
75%       250000         790000
90%      1000000        1000000       Variance       5.94e+11
95%      2100000        2100000       Skewness       2.429031
99%      3000000        3000000       Kurtosis       8.013901

.
. * Median levels of violence in other revolutions, by success
. sum totaldeaths if startyear>1899 & success==0 & leftist==0, detail

                    Total deaths in episode
-------------------------------------------------------------
      Percentiles      Smallest
 1%            0              0
 5%            1              0
10%           11              0       Obs                 149
25%          163              0       Sum of Wgt.         149

50%         3000                      Mean           46467.36
                        Largest       Std. Dev.      198258.6
75%        20218         420000
90%        90000         500000       Variance       3.93e+10
95%       176667         500000       Skewness       9.537795
99%       500000        2250000       Kurtosis       104.2947
```

```
34 . sum totaldeaths if startyear>1899 & success==1 & leftist==0, detail
```

Total deaths in episode

| Percentiles | | Smallest | | |
|---|---|---|---|---|
| 1% | 0 | 0 | | |
| 5% | 0 | 0 | | |
| 10% | 1 | 0 | Obs | 101 |
| 25% | 10 | 0 | Sum of Wgt. | 101 |
| 50% | 103 | | Mean | 69922.59 |
| | Largest | | Std. Dev. | 224032.4 |
| 75% | 2629 | 766667 | | |
| 90% | 200000 | 815000 | Variance | 5.02e+10 |
| 95% | 370000 | 1023333 | Skewness | 4.295655 |
| 99% | 1023333 | 1500000 | Kurtosis | 22.89967 |

```
35 . * All revolutionary episodes
36 . tab deathscat success if startyear>1899, col
```

| Key |
|---|
| frequency |
| column percentage |

| Deaths category | Succeeded in gaining power? no | yes | Total |
|---|---|---|---|
| <=10 | 16 | 29 | 45 |
| | 7.92 | 23.58 | 13.85 |
| >10 and <=100 | 22 | 23 | 45 |
| | 10.89 | 18.70 | 13.85 |
| >100 and <=1000 | 32 | 16 | 48 |
| | 15.84 | 13.01 | 14.77 |
| >1000 and <= 10000 | 60 | 18 | 78 |
| | 29.70 | 14.63 | 24.00 |
| >10000 and <=50000 | 34 | 13 | 47 |
| | 16.83 | 10.57 | 14.46 |
| >50000 | 38 | 24 | 62 |
| | 18.81 | 19.51 | 19.08 |
| Total | 202 | 123 | 325 |
| | 100.00 | 100.00 | 100.00 |

```
37 .
38 . * ================================================
39 . * TABLE 8.1, DEATH CATEGORIES ACROSS TIME PERIODS
40 . * ================================================
41 . tab deathscat timeperiod, col
```

| Key |
|---|
| frequency |
| column percentage |

| Deaths category | Time period 1900-1949 | 1950-1984 | 1985-2014 | Total |
|---|---|---|---|---|
| <=10 | 7 | 7 | 31 | 45 |
| | 6.31 | 7.69 | 25.20 | 13.85 |
| >10 and <=100 | 16 | 9 | 20 | 45 |
| | 14.41 | 9.89 | 16.26 | 13.85 |
| >100 and <=1000 | 18 | 11 | 19 | 48 |
| | 16.22 | 12.09 | 15.45 | 14.77 |
| >1000 and <= 10000 | 32 | 19 | 27 | 78 |
| | 28.83 | 20.88 | 21.95 | 24.00 |
| >10000 and <=50000 | 16 | 20 | 11 | 47 |
| | 14.41 | 21.98 | 8.94 | 14.46 |
| >50000 | 22 | 25 | 15 | 62 |
| | 19.82 | 27.47 | 12.20 | 19.08 |
| Total | 111 | 91 | 123 | 325 |
| | 100.00 | 100.00 | 100.00 | 100.00 |

```
. 
. * ====================================================
. * TOTAL DEATHS IN REVOLUTIONARY EPISODES BY TIME PERIOD
. * ====================================================
. table timeperiods if startyear>1899, c(sum totaldeaths) format(%13.0f)

-------------------------
Time      |
period    | sum(totald~s)
----------+--------------
1900-1949 |      12067089
1950-1984 |      10725404
1985-2014 |       2833791
-------------------------

. * Calculate difference, prorating Cold War deaths by number of years (35) compared to post-Cold War (30)
. 
. * ====================================
. * DURATION OF EPISODES WITH CIVIL WARS
. * ====================================
. sum monthsduration if civilwar==1 & startyear>1899, detail

                    Months duration (total)
-------------------------------------------------------------
      Percentiles      Smallest
 1%             3              3
 5%             4              3
10%             7              3       Obs                 174
25%            24              3       Sum of Wgt.         174

50%          53.5                      Mean           109.5632
                        Largest       Std. Dev.      129.2996
75%           151            480
90%           300            550       Variance       16718.4
95%           410            613       Skewness       1.836509
99%           613            644       Kurtosis        6.20942

. 
. * ================================================================
. * RESPONSIBILITY OF CIVIL WARS FOR DEATHS IN REVOLUTIONARY EPISODES
. * ================================================================
. table civilwar if startyear>1899, c(sum totaldeaths)

-------------------------
Revolutio |
n         |
involved  |
civil     |
war?      |
(sustaine |
d warfare |
> 2 mos)  | sum(totald~s)
----------+--------------
       no |        301111
      yes |      2.53e+07
-------------------------

. tab deathscat civilwar if startyear>1899, col

+--------------------+
| Key                |
|--------------------|
|     frequency      |
| column percentage  |
+--------------------+

                    |  Revolution involved
                    | civil war? (sustained
                    |   warfare > 2 mos)
   Deaths category  |        no        yes |     Total
--------------------+----------------------+----------
              <=10  |        45          0 |        45
                    |     27.61       0.00 |     13.85
--------------------+----------------------+----------
     >10 and <=100  |        44          1 |        45
                    |     26.99       0.62 |     13.85
--------------------+----------------------+----------
   >100 and <=1000  |        36         12 |        48
                    |     22.09       7.41 |     14.77
--------------------+----------------------+----------
>1000 and <= 10000  |        31         47 |        78
                    |     19.02      29.01 |     24.00
--------------------+----------------------+----------
>10000 and <=50000  |         6         41 |        47
                    |      3.68      25.31 |     14.46
--------------------+----------------------+----------
            >50000  |         1         61 |        62
                    |      0.61      37.65 |     19.08
--------------------+----------------------+----------
              Total |       163        162 |       325
                    |    100.00     100.00 |    100.00
```

```
59 .
60 . * ============================================================================
61 . * FIGURE 8.1, RELATIONSHIP BETWEEN TIME AND DEATHS IN REVOLUTIONARY EPIOSDES
62 . *   INVOLVING CIVIL WARS
63 . * ============================================================================
64 . glm totaldeaths c.newstartyr##c.newstartyr if civilwar==1 & startyear>1899, family(gamma) link(log) vce(robust)

Iteration 0:   log pseudolikelihood = -2141.3773
Iteration 1:   log pseudolikelihood = -2068.7148
Iteration 2:   log pseudolikelihood = -2067.8906
Iteration 3:   log pseudolikelihood = -2067.8881
Iteration 4:   log pseudolikelihood = -2067.8881

Generalized linear models                         No. of obs      =        162
Optimization     : ML                             Residual df     =        159
                                                  Scale parameter =   5.537674
Deviance         =  593.8193374                   (1/df) Deviance =   3.734713
Pearson          =  880.4901023                   (1/df) Pearson  =   5.537674

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

                                                  AIC             =   25.56652
Log pseudolikelihood = -2067.888085               BIC             =  -215.1085

------------------------------------------------------------------------------
             |               Robust
totaldeaths |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  newstartyr |   .0614656   .0240986     2.55   0.011     .0142332    .1086979
             |
c.newstartyr#c.newstartyr |  -.0006663    .000183    -3.64   0.000     -.001025   -.0003076
             |
       _cons |   11.20978   .7308596    15.34   0.000      9.77732    12.64224
------------------------------------------------------------------------------

65 . margins, at(newstartyr=(0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115))

Adjusted predictions                              Number of obs     =        162
Model VCE    : Robust

Expression   : Predicted mean totaldeaths, predict()

1._at        : newstartyr      =           0

2._at        : newstartyr      =           5

3._at        : newstartyr      =          10

4._at        : newstartyr      =          15

5._at        : newstartyr      =          20

6._at        : newstartyr      =          25

7._at        : newstartyr      =          30

8._at        : newstartyr      =          35

9._at        : newstartyr      =          40

10._at       : newstartyr      =          45

11._at       : newstartyr      =          50

12._at       : newstartyr      =          55

13._at       : newstartyr      =          60

14._at       : newstartyr      =          65

15._at       : newstartyr      =          70

16._at       : newstartyr      =          75

17._at       : newstartyr      =          80

18._at       : newstartyr      =          85

19._at       : newstartyr      =          90

20._at       : newstartyr      =          95

21._at       : newstartyr      =         100

22._at       : newstartyr      =         105

23._at       : newstartyr      =         110

24._at       : newstartyr      =         115
```

```
------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          at |
           1  |   73849.09   53973.32     1.37   0.171    -31936.67    179634.8
           2  |   98760.02   62052.02     1.59   0.111    -22859.71    220379.8
           3  |   127746.1   68649.96     1.86   0.063    -6805.328    262297.6
           4  |     159825   73333.52     2.18   0.029     16093.96    303556.1
           5  |     193407   76099.59     2.54   0.011      44254.6    342559.5
           6  |     226376   77426.13     2.92   0.003     74623.55    378128.4
           7  |   256282.5   78093.25     3.28   0.001     103222.5    409342.4
           8  |   280632.5   78758.96     3.56   0.000     126267.7    434997.2
           9  |   297226.4   79505.63     3.74   0.000     141398.3    453054.6
          10  |   304486.1   79723.79     3.82   0.000     148230.3    460741.9
          11  |   301701.9   78450.75     3.85   0.000     147941.2    455462.5
          12  |   289147.2   74883.95     3.86   0.000     142377.4      435917
          13  |   268034.4    68740.8     3.90   0.000     133304.9    402763.9
          14  |   240321.5   60351.83     3.98   0.000      122034    358608.9
          15  |   208413.1    50537.9     4.12   0.000     109360.7    307465.6
          16  |   174818.8   40371.47     4.33   0.000     95692.14    253945.4
          17  |   141834.4   30914.95     4.59   0.000      81242.2    202426.6
          18  |   111302.7   22997.99     4.84   0.000     66227.44    156377.9
          19  |    84481.2   17053.07     4.95   0.000      51057.8    117904.6
          20  |    62021.9   13013.74     4.77   0.000     36515.44    87528.37
          21  |   44041.35   10366.12     4.25   0.000     23724.12    64358.57
          22  |   30248.69   8460.664     3.58   0.000     13666.09    46831.29
          23  |   20094.77   6855.745     2.93   0.003     6657.759    33531.78
          24  |    12911.9   5390.032     2.40   0.017     2347.629    23476.17
------------------------------------------------------------------------------

 66 .
 67 .
 68 . * ==========================================
 69 . * TESTING FOR BEST COPULA FOR SWITCHING MODEL
 70 . * ==========================================
 71 . * Program for identifying cupolas
 72 . * Set specification
 73 . * See below--Tables 8.2, 8.3, and 8.4 for selection of model specifications
 74 . * Define x0
 75 . local x0 = " success newpolitymin1 urbancivic newgdppcthl urbandum "

 76 . * Define x1
 77 . local x1 = "lnmonthsdur urbpercbefrev success "

 78 . * Define xs
 79 . local xs = "urbandum leftist ethnicorder "

 80 . * Define y0
 81 . local y0 = "lndeaths "

 82 . * Define y1
 83 . local y1 = "lndeaths "

 84 . * Define s
 85 . local s = "civilwar "

 86 .
 87 . * Program
 88 . * the benchmark model under the joint normality
 89 . quietly switchcopula (`y0' = `x0') (`y1' = `x1'), select(`s' = `xs') iterate(75)

 90 . * after the copula estimation
 91 . predict xb0_0, xb0
    (20 missing values generated)

 92 . predict xb1_0, xb1
    (96 missing values generated)

 93 . predict cll0, cll

 94 . local llmax = `e(ll)'

 95 . display `llmax'
    -572.93932

 96 . * Program for finding best combination of cupolas
 97 . * Finding the best-fitting copulas by using two loops
 98 . * First loop
 99 . foreach copula in list product gaussian fgm plackett amh frank clayton gumbel joe {
      2. capture switchcopula (`y0' = `x0') (`y1' = `x1'), select(`s' = `xs') copula0(gaussian) copula1(`copula') iter
    > ate(75)
      3. if `e(ll)' > `llmax' {
      4. local llmax = `e(ll)'
      5. local bestcop1 = "`copula'"
      6. }
      7. }

100 . * Second loop
```

```
101 . foreach copula in list product gaussian fgm plackett amh frank clayton gumbel joe {
  2. capture switchcopula (`y0' = `x0') (`y1' = `x1'), select(`s' = `xs') copula0(`copula') copula1(`bestcop1') it
> erate(75)
  3. if `e(ll)' > `llmax' {
  4. local llmax = `e(ll)'
  5. local bestcop0 = "`copula'"
  6. }
  7. capture switchcopula (`y0' = `x0') (`y1' = `x1'), select(`s' = `xs') copula0(`bestcop0') copula1(`bestcop1')
> iterate(75)
  8. estimates store best_model
  9. }

102 . * display the estimation result of the selected copula
103 . estimates replay best_model

------------------------------------------------------------------------------------------------------------------------
Model best_model
------------------------------------------------------------------------------------------------------------------------

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

                                                Number of obs     =        230
                                                Wald chi2(3)      =     102.08
Log likelihood = -569.93973                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
      leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
  ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
        _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
   urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
  newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484297   -.1039428
     urbandum |  -4.682154   .8777556    -5.33   0.000    -6.402523   -2.961784
        _cons |   10.96281   .8876305    12.35   0.000      9.22309    12.70254
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
      success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
        _cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0372385   .4810269     0.08   0.938    -.9055568    .9800339
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.474984   181.2114     0.04   0.971    -348.6929    361.6428
-------------+----------------------------------------------------------------
       sigma0 |   2.292617   .1450751                     2.025201    2.595344
       sigma1 |   1.827581   .1340264                       1.5829    2.110085
       theta0 |   1.037941   .4992773                      .4043167    2.664547
       theta1 |   .9999952   .0017224                           -1           1
         tau0 |  -.3416593   .1081965                     -.5712338   -.1681628
         tau1 |  -.2222212   .0003828                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.283 with p-value  0.0100
------------------------------------------------------------------------------

104 . display "`bestcop0'" " `bestcop1'"
clayton fgm

105 . drop xb0_0 xb1_0 cll0 _est_best_model

106 . * Best copulas were Clayton/FGM
107 .
108 . * ================================================================
109 . * INFORMATION CRITERION TESTS AND VUONG TEST ON CLAYTON-FGM COPULA
110 . *   SWITCHING REGRESSION MODEL VS. JOINT NORMAL
111 . * ================================================================
112 . * Joint normal model
113 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
>  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder)

Iteration 0:   log likelihood = -574.00905
Iteration 1:   log likelihood = -573.04019
Iteration 2:   log likelihood = -572.93986
Iteration 3:   log likelihood = -572.93932
Iteration 4:   log likelihood = -572.93932

Swithching Regression: Copulas gaussian-gaussian, Margins probit-normal-normal

                                                Number of obs     =        230
                                                Wald chi2(3)      =     100.25
Log likelihood = -572.93932                     Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.171943     .24164    -8.99   0.000    -2.645548   -1.698337
      leftist |   .5806096   .2441787     2.38   0.017     .1020282    1.059191
  ethnicorder |   1.389494   .2869047     4.84   0.000     .8271707    1.951817
        _cons |   .6754455   .2246871     3.01   0.003     .2350669    1.115824
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.586283    .424803    -3.73   0.000    -2.418882   -.7536847
newpolitymin1 |  -.1009483   .0343762    -2.94   0.003    -.1683244   -.0335721
   urbancivic |  -1.667561   .4349603    -3.83   0.000    -2.520068   -.8150548
  newgdppcthl |   -.226909   .0660136    -3.44   0.001    -.3562932   -.0975248
     urbandum |  -3.026546      1.412    -2.14   0.032    -5.794015   -.2590767
        _cons |   9.233353   1.611985     5.73   0.000     6.073921    12.39278
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5572673   .1547813     3.60   0.000     .2539015     .860633
      success |   1.147254   .3884865     2.95   0.003      .385834    1.908673
urbpercbefrev |  -.0288776   .0124199    -2.33   0.020    -.0532202   -.004535
        _cons |   7.900448   .7755324    10.19   0.000     6.380433    9.420464
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8396417   .0668183    12.57   0.000     .7086801    .9706032
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6064952   .0747724     8.11   0.000      .459944    .7530464
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .2565431   .3777306     0.68   0.497    -.4837953    .9968814
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   .3020238   .2202421     1.37   0.170    -.1296428    .7336905
-------------+----------------------------------------------------------------
       sigma0 |   2.315537   .1547204                      2.031308    2.639536
       sigma1 |   1.833992    .137132                      1.583985    2.123459
       theta0 |   .2510593   .3539219                      -.449278    .7602813
       theta1 |   .2931636   .2013134                     -.1289214     .625318
         tau0 |  -.1615578   .2327689                     -.5498778    .2966374
         tau1 |  -.1894161     .13405                     -.4300614     .082303
------------------------------------------------------------------------------
LR test of independence :        Test statistic    2.284 with p-value  0.3192
------------------------------------------------------------------------------

114 . estat ic

    Akaike's information criterion and Bayesian information criterion

    -----------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+---------------------------------------------------------------
               . |        230         .  -572.9393      18    1181.879   1243.764
    -----------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

115 . predict cll0 if e(sample), cll
    (115 missing values generated)

116 . * Copula model with highest log-likelihood (clayton-fgm)
117 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.06379  (not concave)
    Iteration 1:   log likelihood = -574.09006  (not concave)
    Iteration 2:   log likelihood = -573.25352
    Iteration 3:   log likelihood = -570.39348
    Iteration 4:   log likelihood = -569.95645
    Iteration 5:   log likelihood = -569.94319
    Iteration 6:   log likelihood = -569.94048
    Iteration 7:   log likelihood =  -569.9399
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
          leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
      ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
            _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
    newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
       urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
      newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484297   -.1039428
         urbandum |  -4.682154   .8777555    -5.33   0.000    -6.402523   -2.961785
            _cons |   10.96281   .8876303    12.35   0.000      9.22309    12.70254
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
          success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
```

```
urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
        _cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
--------------+----------------------------------------------------------------
lnsigma0      |
        cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
--------------+----------------------------------------------------------------
lnsigma1      |
        _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
--------------+----------------------------------------------------------------
atheta0       |
        _cons |   .0372386   .4810265     0.08   0.938    -.9055561    .9800333
--------------+----------------------------------------------------------------
atheta1       |
        _cons |   6.474984   181.2114     0.04   0.971    -348.6929    361.6428
--------------+----------------------------------------------------------------
       sigma0 |   2.292617    .145075                     2.025201    2.595344
       sigma1 |   1.827581   .1340264                       1.5829    2.110085
       theta0 |   1.037941    .499277                      .404317    2.664545
       theta1 |   .9999952   .0017224                           -1           1
         tau0 |  -.3416593   .1081964                     -.5712336   -.1681629
         tau1 |  -.2222212   .0003828                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.283 with p-value  0.0100
------------------------------------------------------------------------------

118 . estat ic

    Akaike's information criterion and Bayesian information criterion

    -------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+-----------------------------------------------------------------
               . |        230         .  -569.9397      18    1175.879   1237.765
    -------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

119 . predict cll1 if e(sample), cll
    (115 missing values generated)

120 . quietly generate dll = cll1 - cll0

121 . regress dll

          Source |       SS           df       MS      Number of obs   =       230
    -------------+----------------------------------   F(0, 229)       =      0.00
           Model |           0         0           .   Prob > F        =         .
        Residual |  57.2733845       229  .250102116   R-squared       =    0.0000
    -------------+----------------------------------   Adj R-squared   =    0.0000
           Total |  57.2733845       229  .250102116   Root MSE        =     .5001

    ------------------------------------------------------------------------------
             dll |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
           _cons |  -.1013197   .0329758    -3.07   0.002    -.1662944    -.036345
    ------------------------------------------------------------------------------

122 . * RESULT:  AIC and BIC of the Clayton-FGM copula model are significantly lower and statistically preferred to th
    > e joint normal model.
123 . *         Vuong test is statistically significant, confirming superiority of copula model
124 . drop cll1 cll0 dll

125 .
126 . * ============================================================================
127 . * INFORMATION CRITERION TESTS FOR IDENTIFYING PROPER DISTRIBUTION OF MARGINALS
128 . * ============================================================================
129 . * Normal marginals
130 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.06379  (not concave)
    Iteration 1:   log likelihood = -574.09006  (not concave)
    Iteration 2:   log likelihood = -573.25352
    Iteration 3:   log likelihood = -570.39348
    Iteration 4:   log likelihood = -569.95645
    Iteration 5:   log likelihood = -569.94319
    Iteration 6:   log likelihood = -569.94048
    Iteration 7:   log likelihood =  -569.9399
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                  |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    --------------+---------------------------------------------------------------
    select        |
         urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
          leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
      ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
            _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
    --------------+---------------------------------------------------------------
    regime0       |
          success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
    newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
       urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
      newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484297   -.1039428
```

```
     urbandum |  -4.682154   .8777555    -5.33   0.000    -6.402523   -2.961785
        _cons |   10.96281   .8876303    12.35   0.000      9.22309    12.70254
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
      success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
        _cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0372386   .4810265     0.08   0.938    -.9055561    .9800333
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.474984   181.2114     0.04   0.971    -348.6929    361.6428
-------------+----------------------------------------------------------------
       sigma0 |   2.292617    .145075                      2.025201    2.595344
       sigma1 |   1.827581   .1340264                       1.5829    2.110085
       theta0 |   1.037941    .499277                      .404317    2.664545
       theta1 |   .9999952   .0017224                           -1           1
         tau0 |  -.3416593   .1081964                     -.5712336   -.1681629
         tau1 |  -.2222212   .0003828                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.283 with p-value  0.0100
------------------------------------------------------------------------------
```

```
131 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+----------------------------------------------------------------
               . |        230         .  -569.9397      18    1175.879    1237.765
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

132 . * Margin1 as t
133 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(t) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.02001  (not concave)
    Iteration 1:   log likelihood = -574.13777  (not concave)
    Iteration 2:   log likelihood = -573.29463
    Iteration 3:   log likelihood = -570.38814
    Iteration 4:   log likelihood = -569.96394
    Iteration 5:   log likelihood = -569.94477
    Iteration 6:   log likelihood = -569.94091
    Iteration 7:   log likelihood =    -569.94
    Iteration 8:   log likelihood = -569.93978
    Iteration 9:   log likelihood = -569.93974

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93974                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                  |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    --------------+---------------------------------------------------------------
    select        |
         urbandum |   -2.21144   .2424121    -9.12   0.000    -2.686559   -1.736321
          leftist |   .5557477   .2281096     2.44   0.015     .1086612    1.002834
      ethnicorder |      1.499   .2691034     5.57   0.000      .971567    2.026433
            _cons |   .6859117   .2232425     3.07   0.002     .2483644    1.123459
    --------------+---------------------------------------------------------------
    regime0       |
          success |  -1.647389   .4243604    -3.88   0.000     -2.47912   -.8156579
    newpolitymin1 |  -.1013099    .034569    -2.93   0.003     -.169064   -.0335558
       urbancivic |  -1.681994   .4300327    -3.91   0.000    -2.524843   -.8391458
      newgdppcthl |  -.2261883   .0623707    -3.63   0.000    -.3484326   -.1039441
         urbandum |  -4.682058   .8777931    -5.33   0.000    -6.402501   -2.961616
             cons |   10.96272   .8876723    12.35   0.000     9.222913    12.70252
    --------------+---------------------------------------------------------------
    regime1       |
      lnmonthsdur |   .5766505   .1454592     3.96   0.000     .2915556    .8617453
          success |   1.177383   .3773137     3.12   0.002     .4378622    1.916905
    urbpercbefrev |  -.0291286    .011957    -2.44   0.015    -.0525639   -.0056934
            _cons |   7.813645   .6699679    11.66   0.000     6.500532    9.126758
    --------------+---------------------------------------------------------------
    lnsigma0      |
            _cons |   .8296939   .0632792    13.11   0.000     .7056691    .9537188
    --------------+---------------------------------------------------------------
    lnsigma1      |
            _cons |   .6029828   .0733348     8.22   0.000     .4592492    .7467164
    --------------+---------------------------------------------------------------
    lndf1         |
            _cons |   14.45085    182.742     0.08   0.937    -343.7168    372.6185
    --------------+---------------------------------------------------------------
    atheta0       |
            _cons |   .0371493   .4810706     0.08   0.938    -.9057317    .9800304
    --------------+---------------------------------------------------------------
    atheta1       |
            _cons |   6.420322   171.5754     0.04   0.970    -329.8614     342.702
```

```
--------------+----------------------------------------------------------------
       sigma0 |   2.292617   .1450749                      2.025201    2.595343
       sigma1 |   1.827562   .1340239                      1.582885     2.11006
       theta0 |   1.037848   .4992782                       .404246    2.664537
       theta1 |   .9999947   .0018192                            -1           1
          df1 |    1887665   3.45e+08                      5.3e-150    6.7e+161
          tau0 |  -.3416392   .1082033                     -.5712329   -.1681384
          tau1 |   -.222221   .0004043                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.193 with p-value  0.0104
------------------------------------------------------------------------------
```

```
134 . estat ic

    Akaike's information criterion and Bayesian information criterion

-------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+-----------------------------------------------------------------
           . |        230         .  -569.9397      19    1177.879   1243.203
-------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
135 . * Margin0 as t
136 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(t) margsel(normal)

    Iteration 0:   log likelihood = -580.30377  (not concave)
    Iteration 1:   log likelihood = -574.20495  (not concave)
    Iteration 2:   log likelihood =  -573.0976
    Iteration 3:   log likelihood = -570.48104
    Iteration 4:   log likelihood =  -569.9586
    Iteration 5:   log likelihood = -569.94397
    Iteration 6:   log likelihood = -569.94062
    Iteration 7:   log likelihood = -569.93986  (not concave)
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973
    Iteration 10:  log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.07
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.211349   .2424084    -9.12   0.000    -2.686461   -1.736237
          leftist |   .5557689   .2281079     2.44   0.015     .1086855    1.002852
      ethnicorder |   1.499044   .2691019     5.57   0.000     .9716143    2.026474
            _cons |   .6858123    .223238     3.07   0.002     .2482739    1.123351
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.647419   .4243646    -3.88   0.000    -2.479158   -.8156793
    newpolitymin1 |  -.1013119   .0345693    -2.93   0.003    -.1690666   -.0335572
       urbancivic |  -1.681993   .4300372    -3.91   0.000     -2.52485   -.8391352
      newgdppcthl |  -.2261827   .0623713    -3.63   0.000    -.3484282   -.1039372
         urbandum |  -4.682084   .8777671    -5.33   0.000    -6.402476   -2.961692
            _cons |   10.96274   .8876434    12.35   0.000     9.222994    12.70249
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5766544   .1454609     3.96   0.000     .2915563    .8617526
          success |   1.177396    .377318     3.12   0.002     .4378666    1.916926
    urbpercbefrev |  -.0291284   .0119571    -2.44   0.015    -.0525639   -.0056929
            _cons |   7.813605   .6699752    11.66   0.000     6.500478    9.126732
    -------------+----------------------------------------------------------------
    lnsigma0     |
             cons |   .8297047    .06328    13.11   0.000     .7056781    .9537312
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |    .602996   .0733356     8.22   0.000     .4592608    .7467312
    -------------+----------------------------------------------------------------
    lndf0        |
            _cons |   16.65614   92.16192     0.18   0.857    -163.9779    197.2902
    -------------+----------------------------------------------------------------
    atheta0      |
             cons |   .0371845   .4810601     0.08   0.938     -.905676    .9800449
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   7.356909   437.7038     0.02   0.987    -850.5268    865.2406
    -------------+----------------------------------------------------------------
           sigma0 |   2.292642   .1450783                      2.02522    2.595375
           sigma1 |   1.827586   .1340271                     1.582904    2.110091
           theta0 |   1.037884   .4992848                     .4042685    2.664576
           theta1 |   .9999992    .000713                           -1           1
              df0 |   1.71e+07   1.58e+09                     6.10e-72    4.81e+85
            tau0 |  -.3416471   .1082021                     -.5712365   -.1681462
            tau1 |   -.222222   .0001585                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.283 with p-value  0.0100
    ------------------------------------------------------------------------------
```

```
137 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        230         .  -569.9397      19    1177.879   1243.203
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.

138 . * Margin0 as t and Margin1 as t (does not converge, must confine iterations to 11)
139 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
>  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
> m) margin1(t) margin0(t) margsel(normal) iterate(11)

Iteration 0:   log likelihood = -580.25999  (not concave)
Iteration 1:   log likelihood = -574.24891  (not concave)
Iteration 2:   log likelihood = -573.14688
Iteration 3:   log likelihood = -570.44174
Iteration 4:   log likelihood =  -569.9659
Iteration 5:   log likelihood = -569.94542  (not concave)
Iteration 6:   log likelihood = -569.94288
Iteration 7:   log likelihood = -569.94045
Iteration 8:   log likelihood =  -569.9399  (not concave)
Iteration 9:   log likelihood = -569.93977  (not concave)
Iteration 10:  log likelihood = -569.93975
Iteration 11:  log likelihood = -569.93973  (not concave)
convergence not achieved

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

                                                Number of obs     =        230
                                                Wald chi2(3)      =     102.08
Log likelihood = -569.93973                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.211522   .2424168    -9.12   0.000     -2.68665   -1.736393
      leftist |   .5556983   .2281097     2.44   0.015     .1086115    1.002785
  ethnicorder |   1.499028   .2691046     5.57   0.000     .9715929    2.026463
        _cons |   .6859839   .2232471     3.07   0.002     .2484276     1.12354
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.647419   .4243728    -3.88   0.000    -2.479175    -.815664
newpolitymin1 |  -.1013124   .0345699    -2.93   0.003    -.1690682   -.0335566
   urbancivic |  -1.682003   .4300452    -3.91   0.000    -2.524876   -.8391303
  newgdppcthl |  -.2261852   .0623719    -3.63   0.000    -.3484318   -.1039386
     urbandum |  -4.682514   .8777642    -5.33   0.000      -6.4029   -2.962127
        _cons |   10.96318   .8876373    12.35   0.000     9.223446    12.70292
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |    .576642    .145461     3.96   0.000     .2915437    .8617403
      success |   1.177382   .3773186     3.12   0.002     .4378512    1.916913
urbpercbefrev |  -.0291292   .0119571    -2.44   0.015    -.0525647   -.0056936
        _cons |   7.813691   .6699753    11.66   0.000     6.500563    9.126818
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8297244   .0632816    13.11   0.000     .7056949     .953754
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6029954   .0733357     8.22   0.000     .4592601    .7467308
-------------+----------------------------------------------------------------
lndf0        |
        _cons |   18.16187          .        .       .            .           .
-------------+----------------------------------------------------------------
lndf1        |
        _cons |   14.17935          .        .       .            .           .
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0372337   .4810258     0.08   0.938    -.9055595     .980027
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   7.162277   360.3203     0.02   0.984    -699.0525    713.3771
-------------+----------------------------------------------------------------
       sigma0 |   2.292687   .1450848                      2.025253    2.595435
       sigma1 |   1.827585   .1340272                      1.582902     2.11009
       theta0 |   1.037936   .4992738                      .4043156    2.664528
       theta1 |   .9999988   .0008663                            -1           1
          df0 |   7.72e+07          .                             .           .
          df1 |    1438847          .                             .           .
         tau0 |  -.3416582   .1081961                     -.5712321   -.1681624
         tau1 |   -.222222   .0001925                     -.2222222    .2222222
------------------------------------------------------------------------------
Warning: convergence not achieved
LR test of independence :        Test statistic    8.193 with p-value  0.0104
------------------------------------------------------------------------------
```

```
140 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        230         .  -569.9397      18    1175.879   1237.765
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.

141 . * Selection portion of model as logit
142 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(logit)

Iteration 0:   log likelihood = -580.54764  (not concave)
Iteration 1:   log likelihood = -574.33342
Iteration 2:   log likelihood = -572.91496
Iteration 3:   log likelihood = -570.44788
Iteration 4:   log likelihood = -570.27793
Iteration 5:   log likelihood = -570.23941
Iteration 6:   log likelihood = -570.23232
Iteration 7:   log likelihood =  -570.2307
Iteration 8:   log likelihood =  -570.2303
Iteration 9:   log likelihood = -570.23022
Iteration 10:  log likelihood =  -570.2302

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

                                                Number of obs     =        230
                                                Wald chi2(3)      =      78.63
Log likelihood =  -570.2302                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |   -3.82011   .4602365    -8.30   0.000    -4.722157   -2.918063
      leftist |   1.003552   .4316993     2.32   0.020     .1574366    1.849667
  ethnicorder |    2.62833   .4871517     5.40   0.000      1.67353    3.583129
        _cons |   1.178061   .3958805     2.98   0.003      .402149    1.953972
-------------+----------------------------------------------------------------
regime0      |
      success |    -1.6447   .4242711    -3.88   0.000    -2.476256   -.8131437
newpolitymin1 |  -.1012074   .0346019    -2.92   0.003    -.1690258   -.0333889
   urbancivic |   -1.68422   .4299616    -3.92   0.000    -2.526929   -.8415105
  newgdppcthl |  -.2236339   .0626344    -3.57   0.000     -.346395   -.1008728
     urbandum |  -4.637518   .9125421    -5.08   0.000    -6.426067   -2.848968
        _cons |   10.90671   .9278463    11.75   0.000     9.088165    12.72526
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5766183   .1454602     3.96   0.000     .2915215    .8617151
      success |   1.175376   .3772554     3.12   0.002     .4359689    1.914783
urbpercbefrev |  -.0292104   .0119568    -2.44   0.015    -.0526453   -.0057755
        _cons |   7.818941   .6701303    11.67   0.000      6.50551    9.132372
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8285651   .0631799    13.11   0.000     .7047348    .9523953
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6026859   .0733081     8.22   0.000     .4590047    .7463671
-------------+----------------------------------------------------------------
atheta0      |
        _cons |  -.0271295   .5087847    -0.05   0.957    -1.024329    .9700702
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.758056   235.5364     0.03   0.977    -454.8848     468.401
-------------+----------------------------------------------------------------
       sigma0 |    2.29003   .1446838                      2.02331    2.591911
       sigma1 |   1.827019   .1339353                     1.582498    2.109323
       theta0 |   .9732352   .4951672                     .3590372     2.63813
       theta1 |   .9999973    .001271                           -1           1
         tau0 |  -.3273321   .1120272                    -.5687917   -.1521965
         tau1 |  -.2222216   .0002824                    -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    7.801 with p-value  0.0127
------------------------------------------------------------------------------

143 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        230         .  -570.2302      18     1176.46   1238.346
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
144 . *       RESULT:  Normal marginal distributions are superior to any of the alternatives for all portions of the m
    > odel
145 .
146 .
147 . * ++++++++++++++++++++++++++++++++++++++++++
148 . * CIVIL WAR REGIME PORTION OF SWITCHING MODEL
149 . * ++++++++++++++++++++++++++++++++++++++++++
150 . * ====================================================================
151 . * SWITCHING REG: CHOOSING SPECIFICATIONS FOR CIVIL WAR REGIME--TABLE 8.2
152 . * ====================================================================
153 . * Model 1
154 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur) if sta
    > rtyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) mar
    > gin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -808.14731  (not concave)
    Iteration 1:   log likelihood = -799.41419
    Iteration 2:   log likelihood = -797.13938
    Iteration 3:   log likelihood = -793.75814
    Iteration 4:   log likelihood = -793.68086
    Iteration 5:   log likelihood = -793.68067
    Iteration 6:   log likelihood = -793.68067

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

                                                  Number of obs     =        308
                                                  Wald chi2(3)      =     143.05
    Log likelihood = -793.68067                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.109027   .1836421   -11.48   0.000    -2.468959   -1.749095
          leftist |   .3175585   .1913106     1.66   0.097    -.0574033    .6925203
      ethnicorder |   .9926386   .2337234     4.25   0.000     .5345492    1.450728
            _cons |   .9222912   .1535483     6.01   0.000     .6213421     1.22324
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.612506   .3967679    -4.06   0.000    -2.390157   -.8348557
    newpolitymin1 |   -.090481   .0299817    -3.02   0.003    -.1492441   -.0317179
       urbancivic |  -1.721063   .4214331    -4.08   0.000    -2.547057   -.8950698
      newgdppcthl |  -.2225302   .0584921    -3.80   0.000    -.3371726   -.1078879
         urbandum |  -4.660287   .7546542    -6.18   0.000    -6.139382   -3.181192
            _cons |   11.05638   .7716461    14.33   0.000     9.543981    12.56878
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .3651328   .1380946     2.64   0.008     .0944724    .6357933
            _cons |   8.619168   .6570508    13.12   0.000     7.331372    9.906964
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8390359   .0636828    13.18   0.000     .7142199     .963852
    -------------+----------------------------------------------------------------
    lnsigma1     |
             cons |   .7222343   .0580761    12.44   0.000     .6084072    .8360613
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .2019642   .4402516     0.46   0.646     -.660913    1.064841
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |  -.3352782   .7344231    -0.46   0.648    -1.774721    1.104165
    -------------+----------------------------------------------------------------
           sigma0 |   2.314135   .1473706                      2.042593    2.621776
           sigma1 |   2.059029   .1195803                      1.837502    2.307261
           theta0 |   1.223804   .5387817                      .5163797    2.900379
           theta1 |  -.3232555   .6576802                     -.9441246      .80199
             tau0 |  -.3796149   .1036825                     -.5918683   -.2052074
             tau1 |   .0718346   .1461512                       -.17822    .2098055
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    4.305 with p-value  0.0771
    ------------------------------------------------------------------------------

155 . 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)

156 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r) if startyear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm
    > ) margin1(normal) margin0(normal) margsel(normal)

157 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+----------------------------------------------------------------
               . |        230         .  -577.3064      16    1186.613    1241.622
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
158 . * Model 2
159 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margi
    > n1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -583.54043  (not concave)
    Iteration 1:   log likelihood = -578.50065  (not concave)
    Iteration 2:   log likelihood = -577.09644
    Iteration 3:   log likelihood =  -576.0256
    Iteration 4:   log likelihood = -574.69109
    Iteration 5:   log likelihood = -574.64495
    Iteration 6:   log likelihood =  -574.6331
    Iteration 7:   log likelihood = -574.62985
    Iteration 8:   log likelihood = -574.62913
    Iteration 9:   log likelihood = -574.62898
    Iteration 10:  log likelihood = -574.62895
    Iteration 11:  log likelihood = -574.62894

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     100.92
    Log likelihood = -574.62894                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.214141   .2431847    -9.10   0.000    -2.690775   -1.737508
          leftist |   .5458176   .2289375     2.38   0.017     .0971085    .9945268
      ethnicorder |   1.486454   .2712078     5.48   0.000      .954897    2.018012
            _cons |   .6998279   .2232736     3.13   0.002     .2622198    1.137436
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.646594    .424447    -3.88   0.000    -2.478495    -.814693
    newpolitymin1 |  -.1013604   .0345716    -2.93   0.003    -.1691195   -.0336012
       urbancivic |  -1.681449   .4300838    -3.91   0.000    -2.524398   -.8385002
      newgdppcthl |  -.2261211   .0623544    -3.63   0.000    -.3483334   -.1039088
          urbandum |  -4.693307   .8789952    -5.34   0.000    -6.416106   -2.970508
            _cons |   10.97431    .889178    12.34   0.000      9.23155    12.71706
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |    .586535   .1527087     3.84   0.000     .2872314    .8858386
    urbpercbefrev |  -.0293031   .0125555    -2.33   0.020    -.0539115   -.0046948
            _cons |   8.215285   .6894158    11.92   0.000     6.864055    9.566515
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8298682   .0633261    13.10   0.000     .7057514    .9539851
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6465268   .0735204     8.79   0.000     .5024295    .7906241
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .0373432   .4802416     0.08   0.938    -.9039131    .9785994
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   6.773654   410.8572     0.02   0.987    -798.4917     812.039
    -------------+----------------------------------------------------------------
           sigma0 |   2.293017   .1452078                      2.025368    2.596034
           sigma1 |   1.908899    .140343                      1.652732    2.204772
           theta0 |   1.038049   .4985144                      .4049818    2.660727
           theta1 |   .9999974    .002149                            -1           1
             tau0 |  -.3416828   .1080235                     -.5708824   -.1683929
             tau1 |  -.2222216   .0004775                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    5.831 with p-value  0.0350
    ------------------------------------------------------------------------------

160 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df          AIC         BIC
    -------------+----------------------------------------------------------------
               . |        230         .  -574.6289      17    1183.258   1241.705
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

161 . * Model 3
162 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.06379  (not concave)
    Iteration 1:   log likelihood = -574.09006  (not concave)
    Iteration 2:   log likelihood = -573.25352
    Iteration 3:   log likelihood = -570.39346
    Iteration 4:   log likelihood = -569.95645
    Iteration 5:   log likelihood = -569.94319
    Iteration 6:   log likelihood = -569.94048
    Iteration 7:   log likelihood =  -569.9399
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
      leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
  ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
        _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
   urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
  newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484297   -.1039428
     urbandum |  -4.682154   .8777556    -5.33   0.000    -6.402523   -2.961784
        _cons |   10.96281   .8876305    12.35   0.000      9.22309    12.70254
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
      success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
        _cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0372385   .4810269     0.08   0.938    -.9055568    .9800339
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.474984   181.2114     0.04   0.971    -348.6929    361.6428
-------------+----------------------------------------------------------------
       sigma0 |   2.292617   .1450751                      2.025201    2.595344
       sigma1 |   1.827581   .1340264                        1.5829    2.110085
       theta0 |   1.037941   .4992773                      .4043167    2.664547
       theta1 |   .9999952   .0017224                            -1           1
         tau0 |  -.3416593   .1081965                     -.5712338   -.1681628
         tau1 |  -.2222212   .0003828                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    8.283 with p-value  0.0100
------------------------------------------------------------------------------

163 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+----------------------------------------------------------------
               . |        230         .  -569.9397      18    1175.879   1237.765
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

164 . * Model 4
165 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev success newpolitymin1) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayt
    > on) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -578.45076  (not concave)
    Iteration 1:   log likelihood = -572.64143  (not concave)
    Iteration 2:   log likelihood = -571.88868
    Iteration 3:   log likelihood = -568.92186
    Iteration 4:   log likelihood = -568.50807
    Iteration 5:   log likelihood = -568.49177
    Iteration 6:   log likelihood = -568.48848
    Iteration 7:   log likelihood = -568.48776
    Iteration 8:   log likelihood =  -568.4876
    Iteration 9:   log likelihood = -568.48756
    Iteration 10:  log likelihood = -568.48755

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.06
    Log likelihood = -568.48755                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.204162   .2423844    -9.09   0.000    -2.679227   -1.729097
          leftist |   .5625881   .2285297     2.46   0.014     .1146781    1.010498
      ethnicorder |   1.503286   .2692376     5.58   0.000     .9755895    2.030982
            _cons |   .6766945   .2237681     3.02   0.002     .2381171    1.115272
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.648155   .4243347    -3.88   0.000    -2.479836   -.8164744
    newpolitymin1 |  -.1012761   .0345699    -2.93   0.003     -.169032   -.0335203
       urbancivic |  -1.682733   .4300321    -3.91   0.000     -2.52558   -.8398858
      newgdppcthl |  -.2261627   .0623939    -3.62   0.000    -.3484525    -.103873
         urbandum |   -4.67205   .8780411    -5.32   0.000    -6.392979   -2.951121
            _cons |   10.95349   .8880291    12.33   0.000     9.212984    12.69399
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5559819   .1437156     3.87   0.000     .2743046    .8376593
    urbpercbefrev |  -.0280627   .0117494    -2.39   0.017    -.0510911   -.0050343
          success |   1.072371   .3764255     2.85   0.004     .3345909    1.810152
    newpolitymin1 |  -.0509791   .0296731    -1.72   0.086    -.1091372    .0071791
```

```
        _cons |   7.874339   .6599745    11.93   0.000     6.580812    9.167865
--------------+------------------------------------------------------------------
lnsigma0      |
        _cons |   .8296156   .0632684    13.11   0.000     .7056119    .9536193
--------------+------------------------------------------------------------------
lnsigma1      |
        _cons |   .5874399   .0732992     8.01   0.000     .4437761    .7311037
--------------+------------------------------------------------------------------
atheta0       |
        _cons |   .0350243   .4822812     0.07   0.942    -.9102295    .9802781
--------------+------------------------------------------------------------------
atheta1       |
        _cons |   7.766572   685.4214     0.01   0.991    -1335.635    1351.168
--------------+------------------------------------------------------------------
       sigma0 |   2.292437   .1450388                      2.025085    2.595085
       sigma1 |   1.799376   .1318928                      1.558582    2.077372
       theta0 |   1.035645   .4994721                      .4024319    2.665197
       theta1 |   .9999996   .0004921                            -1           1
         tau0 |  -.3411614   .1084025                     -.5712936   -.1675102
         tau1 |  -.2222221   .0001094                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    7.958 with p-value  0.0117
------------------------------------------------------------------------------
```

```
166 . estat ic

    Akaike's information criterion and Bayesian information criterion

    -------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df          AIC         BIC
    -------------+-----------------------------------------------------------------
               . |        230         .  -568.4876      19    1174.975   1240.299
    -------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

167 . * Model 5
168 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev success lnpop) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copu
    > la1(fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -578.32711  (not concave)
    Iteration 1:   log likelihood = -572.25835  (not concave)
    Iteration 2:   log likelihood = -571.32464
    Iteration 3:   log likelihood = -568.69552
    Iteration 4:   log likelihood = -568.18837
    Iteration 5:   log likelihood = -568.17589
    Iteration 6:   log likelihood = -568.17313
    Iteration 7:   log likelihood = -568.17256
    Iteration 8:   log likelihood = -568.17243
    Iteration 9:   log likelihood =  -568.1724
    Iteration 10:  log likelihood = -568.17239

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     101.36
    Log likelihood = -568.17239                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.203194   .2425948    -9.08   0.000    -2.678671   -1.727717
          leftist |   .5582131   .2283613     2.44   0.015     .1106331    1.005793
      ethnicorder |   1.494681   .2686697     5.56   0.000     .9680984    2.021264
            _cons |   .6772985    .223556     3.03   0.002     .2391367     1.11546
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.647446   .4243953    -3.88   0.000    -2.479245    -.815646
    newpolitymin1 |  -.1013025   .0345725    -2.93   0.003    -.1690633   -.0335416
       urbancivic |  -1.682216   .4300843    -3.91   0.000    -2.525166    -.839266
      newgdppcthl |  -.2261205   .0624023    -3.62   0.000    -.3484267   -.1038143
         urbandum |  -4.668475   .8789362    -5.31   0.000    -6.391158   -2.945791
            _cons |   10.94882   .8890693    12.31   0.000     9.206279    12.69137
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5489649   .1431047     3.84   0.000     .2684848    .8294451
    urbpercbefrev |  -.0286899   .0117355    -2.44   0.014    -.0516911   -.0056887
          success |   1.218121   .3703216     3.29   0.001     .4923034    1.943938
            lnpop |   .2459495   .1292052     1.90   0.057    -.0072288    .4991871
            _cons |    5.63901   1.321991     4.27   0.000     3.047955    8.230065
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8297817   .0632896    13.11   0.000     .7057364     .953827
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .5836481   .0732868     7.96   0.000     .4400086    .7272876
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .0372486   .4831892     0.08   0.939    -.9097848     .984282
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   7.307009   421.8951     0.02   0.986    -819.5922    834.2063
    -------------+----------------------------------------------------------------
           sigma0 |   2.292818   .1451115                      2.025338    2.595624
           sigma1 |   1.792566   .1313714                      1.552721     2.06946
           theta0 |   1.037951   .5015267                      .4026109     2.67589
           theta1 |   .9999991   .0007594                            -1           1
             tau0 |  -.3416615   .1086832                     -.5722739   -.1675722
             tau1 |   -.222222   .0001688                     -.2222222    .2222222
    ------------------------------------------------------------------------------
```

```
LR test of independence :        Test statistic    8.347 with p-value  0.0096
------------------------------------------------------------------------------
```

```
169 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        230         .  -568.1724      19    1174.345   1239.668
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
170 . * Model 6
171 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev success ethnicorder) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton
    > ) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

Iteration 0:   log likelihood = -579.81796  (not concave)
Iteration 1:   log likelihood = -574.19037  (not concave)
Iteration 2:   log likelihood = -573.53411
Iteration 3:   log likelihood = -570.37386
Iteration 4:   log likelihood = -569.96213
Iteration 5:   log likelihood = -569.94204
Iteration 6:   log likelihood = -569.93713
Iteration 7:   log likelihood = -569.93614
Iteration 8:   log likelihood = -569.93593
Iteration 9:   log likelihood = -569.93588
Iteration 10:  log likelihood = -569.93587

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

                                              Number of obs     =        230
                                              Wald chi2(3)      =     102.03
Log likelihood = -569.93587                   Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.212599   .2427545    -9.11   0.000    -2.688389   -1.736809
      leftist |   .5555374   .2281137     2.44   0.015     .1084427    1.002632
  ethnicorder |   1.497302   .2699762     5.55   0.000     .9681585    2.026446
        _cons |   .6874196   .2238516     3.07   0.002     .2486785    1.126161
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.647373   .4243839    -3.88   0.000    -2.479151   -.8155962
newpolitymin1 |  -.1013167   .0345703    -2.93   0.003    -.1690733   -.0335601
   urbancivic |  -1.681961   .4300527    -3.91   0.000    -2.524849   -.8390731
  newgdppcthl |  -.2261828   .0623709    -3.63   0.000    -.3484275   -.1039381
     urbandum |  -4.684736    .878291    -5.33   0.000    -6.406154   -2.963317
        _cons |   10.96531   .8881836    12.35   0.000     9.224499    12.70611
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5749375   .1466857     3.92   0.000     .2874389    .8624362
urbpercbefrev |  -.0288968    .012242    -2.36   0.018    -.0528906    -.004903
      success |   1.182406   .3815209     3.10   0.002     .4346388    1.930173
  ethnicorder |  -.0349926   .3979848    -0.09   0.930    -.8150284    .7450432
        _cons |   7.827795   .6885808    11.37   0.000     6.478201    9.177388
-------------+----------------------------------------------------------------
lnsigma0     |
        cons |   .8297448   .0632866    13.11   0.000     .7057054    .9537842
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6026766    .073415     8.21   0.000     .4587858    .7465674
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0373475   .4809549     0.08   0.938    -.9053068    .9800018
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.960722   299.2836     0.02   0.981    -579.6243    593.5457
-------------+----------------------------------------------------------------
       sigma0 |   2.292733   .1450992                      2.025275    2.595513
       sigma1 |   1.827002   .1341295                      1.582152    2.109746
       theta0 |   1.038054    .499257                      .4044178    2.664461
       theta1 |   .9999982   .0010768                            -1           1
         tau0 |  -.3416838   .1081841                     -.5712259   -.1681978
         tau1 |  -.2222218   .0002393                     -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    7.790 with p-value  0.0128
------------------------------------------------------------------------------
```

```
172 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        230         .  -569.9359      19    1177.872   1243.195
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
173 . * Model 7
174 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur urbperc
    > befrev success leftist) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) co
    > pula1 (fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -579.65458  (not concave)
    Iteration 1:   log likelihood = -573.56876  (not concave)
    Iteration 2:   log likelihood = -572.63056
    Iteration 3:   log likelihood = -569.94546
    Iteration 4:   log likelihood = -569.40715
    Iteration 5:   log likelihood = -569.39455
    Iteration 6:   log likelihood = -569.39169
    Iteration 7:   log likelihood = -569.39105
    Iteration 8:   log likelihood = -569.39096
    Iteration 9:   log likelihood = -569.39094

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.39094                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.220053    .242647    -9.15   0.000    -2.695633   -1.744474
          leftist |    .534838   .2289624     2.34   0.019     .0860801     .983596
        ethnicorder |     1.4987   .2685251     5.58   0.000     .9724009       2.025
              cons |   .7001449   .2233308     3.14   0.002     .2624245    1.137865
    -------------+----------------------------------------------------------------
    regime0      |
           success |  -1.645805   .4243861    -3.88   0.000    -2.477587   -.8140235
    newpolitymin1 |  -.1013949   .0345638    -2.93   0.003    -.1691387   -.0336512
       urbancivic |  -1.680289   .4300094    -3.91   0.000    -2.523092   -.8374857
      newgdppcthl |  -.2261593   .0623093    -3.63   0.000    -.3482833   -.1040353
         urbandum |  -4.692044    .874995    -5.36   0.000    -6.407003   -2.977085
              cons |   10.97142   .8840345    12.41   0.000     9.238743    12.70409
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .6405615   .1572811     4.07   0.000     .3322962    .9488268
    urbpercbefrev |  -.0301617   .0119495    -2.52   0.012    -.0535823    -.006741
           success |   1.134572   .3778004     3.00   0.003     .3940972    1.875048
           leftist |  -.4385851    .418005    -1.05   0.294    -1.25786     .3806897
             _cons |   7.760141   .6697132    11.59   0.000     6.447527    9.072755
    -------------+----------------------------------------------------------------
    lnsigma0     |
             _cons |   .8298464   .0632993    13.11   0.000      .705782    .9539107
    -------------+----------------------------------------------------------------
    lnsigma1     |
             _cons |   .5981204   .0733101     8.16   0.000     .4544351    .7418056
    -------------+----------------------------------------------------------------
    atheta0      |
             _cons |   .0441845   .4776513     0.09   0.926    -.8919949    .9803639
    -------------+----------------------------------------------------------------
    atheta1      |
             _cons |   7.156675   349.3946     0.02   0.984    -677.6442    691.9575
    -------------+----------------------------------------------------------------
           sigma0 |   2.292966   .1451432                      2.02543    2.595841
           sigma1 |   1.818697    .133329                     1.575283    2.099723
           theta0 |   1.045175   .4992293                     .4098373    2.665426
           theta1 |   .9999988   .0008495                           -1           1
             tau0 |  -.3432233   .1076727                    -.5713146   -.1700685
             tau1 |   -.222222   .0001888                    -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.565 with p-value  0.0086
    ------------------------------------------------------------------------------

175 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df          AIC         BIC
    -------------+----------------------------------------------------------------
               . |        230         .  -569.3909      19    1176.782   1242.105
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

176 . *
177 . * Likelihood ratio tests to determine which model is more accurate
178 . * Testing Model 3 vs. Model 4, Model 3 vs. Model 5
179 . * Model 3
180 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success ) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton)
    > copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

181 . estimates store A
```

```
182 . * Model 4
183 . 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)

184 . estimates store B

185 . 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)

186 . estimates store C

187 . * LR tests
188 . * Model 4 vs. Model 3
189 . lrtest A B

    Likelihood-ratio test                                 LR chi2(1)  =      2.90
    (Assumption: A nested in B)                           Prob > chi2 =    0.0883

190 . *       RESULT:  LR chi2(1)=2.88, p=0.0899  Cannot conclude that Model 4 is superior to Model 3 at the .05 level
191 . * Model 5 vs. Model 3
192 . lrtest A C

    Likelihood-ratio test                                 LR chi2(1)  =      3.53
    (Assumption: A nested in C)                           Prob > chi2 =    0.0601

193 . *       RESULT:  LR chi2(1)=3.56, p=0.0592  Cannot conclude that Model 5 is superior to Model 3 at the .05 level
194 . * Model 3 is selected
195 . drop _est_A _est_B _est_C

196 . *
197 . * ============================================================
198 . * SWITCHING REG: ESTIMATED CHANGE IN DEATHS DUE TO SHORTENED
199 . *   CIVIL WARS IN POST-COLD WAR PERIOD
200 . * ============================================================
201 . * Full switching model
202 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

203 . tabstat lnmonthsdur if civilwar==1 & startyear>1899 & e(sample), s(mean) by(timeperiods) save

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

    timeperiods |      mean
    ------------+----------
      1900-1949 |  3.294047
      1950-1984 |  4.469652
      1985-2014 |   3.65686
    ------------+----------
          Total |  3.958544
    ----------------------

204 . mat total1 = r(Stat2)

205 . mat total2 = r(Stat3)

206 . local newtot1 = total1[1,1]

207 . display `newtot1'
    4.4696516

208 . local newtot2 = total2[1,1]

209 . display `newtot2'
    3.6568604

210 . * Reassign var
211 . local dur1 = `newtot1'

212 . local dur2 = `newtot2'

213 . * Calculate marginal effects for average duration for each period
214 . * For checking the parameter to extract:  mat list e(b)
215 . local param1 = e(k) - 2

216 . matrix coefs = e(b)

217 . local param2 = exp(coefs[1,`param1'])

218 . margins, atmeans expression(exp((predict(xb1)+(0.5*(`param2')*(`param2'))))) at(lnmonthsdur=(`dur1' `dur2')) sub
    > pop(if civilwar==1)

    Adjusted predictions                              Number of obs     =        230
                                                      Subpop. no. obs   =         93
    Model VCE    : OIM

    Expression   : exp((predict(xb1)+(0.5*(1.827581073694099)*(1.827581073694099))))

    1._at        : urbandum        =    .2365591 (mean)
                   leftist         =    .3655914 (mean)
                   ethnicorder     =    .3978495 (mean)
                   success         =    .3978495 (mean)
                   newpolitym~1    =   -.8924731 (mean)
                   urbancivic      =    .0215054 (mean)
                   newgdppcthl     =    1.809703 (mean)
                   lnmonthsdur     =    4.469652
                   urbpercbef~v    =    17.51282 (mean)
```

```
2._at        : urbandum        =    .2365591 (mean)
               leftist         =    .3655914 (mean)
               ethnicorder     =    .3978495 (mean)
               success         =    .3978495 (mean)
               newpolitym~1    =   -.8924731 (mean)
               urbancivic      =    .0215054 (mean)
               newgdppcthl     =    1.809703 (mean)
               lnmonthsdur     =     3.65686
               urbpercbef~v    =    17.51282 (mean)

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |   165940.4   33572.19     4.94   0.000     100140.1    231740.7
          2  |   103848.7   19852.82     5.23   0.000     64937.86    142759.5
------------------------------------------------------------------------------

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

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

. scalar mdiff = m2 - m1

. display mdiff
-62091.704

. * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
. 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


. scalar cwnum = tper[3,2]

. display cwnum
48

. display mdiff * cwnum
-2980401.8

. * Drop scalars and macros
. macro drop _all

. scalar drop _all

. 
. * ================================================================
. * SWITCHING REG: ESTIMATED CHANGE IN DEATHS DUE TO URBANIZATION
. *   IN POST-COLD WAR PERIOD
. * ================================================================
. * Full switching model
. quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
> r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
> opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

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

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

timeperiods |      mean
------------+----------
  1900-1949 |  8.741038
  1950-1984 |  15.93122
  1985-2014 |  25.08289
------------+----------
      Total |  17.51282
----------------------

. mat total1 = r(Stat2)

. mat total2 = r(Stat3)

. local newtot1 = total1[1,1]

. display `newtot1'
15.931224
```

```
244 . local newtot2 = total2[1,1]

245 . display `newtot2'
    25.082886

246 . * Reassign var
247 . local urb1 = `newtot1'

248 . local urb2 = `newtot2'

249 . * Calculate marginal effects for average level of urbanization for each period
250 . * For checking the parameter to extract:  mat list e(b)
251 . local param1 = e(k) - 2

252 . matrix coefs = e(b)

253 . local param2 = exp(coefs[1,`param1'])

254 . margins, atmeans expression(exp((predict(xb1)+(0.5*(`param2')*(`param2'))))) at(urbpercbefrev=(`urb1' `urb2')) s
    > ubpop(if civilwar==1)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =         93
    Model VCE    : OIM

    Expression   : exp((predict(xb1)+(0.5*(1.827581073694099)*(1.827581073694099))))

    1._at        : urbandum        =    .2365591 (mean)
                   leftist         =    .3655914 (mean)
                   ethnicorder     =    .3978495 (mean)
                   success         =    .3978495 (mean)
                   newpolitym~1    =   -.8924731 (mean)
                   urbancivic      =    .0215054 (mean)
                   newgdppcthl     =    1.809703 (mean)
                   lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    15.93122

    2. at        : urbandum        =    .2365591 (mean)
                   leftist         =    .3655914 (mean)
                   ethnicorder     =    .3978495 (mean)
                   success         =    .3978495 (mean)
                   newpolitym~1    =   -.8924731 (mean)
                   urbancivic      =    .0215054 (mean)
                   newgdppcthl     =    1.809703 (mean)
                   lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    25.08289

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |     129408   24353.97     5.31   0.000     81675.05    177140.9
              2  |   99125.97   20409.69     4.86   0.000     59123.71    139128.2
    ------------------------------------------------------------------------------

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

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

258 . scalar mdiff = m2 - m1

259 . display mdiff
    -30281.994

260 . * Calculate effect: Multiply effect times number of civil wars in post-Cold War period
261 . 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


262 . scalar cwnum = tper[3,2]

263 . display cwnum
    48

264 . display mdiff * cwnum
    -1453535.7
```

```
265 . * Drop scalars and macros
266 . macro drop _all

267 . scalar drop _all

268 .
269 . * ================================================================
270 . * SWITCHING REG:  ESTIMATED CHANGE IN DEATHS DUE TO CHANGING RATES
271 . *   OF OPPOSITION SUCCESS IN CIVIL WAR IN POST-COLD WAR PERIOD
272 . * ================================================================
273 . * Full switching model
274 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

275 . * Calculate marginal effects for opposition success
276 . local param1 = e(k) - 2

277 . matrix coefs = e(b)

278 . local param2 = exp(coefs[1,`param1'])

279 . margins, atmeans expression(exp((predict(xb1)+(0.5*(`param2')*(`param2'))))) at(success=(0 1)) subpop(if civilwa
    > r==1)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =         93
    Model VCE    : OIM

    Expression   : exp((predict(xb1)+(0.5*(1.827581073694099)*(1.827581073694099))))

    1._at        : urbandum        =    .2365591 (mean)
                   leftist         =    .3655914 (mean)
                   ethnicorder     =    .3978495 (mean)
                   success         =           0
                   newpolitym~1    =   -.8924731 (mean)
                   urbancivic      =    .0215054 (mean)
                   newgdppcthl     =    1.809703 (mean)
                   lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    17.51282 (mean)

    2._at        : urbandum        =    .2365591 (mean)
                   leftist         =    .3655914 (mean)
                   ethnicorder     =    .3978495 (mean)
                   success         =           1
                   newpolitym~1    =   -.8924731 (mean)
                   urbancivic      =    .0215054 (mean)
                   newgdppcthl     =    1.809703 (mean)
                   lnmonthsdur     =    3.958544 (mean)
                   urbpercbef~v    =    17.51282 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   77360.57   18307.31     4.23   0.000      41478.9    113242.2
              2  |   251103.1   74791.71     3.36   0.001       104514    397692.2
    ------------------------------------------------------------------------------

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

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

283 . scalar mdiff = m2 - m1

284 . display mdiff
    173742.53

285 . * Calculate difference in number of conventional civil wars for each period
286 . 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


287 . local cwnum2 = civsuc[2,2]

288 . display `cwnum2'
    21
```

```
289 . local cwnum3 = civsuc[3,2]

290 . display `cwnum3'
    16

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

292 . display `cwnum4'
    -5

293 . * Calculate effect:  Multiply difference in number of successful civil wars by difference in marginal effects
294 . display mdiff * `cwnum4'
    -868712.63

295 . * Drop scalars and macros
296 . macro drop _all

297 . scalar drop _all

298 .
299 .
300 . * ++++++++++++++++++++++++++++++++++++
301 . * SELECTION PORTION OF SWITCHING MODEL
302 . * ++++++++++++++++++++++++++++++++++++
303 . * ================================================================================
304 . * FIGURE 8.2, THE PROBABILITY THAT A REVOLUTIONARY EPIOSDE INVOLVED CIVIL WAR, OVER TIME
305 . * ================================================================================
306 . logit civilwar c.startyear##c.startyear if startyear>1899, or

    Iteration 0:   log likelihood = -237.71304
    Iteration 1:   log likelihood = -233.63201
    Iteration 2:   log likelihood = -233.63058
    Iteration 3:   log likelihood = -233.63058

    Logistic regression                             Number of obs     =        343
                                                    LR chi2(2)        =       8.16
                                                    Prob > chi2       =     0.0169
    Log likelihood = -233.63058                     Pseudo R2         =     0.0172

    ------------------------------------------------------------------------------
                 civilwar | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------------------+----------------------------------------------------------------
                startyear |   3.195803   1.442726     2.57   0.010     1.319199    7.741938
                          |
    c.startyear#c.startyear |   .9997026   .0001152    -2.58   0.010     .9994769    .9999284
                          |
                    _cons |          0          0    -2.57   0.010            0    6.1e-117
    ------------------------------------------------------------------------------

307 . margins ,  at(startyear=(1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 19
    > 85 1990 1995 2000 2005 2010 2015))

    Adjusted predictions                            Number of obs     =        343
    Model VCE    : OIM

    Expression   : Pr(civilwar), predict()

    1._at        : startyear       =        1900

    2._at        : startyear       =        1905

    3._at        : startyear       =        1910

    4._at        : startyear       =        1915

    5._at        : startyear       =        1920

    6._at        : startyear       =        1925

    7._at        : startyear       =        1930

    8._at        : startyear       =        1935

    9._at        : startyear       =        1940

    10._at       : startyear       =        1945

    11._at       : startyear       =        1950

    12._at       : startyear       =        1955

    13._at       : startyear       =        1960

    14._at       : startyear       =        1965

    15._at       : startyear       =        1970

    16._at       : startyear       =        1975

    17._at       : startyear       =        1980

    18._at       : startyear       =        1985

    19._at       : startyear       =        1990

    20._at       : startyear       =        1995

    21._at       : startyear       =        2000

    22._at       : startyear       =        2005
```

23._at : startyear = 2010

24._at : startyear = 2015

| | Delta-method | | | | |
|---|---|---|---|---|---|
| | Margin | Std. Err. | z | P>\|z\| | [95% Conf. Interval] |
| _at | | | | | |
| 1 | .3894786 | .0861042 | 4.52 | 0.000 | .2207175 .5582396 |
| 2 | .4258636 | .0744342 | 5.72 | 0.000 | .2799752 .5717519 |
| 3 | .4593741 | .0633479 | 7.25 | 0.000 | .3352145 .5835338 |
| 4 | .4895395 | .0537217 | 9.11 | 0.000 | .384247 .594832 |
| 5 | .5160683 | .0462326 | 11.16 | 0.000 | .4254541 .6066826 |
| 6 | .5388137 | .0412505 | 13.06 | 0.000 | .4579643 .6196632 |
| 7 | .5577337 | .0386949 | 14.41 | 0.000 | .4818931 .6335742 |
| 8 | .5728527 | .0380308 | 15.06 | 0.000 | .4983137 .6473917 |
| 9 | .5842291 | .0385064 | 15.17 | 0.000 | .508758 .6597002 |
| 10 | .5919294 | .0394387 | 15.01 | 0.000 | .5146308 .6692279 |
| 11 | .5960092 | .0403409 | 14.77 | 0.000 | .5169425 .675076 |
| 12 | .5965018 | .040911 | 14.58 | 0.000 | .5163178 .6766858 |
| 13 | .5934112 | .0409809 | 14.48 | 0.000 | .5130902 .6737323 |
| 14 | .586712 | .0404799 | 14.49 | 0.000 | .5073728 .6660511 |
| 15 | .5763536 | .0394276 | 14.62 | 0.000 | .499077 .6536302 |
| 16 | .562271 | .037961 | 14.81 | 0.000 | .4878688 .6366732 |
| 17 | .5444015 | .0363976 | 14.96 | 0.000 | .4730634 .6157395 |
| 18 | .522708 | .0353124 | 14.80 | 0.000 | .453497 .5919191 |
| 19 | .4972109 | .0355364 | 13.99 | 0.000 | .4275608 .566861 |
| 20 | .468024 | .0379006 | 12.35 | 0.000 | .3937401 .5423078 |
| 21 | .4353951 | .0427555 | 10.18 | 0.000 | .3515958 .5191944 |
| 22 | .3997428 | .0497321 | 8.04 | 0.000 | .3022698 .4972159 |
| 23 | .3616818 | .0579524 | 6.24 | 0.000 | .2480971 .4752664 |
| 24 | .3220255 | .0663386 | 4.85 | 0.000 | .1920043 .4520467 |

```
308 .
309 . * ================================================================
310 . * IDENTIFYING BEST SELECTION PORTION OF THE SWITCHING MODEL--TABLE 8.3
311 . * ================================================================
312 . * Model 1
313 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum) copula0(clayton) copula1(fgm) margin1(normal) m
    > argin0(normal) margsel(normal)

Iteration 0:   log likelihood = -593.93603
Iteration 1:   log likelihood = -588.72131
Iteration 2:   log likelihood = -585.95021
Iteration 3:   log likelihood = -585.81874
Iteration 4:   log likelihood = -585.81713
Iteration 5:   log likelihood = -585.81712

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

                                                Number of obs     =        230
                                                Wald chi2(1)      =     100.80
Log likelihood = -585.81712                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.243053   .2234087   -10.04   0.000    -2.680926    -1.80518
         cons |   1.199824   .1844387     6.51   0.000      .838331    1.561317
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.575326   .4277285    -3.68   0.000    -2.413658   -.7369933
newpolitymin1 |  -.1027142   .0347138    -2.96   0.003    -.1707521   -.0346763
   urbancivic |  -1.643859   .4326966    -3.80   0.000    -2.491928   -.7957889
  newgdppcthl |  -.2130482   .0633455    -3.36   0.001    -.3372031   -.0888932
     urbandum |  -4.721264   1.210696    -3.90   0.000    -7.094184   -2.348343
         cons |   10.92463   1.277795     8.55   0.000     8.420203    13.42907
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5492434    .153899     3.57   0.000      .247607    .8508799
      success |   1.108824   .3850113     2.88   0.004     .3542154    1.863432
urbpercbefrev |   -.029616   .0121903    -2.43   0.015    -.0535086   -.0057235
        _cons |   8.040854   .7422778    10.83   0.000     6.586016    9.495692
-------------+----------------------------------------------------------------
lnsigma0     |
        cons |   .8351269   .0671846    12.43   0.000     .7034475    .9668064
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6020899   .0739455     8.14   0.000     .4571592    .7470205
-------------+----------------------------------------------------------------
atheta0      |
        _cons |  -.0647719    .739788    -0.09   0.930     -1.51473    1.385186
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   .6600286    .679907     0.97   0.332    -.6725646    1.992622
-------------+----------------------------------------------------------------
       sigma0 |   2.305107   .1548677                      2.020707    2.629533
       sigma1 |   1.825931   .1350195                       1.57958    2.110702
       theta0 |   .9372813   .6933894                      .2198676    3.995569
       theta1 |   .5783824   .4524603                     -.5866644    .9635026
         tau0 |  -.3190982   .1607371                     -.6664203   -.0990454
         tau1 |  -.1285294   .1005467                     -.2141117    .1303699
------------------------------------------------------------------------------
LR test of independence :        Test statistic    1.567 with p-value  0.3338
------------------------------------------------------------------------------
```

```
314 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

315 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum) copula0(clayton) copula1(f
    > gm) margin1(normal) margin0(normal) margsel(normal)

316 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        228         .  -582.0477      16    1196.095   1250.965
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

317 . * Model 2
318 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum ethnicorder) copula0(clayton) copula1(fgm) margi
    > n1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -581.71828  (not concave)
    Iteration 1:   log likelihood = -576.91896  (not concave)
    Iteration 2:   log likelihood = -575.51765
    Iteration 3:   log likelihood = -574.79327
    Iteration 4:   log likelihood = -573.01616
    Iteration 5:   log likelihood = -572.95898
    Iteration 6:   log likelihood = -572.94593
    Iteration 7:   log likelihood = -572.94278
    Iteration 8:   log likelihood = -572.94201
    Iteration 9:   log likelihood = -572.94185
    Iteration 10:  log likelihood = -572.94181
    Iteration 11:  log likelihood =  -572.9418

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

                                                  Number of obs     =        230
                                                  Wald chi2(2)      =     101.91
    Log likelihood =  -572.9418                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.286102   .2400543    -9.52   0.000      -2.7566   -1.815604
      ethnicorder |   1.332959   .2542271     5.24   0.000     .8346829    1.831235
            _cons |   .9655143    .196336     4.92   0.000     .5807028    1.350326
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.600852    .424246    -3.77   0.000    -2.432359   -.7693456
    newpolitymin1 |  -.1029472   .0344221    -2.99   0.003    -.1704132   -.0354811
       urbancivic |  -1.642819   .4291798    -3.83   0.000    -2.483996   -.8016422
      newgdppcthl |  -.2212545   .0613732    -3.61   0.000    -.3415438   -.1009653
         urbandum |   -4.65921   .8515748    -5.47   0.000    -6.328266   -2.990154
            _cons |   10.89488   .8474368    12.86   0.000     9.233937    12.55583
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5600264   .1459275     3.84   0.000     .2740138     .846039
          success |   1.166734   .3793427     3.08   0.002     .4232359    1.910232
    urbpercbefrev |  -.0294329   .0119955    -2.45   0.014    -.0529438   -.0059221
            _cons |   7.889051   .6710044    11.76   0.000     6.573906    9.204195
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8313948   .0637519    13.04   0.000     .7064435    .9563462
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6055658    .073529     8.24   0.000     .4614517      .74968
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .1153169    .458862     0.25   0.802    -.7840361     1.01467
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |    6.77294   336.7348     0.02   0.984    -653.2151     666.761
    -------------+----------------------------------------------------------------
           sigma0 |    2.29652   .1464074                      2.02677    2.602171
           sigma1 |   1.832289   .1347263                     1.586375    2.116323
           theta0 |   1.122229   .5149483                     .4565596    2.758453
           theta1 |   .9999974   .0017638                           -1           1
             tau0 |   -.359432   .1056487                    -.5796953   -.1858532
             tau1 |  -.2222216    .000392                    -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    7.816 with p-value  0.0126
    ------------------------------------------------------------------------------

319 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
320 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum ethnicorder) copula0(clayto
    > n) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

321 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        228         .  -569.1632      17    1172.326   1230.625
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

322 . * Model 3
323 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum ethnicorder leftist) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.06379  (not concave)
    Iteration 1:   log likelihood = -574.09006  (not concave)
    Iteration 2:   log likelihood = -573.25352
    Iteration 3:   log likelihood = -570.39348
    Iteration 4:   log likelihood = -569.95645
    Iteration 5:   log likelihood = -569.94319
    Iteration 6:   log likelihood = -569.94048
    Iteration 7:   log likelihood =  -569.9399
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
      ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
          leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
            _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
    newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
       urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
      newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484297   -.1039428
         urbandum |  -4.682154   .8777555    -5.33   0.000    -6.402523   -2.961785
            _cons |   10.96281   .8876303    12.35   0.000      9.22309    12.70254
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
          success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
    urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
            _cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .0372386   .4810265     0.08   0.938     -.905556    .9800332
    -------------+----------------------------------------------------------------
    atheta1      |
             cons |   6.474984   181.2114     0.04   0.971    -348.6928    361.6428
    -------------+----------------------------------------------------------------
           sigma0 |   2.292617    .145075                      2.025201    2.595344
           sigma1 |   1.827581   .1340264                        1.5829    2.110085
           theta0 |   1.037941   .4992769                       .404317    2.664545
           theta1 |   .9999952   .0017224                            -1           1
             tau0 |  -.3416593   .1081964                      -.5712336   -.1681629
             tau1 |  -.2222212   .0003828                      -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.283 with p-value  0.0100
    ------------------------------------------------------------------------------

324 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

325 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum ethnicorder leftist) copula
    > 0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
326 . estat ic

    Akaike's information criterion and Bayesian information criterion

    -------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+-----------------------------------------------------------------
                . |        228         .  -566.2811      18    1168.562    1230.29
    -------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

327 . * Model 4
328 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum ethnicorder leftist newpolitymin1) copula0(clayt
    > on) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -579.83458  (not concave)
    Iteration 1:   log likelihood = -573.80845  (not concave)
    Iteration 2:   log likelihood = -573.01896
    Iteration 3:   log likelihood = -570.63626
    Iteration 4:   log likelihood = -569.62394
    Iteration 5:   log likelihood = -569.60637
    Iteration 6:   log likelihood = -569.60268
    Iteration 7:   log likelihood = -569.60185
    Iteration 8:   log likelihood = -569.60164
    Iteration 9:   log likelihood =  -569.6016
    Iteration 10:  log likelihood = -569.60159

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

                                                  Number of obs     =        230
                                                  Wald chi2(4)      =     102.95
    Log likelihood = -569.60159                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.200229   .2426232    -9.07   0.000    -2.675761   -1.724696
       ethnicorder |   1.503324    .267479     5.62   0.000     .9790749    2.027573
          leftist |   .5442067    .227833     2.39   0.017     .0976623    .9907512
    newpolitymin1 |   .0141091   .0171293     0.82   0.410    -.0194637    .0476819
            _cons |   .6948891   .2242756     3.10   0.002     .2553169    1.134461
    -------------+----------------------------------------------------------------
    regime0      |
          success |  -1.642413   .4240321    -3.87   0.000      -2.4735   -.8113251
    newpolitymin1 |  -.0959001   .0351992    -2.72   0.006    -.1648892    -.026911
       urbancivic |  -1.682623   .4297271    -3.92   0.000    -2.524873   -.8403736
      newgdppcthl |  -.2231928   .0621027    -3.59   0.000    -.3449119   -.1014738
         urbandum |  -4.669323   .8615295    -5.42   0.000     -6.35789   -2.980756
            _cons |   10.94898   .8694482    12.59   0.000      9.24489    12.65306
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |    .573628   .1454738     3.94   0.000     .2885047    .8587514
          success |   1.171807   .3772785     3.11   0.002     .4323545    1.911259
    urbpercbefrev |  -.0292377   .0119443    -2.45   0.014     -.052648   -.0058273
            _cons |   7.830689   .6703621    11.68   0.000     6.516804    9.144575
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8296764    .063203    13.13   0.000     .7058008     .953552
    -------------+----------------------------------------------------------------
    lnsigma1     |
             cons |   .6026367   .0733231     8.22   0.000     .4589261    .7463473
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .0563208   .4712411     0.12   0.905    -.8672947    .9799363
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   7.079573   327.4337     0.02   0.983    -634.6787    648.8378
    -------------+----------------------------------------------------------------
           sigma0 |   2.292577   .1448977                      2.025468     2.59491
           sigma1 |    1.82693   .1339561                      1.582374    2.109281
           theta0 |   1.057937   .4985434                      .4200865    2.664287
           theta1 |   .9999986   .0009288                            -1           1
             tau0 |  -.3459643   .1066291                     -.5712099   -.1735832
             tau1 |  -.2222219   .0002064                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.735 with p-value  0.0079
    -------------------------------------------------------------------------------

329 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

330 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum ethnicorder leftist newpoli
    > tymin1) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

331 . estat ic

    Akaike's information criterion and Bayesian information criterion

    -------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+-----------------------------------------------------------------
                . |        228         .  -565.9079      19    1169.816   1234.973
    -------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.
```

```
332 . * Model 5
333 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum ethnicorder leftist newgdppcthl) copula0(clayton
    > ) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

Iteration 0:   log likelihood = -578.85236  (not concave)
Iteration 1:   log likelihood = -572.85558
Iteration 2:   log likelihood = -570.86481
Iteration 3:   log likelihood = -569.36059
Iteration 4:   log likelihood = -569.28374
Iteration 5:   log likelihood =  -569.2667
Iteration 6:   log likelihood = -569.26259
Iteration 7:   log likelihood = -569.26167
Iteration 8:   log likelihood = -569.26147
Iteration 9:   log likelihood = -569.26143

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

                                                Number of obs     =        230
                                                Wald chi2(4)      =     101.51
Log likelihood = -569.26143                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.135834    .251031    -8.51   0.000    -2.627846   -1.643822
  ethnicorder |   1.471563   .2747511     5.36   0.000     .9330607    2.010065
      leftist |   .5483767   .2326267     2.36   0.018     .0924366    1.004317
  newgdppcthl |  -.0515119    .045664    -1.13   0.259    -.1410117    .0379879
        _cons |    .789099   .2425493     3.25   0.001     .3137111    1.264487
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.649663   .4232138    -3.90   0.000    -2.479147   -.8201796
newpolitymin1 |   -.102483   .0346206    -2.96   0.003     -.170338    -.034628
   urbancivic |  -1.658448   .4294371    -3.86   0.000    -2.500129   -.8167667
  newgdppcthl |  -.2468569   .0658181    -3.75   0.000     -.375858   -.1178558
     urbandum |  -4.489368   .9456567    -4.75   0.000    -6.342821   -2.635915
        _cons |   10.81962   .9612507    11.26   0.000     8.935607    12.70364
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .5740874   .1457165     3.94   0.000     .2884882    .8596866
      success |   1.177826   .3774992     3.12   0.002     .4379408     1.91771
urbpercbefrev |  -.0293797   .0119615    -2.46   0.014    -.0528237   -.0059356
        _cons |   7.830559   .6717199    11.66   0.000     6.514012    9.147106
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8251626   .0629061    13.12   0.000     .7018689    .9484563
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6030105    .073339     8.22   0.000     .4592688    .7467523
-------------+----------------------------------------------------------------
atheta0      |
        _cons |  -.1066171   .5406346    -0.20   0.844    -1.166242    .9530073
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   6.767964   241.3609     0.03   0.978    -466.2907    479.8267
-------------+----------------------------------------------------------------
      sigma0 |   2.282252   .1435676                      2.01752    2.581721
      sigma1 |   1.827613   .1340353                     1.582916    2.110136
      theta0 |   .8988698   .4859601                     .3115356    2.593497
      theta1 |   .9999974   .0012769                           -1           1
        tau0 |  -.3100759   .1156573                    -.5646019   -.1347743
        tau1 |  -.2222216   .0002837                    -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    6.955 with p-value  0.0196
------------------------------------------------------------------------------

334 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

335 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum ethnicorder leftist newgdpp
    > cthl) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

336 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
-------------+----------------------------------------------------------------
           . |        228         .  -565.6195      19    1169.239   1234.397
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.

337 . * Model 6
338 . switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdur success
    >  urbpercbefrev) if startyear>1899, select (civilwar =  urbandum ethnicorder leftist newlnoill diamonddum ) copul
    > a0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
Iteration 0:   log likelihood = -575.22818  (not concave)
Iteration 1:   log likelihood = -569.18677  (not concave)
Iteration 2:   log likelihood = -568.52747
Iteration 3:   log likelihood = -566.15245
Iteration 4:   log likelihood = -566.12904
Iteration 5:   log likelihood = -565.03925
Iteration 6:   log likelihood = -565.00197
Iteration 7:   log likelihood =  -564.9995
Iteration 8:   log likelihood = -564.99893
Iteration 9:   log likelihood = -564.99881
Iteration 10:  log likelihood = -564.99879

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

                                                Number of obs     =        228
                                                Wald chi2(5)      =      99.65
Log likelihood = -564.99879                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.148837   .2477823    -8.67   0.000    -2.634482   -1.663193
  ethnicorder |   1.510837    .274464     5.50   0.000     .9728979    2.048777
      leftist |   .5336357   .2305645     2.31   0.021     .0817376    .9855338
    newlnoill |  -.0279715   .0240225    -1.16   0.244    -.0750546    .0191117
   diamonddum |   .4871977   .3850435     1.27   0.206    -.2674736    1.241869
        _cons |   .7112632    .232126     3.06   0.002     .2563047    1.166222
-------------+----------------------------------------------------------------
regime0      |
      success |  -1.652936   .4284953    -3.86   0.000    -2.492771   -.8131003
newpolitymin1 |  -.1013107    .034969    -2.90   0.004    -.1698487   -.0327728
   urbancivic |  -1.661742   .4329526    -3.84   0.000    -2.510313   -.8131707
  newgdppcthl |  -.2366634   .0637865    -3.71   0.000    -.3616827    -.111644
     urbandum |  -4.623426   .8729031    -5.30   0.000    -6.334285   -2.912567
        _cons |   10.94583   .8788876    12.45   0.000     9.223239    12.66841
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |    .586022   .1463731     4.00   0.000     .2991359    .8729081
      success |   1.160015   .3787677     3.06   0.002     .4176434    1.902386
urbpercbefrev |  -.0297588   .0119316    -2.49   0.013    -.0531443   -.0063734
        _cons |   7.806611   .6728823    11.60   0.000     6.487786    9.125436
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .8337425   .0635795    13.11   0.000     .7091289     .958356
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6048497     .07361     8.22   0.000     .4605767    .7491227
-------------+----------------------------------------------------------------
atheta0      |
        _cons |   .0707324   .4592292     0.15   0.878    -.8293403    .9708051
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   7.152523   312.2687     0.02   0.982    -604.8829     619.188
-------------+----------------------------------------------------------------
       sigma0 |   2.301917   .1463548                      2.03222    2.607407
       sigma1 |   1.830977   .1347783                     1.584988    2.115144
       theta0 |   1.073294   .4928879                      .436337    2.640069
       theta1 |   .9999988   .0007656                          -1           1
         tau0 |  -.3492324   .1043686                    -.5689719   -.1790955
         tau1 |  -.2222219   .0001701                    -.2222222    .2222222
------------------------------------------------------------------------------
LR test of independence :        Test statistic    9.573 with p-value  0.0052
------------------------------------------------------------------------------

339 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder newpolitymin1 newgd
    > ppcthl newlnoill diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

340 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899 & e(sample), select (civilwar =  urbandum ethnicorder leftist newlnoi
    > ll diamonddum) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

341 . estat ic

Akaike's information criterion and Bayesian information criterion

------------------------------------------------------------------------------
       Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
-------------+----------------------------------------------------------------
           . |        228         .  -564.9988      20    1169.998   1238.584
------------------------------------------------------------------------------
               Note: N=Obs used in calculating BIC; see [R] BIC note.

342 . *       RESULT:  Model 3 is preferred
343 .
344 . * Testing explanatory power of model 3
345 . probit civilwar urbandum leftist ethnicorder if startyear>1899

Iteration 0:   log likelihood = -237.71304
Iteration 1:   log likelihood = -136.18856
Iteration 2:   log likelihood = -134.62854
Iteration 3:   log likelihood = -134.62728
Iteration 4:   log likelihood = -134.62728

Probit regression                               Number of obs     =        343
                                                LR chi2(3)        =     206.17
                                                Prob > chi2       =     0.0000
Log likelihood = -134.62728                     Pseudo R2         =     0.4337
```

```
------------------------------------------------------------------------------
    civilwar |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    urbandum |  -2.109089   .1737072   -12.14   0.000    -2.449549    -1.76863
     leftist |   .4282028   .2029211     2.11   0.035     .0304847    .8259208
 ethnicorder |   .9268399   .2493647     3.72   0.000     .4380941    1.415586
       _cons |   .9159639    .141563     6.47   0.000     .6385055    1.193422
------------------------------------------------------------------------------
```

```
346 . estat classification

    Probit model for civilwar

                 -------- True --------
    Classified |         D             ~D  |      Total
    -----------+--------------------------+-----------
         +     |       144             21  |        165
         -     |        30            148  |        178
    -----------+--------------------------+-----------
       Total   |       174            169  |        343

    Classified + if predicted Pr(D) >= .5
    True D defined as civilwar != 0
    --------------------------------------------------
    Sensitivity                     Pr( +| D)   82.76%
    Specificity                     Pr( -|~D)   87.57%
    Positive predictive value       Pr( D| +)   87.27%
    Negative predictive value       Pr(~D| -)   83.15%
    --------------------------------------------------
    False + rate for true ~D        Pr( +|~D)   12.43%
    False - rate for true D         Pr( -| D)   17.24%
    False + rate for classified +   Pr(~D| +)   12.73%
    False - rate for classified -   Pr( D| -)   16.85%
    --------------------------------------------------
    Correctly classified                        85.13%
    --------------------------------------------------

347 . lroc , nograph

    Probit model for civilwar

    number of observations =      343
    area under ROC curve   =   0.8917

348 .
349 . * ======================================
350 . * EVALUATING IMPACT OF SELECTION PROCESSES
351 . * ======================================
352 . * ========================================================
353 . * CALCULATE SELECTION EFFECT OF URBAN/RURAL LOCATION ON
354 . *    DEATHS IN CIVIL WARS AFTER COLD WAR
355 . * ========================================================
356 . * Run basic switching regression model
357 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

358 .
359 . * Obtain marginal probabilities of selection into civil war for urban episodes
360 . margins, atmeans expression(predict(psel)) at(urbandum=(0 1)) post

    Adjusted predictions                            Number of obs     =        230
    Model VCE    : OIM

    Expression   : predict(psel)

    1._at        : urbandum        =           0
                   leftist         =    .2608696 (mean)
                   ethnicorder     =    .2086957 (mean)
                   success         =    .4652174 (mean)
                   newpolitym~1    =   -1.378261 (mean)
                   urbancivic      =    .2304348 (mean)
                   newgdppcthl     =    2.926846 (mean)
                   lnmonthsdur     =    2.380064 (mean)
                   urbpercbef~v    =    23.50577 (mean)

    2._at        : urbandum        =           1
                   leftist         =    .2608696 (mean)
                   ethnicorder     =    .2086957 (mean)
                   success         =    .4652174 (mean)
                   newpolitym~1    =   -1.378261 (mean)
                   urbancivic      =    .2304348 (mean)
                   newgdppcthl     =    2.926846 (mean)
                   lnmonthsdur     =    2.380064 (mean)
                   urbpercbef~v    =    23.50577 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   .8736306   .0414193    21.09   0.000     .7924503     .954811
              2  |   .1428238   .0311748     4.58   0.000     .0817223    .2039252
    ------------------------------------------------------------------------------
```

```
361 . * Prob of not-urban-civic episode turning into civil war
362 . scalar m1 = el(r(b),1,1)

363 . * Prob of urban episode turning into civil war
364 . scalar m2 = el(r(b),1,2)

365 . * Prob of not-urban episode not involving civil war
366 . scalar m3 = 1 - m1

367 . * Prob of urban episode not involving civil war
368 . scalar m4 = 1 - m2

369 . display m1 " " m3 " " m2 " " m4
    .87363063 .12636937 .14282376 .85717624

370 .
371 . * Obtain number of urban and not-urban episodes for Cold War and post-Cold War periods
372 . * Cold War and Post-Cold War urban episodes
373 . tabstat urbandum if startyear>1899 & urbandum==1, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |        58
      1950-1984 |        40
      1985-2014 |        82
    ------------------------

374 . mat urbtotal1 = r(Stat2)

375 . mat urbtotal2 = r(Stat3)

376 . scalar numurbcold = urbtotal1[1,1]

377 . scalar numurbpost = urbtotal2[1,1]

378 . display numurbcold  " " numurbpost
    40 82

379 . scalar urbdiff = numurbpost - numurbcold

380 . display urbdiff
    42

381 . * Cold War and Post-Cold War not-urban episodes
382 . tabstat urbandum if startyear>1899 & urbandum==0, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |        64
      1950-1984 |        58
      1985-2014 |        41
    ------------------------

383 . mat urbtotal1 = r(Stat2)

384 . mat urbtotal2 = r(Stat3)

385 . scalar numnourbcold = urbtotal1[1,1]

386 . scalar numnourbpost = urbtotal2[1,1]

387 . display numnourbcold  " " numnourbpost
    58 41

388 . scalar nourbdiff = numnourbpost - numnourbcold

389 . display nourbdiff
    -17

390 .
391 . * Obtain differences in average deaths for urban and not-urban episodes involving and not involving civil war
392 . * Average deaths in urban episodes with civil war
393 . tabstat totaldeaths if  startyear>1949 & civilwar==1, s(mean) by(urbandum) save nototal

    Summary for variables: totaldeaths
         by categories of: urbandum (Episode occurred primarily in an urban setting)

    urbandum |      mean
    ---------+----------
          no |  142529.1
         yes |   39465.4
    --------------------
```

```
394 . * Not-urban
395 . mat total3 = r(Stat1)

396 . local  newtot3 = total3[1,1]

397 . scalar nourbcivdeaths = `newtot3'

398 . * Urban
399 . mat total4 = r(Stat2)

400 . local  newtot4 = total4[1,1]

401 . scalar urbcivdeaths = `newtot4'

402 . display nourbcivdeaths " " urbcivdeaths
    142529.11 39465.4

403 . scalar civdeathsdiff =  urbcivdeaths - nourbcivdeaths

404 . display civdeathsdiff
    -103063.71

405 . * Average deaths in urban episodes without civil war
406 . tabstat totaldeaths if  startyear>1949 & civilwar==0, s(mean) by(urbandum) save nototal

    Summary for variables: totaldeaths
         by categories of: urbandum (Episode occurred primarily in an urban setting)

    urbandum |      mean
    ---------+----------
          no |    2025.2
         yes |     746.7
    ---------------------

407 . * Not-urban
408 . mat total5 = r(Stat1)

409 . local  newtot5 = total5[1,1]

410 . scalar nourbnocivdeaths = `newtot5'

411 . * Urban
412 . mat total6 = r(Stat2)

413 . local  newtot6 = total6[1,1]

414 . scalar urbnocivdeaths = `newtot6'

415 . display nourbnocivdeaths " " urbnocivdeaths
    2025.2 746.7

416 . scalar nocivdeathsdiff =  urbnocivdeaths - nourbnocivdeaths

417 . display nocivdeathsdiff
    -1278.5

418 .
419 . * Calculate increase/decrease in deaths as a result of selection into and out of civil war
420 . * Increase/decrease in post-Cold War period in # deaths in urban episodes that selected into civil war
421 . scalar a1 = (m2 * urbdiff * civdeathsdiff)

422 . if urbdiff < 0 & civdeathsdiff < 0 {
423 .         scalar a1 = -1 * a1
424 .         }

425 . display a1
    -618237.78

426 . * Increase/decrease in post-Cold War period in # deaths in urban episodes that selected out of civil war
427 . scalar a2 = (m4 * urbdiff * nocivdeathsdiff)

428 . if urbdiff < 0 & nocivdeathsdiff < 0 {
429 .         scalar a2 = -1 * a2
430 .         }

431 . display a2
    -46027.792

432 . scalar totaleffect = a1 + a2

433 . display "The estimated effect on the number of deaths is " totaleffect
    The estimated effect on the number of deaths is -664265.57

434 . * Drop scalars and macros
435 . macro drop _all

436 . scalar drop _all

437 .
```

```
438 . * ============================================================
439 . * CALCULATE SELECTION EFFECT OF SOCIAL REVOLUTIONARY EPISODES
440 . *    ON DEATHS IN CIVIL WARS
441 . * ============================================================
442 . * Run basic switching regression model
443 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
    > r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

444 .
445 . * Obtain marginal probabilities of selection into civil war for social revolutionary episodes
446 . margins, atmeans expression(predict(psel)) at(leftist=(0 1)) post

    Adjusted predictions                            Number of obs     =        230
    Model VCE    : OIM

    Expression   : predict(psel)

    1._at        : urbandum        =    .6521739 (mean)
                   leftist         =           0
                   ethnicorder     =    .2086957 (mean)
                   success         =    .4652174 (mean)
                   newpolitym~1    =   -1.378261 (mean)
                   urbancivic      =    .2304348 (mean)
                   newgdppcthl     =    2.926846 (mean)
                   lnmonthsdur     =    2.380064 (mean)
                   urbpercbef~v    =    23.50577 (mean)

    2._at        : urbandum        =    .6521739 (mean)
                   leftist         =           1
                   ethnicorder     =    .2086957 (mean)
                   success         =    .4652174 (mean)
                   newpolitym~1    =   -1.378261 (mean)
                   urbancivic      =    .2304348 (mean)
                   newgdppcthl     =    2.926846 (mean)
                   lnmonthsdur     =    2.380064 (mean)
                   urbpercbef~v    =    23.50577 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   .3287026   .0502316     6.54   0.000     .2302505    .4271548
              2  |   .5446858   .0726432     7.50   0.000     .4023078    .6870638
    ------------------------------------------------------------------------------

447 . * Prob of not-leftist episode turning into civil war
448 . scalar m1 = el(r(b),1,1)

449 . * Prob of leftist episode turning into civil war
450 . scalar m2 = el(r(b),1,2)

451 . * Prob of not-leftist episode not involving civil war
452 . scalar m3 = 1 - m1

453 . * Prob of leftist not involving civil war
454 . scalar m4 = 1 - m2

455 . display m1 " " m3 " " m2 " " m4
    .32870263 .67129737 .54468576 .45531424

456 .
457 . * Obtain number of social revolutionary and not-social-revolutionary episodes for Cold War and post-Cold War per
    > iods
458 . * Cold War and Post-Cold War social revolutionary episodes
459 . tabstat leftist if startyear>1899 & leftist==1, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |        31
      1950-1984 |        44
      1985-2014 |         5
    ------------------------

460 . mat urbtotal1 = r(Stat2)

461 . mat urbtotal2 = r(Stat3)

462 . scalar numurbcold = urbtotal1[1,1]

463 . scalar numurbpost = urbtotal2[1,1]

464 . display numurbcold  " " numurbpost
    44 5
```

```
465 . scalar urbdiff = numurbpost - numurbcold

466 . display urbdiff
    -39

467 . * Cold War and Post-Cold War not-social revolutionary episodes
468 . tabstat leftist if startyear>1899 & leftist==0, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |        91
      1950-1984 |        54
      1985-2014 |       118
    ------------------------

469 . mat urbtotal1 = r(Stat2)

470 . mat urbtotal2 = r(Stat3)

471 . scalar numnourbcold = urbtotal1[1,1]

472 . scalar numnourbpost = urbtotal2[1,1]

473 . display numnourbcold  " " numnourbpost
    54 118

474 . scalar nourbdiff = numnourbpost - numnourbcold

475 . display nourbdiff
    64

476 .
477 . * Obtain differences in average deaths for social revolutionary and not-social-revolutionary episodes involving
    > and not involving civil war
478 . * Average deaths in revolutionary episodes with civil war
479 . tabstat totaldeaths if  startyear>1949 & civilwar==1, s(mean) by(leftist) save nototal

    Summary for variables: totaldeaths
         by categories of: leftist (Goal: social revolutionary (aimed at transformation of class structure))

    leftist |      mean
    --------+----------
         no |  149331.1
        yes |  69254.26
    -------------------

480 . * Not-leftist
481 . mat total3 = r(Stat1)

482 . local  newtot3 = total3[1,1]

483 . scalar nourbcivdeaths = `newtot3'

484 . * Leftist
485 . mat total4 = r(Stat2)

486 . local  newtot4 = total4[1,1]

487 . scalar urbcivdeaths = `newtot4'

488 . display nourbcivdeaths " " urbcivdeaths
    149331.08 69254.257

489 . scalar civdeathsdiff =  urbcivdeaths - nourbcivdeaths

490 . display civdeathsdiff
    -80076.824

491 . * Average deaths in revolutionary episodes without civil war
492 . tabstat totaldeaths if  startyear>1949 & civilwar==0, s(mean) by(leftist) save nototal

    Summary for variables: totaldeaths
         by categories of: leftist (Goal: social revolutionary (aimed at transformation of class structure))

    leftist |      mean
    --------+----------
         no |  760.9462
        yes |      1169
    -------------------

493 . * Not leftist
494 . mat total5 = r(Stat1)

495 . local  newtot5 = total5[1,1]

496 . scalar nourbnocivdeaths = `newtot5'
```

```
497 . * Leftist
498 . mat total6 = r(Stat2)

499 . local  newtot6 = total6[1,1]

500 . scalar urbnocivdeaths = `newtot6'

501 . display nourbnocivdeaths " " urbnocivdeaths
760.94624 1169

502 . scalar nocivdeathsdiff =  urbnocivdeaths - nourbnocivdeaths

503 . display nocivdeathsdiff
408.05376

504 .
505 . * Calculate increase/decrease in deaths as a result of selection into and out of civil war
506 . * Increase/decrease in post-Cold War period in # deaths in social revolutionary episodes that selected into civi
> l war
507 . scalar a1 = (m2 * urbdiff * civdeathsdiff)

508 . if urbdiff < 0 & civdeathsdiff < 0 {
509 .         scalar a1 = -1 * a1
510 .         }

511 . display a1
-1701051.5

512 . * Increase/decrease in post-Cold War period in # deaths in social revolutionary episodes that selected out of ci
> vil war
513 . scalar a2 = (m4 * urbdiff * nocivdeathsdiff)

514 . if urbdiff < 0 & nocivdeathsdiff < 0 {
515 .         scalar a2 = -1 * a2
516 .         }

517 . display a2
-7245.9149

518 . scalar totaleffect = a1 + a2

519 . display "The estimated effect on the number of deaths is " totaleffect
The estimated effect on the number of deaths is -1708297.4

520 . * Drop scalars and macros
521 . macro drop _all

522 . scalar drop _all

523 .
524 . * ========================================================
525 . * CALCULATE SELECTION EFFECT OF EPISODES AIMED AT ALTERING
526 . *    ETHNIC/RACIAL ORDER ON DEATHS IN CIVIL WARS
527 . * ========================================================
528 . * Run basic switching regression model
529 . quietly: switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lndeaths =  lnmonthsdu
> r success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
> opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

530 .
531 . * Obtain marginal probabilities of selection into civil war for ethnic/racial episodes
532 . margins, atmeans expression(predict(psel)) at(ethnicorder=(0 1)) post

Adjusted predictions                            Number of obs     =        230
Model VCE    : OIM

Expression   : predict(psel)

1._at        : urbandum        =    .6521739 (mean)
               leftist         =    .2608696 (mean)
               ethnicorder     =           0
               success         =    .4652174 (mean)
               newpolitym~1    =   -1.378261 (mean)
               urbancivic      =    .2304348 (mean)
               newgdppcthl     =    2.926846 (mean)
               lnmonthsdur     =    2.380064 (mean)
               urbpercbef~v    =    23.50577 (mean)

2._at        : urbandum        =    .6521739 (mean)
               leftist         =    .2608696 (mean)
               ethnicorder     =           1
               success         =    .4652174 (mean)
               newpolitym~1    =   -1.378261 (mean)
               urbancivic      =    .2304348 (mean)
               newgdppcthl     =    2.926846 (mean)
               lnmonthsdur     =    2.380064 (mean)
               urbpercbef~v    =    23.50577 (mean)

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |   .2704812   .0432107     6.26   0.000     .1857897    .3551727
          2  |   .8126356   .0630449    12.89   0.000     .6890699    .9362012
------------------------------------------------------------------------------
```

```
533 . * Prob of not-ethnic/racial episode turning into civil war
534 . scalar m1 = el(r(b),1,1)

535 . * Prob of ethnic/racial episode turning into civil war
536 . scalar m2 = el(r(b),1,2)

537 . * Prob of not-ethnic/racial episode not involving civil war
538 . scalar m3 = 1 - m1

539 . * Prob of ethnic/racial episode not involving civil war
540 . scalar m4 = 1 - m2

541 . display m1 " " m3 " " m2 " " m4
    .27048122 .72951878 .81263557 .18736443

542 .
543 . * Obtain number of ethnic/racial and not-ethnic/racial episodes for Cold War and post-Cold War periods
544 . * Cold War and Post-Cold War ethnic/racial episodes
545 . tabstat ethnicorder if startyear>1899 & ethnicorder==1, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |         4
      1950-1984 |        19
      1985-2014 |        33
    ------------------------

546 . mat urbtotal1 = r(Stat2)

547 . mat urbtotal2 = r(Stat3)

548 . scalar numurbcold = urbtotal1[1,1]

549 . scalar numurbpost = urbtotal2[1,1]

550 . display numurbcold  " " numurbpost
    19 33

551 . scalar urbdiff = numurbpost - numurbcold

552 . display urbdiff
    14

553 . * Cold War and Post-Cold War not-ethnic/racial episodes
554 . tabstat ethnicorder if startyear>1899 & ethnicorder==0, s(count) by(timeperiods) nototal save

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

    timeperiods |         N
    ------------+----------
      1900-1949 |       118
      1950-1984 |        79
      1985-2014 |        90
    ------------------------

555 . mat urbtotal1 = r(Stat2)

556 . mat urbtotal2 = r(Stat3)

557 . scalar numnourbcold = urbtotal1[1,1]

558 . scalar numnourbpost = urbtotal2[1,1]

559 . display numnourbcold  " " numnourbpost
    79 90

560 . scalar nourbdiff = numnourbpost - numnourbcold

561 . display nourbdiff
    11

562 .
563 . * Obtain differences in average deaths for ethnic/racial and not-ethnic/racial revolutionary episodes involving
    > and not involving civil war
564 . * Average deaths in revolutionary episodes with civil war
565 . tabstat totaldeaths if  startyear>1949 & civilwar==1, s(mean) by(ethnicorder) save nototal

    Summary for variables: totaldeaths
         by categories of: ethnicorder (Goal: ethnic stratification (reverse ethnic/racial domination))

    ethnicorder |      mean
    ------------+----------
             no |  104883.3
            yes |  153505.3
    ------------------------
```

```
566 . * Not-ethnic/racial order
567 . mat total3 = r(Stat1)

568 . local  newtot3 = total3[1,1]

569 . scalar nourbcivdeaths = `newtot3'

570 . * Ethnic/racial order
571 . mat total4 = r(Stat2)

572 . local  newtot4 = total4[1,1]

573 . scalar urbcivdeaths = `newtot4'

574 . display nourbcivdeaths " " urbcivdeaths
    104883.25 153505.26

575 . scalar civdeathsdiff =  urbcivdeaths - nourbcivdeaths

576 . display civdeathsdiff
    48622.008

577 . * Average deaths in revolutionary episodes without civil war
578 . tabstat totaldeaths if  startyear>1949 & civilwar==0, s(mean) by(ethnicorder) save nototal

    Summary for variables: totaldeaths
         by categories of: ethnicorder (Goal: ethnic stratification (reverse ethnic/racial domination))

    ethnicorder |      mean
    ------------+----------
             no |  550.3895
            yes |    3250.9
    ------------------------

579 . * Not ethnic/racial order
580 . mat total5 = r(Stat1)

581 . local  newtot5 = total5[1,1]

582 . scalar nourbnocivdeaths = `newtot5'

583 . * Ethnic/racial order
584 . mat total6 = r(Stat2)

585 . local  newtot6 = total6[1,1]

586 . scalar urbnocivdeaths = `newtot6'

587 . display nourbnocivdeaths " " urbnocivdeaths
    550.38947 3250.9

588 . scalar nocivdeathsdiff =  urbnocivdeaths - nourbnocivdeaths

589 . display nocivdeathsdiff
    2700.5105

590 .
591 . * Calculate increase/decrease in deaths as a result of selection into and out of civil war
592 . * Increase/decrease in post-Cold War period in # deaths in ethnic/racial revolutionary episodes that selected in
    > to civil war
593 . scalar a1 = (m2 * urbdiff * civdeathsdiff)

594 . if urbdiff < 0 & civdeathsdiff < 0 {
595 .         scalar a1 = -1 * a1
596 .         }

597 . display a1
    553167.63

598 . * Increase/decrease in post-Cold War period in # deaths in ethnic/racial revolutionary episodes that selected ou
    > t of civil war
599 . scalar a2 = (m4 * urbdiff * nocivdeathsdiff)

600 . if urbdiff < 0 & nocivdeathsdiff < 0 {
601 .         scalar a2 = -1 * a2
602 .         }

603 . display a2
    7083.7147

604 . scalar totaleffect = a1 + a2

605 . display "The estimated effect on the number of deaths is " totaleffect
    The estimated effect on the number of deaths is 560251.34

606 . * Drop scalars and macros
607 . macro drop _all

608 . scalar drop _all
```

```
609 .
610 .
611 . * ++++++++++++++++++++++++++++++++++++++++
612 . * NO CIVIL WAR PORTION OF SWITCHING MODEL
613 . * ++++++++++++++++++++++++++++++++++++++++
614 . * ========================================================================
615 . * SWITCHING REG: CHOOSING SPECIFICATIONS FOR NO CIVIL WAR REGIME--TABLE 8.4
616 . * ========================================================================
617 . * Model 1
618 . switchcopula (lndeaths = urbandum ) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (c
    > ivilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(n
    > ormal)

    Iteration 0:   log likelihood = -640.25232  (not concave)
    Iteration 1:   log likelihood = -633.27418
    Iteration 2:   log likelihood = -630.96158
    Iteration 3:   log likelihood = -630.19078
    Iteration 4:   log likelihood =  -630.1634
    Iteration 5:   log likelihood = -630.16311
    Iteration 6:   log likelihood = -630.16311

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

                                                  Number of obs     =        241
                                                  Wald chi2(3)      =     106.10
    Log likelihood = -630.16311                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.189948   .2337257    -9.37   0.000    -2.648042   -1.731854
          leftist |   .4788226   .2340542     2.05   0.041     .0200847    .9375605
      ethnicorder |   1.300177   .2656692     4.89   0.000     .7794751    1.820879
            _cons |   .7798288   .2209713     3.53   0.000     .3467329    1.212925
    -------------+----------------------------------------------------------------
    regime0      |
         urbandum |  -6.529927   1.644982    -3.97   0.000    -9.754033   -3.305821
            _cons |   10.51141   1.718322     6.12   0.000     7.143562    13.87926
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .6534501   .1501023     4.35   0.000      .359255    .9476451
    urbpercbefrev |  -.0243676   .0112831    -2.16   0.031    -.0464821   -.0022532
          success |   1.244602   .3857886     3.23   0.001     .4884704    2.000734
            _cons |   7.386477   .7121128    10.37   0.000     5.990761    8.782192
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   1.001515   .0646344    15.50   0.000     .8748342    1.128197
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6442776   .0712223     9.05   0.000     .5046844    .7838708
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |  -.2578113   .9179883    -0.28   0.779    -2.057035    1.541413
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   1.060998   .9730221     1.09   0.276      -.84609    2.968087
    -------------+----------------------------------------------------------------
           sigma0 |   2.722404   .1759611                      2.398478    3.090079
           sigma1 |   1.904611   .1356508                      1.656463    2.189933
           theta0 |   .7727411   .7093672                      .1278324    4.671184
           theta1 |   .7860456   .3718231                     -.6890213    .9947297
             tau0 |  -.2786921   .1845366                     -.7002032   -.0600764
             tau1 |  -.1746768   .0826274                      -.221051    .1531158
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    2.504 with p-value  0.1998
    ------------------------------------------------------------------------------

619 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

620 . quietly: switchcopula (lndeaths = urbandum ) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899 &
    >  e(sample), select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) marg
    > in0(normal) margsel(normal)

621 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -582.4224      13    1190.845   1235.369
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

622 . * Model 2
623 . switchcopula (lndeaths = urbandum urbancivic) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899,
    >  select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal)
    >  margsel(normal)

    Iteration 0:   log likelihood = -630.74772
    Iteration 1:   log likelihood = -626.34909  (backed up)
    Iteration 2:   log likelihood = -621.69607
    Iteration 3:   log likelihood = -621.09563
    Iteration 4:   log likelihood = -621.07168
    Iteration 5:   log likelihood = -621.07122
    Iteration 6:   log likelihood = -621.07122
```

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

```
                                                Number of obs     =        241
                                                Wald chi2(3)      =     106.50
Log likelihood = -621.07122                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
             |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
select       |
     urbandum |  -2.172607   .2324663    -9.35   0.000    -2.628233   -1.716982
      leftist |   .5285896   .2316901     2.28   0.023     .0744852    .9826939
  ethnicorder |   1.330061   .2698723     4.93   0.000     .8011214    1.859001
        _cons |   .7518284   .2187294     3.44   0.001     .3231267     1.18053
-------------+----------------------------------------------------------------
regime0      |
     urbandum |  -5.298955   1.603162    -3.31   0.001    -8.441094   -2.156815
   urbancivic |  -2.009548   .4573287    -4.39   0.000    -2.905896     -1.1132
        _cons |   10.05126   1.659135     6.06   0.000      6.79941     13.3031
-------------+----------------------------------------------------------------
regime1      |
  lnmonthsdur |   .6550287   .1502814     4.36   0.000     .3604826    .9495748
urbpercbefrev |  -.0243322   .0112786    -2.16   0.031    -.0464378   -.0022266
      success |   1.245977   .3857109     3.23   0.001     .4899976    2.001957
        _cons |   7.377307   .7132118    10.34   0.000     5.979437    8.775176
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |    .935742   .0628673    14.88   0.000     .8125244     1.05896
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6443235   .0712452     9.04   0.000     .5046855    .7839616
-------------+----------------------------------------------------------------
atheta0      |
        _cons |  -.4064792   .9237488    -0.44   0.660    -2.216994    1.404035
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   1.081652   .9923552     1.09   0.276    -.8633289    3.026632
-------------+----------------------------------------------------------------
       sigma0 |   2.549104   .1602552                      2.25359     2.88337
       sigma1 |   1.904698   .1357006                     1.656464    2.190132
       theta0 |    .665991   .6152083                     .1089361    4.071597
       theta1 |   .7938108   .3670369                    -.6979688    .9953107
         tau0 |  -.2498099   .1731151                    -.6705973   -.0516545
         tau1 |  -.1764024   .0815638                    -.2211801    .1551042
------------------------------------------------------------------------------
LR test of independence :        Test statistic    3.456 with p-value  0.1204
------------------------------------------------------------------------------
```

```
624 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

625 . quietly: switchcopula (lndeaths = urbandum urbancivic) (lndeaths =  lnmonthsdur urbpercbefrev success) if starty
    > ear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(no
    > rmal) margin0(normal) margsel(normal)

626 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -573.3329      15    1176.666    1228.04
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

627 . * Model 3
628 . switchcopula (lndeaths = urbandum urbancivic success) (lndeaths =  lnmonthsdur urbpercbefrev success) if startye
    > ar>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) margin0
    > (normal) margsel(normal)

    Iteration 0:   log likelihood =  -627.8762
    Iteration 1:   log likelihood = -626.46182
    Iteration 2:   log likelihood = -619.29434
    Iteration 3:   log likelihood = -618.50777
    Iteration 4:   log likelihood = -618.48325
    Iteration 5:   log likelihood = -618.48304
    Iteration 6:   log likelihood = -618.48304

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

                                                    Number of obs     =        241
                                                    Wald chi2(3)      =     106.80
    Log likelihood = -618.48304                     Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.170412   .2318514    -9.36   0.000    -2.624832   -1.715992
          leftist |   .5491197   .2296601     2.39   0.017     .0989941    .9992453
      ethnicorder |   1.345403   .2710138     4.96   0.000     .8142252     1.87658
            _cons |   .7427776   .2175002     3.42   0.001      .316485     1.16907
    -------------+----------------------------------------------------------------
    regime0      |
         urbandum |  -4.814198   1.368787    -3.52   0.000    -7.496972   -2.131425
       urbancivic |  -1.879295   .4525475    -4.15   0.000    -2.766272    -.992318
          success |  -1.009593   .4399552    -2.29   0.022    -1.871889   -.1472963
            _cons |   10.05162   1.396154     7.20   0.000     7.315212    12.78803
    -------------+----------------------------------------------------------------
```

```
regime1      |
  lnmonthsdur |   .6556418   .1503483     4.36   0.000     .3609645     .950319
urbpercbefrev |  -.0243193   .0112773    -2.16   0.031    -.0464223   -.0022162
      success |   1.246472   .3856802     3.23   0.001     .4905526    2.002391
         cons |   7.374125    .713559    10.33   0.000     5.975575    8.772675
-------------+----------------------------------------------------------------
lnsigma0     |
        _cons |   .9178582   .0616588    14.89   0.000     .7970091    1.038707
-------------+----------------------------------------------------------------
lnsigma1     |
        _cons |   .6443262   .0712507     9.04   0.000     .5046774    .7839749
-------------+----------------------------------------------------------------
atheta0      |
        _cons |  -.4125732   .7791047    -0.53   0.596     -1.93959    1.114444
-------------+----------------------------------------------------------------
atheta1      |
        _cons |   1.088697   .9979176     1.09   0.275    -.8671854     3.04458
-------------+----------------------------------------------------------------
      sigma0 |   2.503922   .1543889                      2.218895    2.825562
      sigma1 |   1.904703   .1357114                      1.656451    2.190161
      theta0 |   .6619447   .5157242                      .1437628    3.047873
      theta1 |   .7964021    .364982                     -.6999413    .9954756
        tau0 |  -.2486696   .1455625                     -.6037935    -.067061
        tau1 |  -.1769783   .0811071                     -.2212168    .1555425
------------------------------------------------------------------------------
LR test of independence :        Test statistic    4.198 with p-value  0.0815
------------------------------------------------------------------------------
```

```
629 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

630 . quietly: switchcopula (lndeaths = urbandum urbancivic success) (lndeaths =  lnmonthsdur urbpercbefrev success) i
    > f startyear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) ma
    > rgin1(normal) margin0(normal) margsel(normal)

631 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df          AIC         BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -570.7211      16    1173.442   1228.241
    ------------------------------------------------------------------------------
                  Note: N=Obs used in calculating BIC; see [R] BIC note.

632 . * Model 4
633 . switchcopula (lndeaths = urbandum urbancivic success newpolitymin1) (lndeaths =  lnmonthsdur urbpercbefrev succe
    > ss) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fgm) margin1(n
    > ormal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -597.60281  (not concave)
    Iteration 1:   log likelihood = -591.91913
    Iteration 2:   log likelihood = -589.67677
    Iteration 3:   log likelihood = -588.94437
    Iteration 4:   log likelihood = -588.93892
    Iteration 5:   log likelihood = -588.93892

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

                                                  Number of obs     =        233
                                                  Wald chi2(3)      =     103.36
    Log likelihood = -588.93892                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.178398   .2359581    -9.23   0.000    -2.640868   -1.715929
          leftist |   .4754083     .23097     2.06   0.040     .0227153    .9281012
      ethnicorder |   1.356606   .2693772     5.04   0.000     .8286364    1.884576
            _cons |   .7527998   .2205227     3.41   0.001     .3205832    1.185016
    -------------+----------------------------------------------------------------
    regime0      |
         urbandum |  -4.615333   1.007436    -4.58   0.000    -6.589871   -2.640795
       urbancivic |  -2.031302   .4331972    -4.69   0.000    -2.880353   -1.182252
          success |  -1.490966   .4377787    -3.41   0.001    -2.348996   -.6329351
    newpolitymin1 |  -.1210476   .0357172    -3.39   0.001    -.1910521   -.0510431
            cons |   10.06967   .9916041    10.15   0.000     8.126165    12.01318
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .6885761   .1492242     4.61   0.000      .396102    .9810501
    urbpercbefrev |   -.025074   .0123116    -2.04   0.042    -.0492042   -.0009438
          success |   1.184936    .389571     3.04   0.002     .4213907    1.948481
            _cons |   7.269801   .7087074    10.26   0.000      5.88076    8.658842
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8623463   .0626759    13.76   0.000     .7395039    .9851888
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6271011   .0729751     8.59   0.000     .4840726    .7701296
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |  -.1702781   .5543736    -0.31   0.759     -1.25683    .9162741
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   .9679938   .9279932     1.04   0.297    -.8508395    2.786827
    -------------+----------------------------------------------------------------
          sigma0 |   2.368712   .1484611                      2.094896    2.678318
          sigma1 |   1.872175   .1366221                      1.622669    2.160046
```

```
       theta0 |   .8434302   .4675754                      .2845545    2.499959
       theta1 |   .7478213   .4090253                     -.6915078    .9924356
         tau0 |  -.2966242   .1156636                     -.5555515   -.1245558
         tau1 |  -.1661825   .0908945                     -.2205412    .1536684
------------------------------------------------------------------------------
LR test of independence :        Test statistic    4.615 with p-value  0.0656
------------------------------------------------------------------------------

634 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

635 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1) (lndeaths =  lnmonthsdur urbpercbef
    > rev success) if startyear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

636 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC         BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -564.7449      17     1163.49   1221.714
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

637 . * Model 5
638 . switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdur urbperc
    > befrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) copula1(fg
    > m) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -580.06379  (not concave)
    Iteration 1:   log likelihood = -574.09006  (not concave)
    Iteration 2:   log likelihood = -573.25352
    Iteration 3:   log likelihood = -570.39348
    Iteration 4:   log likelihood = -569.95645
    Iteration 5:   log likelihood = -569.94319
    Iteration 6:   log likelihood = -569.94048
    Iteration 7:   log likelihood =  -569.9399
    Iteration 8:   log likelihood = -569.93977
    Iteration 9:   log likelihood = -569.93973

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     102.08
    Log likelihood = -569.93973                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.211441   .2424118    -9.12   0.000    -2.686559   -1.736323
          leftist |   .5557443    .228108     2.44   0.015     .1086609    1.002828
      ethnicorder |   1.499009   .2691029     5.57   0.000     .9715766    2.026441
            _cons |   .6859092    .223242     3.07   0.002      .248363    1.123455
    -------------+----------------------------------------------------------------
    regime0      |
         urbandum |  -4.682154   .8777555    -5.33   0.000    -6.402523   -2.961785
       urbancivic |  -1.681998   .4300323    -3.91   0.000    -2.524846   -.8391503
          success |  -1.647397   .4243601    -3.88   0.000    -2.479128    -.815667
    newpolitymin1 |  -.1013102    .034569    -2.93   0.003    -.1690641   -.0335563
      newgdppcthl |  -.2261862   .0623702    -3.63   0.000    -.3484296   -.1039428
            _cons |   10.96281   .8876303    12.35   0.000      9.22309    12.70254
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5766471   .1454606     3.96   0.000     .2915495    .8617447
    urbpercbefrev |   -.029129   .0119571    -2.44   0.015    -.0525644   -.0056935
          success |   1.177386   .3773174     3.12   0.002     .4378579    1.916915
             cons |   7.813654   .6699743    11.66   0.000     6.500528    9.126779
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |   .8296942   .0632792    13.11   0.000     .7056692    .9537192
    -------------+----------------------------------------------------------------
    lnsigma1     |
            _cons |   .6029933   .0733354     8.22   0.000     .4592585    .7467281
    -------------+----------------------------------------------------------------
    atheta0      |
             cons |   .0372386   .4810265     0.08   0.938    -.9055561    .9800333
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   6.474985   181.2116     0.04   0.971    -348.6931    361.6431
    -------------+----------------------------------------------------------------
           sigma0 |   2.292617    .145075                      2.025201    2.595344
           sigma1 |   1.827581   .1340264                        1.5829    2.110085
           theta0 |   1.037941    .499277                      .404317    2.664545
           theta1 |   .9999952   .0017224                           -1           1
             tau0 |  -.3416593   .1081964                     -.5712336   -.1681629
             tau1 |  -.2222212   .0003828                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.283 with p-value  0.0100
    ------------------------------------------------------------------------------
```

```
639 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

640 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder) copula
    > 0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

641 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -560.0012      18    1156.002   1217.651
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

642 . * Model 6
643 . switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl leftist) (lndeaths =  lnmonthsdur
    >  urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) co
    > pula1(fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -579.40031  (not concave)
    Iteration 1:   log likelihood = -573.51514  (not concave)
    Iteration 2:   log likelihood = -572.99309
    Iteration 3:   log likelihood =  -570.1507
    Iteration 4:   log likelihood = -568.83437
    Iteration 5:   log likelihood = -568.81318
    Iteration 6:   log likelihood = -568.80895
    Iteration 7:   log likelihood = -568.80803
    Iteration 8:   log likelihood = -568.80781
    Iteration 9:   log likelihood = -568.80777
    Iteration 10:  log likelihood = -568.80775

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

                                                  Number of obs     =        230
                                                  Wald chi2(3)      =     103.53
    Log likelihood = -568.80775                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
    select       |
         urbandum |  -2.197688   .2411588    -9.11   0.000    -2.670351   -1.725026
          leftist |   .6471254   .2349486     2.75   0.006     .1866345    1.107616
      ethnicorder |   1.491593   .2633214     5.66   0.000     .9754925    2.007693
            _cons |   .6521023   .2212834     2.95   0.003     .2183947     1.08581
    -------------+----------------------------------------------------------------
    regime0      |
         urbandum |  -4.622375   .8192492    -5.64   0.000    -6.228074   -3.016676
       urbancivic |  -1.486834   .4486787    -3.31   0.001    -2.366228   -.6074401
          success |   -1.53429   .4309448    -3.56   0.000    -2.378927   -.6896541
    newpolitymin1 |  -.1034693   .0344136    -3.01   0.003    -.1709187   -.0360199
      newgdppcthl |  -.2219473   .0616985    -3.60   0.000    -.3428742   -.1010204
          leftist |   .8551926   .5664057     1.51   0.131    -.2549421    1.965327
            _cons |   10.61973   .8509513    12.48   0.000     8.951898    12.28757
    -------------+----------------------------------------------------------------
    regime1      |
      lnmonthsdur |   .5796782   .1454215     3.99   0.000     .2946573     .864699
    urbpercbefrev |  -.0290959   .0119516    -2.43   0.015    -.0525206   -.0056712
          success |   1.177831   .3771178     3.12   0.002     .4386941    1.916969
            _cons |   7.800897   .6699539    11.64   0.000     6.487812    9.113983
    -------------+----------------------------------------------------------------
    lnsigma0     |
            _cons |    .831017   .0638223    13.02   0.000     .7059277    .9561064
    -------------+----------------------------------------------------------------
    lnsigma1     |
             cons |   .6027624   .0733216     8.22   0.000     .4590547    .7464701
    -------------+----------------------------------------------------------------
    atheta0      |
            _cons |   .1858219    .441392     0.42   0.674    -.6792905    1.050934
    -------------+----------------------------------------------------------------
    atheta1      |
            _cons |   7.684883    600.525     0.01   0.990    -1169.322    1184.692
    -------------+----------------------------------------------------------------
           sigma0 |   2.295652   .1465137                      2.025725    2.601547
           sigma1 |   1.827159   .1339702                      1.582577     2.10954
           theta0 |   1.204208   .5315276                      .5069765    2.860322
           theta1 |   .9999996   .0005077                            -1           1
             tau0 |  -.3758207   .1035415                     -.5885046   -.2022263
             tau1 |  -.2222221   .0001128                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    9.765 with p-value  0.0047
    ------------------------------------------------------------------------------

644 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
645 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl leftist) (lndeaths =  ln
    > monthsdur urbpercbefrev success) if startyear>1899 & e(sample), select (civilwar =  urbandum leftist ethnicorder
    > ) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

646 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -558.5334      19    1155.067   1220.141
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

647 . * Model 7
648 . switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyear) (lndea
    > ths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) c
    > opula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

    Iteration 0:   log likelihood = -569.03382  (not concave)
    Iteration 1:   log likelihood = -563.20923
    Iteration 2:   log likelihood = -561.66123
    Iteration 3:   log likelihood = -559.33374
    Iteration 4:   log likelihood = -559.18513
    Iteration 5:   log likelihood = -559.15324
    Iteration 6:   log likelihood = -559.14575
    Iteration 7:   log likelihood = -559.14395
    Iteration 8:   log likelihood = -559.14355
    Iteration 9:   log likelihood = -559.14346
    Iteration 10:  log likelihood = -559.14345

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

                                                  Number of obs     =        227
                                                  Wald chi2(3)      =     100.80
    Log likelihood = -559.14345                   Prob > chi2       =     0.0000

    ------------------------------------------------------------------------------
                    |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
    ----------------+-------------------------------------------------------------
    select          |
           urbandum |  -2.247374   .2466192    -9.11   0.000    -2.730738   -1.764009
            leftist |   .5491296   .2331051     2.36   0.018      .092252    1.006007
        ethnicorder |   1.499412    .273831     5.48   0.000     .9627133    2.036111
               cons |   .7346363   .2290695     3.21   0.001     .2856684    1.183604
    ----------------+-------------------------------------------------------------
    regime0         |
           urbandum |  -4.941765   .9429925    -5.24   0.000    -6.789996   -3.093534
         urbancivic |  -1.820599   .4871386    -3.74   0.000    -2.775374   -.8658251
            success |  -1.595497   .4187593    -3.81   0.000     -2.41625   -.7747437
      newpolitymin1 |  -.1034771   .0378895    -2.73   0.006    -.1777392    -.029215
        newgdppcthl |  -.2308075   .0724475    -3.19   0.001    -.3728019   -.0888131
    humanrightsrats |  -.2028939   .2084048    -0.97   0.330    -.6113598     .205572
          startyear |    .011453   .0089377     1.28   0.200    -.0060646    .0289706
              _cons |  -11.19346    17.3036    -0.65   0.518    -45.10789    22.72097
    ----------------+-------------------------------------------------------------
    regime1         |
        lnmonthsdur |   .5764989   .1455173     3.96   0.000     .2912901    .8617076
      urbpercbefrev |  -.0292148   .0119617    -2.44   0.015    -.0526592   -.0057704
            success |   1.175816   .3774014     3.12   0.002      .436123    1.915509
              _cons |   7.822755   .6702996    11.67   0.000     6.508991    9.136518
    ----------------+-------------------------------------------------------------
    lnsigma0        |
              _cons |   .8085182   .0636313    12.71   0.000     .6838031    .9332333
    ----------------+-------------------------------------------------------------
    lnsigma1        |
              _cons |   .6027265   .0733146     8.22   0.000     .4590326    .7464204
    ----------------+-------------------------------------------------------------
    atheta0         |
               cons |  -.0613603   .4944902    -0.12   0.901    -1.030543    .9078227
    ----------------+-------------------------------------------------------------
    atheta1         |
              _cons |   7.166537   364.5857     0.02   0.984    -707.4082    721.7413
    ----------------+-------------------------------------------------------------
             sigma0 |   2.244579   .1428256                      1.981399    2.542717
             sigma1 |   1.827094   .1339526                      1.582542    2.109435
             theta0 |   .9404843   .4650603                       .356813    2.478919
             theta1 |   .9999988   .0008691                            -1           1
               tau0 |  -.3198399   .1075726                     -.5534637   -.1513964
               tau1 |   -.222222   .0001931                     -.2222222    .2222222
    ------------------------------------------------------------------------------
    LR test of independence :        Test statistic    8.431 with p-value  0.0092
    ------------------------------------------------------------------------------

649 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethni
    > corder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
650 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl humanrightsrats startyea
    > r) (lndeaths =  lnmonthsdur urbpercbefrev success) if startyear>1899 & e(sample), select (civilwar =  urbandum l
    > eftist ethnicorder) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

651 . estat ic

    Akaike's information criterion and Bayesian information criterion

    ------------------------------------------------------------------------------
           Model |        Obs  ll(null)  ll(model)      df         AIC        BIC
    -------------+----------------------------------------------------------------
               . |        227         .  -559.1434      20    1158.287   1226.786
    ------------------------------------------------------------------------------
                   Note: N=Obs used in calculating BIC; see [R] BIC note.

652 .
653 . * Likelihood ratio test of Models 5 and 6
654 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

655 . estimates store A

656 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl leftist) (lndeaths =  ln
    > monthsdur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(cl
    > ayton) copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

657 . estimates store B

658 . lrtest A B

    Likelihood-ratio test                                 LR chi2(1)  =      2.26
    (Assumption: A nested in B)                           Prob > chi2 =    0.1324

659 . *       RESULT:  LR chi2(1)=2.26, p=0.1324  Cannot conclude that Model 6 is superior to Model 5 at the .05 level
660 . drop _est_A _est_B

661 . *   RESULT: Model 5 is the preferred model
662 .
663 . * GLM estimation of Model 5
664 . quietly: switchcopula (lndeaths = urbandum newgdppcthl urbancivic success newpolitymin1) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

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

    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]
    -------------+----------------------------------------------------------------
         urbandum |  -1.706538    .838066    -2.04   0.042    -3.349117   -.0639588
      newgdppcthl |  -.3123443   .0899487    -3.47   0.001    -.4886406    -.136048
       urbancivic |  -1.336458    .450903    -2.96   0.003    -2.220212   -.4527048
          success |  -1.003941   .4597253    -2.18   0.029    -1.904986   -.1028963
    newpolitymin1 |  -.0708483   .0337073    -2.10   0.036    -.1369134   -.0047833
            _cons |   9.832824   .8125524    12.10   0.000      8.24025    11.4254
    ------------------------------------------------------------------------------

666 .
667 .
668 . * ============================================================
669 . * SWITCHING REG: ESTIMATED EFFECT ON DEATHS OF URBAN LOCATION
670 . *    IN EPISODES WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
671 . * ============================================================
672 . * Full switching model
673 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl ) (lndeaths =  lnmonthsd
    > ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton)
    > copula1(fgm) margin1(normal) margin0(normal) margsel(normal)
```

```
674 . tabstat urbandum if civilwar==0 & startyear>1899, s(mean) by(timeperiods) save

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

    timeperiods |      mean
    ------------+----------
      1900-1949 |  .7580645
      1950-1984 |    .90625
      1985-2014 |  .9733333
    ------------+----------
          Total |  .8816568
    ----------------------

675 . mat total1 = r(Stat1)

676 . mat total3 = r(Stat3)

677 . local newtot1 = total1[1,1]

678 . display `newtot1'
    .75806452

679 . local newtot3 = total3[1,1]

680 . display `newtot3'
    .97333333

681 . * Reassign var
682 . local lev1 = `newtot1'

683 . local lev3 = `newtot3'

684 . * Calculate marginal effects for success rates for each period
685 . * For checking the parameter to extract:  mat list e(b)
686 . local param1 = e(k) - 3

687 . matrix coefs = e(b)

688 . local param2 = exp(coefs[1,`param1'])

689 . margins, atmeans expression(exp((predict(xb0)+(0.5*(`param2')*(`param2'))))) at(urbandum=(`lev1' `lev3')) subpop
    > (if civilwar==0)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : exp((predict(xb0)+(0.5*(2.292617459269031)*(2.292617459269031))))

    1._at        : urbandum        =    .7580645
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    2._at        : urbandum        =    .9733333
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   2732.863   756.9062     3.61   0.000     1249.354    4216.372
              2  |   997.4312   208.4587     4.78   0.000     588.8597    1406.003
    ------------------------------------------------------------------------------

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

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

693 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
694 . 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
```

```
695 . scalar ncwnum1 = tper[1,1]

696 . scalar ncwnum3 = tper[3,1]

697 . display ncwnum1
    62

698 . display ncwnum3
    75

699 . scalar effper1 = m1 * ncwnum1

700 . scalar effper3 = m3 * ncwnum3

701 . display "The estimated effect on the number of deaths is " (effper3 - effper1)
    The estimated effect on the number of deaths is -94630.158

702 . * Drop scalars and macros
703 . macro drop _all

704 . scalar drop _all

705 .
706 . * ====================================================================
707 . * SWITCHING REG: ESTIMATED EFFECT ON DEATHS OF URBAN CIVIC REPERTOIRE
708 . *    IN EPISODES WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
709 . * ====================================================================
710 . * Full switching model
711 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

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

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

    timeperiods |      mean
    ------------+----------
      1900-1949 |   .016129
      1950-1984 |     .1875
      1985-2014 |        .6
    ------------+----------
          Total |  .3076923
    ----------------------

713 . mat total1 = r(Stat1)

714 . mat total3 = r(Stat3)

715 . local newtot1 = total1[1,1]

716 . display `newtot1'
    .01612903

717 . local newtot3 = total3[1,1]

718 . display `newtot3'
    .6

719 . * Reassign var
720 . local lev1 = `newtot1'

721 . local lev3 = `newtot3'

722 . * Calculate marginal effects for success rates for each period
723 . * For checking the parameter to extract:  mat list e(b)
724 . local param1 = e(k) - 3

725 . matrix coefs = e(b)

726 . local param2 = exp(coefs[1,`param1'])

727 . margins, atmeans expression(exp((predict(xb0)+(0.5*(`param2')*(`param2'))))) at(urbancivic=(`lev1' `lev3')) subp
    > op(if civilwar==0)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : exp((predict(xb0)+(0.5*(2.292617459269031)*(2.292617459269031))))

    1._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =     .016129
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)
```

```
2._at        : urbandum        =    .9343066 (mean)
               leftist         =     .189781 (mean)
               ethnicorder     =     .080292 (mean)
               urbancivic      =          .6
               success         =    .5109489 (mean)
               newpolitym~1    =   -1.708029 (mean)
               newgdppcthl     =    3.685198 (mean)
               lnmonthsdur     =    1.308541 (mean)
               urbpercbef~v    =    27.57398 (mean)

------------------------------------------------------------------------------
             |            Delta-method
             |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         _at |
          1  |    2179.67   567.4513     3.84   0.000     1067.486    3291.854
          2  |   816.3629   189.6862     4.30   0.000     444.5848    1188.141
------------------------------------------------------------------------------

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

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

. * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
. 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


. scalar ncwnum1 = tper[1,1]

. scalar ncwnum3 = tper[3,1]

. display ncwnum1
62

. display ncwnum3
75

. scalar effper1 = m1 * ncwnum1

. scalar effper3 = m3 * ncwnum3

. display "The estimated effect on the number of deaths is " (effper3 - effper1)
The estimated effect on the number of deaths is -73912.337

. * Drop scalars and macros
. macro drop _all

. scalar drop _all

. 
. * ====================================================================
. * SWITCHING REG: ESTIMATED EFFECT ON DEATHS OF OPPOSITION SUCCESS IN
. *    EPISODES WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
. * ====================================================================
. * Full switching model
. quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdu
> r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
> opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

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

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

timeperiods |      mean
------------+----------
  1900-1949 |  .3225806
  1950-1984 |    .46875
  1985-2014 |  .5333333
------------+----------
      Total |   .443787
----------------------

. mat total1 = r(Stat1)

. mat total3 = r(Stat3)
```

```
753 . local newtot1 = total1[1,1]

754 . display `newtot1'
    .32258065

755 . local newtot3 = total3[1,1]

756 . display `newtot3'
    .53333333

757 . * Reassign var
758 . local lev1 = `newtot1'

759 . local lev3 = `newtot3'

760 . * Calculate marginal effects for success rates for each period
761 . * For checking the parameter to extract:  mat list e(b)
762 . local param1 = e(k) - 3

763 . matrix coefs = e(b)

764 . local param2 = exp(coefs[1,`param1'])

765 . margins, atmeans expression(exp((predict(xb0)+(0.5*(`param2')*(`param2'))))) at(success=(`lev1' `lev3')) subpop(
    > if civilwar==0)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : exp((predict(xb0)+(0.5*(2.292617459269031)*(2.292617459269031))))

    1._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .3225806
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    2._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5333333
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
             _at |
              1  |   1633.091   368.1802     4.44   0.000     911.4714    2354.711
              2  |   1154.054    243.311     4.74   0.000     677.1736    1630.935
    ------------------------------------------------------------------------------

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

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

769 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
770 . 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


771 . scalar ncwnum1 = tper[1,1]

772 . scalar ncwnum3 = tper[3,1]

773 . display ncwnum1
    62

774 . display ncwnum3
    75
```

```
775 . scalar effper1 = m1 * ncwnum1

776 . scalar effper3 = m3 * ncwnum3

777 . display "The estimated effect on the number of deaths is " (effper3 - effper1)
The estimated effect on the number of deaths is -14697.589

778 . * Drop scalars and macros
779 . macro drop _all

780 . scalar drop _all

781 .
782 . * ============================================================
783 . * SWITCHING REG: ESTIMATED EFFECT ON DEATHS OF POLITY SCORES IN
784 . *    EPISODES WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
785 . * ============================================================
786 . * Full switching model
787 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl) (lndeaths =  lnmonthsdu
    > r urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton) c
    > opula1(fgm) margin1(normal) margin0(normal) margsel(normal)

788 . 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
    ----------------------

789 . mat total1 = r(Stat1)

790 . mat total3 = r(Stat3)

791 . local newtot1 = total1[1,1]

792 . display `newtot1'
    .48333333

793 . local newtot3 = total3[1,1]

794 . display `newtot3'
    -1.9305556

795 . * Reassign var
796 . local lev1 = `newtot1'

797 . local lev3 = `newtot3'

798 . * Calculate marginal effects for success rates for each period
799 . * For checking the parameter to extract:  mat list e(b)
800 . local param1 = e(k) - 3

801 . matrix coefs = e(b)

802 . local param2 = exp(coefs[1,`param1'])

803 . margins, atmeans expression(exp((predict(xb0)+(0.5*(`param2')*(`param2'))))) at(newpolitymin1=(`lev1' `lev3')) s
    > ubpop(if civilwar==0)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : exp((predict(xb0)+(0.5*(2.292617459269031)*(2.292617459269031))))

    1._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =    .4833333
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    2._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.930556
                   newgdppcthl     =    3.685198 (mean)
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
              _at |
               1  |   959.0136    213.831     4.48   0.000     539.9126    1378.115
               2  |   1224.707    258.256     4.74   0.000     718.5344    1730.879
    ------------------------------------------------------------------------------
```

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

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

807 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
808 . 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


809 . scalar ncwnum1 = tper[1,1]

810 . scalar ncwnum3 = tper[3,1]

811 . display ncwnum1
62

812 . display ncwnum3
75

813 . scalar effper1 = m1 * ncwnum1

814 . scalar effper3 = m3 * ncwnum3

815 . display "The estimated effect on the number of deaths is " (effper3 - effper1)
The estimated effect on the number of deaths is 32394.169

816 . * Drop scalars and macros
817 . macro drop _all

818 . scalar drop _all

819 .
820 . * ============================================================
821 . * SWITCHING REG: ESTIMATED EFFECT ON DEATHS OF GDP PER CAPITA
822 . *    IN EPISODES WITHOUT CIVIL WARS, 1985-2014 vs. 1900-1949
823 . * ============================================================
824 . * Full switching model
825 . quietly: switchcopula (lndeaths = urbandum urbancivic success newpolitymin1 newgdppcthl ) (lndeaths =  lnmonthsd
> ur urbpercbefrev success) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder) copula0(clayton)
> copula1(fgm) margin1(normal) margin0(normal) margsel(normal)

826 . 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
----------------------

827 . mat total1 = r(Stat1)

828 . mat total3 = r(Stat3)

829 . local newtot1 = total1[1,1]

830 . display `newtot1'
1.7139552

831 . local newtot3 = total3[1,1]

832 . display `newtot3'
4.6679418

833 . * Reassign var
834 . local lev1 = `newtot1'

835 . local lev3 = `newtot3'

836 . * Calculate marginal effects for success rates for each period
837 . * For checking the parameter to extract:  mat list e(b)
838 . local param1 = e(k) - 3
```

```
839 . matrix coefs = e(b)

840 . local param2 = exp(coefs[1,`param1'])

841 . margins, atmeans expression(exp((predict(xb0)+(0.5*(`param2')*(`param2'))))) at(newgdppcthl=(`lev1' `lev3')) sub
    > pop(if civilwar==0)

    Adjusted predictions                            Number of obs     =        230
                                                    Subpop. no. obs   =        137
    Model VCE    : OIM

    Expression   : exp((predict(xb0)+(0.5*(2.292617459269031)*(2.292617459269031))))

    1._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    1.713955
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    2._at        : urbandum        =    .9343066 (mean)
                   leftist         =     .189781 (mean)
                   ethnicorder     =     .080292 (mean)
                   urbancivic      =    .3722628 (mean)
                   success         =    .5109489 (mean)
                   newpolitym~1    =   -1.708029 (mean)
                   newgdppcthl     =    4.667942
                   lnmonthsdur     =    1.308541 (mean)
                   urbpercbef~v    =    27.57398 (mean)

    ------------------------------------------------------------------------------
                 |            Delta-method
                 |     Margin   Std. Err.      z    P>|z|     [95% Conf. Interval]
    -------------+----------------------------------------------------------------
              at |
               1 |   1870.162   464.2082     4.03   0.000      960.331    2779.994
               2 |   958.7492   207.9931     4.61   0.000     551.0903    1366.408
    ------------------------------------------------------------------------------

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

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

845 . * Calculate effect: Multiply effect times number of non-civil-war episodes in post-Cold War period
846 . 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


847 . scalar ncwnum1 = tper[1,1]

848 . scalar ncwnum3 = tper[3,1]

849 . display ncwnum1
    62

850 . display ncwnum3
    75

851 . scalar effper1 = m1 * ncwnum1

852 . scalar effper3 = m3 * ncwnum3

853 . display "The estimated effect on the number of deaths is " (effper3 - effper1)
    The estimated effect on the number of deaths is -44043.883

854 . * Drop scalars and macros
855 . macro drop _all

856 . scalar drop _all

857 .
858 . * ================================================================
859 . * SWITCHING REG: JACKKNIFE LEAVE-ONE-OUT CROSS-VALIDATION OF MODEL
860 . * ================================================================
861 . jacknife ,  cluster(revid): switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum) (lnd
    > eaths =  lnmonthsdur success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnicorder)
    >  copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(logit) iterate(75)
    (running switchcopula on estimation sample)

    Jackknife replications (230)
    ----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
    ..................................................    50
    ..................................................   100
    ..................................................   150
    ..................................................   200
    ..............................
```

```
Swithching Regression: Copulas clayton-fgm, Margins logit-normal-normal

                                                Number of obs     =        230
                                                Replications      =        230
                                                F(   3,    229)   =      24.66
Log likelihood =  -570.2302                     Prob > F          =     0.0000

                                  (Replications based on 230 clusters in revid)
------------------------------------------------------------------------------
              |              Jackknife
              |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
select        |
     urbandum |   -3.82011   .4940055    -7.73   0.000    -4.793487   -2.846733
      leftist |   1.003552   .5036403     1.99   0.047     .0111904    1.995913
  ethnicorder |    2.62833   .4916599     5.35   0.000     1.659574    3.597085
        _cons |   1.178061   .3989617     2.95   0.003     .3919556    1.964166
--------------+---------------------------------------------------------------
regime0       |
      success |    -1.6447   .4653799    -3.53   0.000    -2.561674   -.7277259
newpolitymin1 |  -.1012074   .0381874    -2.65   0.009     -.176451   -.0259638
   urbancivic |   -1.68422   .4641809    -3.63   0.000    -2.598831   -.7696083
  newgdppcthl |  -.2236339   .0558214    -4.01   0.000    -.3336232   -.1136446
     urbandum |  -4.637518   .9024697    -5.14   0.000    -6.415723   -2.859312
        _cons |   10.90671   .9209882    11.84   0.000     9.092016     12.7214
--------------+---------------------------------------------------------------
regime1       |
  lnmonthsdur |   .5766183   .1457852     3.96   0.000     .2893665    .8638701
      success |   1.175376   .4059074     2.90   0.004      .375585    1.975167
urbpercbefrev |  -.0292104   .0132947    -2.20   0.029     -.055406   -.0030149
        _cons |   7.818941    .671413    11.65   0.000     6.496004    9.141878
--------------+---------------------------------------------------------------
lnsigma0      |
        _cons |   .8285651   .0530264    15.63   0.000      .724083    .9330471
--------------+---------------------------------------------------------------
lnsigma1      |
        _cons |   .6026859   .0795671     7.57   0.000     .4459087    .7594631
--------------+---------------------------------------------------------------
atheta0       |
        _cons |  -.0271295   .4320258    -0.06   0.950    -.8783833    .8241244
--------------+---------------------------------------------------------------
atheta1       |
        _cons |   6.758056   23.68519     0.29   0.776    -39.91071    53.42682
--------------+---------------------------------------------------------------
       sigma0 |    2.29003   .1214321                      2.062839    2.542244
       sigma1 |   1.827019   .1453706                      1.561909    2.137128
       theta0 |   .9732352   .4204627                       .415454    2.279884
       theta1 |   .9999973   .0001278                            -1           1
         tau0 |  -.3273321   .0951259                     -.5326976   -.1719983
         tau1 |  -.2222216   .0000284                     -.2222222    .2222222
------------------------------------------------------------------------------
Wald test of independence :      Test statistic        . with p-value       .
------------------------------------------------------------------------------

862 .
863 . * ============================================
864 . * SWITCHING REG: BOOTSTRAP VALIDATION OF MODEL
865 . * ============================================
866 . bootstrap , reps(200) seed(1234): switchcopula (lndeaths = success newpolitymin1 urbancivic newgdppcthl urbandum
> ) (lndeaths =  lnmonthsdur success urbpercbefrev) if startyear>1899, select (civilwar =  urbandum leftist ethnic
> order) copula0(clayton) copula1(fgm) margin1(normal) margin0(normal) margsel(logit) iterate(75)
(running switchcopula on estimation sample)

Bootstrap replications (200)
----+--- 1 ---+--- 2 ---+--- 3 ---+--- 4 ---+--- 5
....x...........x................................    50
............x...............................x....   100
...x....x......x............................x.....   150
................................x.................   200

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

                                                Number of obs     =        230
                                                Replications      =        191
                                                Wald chi2(3)      =      65.35
Log likelihood =  -570.2302                     Prob > chi2       =     0.0000

------------------------------------------------------------------------------
              |   Observed   Bootstrap                         Normal-based
              |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
select        |
     urbandum |   -3.82011   .5380537    -7.10   0.000    -4.874676   -2.765544
      leftist |   1.003552   .5706091     1.76   0.079    -.1148217    2.121925
  ethnicorder |    2.62833   .5430177     4.84   0.000     1.564034    3.692625
        _cons |   1.178061   .3947984     2.98   0.003       .40427    1.951851
--------------+---------------------------------------------------------------
regime0       |
      success |    -1.6447   .4583094    -3.59   0.000     -2.54297   -.7464299
newpolitymin1 |  -.1012074   .0370137    -2.73   0.006    -.1737529   -.0286618
   urbancivic |   -1.68422   .5297753    -3.18   0.001     -2.72256   -.6458794
  newgdppcthl |  -.2236339   .1063523    -2.10   0.035    -.4320806   -.0151872
     urbandum |  -4.637518    1.78013    -2.61   0.009    -8.126508   -1.148527
        _cons |   10.90671   1.696793     6.43   0.000     7.581058    14.23236
--------------+---------------------------------------------------------------
regime1       |
  lnmonthsdur |   .5766183     .14811     3.89   0.000     .2863281    .8669086
      success |   1.175376   .3954911     2.97   0.003     .4002274    1.950524
urbpercbefrev |  -.0292104   .0143809    -2.03   0.042    -.0573966   -.0010243
        _cons |   7.818941   .7015371    11.15   0.000     6.443954    9.193928
--------------+---------------------------------------------------------------
```

```
lnsigma0      |
        _cons |   .8285651   .0835959     9.91   0.000     .6647201    .9924101
--------------+------------------------------------------------------------------
lnsigma1      |
         cons |   .6026859   .0864045     6.98   0.000     .4333361    .7720357
--------------+------------------------------------------------------------------
atheta0       |
        _cons |  -.0271295   18.32221    -0.00   0.999      -35.938    35.88374
--------------+------------------------------------------------------------------
atheta1       |
        _cons |   6.758056   65.74118     0.10   0.918    -122.0923    135.6084
--------------+------------------------------------------------------------------
       sigma0 |    2.29003   .1914372                      1.943946    2.697728
       sigma1 |   1.827019   .1578628                      1.542395    2.164167
       theta0 |   .9732352   17.83182                      2.47e-16    3.84e+15
       theta1 |   .9999973   .0003548                            -1           1
         tau0 |  -.3273321    4.03429                           -1   -1.23e-16
         tau1 |  -.2222216   .0000788                     -.2222222    .2222222
------------------------------------------------------------------------------
Wald test of independence :      Test statistic  1.0e+05 with p-value  0.0000
------------------------------------------------------------------------------
```

```
867 .
868 .
869 . log close
      name:  <unnamed>
       log:  C:\Users\mbeissin\Desktop\Stata files for book\Logfiles\chapter8.log
  log type:  text
 closed on:  25 Jan 2022, 22:23:31
-------------------------------------------------------------------------------------------------------------------------------
```